



**UNITED STATES MARINE CORPS**  
MARINE CORPS LOGISTICS COMMAND  
814 RADFORD BOULEVARD  
ALBANY, GEORGIA 31704-0301

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**MAR 26 2007**

From: Commanding General  
To: Commandant of the Marine Corps, Headquarters, U. S. Marine Corps, 2 Navy Annex  
(LPC-2), Room 2319, Washington, DC

Subj: 2007 SECRETARY OF DEFENSE MAINTENANCE AWARDS

Encl: (1) Maintenance Center Albany Submission for the Robert T. Mason Award

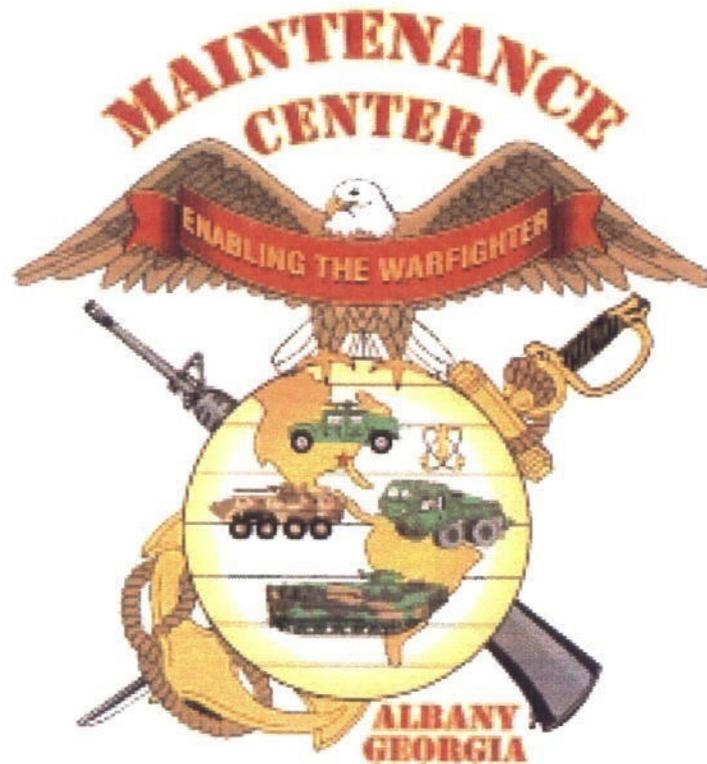
1. The enclosure is submitted for consideration for the 2007 Secretary of Defense Maintenance Awards in the depot-level maintenance program category for the Robert T. Mason Award.
2. Maintenance Center Albany's Dedicated Design and Prototype Effort Team has provided exceptional and responsive maintenance support to our warfighters in support of the Global War on Terrorism. They are most deserving of this prestigious recognition.

*for*   
WILLIE J. WILLIAMS

**United States Marine Corps**  
**MAINTENANCE CENTER**

**Albany, GA**

**Robert T. Mason Award**  
**for**  
**Depot Maintenance Excellence**



**Maintenance Center Albany Dedicated Design and Prototype Effort**

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**Section 1-A: Depot-Level Nomination Package Information Sheet**

1. Military Service/Command: United States Marine Corps, Marine Corps Logistics Command (MARCORLOGCOM)
2. Specific major depot maintenance facility responsible for nominated program: Maintenance Center Albany, GA
3. Identification of nominated program: MCA Dedicated Design and Prototype Effort
4. Depot Facility Commander's name and nominee's mailing address:  
  
COLONEL KEVIN T MCCUTCHEON  
MAINTENANCE CENTER  
814 RADFORD BLVD STE 20325  
ALBANY, GA 31704-0325
5. Point of Contact (POC) at nominated units:  

<u>Primary</u>	<u>Alternate</u>
Name: Col Kevin T. McCutcheon	Name: Trent Blalock
Program Role: Commander	Program Role: Deputy Commander
E-mail: kevin.mccutcheon@usmc.mil	E-mail: trent.blalock@usmc.mil
Phone (Coml): 229-639-5301	Phone (Coml): 229-639-5301
DSN: 567-5301	DSN: 567-5301
Facsimile: 229-639-5386	Facsimile: 229-639-5386
6. Complete message address: 1650 CG MARCORLOGCOM ALBANY GA// MAINT CTR
7. Background information for nominated program: Maintenance Center Albany has received multiple requests for design and prototyping of systems in support of "Operation Iraqi Freedom".
8. Program size: Government Civilian 1,074, Contractor 472, Military 8, Other 0.
9. Mission statement for program: To provide rapid design and prototyping to Department of Defense components meeting their needs for a quality product, on schedule, at or below cost.

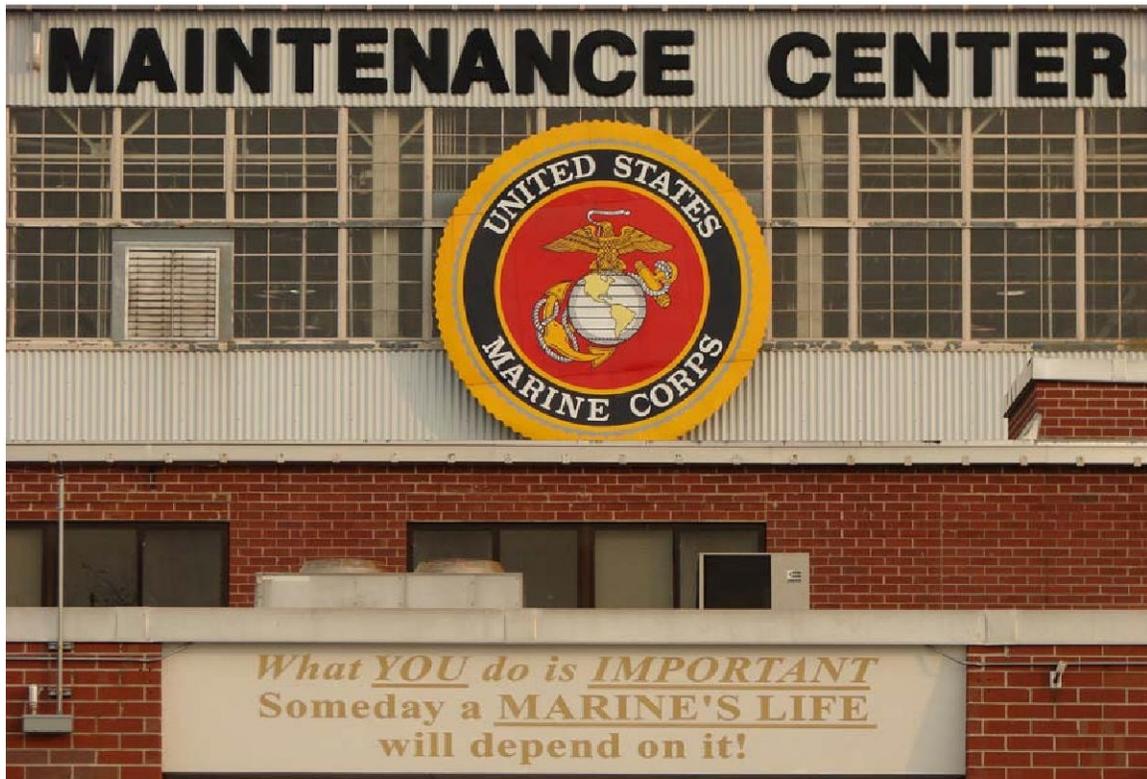
## Mission Accomplishments

Maintenance Center Albany, a \$1 billion repair facility generating over \$300 million in revenue annually, its mission is to provide maintenance and maintenance-related products and services, which meets the warfighters needs in quality, schedule and cost.

### *260 Product Lines, 69 Trade Skills ranging from Laborers to Engineers*

AARDVARK AAV RAM/RS, ALT TRANSDUCER AM-6545B / GRC-193 AM-6874 / AN/PRC-104 AMPLIFIER, RECEIVER AN/GRC-193A (ARMY) AN/GRM-122/TS-4317 CAL AN/PRC-104 (A) AN/PSC-2A ANALYZER, DIGITAL DATA ARMORED COMBAT EXCA AVLB SCISSOR BRIDGE C3CAL & WIPE TEST CALIBRATOR CAMERA ASSEMBLY CAMP CAVITY ASSEMBLY CCA / AN/GRC-193B CENTRAL OFFICE TELEPHONE CENTRIFUGAL PUMP CHARGING UNIT COOLING SYSTEM, CIRCUIT CARD ASSEMBLY COMPUTER SUBASSEMBLY / PSC-2A CONTROL, D-7 FLAIL KITS, BOSS KITS, DECONTAMINATING APP DIG OSCOPE DIG VOLTMETER, DIRECT-TO-METAL PRIMER OPTOELECTRO / TTC-42 COMPUTER SUBASSEMBLY / PSC-2A CONTROL DISPLAY, ECP M36E3 ELECT COUNTER ELECTRONIC COMPONENT / TTC-42 ENGINE, DIESEL ENGINE, GAS ENVIRONMENTAL EQUIP EXCAVATOR FABRICATE HOSE KIT F/MK-48/16, M870A2E1 FIBER OPTIC CABLE ASSEMBLY FOC 3 FREQ COUNTER FREQ GENERATOR 60KW A/C GENERATOR, SIGNAL GPETE GPMTE (VADS) GUN CONTROL DISPLAY GYRO CASE ASSEMBLY / NFM H82 HEATER HARMONIC FILTER/GRC-193 HELIPORT LIGHT HOUSING-COMM TERMINAL / PSC-2A HYDROSTATIC STEER U / KELTEC PS / SB-3614 LAUNCH, LINE CHARGE, TRAILER LASER EQUIP, UNIV, MODULAR (MULE) ALL LAV VARIANTS LIGHTING SET M-1097 HEAVY HMMWV M-149A2 TRAILER TANK M16A2 RIFLE M1A1 TANK M-249 MACHINE GUN MOD M-60 MINES RAKES M88A1 RECOVERY VEHICLE M-970 REFUELER M-977 HEMITS MACHGUN M240G MACHINE GUN 5.56MM / M-249 MACHINE GUN 50 CAL MACHINE GUN, 5.56MM M-249 MACHINE GUN, MEDIUM, 7.62MM M-240G MAGNETIC DRIVE ASSEMBLY MAINT KIT TELEPHONE MK-1823(V)/TT MEASURING SYS MINE RAKES MK-14 TRAILER CONTAINER MK-15 LVS TRAILER WRECKER MK-16 LVS TRAILER MK-17 TRAILER DROPSIDE MODULE, MK-18A1 TRAILER MK-48 LVS NORTH FINDING MULTIPLEXER MUZZLE & DATA PLATE NIGHT VISION SIGHT NOISE LIMITER, ELECTRICAL NORTH SEEKING GYRO OXYGEN TEST SET PANEL ASSY / TTC-42 PANEL, INDICATOR PANEL, INSTRUMENT, MO PCB CONVERTER, SB3614 PCB INPUT CONTROL/SB3614 PEAK POWER METER, PERISCOPE HEAD, ASSE PNEUMATIC TOOL POWER MODULE PRINTED CIRCUIT BOARD, PROCESSOR-2, SB-3614 PROG RATIO TRANSFORM PTO & CONTAINER PULSE GENERATOR, RADAR SET (LBSR) AN/PPS-15 RADIO FREQ AMP REAR PANEL, REFLECTOMETER, TIME DOMAIN RELAY UNIT, POWER RT1209A / PRC-104B RT-1444A/URC-113 SB-3614 TELEPHONE SYSTEM SB3865 POWER MODULE SCALE WEIGHING SCOTT P/S / SB3865 POWER MODULE SCALE WEIGHING SCOTT P/S / SB-3614 SERVO VALVE SHELTER, 10FT, EMI, MAINT COMPLEX SHELTER, 10FT, EMI, MAINT COMPLEX SHELTER, 10FT, EMI, MAINT COMPLEX SICP SIG GEN) FUEL PUMP SLING F/MLRS SMALL ARM GAUGES SPECTRUM ANALYZER STORAGE TANK MODULE, FUEL SUPPORT ASSEMBLY, SURVEYING SET, FIELD TAC AIR OPER MODULE (TAD) TELESCOPE COLLIM TELETYPEWRITER TEST SET ELECTTEST SET ELECT SYS TEST SET RADIO, VHF TETS JDMAG SUPP THEODOLITE TOWED ASSULT BRIDGES TRACTOR WHEELED SEE CARGO, CONTAINER, DROPSIDE, FIFTH WHEEL TRAILER, RIBBON BRIDGE, TANK WATER 400G, 1 1/2T WRECKER, TRANSFER TRANSIT TRANSMISSION TRUCK TRACTOR M900 SERIES TTU-205 VADS VDU AUXILIARY CONVER / TTC-42 VIBRATION MONITOR VOLTMETER WEAPON CONTROL UNIT CRANE WHEEL 25 TON 8V-92TA A1 CCA (TTU-205) A2 ANT TUNER / PRC-104 A2A1 / AM-6874 A3 CCA (TTU-205)

On the main entrance to the Center are words that remind each and every person of our purpose:



The words need to be changed to as follows:

***“What You do is Important, Everyday a Marine’s Life will depend on it”***  
Colonel Kevin McCutcheon, Commander, Maintenance Center Albany

Maintenance Center Albany has been actively supporting warfighters engaged in “*Operation Iraqi Freedom*” since its beginning. The Center has surged over the last four years to meet the warfighters continually changing requirements. As a result of the changing tactics and to assist the warfighter in their efforts to counter the insurgency, Maintenance Center Albany established a dedicated design and prototype section to facilitate a rapid and smooth transition into production.

From this came a new, unwritten motto for Maintenance Center Albany’s tool chest:

***“Provide us a conceptual idea, picture or sketch with an unrealistic delivery schedule, at any time feel free to change the requirement, while moving the delivery date to the left.”***

The following is an account of Maintenance Center Albany’s direct support of Warfighters engaged in “*Operation Iraqi Freedom*” from October 2005 to September 2006.

## **High Mobility Multi Wheel Vehicle (HMMWV) Egress Assistance Trainer (HEAT)**

Exert of minutes for the first HEAT Integrated Product Team Meeting:

*In February 2006, various senior USMC leaders expressed an immediate desire for Marines to have this trainer. In an effort to expedite towards this end, TECOM assumed the lead of this initiative. The USMC obtained the US Army's FORSCOM variant HEAT blue prints, Coalition Forces Land Component Command (CFLCC) Techniques, Tactics, and Program of Instruction (TTP), HEAT safety presentations, and other assorted HEAT info. Maintenance Center Albany was asked to develop one (1) HEAT trainer based off the FORSCOM blueprints. The intent is to utilize this "prototype" as the baseline for USMC technical evaluation, make necessary enhancements/product improvements, approve a final configuration for up to seven (7) additional systems, and then to transfer program management to PM TRASYS (MCSC) for continued HEAT deliveries and life cycle support.*

The HEAT is a training device that the Army created to train soldiers on how to exit from a vehicle in a rollover condition and was seen in Iraq by General Hagee, Commandant of Marine Corps. He directed Training and Education Command (TECOM) and the program manager training systems to have one built. With only a photograph, limited blueprints and a few dimensions, they turned to Maintenance Center Albany to make it happen.



**July 2006, the first Marine Corps HEAT fielded to 29 Palms, California**

Exert from THE EMBLEM, Marine Corps Logistics Base Albany, Base Paper.

*“We have Marines in country right now who are flipping over in HMMWV and drowning in two inches of water because they hit a culvert or just burn to death because they don’t know how to get out –they’re disoriented. So this is going to help save lives by teaching them what it is going to be like if and when a vehicle flips.”*

Lieutenant Colonel Michael Kaine, II Marine Expeditionary Force (MEF), Training Officer

### **Improvised Explosive Device Roller**

*Attached is the info (photo and Power point) of the rollers we discussed for Iraq. They would like to know how soon these could be fabricated and how many per week/month can be delivered. Thanks for your assistance.*

*Bill Macecevic  
Program manager, Engineering Equipment  
Marine Corps Systems Command*



**Combat Logistic Regiment 15 Improvised Explosive Device Roller**

Improvised Explosive Device Roller was fashioned after the World War II mine roller and was developed by Marines from Combat Logistic Regiment (CLR) 15, Maintenance Company, I MEF Forward to counter the insurgency in Iraq. The multi-national force had for the most part defeated the insurgency use of the remote detonated improvised

explosive devices by using radio frequencies jamming devices. The insurgency countered by going back to the basics, placing simple pressure detonated switches in the path of the vehicles. Program Manager Engineering Equipment contacted Maintenance Center Albany with a request to build an interim improvised explosive device roller using the one developed by Marines of CLR 15 as a guideline. Additional guidance was provided by I MEF forward:

*It must mount to the front of the MTRV, Marine Corps seven-ton medium tactical truck, use 8 HMMWV wheels, 12 feet wide and ride at least 8 feet in front of the truck.*

As the initial roller was designed, pictures were transmitted to forward personnel in Iraq for feedback, which resulted in more definitive requirements:

*The width will remain 12 feet wide, however maximum gap between the wheels is three inches, the distance from the front of the truck to the HMMWV wheels must be adjustable, it must have lights and infrared lights controlled from within the armored cab, quick disconnect from the truck, ensure minimal energy from the blast is transmitted through the roller to the truck and independent suspension for the wheels. The required delivery date has not changed.*



**Maintenance Center Albany Roller assembled and ready to roll in Iraq.**



**RESULTS! The system performed, all eleven wheels were blown off transferring the energy away from the truck and the Marines remained uninjured.**

### **HMMWV, M1114 Fragmentation Kit 5**

Email Exert:

*Gents*

*This is Armor Program priority number ONE until further notice. First - we need to design and prototype M1114 MAK doors. We need to add the second window and the combat lock system. Also, there may be a change in the attachment points to remove bolts that may act as secondary projectiles.*

*Finally - I need a cost estimation for an additional rocker panel system on the M1114. This could be additive or a new thicker overlay. This is not a requirement yet but could pop up in a few hours. I'll get more info soon.*

*Thanks  
Andy*

*Major Andrew L. Rodgers  
HMMWV Fleet and Armor Project Officer  
Marine Corps Systems Command*

With an ever changing and sophisticated enemy, additional armor was required on the sides of the Marine Corps up-armored M1114 HMMWV fleet. The original manufactured

armor was not surviving the ever increasing blasts from the insurgent's improvised explosive devices. HMMWV Fleet and Armor Project Officer contacted Maintenance Center Albany with a requirement for an improved armor solution, Fragmentation Kit 5:

*Remove the original manufactured armor, re-engineer and develop new doors, rocker panels and re-enforce the existing B-pillar.*

Once the design and developmental stages were underway, requirements were added:

*Redesign and replace the separate and independent door latch mechanism and combat lock system with a single mechanism that with one motion at the warfighter discretion will engage or disengage the combat lock and with additional movement latch or unlatch the door and add more visibility for the warfighter while increasing the protection level of the ballistic glass. Due to increased insurgent activity, the design to production schedule was shortened six weeks.*



**Fragmentation Kit 5 installed**

In reducing the vulnerability, Maintenance Center Albany incorporated the following enhancements: one piece armor door plates with a one piece appliqué overlay and increased ballistic glass protection. The blue identifies location of the additional rocker panel armor solution and B-pillar re-enforcement.

## **FBI HMMWV's**

The FBI Hostage Rescue Team has teams operating in hostile areas within and outside of the United States. The FBI Hostage Rescue Team requested Maintenance Center Albany to up-armor and paint recently acquired M1097 HMMWV's from the Marine Corps.

After slapping the table and before the project could start, the FBI returned with additional requirements:

*The HMMWV's will not only be used for providing additional protection to operators, they must have the capability to quickly respond with the added weight of the 3,800 pound armor protection. Change the 6.2 liters detuned engine to a 6.5 liters turbocharged engine and upgrade all other components that are effected by the additional horsepower and torque generated by the new engine.*



**FBI Hostage Rescue Team's M1097 turbo charged HMMWV.**

## **Tube Launched Optically Tracked Wire Guided Missile Gunner Protection Kit (TGPK)**

Email Exert:

*We have a HMMWV, TOW2 system, and gun/mount here on station, and we have made some cardboard mockups of different configurations of shielding. We have been talking and meeting with Marines from the TOW project office in Quantico, and then have provided valuable input for*

*design considerations. We are trying to narrow down a design to review with the TOW office, and we would like to solicit your input as well.*

*Attached is a picture from our computer aided design models, showing a notional fold down rear shield. The TOW gunner will be able to traverse the missile/sights so he can use the sights to ID targets (TOW missiles aren't used too much anymore in country, TOW sights are used frequently). If he needs to fire the missile, the shields will have to be lowered so he won't get cooked by back-blast. The M240G gun and mount are not shown on these pictures.*

*After visiting your installation, we think the best/quickest path to production is to have Maintenance Center Albany take the shield design to production and deployment, as you have the capability and manufacturing base.*

*Vinny Leto  
Mechanical Engineer  
NSWC Dahlgren Division, Code G31*



### **Conceptual drawing of the TOW Gunner Protective Kit**

The TOW Gunner Protection Kit is a bolt-on armor kit that for the first time provides ballistic protection to gunners using TOW missile systems. The TGPK contains welded armor base assembly, two folding armor door assemblies, latches, hinges, a lock pin and a Platt machine gun swing mount to hold the M240, 7.62mm machine gun or a 5.56mm Squad Automatic Weapon. The folding doors, in the upright and locked position provide ballistic protection to the gunner during cross-country and surveillance operations. The doors are lowered by the gunner prior to firing a missile to allow the back blast to safely escape.



**TOW missile being fired from the TGPK built by Maintenance Center**

### **Special Operation Command Gun Turret**

Email Exert:

*Sir,*

*We just talked to Colonel Loudy (SOCOM) about his gunner's shield project.*

*His plan is to get the sample shield to us by Monday and then meet with us that day to discuss the project.*

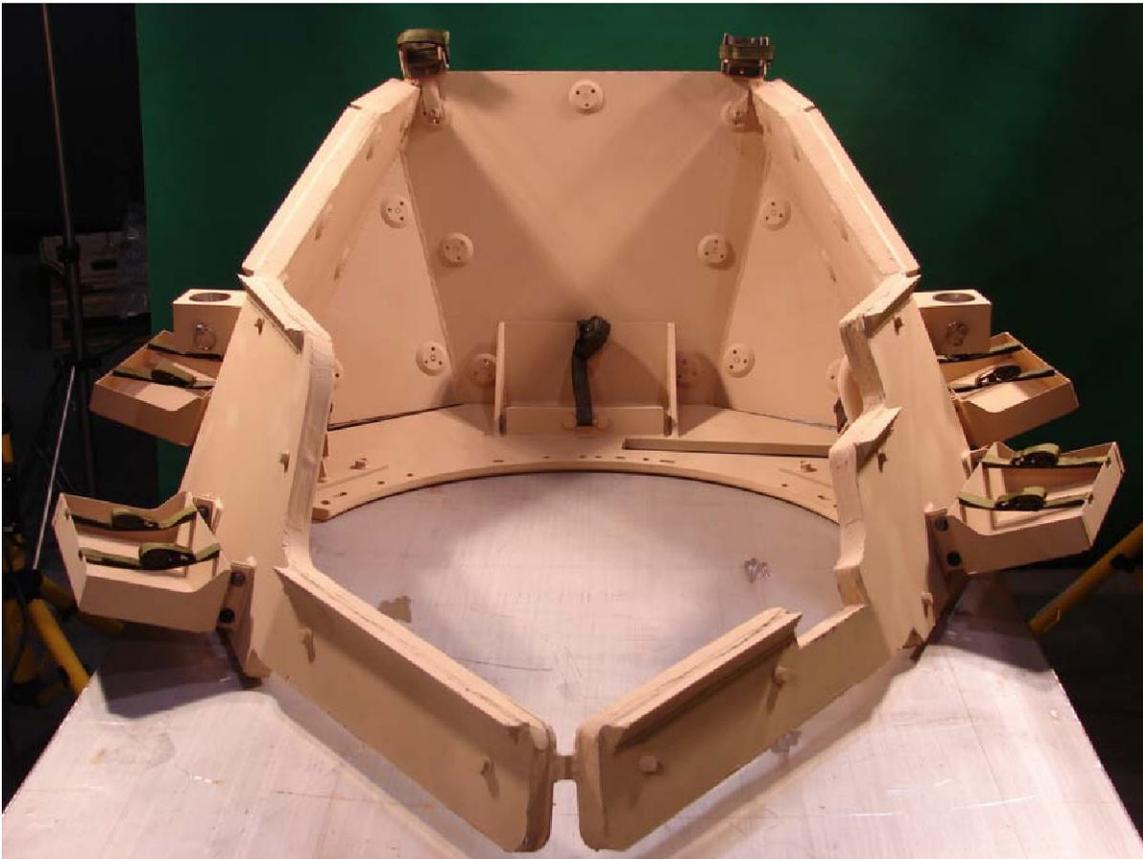
*His goal is to produce design a shield similar to the current Army design with some improvements. His major concern is time. He want to produce these as quickly as possible. We explained that our aggressive prototype process is a follows: a prototype in about a week, after a customer review/approval it takes about another week to produce a final prototype, then we produce a first article by the production drawings, and then it takes about a month to get into production.*

*The current shield is lightweight and made of a fiberglass armor material called Dyneema. The shield needs to be lightweight, so we will probably have to stick with this material or similar product. We explained that all of our current shields are made of armor steel. We are not familiar with this material, but we can figure it out. Colonel Loudy stated that he can get us data from the Army to help us with fabrication techniques. Also, he should be able to get us some of the material for the prototype effort since the lead time may be about 4 weeks.*

*Bill Baker*

*Supervisor Mechanical Engineer  
Maintenance Center Albany*

Special Operation Command Warriors, elite warfighters, have unique requirements. They must be highly mobile, have fast reaction times, and multiple weapons with sufficient ammunition supply to quickly suppress the enemy no matter the circumstance. There was not a gun turret in the Department of Defense inventory that met their needs. Special Operations Command staff contacted Maintenance Center Albany with a requirement to develop their concept into a lightweight multi-functional weapons platform with a maximum allowable weight of 330 pounds for the base turret.



**To SOCOM Spec's, 291 pound lightweight multiple weapons platform**

*During the presentation of the initial prototype, the warriors of SOCOM levied new requirements; the turret must facilitate a 50 caliber machine with a high intensity Hellfire spotlight, mini-gun, grenade launcher and fit and function on three different variants of HMMWV.*

*Many of these projects represent a new and expanding customer base. These customers are coming to MCA as a result of word of mouth via positive results – meeting cost, schedule and quality!*

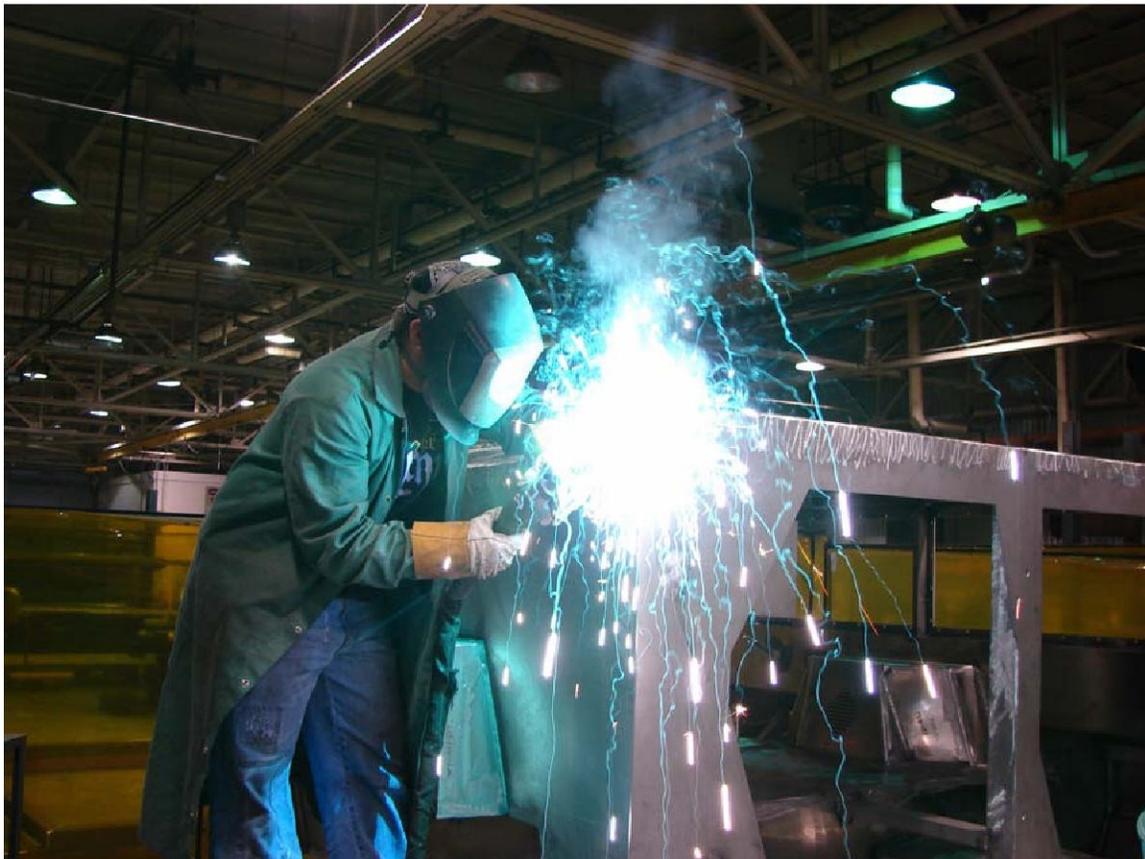
## Effective Support to Warfighter

*Each new project has its own unique challenges. Procrastination could cause a warfighter to pay the ultimate sacrifice!*

### Overcoming Material Shortfalls

The HEAT was developed to provide Marines as realistic experience as possible to ensure that when their training was called on they would be able to survive. The Marine Corps had fielded all of their up-armored M1114 HMMWVs to Iraq. Maintenance Center Albany contacted Army HMMWV program manager for the possibility of transferring up-armored M1114 HMMWVs to the Marine Corps for use in the HEAT. The only available up-armored M1114 HMMWVs from Army had substantial damage from improvised explosive device blast.

Due to the non-availability of up-armored M1114 HMMWVs, the initial Maintenance Center Albany HEAT used an existing M1043 HMMWV body. No HMMWV body is designed to roll over. It was now required to rotate thousand of times with Marines in it. After limited use, the HEAT cab began to deteriorate - seats broke loose, seatbelts failed and doors fell off.



**Simulated HMMWV cab in the weld process**

Had up-armored M1114 HMMWV's been available for use in the HEAT, their deterioration would have remained a major safety concern. To overcome these material shortfalls; Maintenance Center Albany reverse engineered the up-armored M1114 HMMWV cab, designed and fabricated a re-enforced cab using ¼ inch aluminum plate and 2 inch tubing while maintaining the interior specifications of the M1114 HMMWV cab. As a result, Marines could be trained safely with a more durable, reliable, and effective trainer.



**HEAT II with the simulated cab**

*“We’re looking at about \$100,000 a copy (HEAT) right now. In the civilian world I’d say it would cost about a half million dollars to build. Maintenance Center Albany has done a magnificent job of keeping cost down”*

*Terry Bennington, Training and Education Command*

### **Necessity is the reason for innovation**

The Improvised Explosive Device Roller was designed, tested and initially fielded in a condensed timeframe with limited but specific guidance from the end user. Maintenance Center Albany had no experience or knowledge of mine rollers or improvised explosive device rollers. A small group of Maintenance Center Albany and Georgia Tech personnel traveled to Naval Surface Warfare Center, Panama City, Florida for an informal discussion on mine rollers and to view what was considered the “gold standard” - a Pearson mine roller. The rollers (wheels) were small and made of a hardened composite material, an important fact that Maintenance Center Albany would soon learn. Small and

hardened composite wheels are easily pushed and do not give under pressure, HMMWV wheels are large and have side walls that are weak and flex. The combination of large wheels and flexing side walls when pushed in front of a vehicle creates an effect known as caster wobble, very similar to the wobble experienced on the front wheel of a grocery cart. Not the desired effect for a device that will be pushed in front of a truck at convoy speeds.

With assistance from Georgia Tech engineers and a NASCAR engineer from Joe Gibbs Racing, Maintenance Center designed, developed, fabricated, and delivered an improvised explosive device roller. Georgia Tech developed a solution to the caster wobble, a two piece caster brake made of bronze aluminum to apply pressure to the caster shaft thus dampening the effects of the HMMWV wheel-side walls flexing. Using his NASCAR and off road racing knowledge, the NASCAR engineer designed and produced a heavy duty coil over shock to further reduce the effects of the caster wobble and to add stability to the suspension of the roller.

To reduce the warfighter's learning curve, Maintenance Center Albany deployed a Marine to Iraq to meet the first rollers, assist in the assembly and provide training to the operators. Phone conversations were held three times weekly with the Marines forward, program managers office and Maintenance Center Albany personnel to discuss and develop resolutions for issues arising from the roller usage. Maintenance Center Albany conducted a 500 mile road test on the roller prior to shipment; however, the real test comes from use by the warfighters.

Email excerpts:

*Attached is the after action report for the 1st roller assembled and tested aboard TQ, and used during a convoy. Overall an excellent performance. Please note the recommendations to add an adjustable jack stand to the extension (like a boat trailer); change the current lighting system with brighter light (I have an RFI out on this) and a different viewing angle; change the brass brakes to a harder type of metal; test the use of different type bolts to hold the brakes in place. Let me know if you need additional information.*

*S/F,*

*John*

*Colonel John P Lopez*

*AC/S G-8 (Engineer)*

*I MEF (FWD), MNF-W*

*Tony - tell me the issue about the Albany mine roller. The project lead on the roller will climb from hell to heaven to help any Marine out or make right any shortcomings we have in the fleet. Send me the recommendations for improvement to the roller - we can't make things better if we don't know it's broke - you know the drill - CWO's are known for sticking their heads out more than most so tell me the good, bad & ugly. Help us help you all out forward.*

*Donn*

*CWO 5 Donn Van Deren*

*I MEF Rear*

Enhancements included: modification to the trailing arms, straps were added to prevent shock over extension, gussets added to axles to re-enforce the axles during extreme loads, adding landing legs and moving the 11th wheel from the main roller frame to the eight foot extension reduce the interference between the wheel assemblies, replacing the bronze aluminum brakes with aluminum brakes lined with automotive brake pads, replacing the light bar with MTRV headlights and light emitting diodes infrared lights, adding a rock guard to prevent rocks from being thrown back on the truck and gunner, and including a tow adapter to allow the roller to be towed behind the truck when not in use.

*The roller from TQ hit an IED early this week. The system performed as advertised. The roller sustained damage in the form of loss of a wheel and tires being flattened, but was able to continue on the road and reached its intended FOB.*

*MSgt Schl arb  
Maintenance Liaison  
Maintenance Center Albany*

### **Its all about results**

The up-armored M1114 HMMWV with an integrated armor system was not surviving the insurgent's attacks. An increasing number of warfighters were being injured and killed in the vehicle. There was an immediate requirement for a better solution. Marine Corps Systems Command knew Maintenance Center Albany would produce results.

Using lessons learned in developing, designing and manufacturing several generations of armor for multiple vehicles, Maintenance Center Albany went to work on the Fragmentation 5 Kit. The approach was simple, yet effective. Engage engineers from Army Research Lab to obtain the latest technology and lessons learned on armor. Build a prototype and send it to Aberdeen Test Center for a blast test. Observe the blast test and identify any weakness. Using the results of the test build a second prototype to reinforce weakness identified during the first test. Perform a second blast test to ensure all previous identified deficiencies were corrected. Start production all in a matter of weeks.

The schedule was moving to the left and the requirements were increasing Maintenance Center Albany contracted with three local machine shops to design and develop the single motion combat lock system. The shops provided functional samples within a week and Maintenance Center Albany was able to take the best of each and incorporate into the Fragmentation 5 Kit. History has shown, if it can go wrong, it will go wrong. As an added safety net, Maintenance Center Albany contracted with multiple vendors for the same product to ensure continuous and timely delivery of materials.



**Fragmentation Kit 5**

*Here is our latest gem piece with body work by Hadji Customs– not sure if all of you know but the Marines are ok – gunner was injured but is good to go after the Docs checked him out – nothing broken.*

*Thank God we're all still here to fight another day.....*

*MTC sends....*

*SSgt Clem*

### **No requirement is too small, no task is too large!**

Maintenance Center Albany's mission is to provide support to the warfighter. FBI requested Maintenance Center Albany upgrade the power-train and install armor on six HMMWV's. The request was accepted as the FBI was a current customer and armor is a core competency of the Center.

Upgrading the HMMWV power-train was a new venture for Maintenance Center Albany, there had not been any HMMWV workload in the Center for the last six years. In addition, there was not a standardized kit developed to affect the upgrades. Maintenance Center Albany enlisted the assistance of a long-time partner, W.W. Williams. W.W. Williams and AM General together developed a parts kit and blueprint for the upgrade. What appeared to be a relatively simple engine change evolved into a major modification with a total of 1416 assemblies, sub-assemblies, components, brackets, nut, bolts and washer requiring replacement. The benefits: a marked increase of 44 horsepower at 3400 revolutions per minute along with a additional 130 foot-pounds of torque, the number

gears in the transmission increased from three to four a lockup converter that increases fuel mileage and a decreases the heat in the transmission.

The FBI operators are better protected in the up-armored HMMWV and now have the ability to rapidly respond to ever-changing mission requirements.

### Working Outside the Box



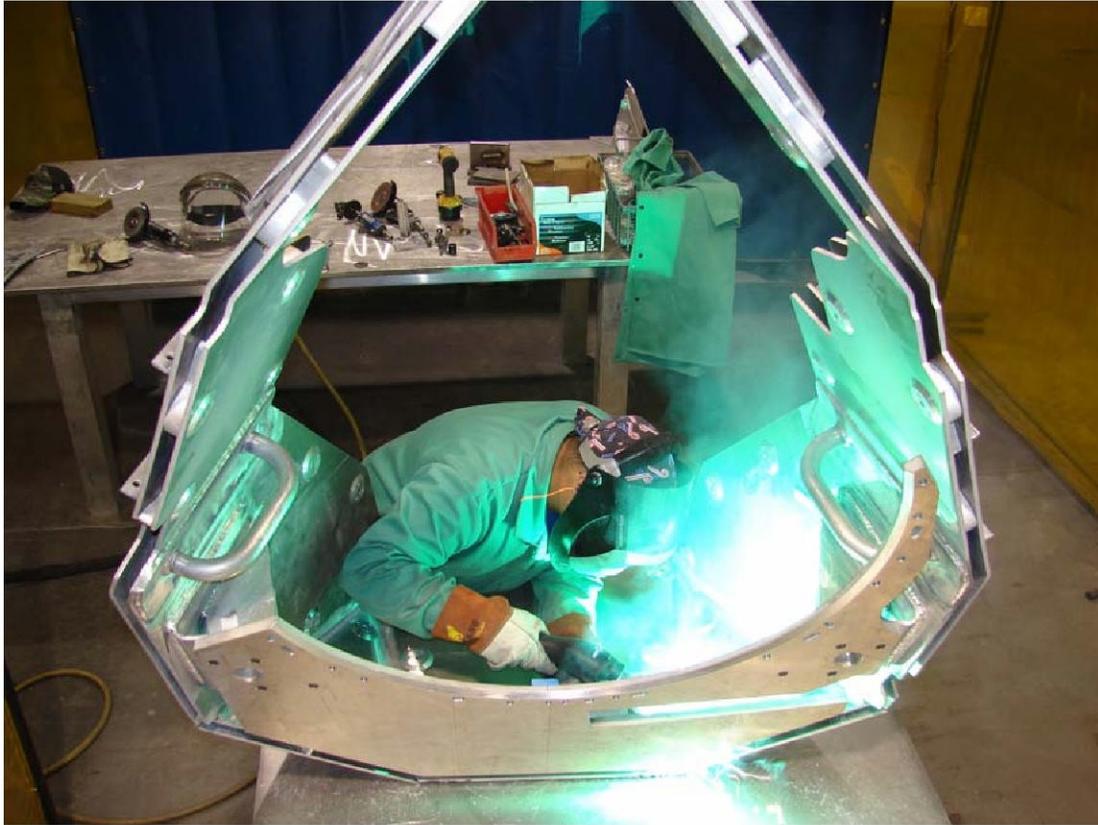
**TOW Gunners Protection Kit and TOW launcher mounted on a HMMWV**

“An armored turret with folding doors for the TOW missile launcher and a Platt mount to accommodate a machine gun?” Necessity is the driving force behind out of the box thinking. Marines needed protection, the ability to use their missile sights, machine gun and when required launch a missile all from a single platform.

Naval Surface Warfare Center engineer had a concept. Maintenance Center Albany had the experience and resources. Working together as a team, the concept would become reality and fielded to the warfighter.

Maintenance Center Albany engineers used a conceptual drawing to design and fabricated a prototype TOW Gunners Protection Kit with folding doors to vent the missile blast away from the occupants inside the HMMWV. Once the initial design was complete and fabricated, an engineer from Naval Surface Warfare Center worked on-site at Maintenance Albany adjusting and refining the platform. The refined platform was functional tested to include a live fire missile launch. End result: TOW gunners now have a multi-functional ballistic platform to perform their missions.

Listening to the Warfighters and Teaming with Industry to produce a solution



**Welding the Special Operations Command Turret**

The Special Operations Command Warriors provided a concept and Maintenance Center Albany transformed it into a lightweight, multi-functional weapons platform with sufficient storage for a cache of ammunition.

This effort involved traveling to Maintenance Center Albany explaining their unique needs and a trip to Fort Bragg for a function fit up of all weapons. The multiple weapons systems required input from industry and the custom fabrication of specialized mounts to accommodate M2 50 Cal MG with hellfire spot light, MK19 40mm Grenade launcher, MK99 mount for the dual M240 7.62mm, MK44 mini-gun 7.62mm, MK-47 (Advanced Lightweight Grenade Launcher). The platform also has provisions for stowage of one AT4 rocket on the rear of the shield, two pintle mounts (one on each side) for SA4 swing arms with M240/M249 weapons mounts, exterior stowage of four small 50 caliber ammo cans and interior stowage of one PA70 large 50 caliber ammo can. It will allow the elite warriors of the Special Operations Command to enter the fight with enough firepower to ensure victory.

*Although countless lives which were saved cannot be known, many of those on the front line have called back saying "that you've saved my life, thanks"*

## Logistics Process Innovation

Maintenance Center Albany has managed significant cost avoidances and in many cases cost reductions by employing the most effective business practices. Since the implementation of these initiatives - - Manufacturing Resource Planning, ISO, Earned Value Management, Lean 6S, and Theory of Constraints - - Maintenance Center Albany has been able to provide the warfighter with more equipment at a lower price. Oftentimes, additional workload is added to the Master Work Schedule without any additional funding requested. This goes a long way in having satisfied customers and indicative of the depot flexibility. These efforts have enhanced warfighters capabilities, allowed for scarce resources to be spent in other areas and has positively impacted the quality of life of the workforce.

*"We audit a lot of organizations and in our opinion, the enthusiasm expressed by Maintenance Center Albany is the best we have encountered in any government facility and is in the top 20% of commercial facilities audited, this truly makes the Maintenance Center Albany World Class. Everyone in Maintenance Center Albany exhibits a sense of responsibility and are truly knowledgeable as to what ISO is, its' importance and where it was taking them, Maintenance Center Albany personnel enjoy coming to work. "*

*EAQA-USA Registrars*

***Business leaders from public and private industry are visiting Maintenance Center Albany to benchmark.***

To inform the workforce, the Commander and Deputy Commander conduct quarterly meetings with each shop within Maintenance Center Albany and provide the state of Maintenance Center briefs, encourage feedback on employee concerns, stress the importance of taking care of the facility and most importantly the people so that "one day your children and grandchildren will have the opportunity to work here".

This is an opportunity for employees to provide their ideas related to work conditions, facilities, equipment, tools and other quality of life issues. The investment in facilities and equipment is evidence of our commitment to the long term health of Maintenance Center Albany and its' people. An example of one of many quality of life initiatives was new equipment in Maintenance Center Albany fitness center. Employees have raved over the improvements and more importantly, are utilizing this equipment before/after work, at breaks and lunch times.

The Commander developed Maintenance Center Weekly Action Report (MCWAR) which pushes information to Higher Headquarters, staff and the employees of Maintenance Center Albany. The three focus areas are people, progress and plans. This summary proactively updates these personnel of current initiatives and production of primary programs. The MCWAR became so popular that other subordinate organizations began to utilize the same format.

The Commander initiated several leadership related projects that invested in our most valuable asset.... The People!

Leadership training for managers, supervisors and work leaders consisting of topics ranging from Financial Management, Manufacturing Resource Planning, Theory of Constraints, Lean, and leadership.

Tank sessions are held off-site with managers to discuss strategic issues such as business development, long-term workload and security. These sessions create a greater bond among managers and resulted in specific actions taken as well as provoking thoughts about the future of Maintenance Center Albany from a business perspective.

Benchmarking trips were initiated to ensure Maintenance Center Albany was staying abreast of what was going on in private industry and to be ready with the latest technologies when warfighter calls on Maintenance Center Albany for whatever the task.

A product of these efforts has been seen in increased morale and more workload coming into Maintenance Center Albany. In addition, un-solicited comments from customers and visitors about how well the facility looks and is maintained. This does not happen by mistake, but rather the diligence by all employees.

Each employee received a cash award for their part in reducing repair cycle time and cost while providing additional equipment to the warfighter.

***It's all about the people!***

Colonel Kevin McCutcheon, Commander, Maintenance Center Albany



**Maintenance Center Albany Most Valuable Resource**