Uncle Sam Wants You

To Be Safe!

OCTOBER 2008

Marine Corps Center for Lessons Learned Safety Corner

The Safety Corner

From the Marine Corps Center for Lessons Learned

October 31, 2008

This Issue of the Safety Corner Highlights Best Practices for Preventing/Mitigating Vehicle Rollovers.

From the Director: The Marine Corps became increasingly concerned about vehicle rollovers in 2005 when the up armoring of HMMWVs (with resulting changes in their handling characteristics) resulted in an initial increase in the frequency of rollover mishaps. As Marines became familiar with the characteristics of the up-armored HMMWVs and training improved, the number of rollover mishaps began to decline in 2006.

Then, last year, the incidence of rollovers among the mine-resistant, ambush-protected (MRAP) variants in Iraq and Afghanistan caused a second wave of concern and a renewed focus on training and other measures to reduce the incidence of rollovers. However, the significant number of mishaps among the MRAP variants does not diminish the fact that there have been many documented cases in which Marines, Soldiers, and Sailors have survived attacks in these vehicles that would have resulted in the complete destruction of other armored vehicles. Obviously, the level of protection provided by these vehicles does not come without significant trade-offs in performance, with their size, weight and height affecting their overall maneuverability and mobility. Reducing the number of mishaps can be achieved in large part by training and awareness of the vehicle characteristics and limitations. Marines and other service members must do their part to reduce the number of rollovers through best practices and staying within the operating limits of these vehicles.

You are welcome to pass on and post this newsletter for widest dissemination. Log on the www.mccll.usmc.mil <file://www.mccll.usmc.mil> website to download previous editions of the Marine Corps Center for Lessons Learned Safety Corner as well as our Monthly Newsletters. I look forward to your comments so we can raise awareness, reduce risk and maintain a high level of readiness.

Semper Fidelis,
Col Monte Dunard, Director MCCLL

Did You Know?

The MRAP vehicle may become unstable and tip over when negotiating vertical obstacles and deep ruts or potholes in the path of movement.

Your ideas can be directed to the Marine Corps Center for Lessons Learned (MCCLL) Director, Col Monte E. Dunard, USMCR

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Preventive Measures

Operating on single-lane and/or steeply crowned rural roads, roads with no shoulders, roads with soft shoulders, and/or wash-outs around culverts, and especially any road bordering water (canal irrigation ditch/ponds) requires extreme caution. The majority of MRAP rollovers have been due to the road/shoulder/bridge approach giving way under the MRAP's weight and high center of gravity.

(1) **Wear Seatbelts.** Survive the rollover! Soft shoulders are prevalent after rain. When an MRAP goes off a road, the vehicle can overturn when it strikes a ditch or embankment, or is tripped by soft soil. If you drive off the roadway, gradually reduce speed. Ease your vehicle back onto the roadway at a safe speed.
(2) **Slow Down**. As the MRAP speed increases, the centrifugal force, or sideways force increases. Faster speeds also result in decreased driver response times. Speed is the factor over which the driver can exercise the most control. When maneuvering through curves or sudden traffic situations, an MRAP with a high center of gravity can easily turn over. Watch out for sharp curves or steep slopes (greater than 50 up/downslope and 30 sideslope) that generate centrifical forces, increasing the chance of rollover.
(3) **Avoid Panic.** Don't jerk the steering wheel. Many rollovers occur when the driver panics and jerks the steering wheel during an emergency. Jerking the steering wheel can cause loss of vehicle control.
(4) **Keep the Vehicle Center of Gravity Low.** The height of a vehicle's center of gravity and the length of the wheelbase determine the vehicle's stability. Load and secure heavier items low in the MRAP.
(5) **Load Security.** All equipment inside the vehicle must be secured IAW the MRAP and/or unit load plan. Unsecured loads can become deadly projectiles. Improperly secured loads can change a vehicle's center of gravity and its stability.
(6) **Condition and Prepare Vehicle**. It is critical that the MRAP be in good operating condition before starting your mission. Pay particular attention to tire condition and air pressure. Worn and improperly inflated tires increase risk of rollover. Know your 10 limitations on tire inflation pressures and speeds. Properly performed preventive maintenance checks and services are the best ways to control this potential hazard.

Minimizing the Risk

Tactics, Techniques and Procedures (TTPs) that are recommended to help prevent MRAP mishaps:

Rollover Drills. MRAP crews should practice rollover drills to standard. Be proficient and learn to work as a team.
Composite Risk Assessments. Incorporate the potential for rollovers in risk assessments by assessing bridges and terrain along the route. Be alert and always use caution on roads close to canals. Always consider allowing greater clearance traveling along the edge of the road. Also assess the potential for low hanging power lines. Ensure these hazards are briefed prior to the missions and brief your options for alternate or bypass routes.
Crew Restraints. Vehicle commander should enforce the use of crew restraints and protective headgear and ensure all loads are secure. The risk of fatality is three times greater for Marines or Soldiers who do not wearing a seat belt during tactical vehicle operations (OIF/OEF CY03-04, USACHPPM study). Seatbelts allow the driver to remain in a position from which to stabilize an out-of-control vehicle. Gunner's restraints prevent the gunner from potential fatality as a direct result of being ejected from the interior, causing death on impact or crushing from the MRAP vehicle. Interior occupants can sustain injuries from flying equipment which makes securing loads particularly important since objects inside the cab will become deadly flying missiles should a rollover occur.
Steering. Many rollovers occur when drivers overcorrect their steering as a panic reaction to an emergency or even to a wheel going off the pavement's edge. At highway speeds, overcorrecting or excessive steering can cause the driver to lose control, which can force the vehicle to slide sideways and roll over. Sudden vehicle maneuvers are particularly risky since the speed and load shift can make the vehicle unstable.
Know Proper Maneuvering. If your vehicle goes off the pavement edge, steer the vehicle back into the roadway. Slight steering inputs to go back onto the roadway reduce the risk of pinching the tire sidewalls against the edge of the road or inducing a flex in the sidewall that could cause the vehicle to veer out of control while transitioning from shoulder to road. This is a proven technique and is referenced in FM 21-305. Reduce speeds when negotiating turns. Avoid sudden vehicle maneuvers, overcorrecting, or excessive steering that can result in loss of control that may result in a maneuver initiated rollover.
Use Caution on Rural Roads. When a vehicle goes off a rural road, the vehicle can overturn when it strikes a ditch or embankment, or is tripped by soft soil. Road shoulders in Southwest Asia do not meet US standards and may collapse under the weight of the MRAP, especially when the road is above grade and can fail to lower ground (ditches and canals). Nearly

(continued)

Minimizing the Risk (continued)

75% of all rollover crashes occur in rural areas, so practice caution when driving on rural roads. MRAP crews must maintain situational awareness and use vehicle crew coordination. The vehicle commander and the gunner may often be able to better determine the closeness of the vehicle to the edge of the road than the driver. They should not hesitate to alert the driver if he is getting too close to the edge of the road. Use caution when crossing bridges that are unrated (get prior guidance from combat engineers).

Tire Pressure. Improperly inflated and worn tires can be especially dangerous because they inhibit your ability to maintain vehicle control, the most important factor in reducing the chance of rollover. Worn tires may cause the vehicle to slide side-ways on wet or slippery pavement, sliding the vehicle off the road and increasing its risk of rolling over. Improper tire inflation can accelerate tire wear, and can even lead to tire failure. It is important to maintain your tires pressure IAW the operator's manual and replace tires when necessary.

Implementing these TTPs and understanding the characteristics of MRAPs will minimize the MRAP tactical vehicle mishap risks and are the best arsenals for tactical vehicle drivers and occupants.

Rollover

All types of vehicles can rollover including the MRAP. Taller, narrow wheel base vehicles that have higher centers of gravity are more susceptible to rollover if involved in a single-vehicle crash. Although the MRAP may have good stability/rollover characteristics, MRAP operations require particular vigilance to prevent rollovers as they also pose some unique challenges.

Rollovers have been categorized by the following types:

1. Maneuver Initiated (swerving to avoid pothole/object or taking a corner too fast.
2. Impact Initiated (hitting curb, median or pothole.
3. Fall Initiated (soft shoulder or ground gives way). Fall initiated rollovers have often occurred from unimproved roads that may be near bodies of water where the road shoulders are soft. The weight of the MRAP and the road conditions in theater have resulted in a number of vehicle "fall initiated" type rollovers. To date almost half of MRAP rollovers have been fall initiated from operating along roads near ditches, or bridges and culverts incapable of handling the heavy weight of the MRAP.

MRAP Family of Vehicles Emergency Rollover/Egress Procedures

Never attempt to leap from a rolling vehicle. It may roll over you. Ensure that the vehicle has stopped its roll before moving. Upon complete evacuation of all personnel, the vehicle should be inspected for fire hazards such as leaking oil, fuel, and hydraulic fluid. Use the portable fire extinguisher when inspecting the vehicle for leaks in case of fire, which could cause injury or death. If hazardous/explosive materials are involved, the driver should take actions according to the DD Form 836 accompanying load. Notify emergency response personnel and remain at a safe evacuation distance (as determined by the commander on the ground) while securing the accident site.

Key Points

(1) **Egress Rehearsal.** Rehearse vehicle evacuation as if only one exit is available.

(2) **Communication with the Driver.** Work as a team and inform the driver of hazards such as road obstacles, pot holes, and soft shoulder roads. The gunner is often in a good position to alert the driver of potential road hazards. Use a ground guide whenever possible due to the vehicle's restricted visibility.

(3) **Combat Door Locks.** They are designed to keep the enemy out. When locked, they also make it extremely difficult for rescuers to enter the vehicle!

(4) **Locking Doors.** Combat locks help keep the doors closed during an accident or combat action. Know the locations of your combat door lock keys in each MRAP. If you have other types of MRAPs in your patrol, have combat door lock keys for those MRAPs as well.

(5) **Decision to Lock Doors.** Leaders must decide (based on the enemy situation) whether or not to keep the doors locked when operating near bodies of water.

Work as a Team

Communicate with the driver; tell the driver what is to the left, right, rear, and overhead. Your gunner is your eyes and ears. The gunner may be the only crew member capable of seeing around the entire vehicle. Use the vehicle intercom system to pass visual information to the driver, but rehearse shouted voice commands and hand signals in case the intercom is inoperative. Avoid hazards; use a ground guide whenever possible.

Note: There are multiple hatch locations, types and operational configurations within the MRAP family of vehicles. Ensure all personnel fully understand the associated vehicle's egress points and operation and constantly rehearse egress drills as a team. Check your operator's manual for specific procedures for the various configurations and mission loads. Know your MRAP's dead space/blind spots. Overwatch and cover each other's dead space/blind spots.

Rollover Drill Task Steps And Performance Measures

1. EXECUTE ROLLOVER DRILL:

a. **Driver**

(1) Releases the accelerator.

(2) Steers into direction of the roll.

(3) Yells, "Rollover, Rollover, Rollover!"

(4) Keeps his hands on the steering wheel with extended and unlocked arms, tucks head and chin into chest and braces for impact.

b. **Vehicle Commander**

(1) Yells, "Rollover, Rollover, Rollover!"

(2) Pulls gunner into cab (if applicable/able).

(3) Tucks head and chin into chest and braces for impact.

(4) Plants feet firmly on the floor while holding onto stationary object.

c. **Gunner (if applicable)**

(1) Yells, "Rollover, Rollover, Rollover!"

(2) Drops down from the hatch into the vehicle.

(3) Tucks head and chin and braces for impact while holding onto stationary object.

d. **Rear Occupants or Passengers.**

(1) Yell, "Rollover, Rollover, Rollover!"

(2) Pull gunner into cab (if applicble/able).

After The Rollover Has Stopped

A. Driver, Gunner, Rear Occupants or Passengers

1. Driver shuts down engine.
2. All personnel disconnect headsets.
3. Personnel release seatbelt/restraints; use caution if upside down.
4. Unlock combat door looks (if applicable). Exit vehicle.
5. Assess injuries. (Address potential for post crash fire, if applicable).
6. Assist other personnel to exit and secure weapons.
7. Establish security.
8. Account for personnel.
9. Provide first aid.
10. Account for weapons, ammunition and sensitive items.
11. Assist in vehicle recovery.
12. Report mishap to higher headquarters and request help and/or recovery as required.

Did You Know?

SPEED is the overriding cause in most HMMWV rollover situations.

Combat Door Locks

Combat door locks on the MRAP family of vehicles keep the enemy out. When locked, they make it extremely difficult for rescuers to enter the vehicle. Commanders should determine when combat locks should be used when conducting operations near bodies of water.

- Combat/accident damage may also jam doors, making them impossible to open.
- If the doors cannot be opened and the vehicle is in water too deep to allow air in the vehicle, the likelihood of drowning is high.
- In this case, rescuers must immediately roll the vehicle on its side using all available means (tow straps, rope, winch cables, etc.) to gain access to the gunner's cupola.
- Identify non-swimmers and assign them a buddy that is a swimmer. The body of water may be deep enough that you must swim to shore.

5. **Unlock** combat door locks, if enemy situation permits.
6. **Turn on** filtered dome lights.

In The Vicinity Of Water

When in the vicinity of water and tactical conditions permit:

1. **Reduce** speed and stop vehicle.
2. **Inform** all personnel that you are operating around potential water hazards.
3. **Conduct** a risk assessment of the terrain and route before proceeding.
4. **Maintain** secure seating position by wearing seatbelts.

Execute Water Egress Drill

Note: When water entry is imminent.

a. Driver

1. Releases the accelerator.
2. Steers vehicle to control entry into water and to prevent rollover.
3. Yells, "Water, Water, Water!"
4. Keeps his hands on the steering wheel with extended and unlocked arms, tucks head and chin into chest, and braces for impact.

b. Vehicle Commander

1. Yells, "Water, Water, Water!"
2. Pulls gunner into cab (if applicable/able).
3. Tucks head and chin into chest and braces for impact.
4. Plants feet firmly on the floor while holding onto stationary object.

c. Gunner (if applicable)

1. Yells, "Water, Water, Water!"
2. Drops down from the hatch into the vehicle.
3. Tucks head and chin and braces for impact while holding onto stationary object.

d. Crew

1. Yells, "Water, Water, Water!"
2. Pulls gunner into cab (if applicable/able).
3. Tucks head and chin into chest and braces for impact.
4. Plants feet firmly on the floor while holding onto stationary object.

When The Vehicle Is Stabilized

A. Driver, Gunner and Crew

1. Driver shuts down engine.
2. Personnel disconnect headsets.
3. Crew release seatbelt/restraints; use caution if upside down.
4. Unlock combat door locks (if applicable). Exit vehicle.
5. Assess injuries.
6. Assist other personnel to exit and secure weapons.
7. Decide whether to remove LBE, body armor and helmet.
8. Get to safest shore.
9. Establish security.
10. Account for personnel.
11. Provide first aid.
12. Account for weapons, ammunition and sensitive items.
13. Assist in vehicle recovery.
14. Report mishap to higher headquarters and request help and/or recovery as required.

Water Rescue/Recovery

1. Secure the accident site.
2. Stay in contact with the vehicle; hold onto the vehicle and kick/swim to high point in buddy teams.
3. Rescuers tie a rope/cable to the vehicle to aid in rescue.
4. Open doors and hatches.
5. If door and hatches are not accessible, rescuers must immediately use all available means to turn the vehicle on its side to gain access to the gunner's cupola.
6. Seek out the highest point on/in the vehicle.
7. Ensure that all survivors have air and are able to breathe.
8. Check for other injuries and apply first aid.
9. Carefully move injured personnel to the highest point on the vehicle.
10. Remove excess equipment, to include body armor in deep water.
11. Evacuate from vehicle high point to safest location, depending on:

- Enemy situation.
- Water level and flow.
- Water temperature.
- Distance to waters edge.
- Anticipation of rescue.

Rollover Study

An Army Study of 464 rollover mishaps (including 241 involving HMMWVs) during the period January 2003 through April 2006 reported that the most common sources of HMMWV rollovers in order of frequency were:

1. Excessive speed
2. Abrupt control/steering
3. Failed to stay alert
4. Failed to use safety equipment
5. Failed to ensure clearance

These five sources together accounted for about 70 percent of the mishaps. This same study noted that mistakes were made by both drivers and units that contributed to the rollovers:

- Driver based mistakes (52%)
- Overconfidence
- In a hurry
- Attitude
- Fear/excitement
- Unit based mistakes (26%)
- Direct supervision
- Inadequate unit training
- Inadequate SOP/procedures
- Other (both contribute) (22%)
- Driver experience
- Fatigue
- Other

Common Causes for HMMWV Rollover Mishaps

- **SPEED** is the overriding cause in most HMMWV rollover situations.
- Over-correction (abrupt control/steering)
- Driving too close to the side of the road.
- Driving too close to other vehicles.
- Unimproved roads may not be equipped to handle size and weight of military vehicles.
- Unaware of new driving characteristics of vehicle after add-on armor modifications.

Preventative Measures

- Ensure convoy speeds are established and enforced.
- Ensure senior occupants understand their responsibilities.
- Enforce the use of restraint devices.
- Ensure drivers keep proper intervals between vehicles.
- Pair experienced drivers with less experienced drivers.
- Ensure additional training after vehicle has been modified.

There are over 20 variants of the HMMWV, and there are differences in handling characteristics among variants. Consequently, it is important to ensure drivers are trained and understand hazards unique to each vehicle.

Safety Tips

- **Slow down**

Watch sharp curves and steep slopes. Curves and slopes generate centrifugal forces that act sideways on the vehicle, increasing the chance of rollover.

- **Avoid panic, don't jerk the steering wheel**

Many rollovers occur when the driver panics / jerks the steering wheel during an emergency. At highway speed, jerking the steering wheel can cause loss of control, and the vehicle may slide sideways and rollover.

- **Know proper maneuvering**

If you drive off the roadway, gradually reduce speed. Ease your vehicle back onto the roadway at a safe speed.

- **Use caution on rural roads/roads with soft or no shoulders**

When a vehicle goes off a road, the vehicle can overturn when it strikes a ditch or embankment, or is tripped by soft soil.

- **Pay attention to vehicle condition, tire pressure and loading**

Pay particular attention to tire condition and air pressure during PMCS to reduce potential hazards. Worn/improperly inflated tires increase your risk of rollover. Don't overload the vehicle.

- **Keep the Vehicle Center of Gravity Low**

Load heavier items low in the vehicle; increasing the height of the vehicle's center of gravity increases your risk of rollover.

- **Secure the Load**

Improperly secured loads can shift and increase the chance of rollover and become hazards inside the vehicle during a rollover.

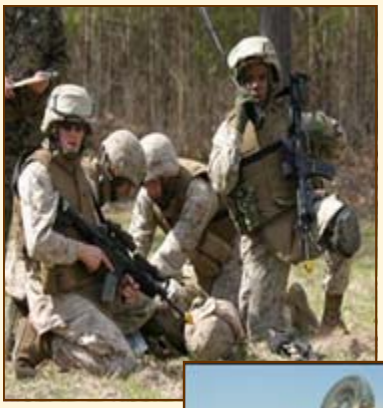
- **Trailer Towing**

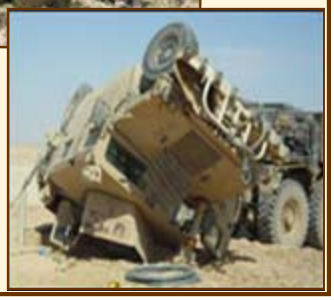
Vehicles towing trailers are much more prone to rollover, especially in curves and during sudden steering maneuvers, as a result of the exaggerated motion of the trailer.

Risk Management Control Measures

Every driver can take eight basic steps to prevent or reduce the potential for rollovers.

1. Adjust the vehicle speed to allow a "Speed Cushion" for maneuvering (at least 10 MPH below the posted speed limit is recommended when approaching a curve).
2. Slow down and brake or downshift early. Do not shift in the curve.
3. Observe speed limit and check speedometer to ensure your vehicle is below the posted speed.
4. Do not rely on a "seat of the pants" sense to judge speed and vehicle maneuverability. New suspensions and chassis set-ups give a false sense of control.
5. Slowly accelerate out of the curve.
6. Maintain a "Space Cushion" (distance between your vehicle and other traffic) so there is a safe maneuvering speed to compensate for errors in judgment, weather, road conditions, and poor driving by other motorists.
7. Avoid the temptation to brake hard if the rear of the vehicle or trailer "slides out". Instead, if there is clearance, attempt to apply steady throttle, allowing the vehicle to straighten itself. Braking will accelerate the skid, contributing to loss of control and rollover.
8. Risk Management Procedures. Personnel are required to wear seatbelts. All Marines should follow unit standard operating procedures/tactical standard operating procedures and be in proper uniform when operating or riding as a passenger in military vehicles. All personnel must wear the Kevlar helmet and flak jacket while riding/driving in a tactical vehicle.





Controls For MRAP Operations

- Rehearse and execute rollover drills in accordance with MRAP GTA 07-09-001.
- Conduct crew coordination training.
- Perform route recons to ensure weight, height, and width clearance (power lines, trees, obstacles, waterways, etc.).
- Alert entire crew when operating near canals and waterways.
- Conduct driver's training; ensure operators and crews are well trained.
- Use ground guides when necessary and feasible.
- Plan for alternate lighting in the event of loss of power during night or limited visibility.
- Maintain speed appropriate for road condition.
- Enforce seatbelt use. Not only do they prevent injuries, but they also aide in maintaining situational awareness in the first seconds after the accident or IED attack.
- Use caution when opening and closing doors, ramps, and hoods.
- Maintain three-points of contact when maneuvering in or on the vehicle .

Tactical Vehicle Rollover Trends from 1 Oct 07 – 10 Oct 08

186 recorded rollover events from multiple sources*

Type of rollovers

- 76 Fall initiated : occurred due to ledge, slope or ground surface collapse
- 57 Maneuver initiated: swerving maneuver on flat ground or terrain
- 7 Impact Initiated: hitting object caused rollover
- 46 Unknown

Fourteen rollover fatalities and 161 rollover injuries

MRAP and HMMWVs most prevalent

Type	Stryker	MRAP	HMMWV	ASV	LVS	PLS	M2	Tank	7 Ton	T/T Truck	LMTV	MTVR	Fueler	Other	Total
Fall	6	36	17	1	2	2	1	2	2	1	1	2	2	1	76
Maneuver		12	18	1	2	3				11	2	2	2	4	57
Impact		3	2	1						1					7
Unknown	2	7	15	3	1					8	1	1	3	5	46

* CENTCOM SIGACTS, Unit Safety Gram/Red-Hash, Safety Centers

The lifesaving capability of the MRAP can be greatly enhanced when operated by well-trained crews who are knowledgeable of hazards particular to both the vehicle and the terrain.

Glenn W. Harp COL, FA Deputy Commander

Safety of Use Message: Installation of improper Gunner Restraints on Mine Resistant Ambush Protected (MRAP) Family of Vehicles

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SUBJ/ SAFETY OF USE MESSAGE, INSTALLATION OF IMPROPER GUNNER RESTRAINTS ON MINE RESISTANT AMBUSH PROTECTED (MRAP) FAMILY OF VEHICLES//
REF A/DOC/5100.34 CMC WASHINGTON DC 23JAN2007//
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POC/JENNIFER MALONE/MRAP JPO PRINCIPAL FOR SAFETY/TEL:540-658-8058/ EMAIL: JENNIFER.MALONE@EGGINC.COM /ALT POC/BOB ADKINS/JPO SAFETY/TEL :540-658-8059/ EMAIL: BOB.ADKINS@EGGINC.COM //
GENTEXT/REMARKS/1. THIS SAFETY OF USE MESSAGE IS OF IMPORTANCE TO USERS AND SUPPORTING UNITS OF ALL MRAP FAMILY OF VEHICLES AND IS ISSUED PER REFERENCE A.

2. CURRENTLY, MOST MRAP VEHICLES ARE NOT EQUIPPED WITH APPROVED GUNNER RESTRAINTS. THE USE OF LOCALLY PROCURED GUNNER RESTRAINTS IS A RECOGNIZED NEED. COMMANDERS ARE ENCOURAGED TO ENSURE THAT THEIR LOCAL SAFETY PERSONNEL HAVE CERTIFIED ANY LOCALLY PROCURED/APPLIED GUNNER RESTRAINTS.
3. THE OPERATIONAL COMMANDER MAY VET THE SAFETY IMPACT OF INSTALLING LOCALLY PROCURED GUNNER RESTRAINTS THROUGH THE JPO MRAP SAFETY OFFICE. OPERATIONAL COMMANDERS SHOULD NOTIFY THE VEHICLE PROGRAM APM WHO WILL WORK WITH THE JPO MRAP SAFETY. JPO SAFETY WILL THEN ISSUE FINDINGS BACK TO THE FIELD.
4. COMPLIANCE IS REQUIRED DUE TO POTENTIAL FOR PERSONNEL INJURY. THE OPERATIONAL COMMANDER MAY ASSUME INCREASED RISKS/LIABILITY WHEN INSTALLING A LOCALLY PROCURED/APPLIED GUNNER RESTRAINT.
5. THE PM MRAP IS DEVELOPING GUNNER RESTRAINTS AND ASSOCIATED CORRECTIVE ACTIONS THAT WILL INCLUDE AN EXPEDIENT FIX PROVIDED AND APPLIED BY PM MRAP AND A NEW FIELDED RETROFIT CONFIGURATION. APPROVED AND TESTED RESTRAINT KITS ARE UNDER DEVELOPMENT AT AN ACCELERATED PACE AND WILL SOON BE AVAILABLE FOR INSTALLATION.
6. THIS SAFETY OF USE MESSAGE WILL BE CANCELLED VIA A SEPARATE MESSAGE PENDING IMPLEMENTATION OF RETROFITS AND UPGRADES TO THE GUNNER RESTRAINTS.
7. REQUEST READDRESSAL OF THIS MESSAGE TO SUBORDINATE COMMANDS FOR WIDEST DISSEMINATION TO AFFECTED UNITS.
8. THE MRAP JOINT PROGRAM OFFICE, POC MR ROBERT ADKINS, CTR, 540-658 -8059, BOB.ADKINS@EGGINC.COM, STANDS READY TO ASSIST.//

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#0001
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Did You Know?

NO Seatbelt – 6Xs greater risk of being a HMMWV accident fatality!
Use Seatbelt – 94% chance of surviving a HMMWV roll-over!
Use Seatbelt – Less chance of being injured in an IED explosion!

Safety of Use Message: Mine Resistant Ambush Protected (MRAP) FPII Cougar CAT I AND II Vehicles Cautionary Operation Procedures During Extreme or Adverse Braking

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SUBJ/SAFETY OF USE MESSAGE MINE RESISTANT AMBUSH PROTECTED (MRAP)FPII COUGAR CAT I AND II VEHICLES CAUTIONARY OPERATION PROCEDURES DURING EXTREME OR ADVERSE BRAKING.
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ALT POC/BOB ADKINS/CTR/MARCORSYSCOM MRAP JPO PO/TEL: 540-658-8059/EMAIL:
BOB.ADKINS@EGGINC.COM//
GENTEXT/REMARKS/
1. THIS SAFETY OF USE MESSAGE APPLIES TO USERS AND SUPPORTING UNITS OF THE MINE RESISTANT ABUSH PROTECTED (MRAP) FPII COUGAR CAT I AND II VEHICLES. THIS MESSAGE ALERTS USERS THAT OPERATION OF THE FPII COUGAR VEHICLES REQUIRES CAUTION DURING HARD AND ABRUPT BRAKING. DURING TESTS OF THE MRAP COUGAR VEHICLE THE OPERATORS HAVE EXPERIENCED HARD PULLING TO THE RIGHT WHEN APPLYING BRAKING FOR SUDDEN STOPS OR WITHIN EXTREMELY SHORT DISTANCES.
2. DURING NORMAL OPERATION, VEHICLE OPERATORS SHOULD NOT EXPERIENCE HARD PULLING OR STEERING THAT SNAPS TO THE RIGHT WHILE BRAKING. THIS OCCURS SPECIFICALLY DURING SUDDEN AND/OR EMERGENCY BRAKING SITUATIONS. DUE TO THIS BRAKE ISSUE, NUMEROUS VEHICLES HAVE EXPERIENCED THIS AWKWARD AND POTENTIALLY DANGEROUS STEERING SITUATION.
3. GUIDANCE: OPERATORS OF THE FPII COUGAR VEHICLES SHOULD BE AWARE THAT HARD TO RIGHT PULLING OF THE VEHICLE HAS POTENTIAL TO HAPPEN ANY TIME THE VEHICLE EXPERIENCES EXTREME OR ADVERSE BRAKING. OPERATORS SHOULD USE EXTREME CAUTION DURING HARD BRAKING AND BE PREPARED TO COUNTER-STEER TO MAINTAIN A CONTROLLED PATH OF TRAVEL.
4. COMPLIANCE IS REQUIRED DUE TO POTENTIAL FOR LOSS OF VEHICLE CONTROL AND/OR ROLL OVER.
5. OEM IS INVESTIGATING FIXES TO CORRECT THE ISSUE. OEM HAS CONDUCTED A PRELIMINARY STUDY SHOWING THAT TESTED VEHICLES CONSISTENTLY TENDED TO VEER TO THE RIGHT APPROXIMATELY TWO METERS AT A SPEED OF 40 MPH. THE FULL REPORT OF RESULTS HAS NOT YET BEEN COMPLETED.
6. CANCELLATION OF THIS SAFETY OF USE MESSAGE WILL OCCUR THROUGH A SEPARATE CORRESPONDENCE. USERS SHALL COMPLY WITH THE GUIDANCE STATED IN THIS MESSAGE UNTIL FURTHER NOTICE.
7.REQUEST READDRESSAL OF THIS MESSAGE TO SUBORDINATE COMMANDS FOR WIDEST DISSEMINATION TO AFFECTED UNITS.//

BT
#0001
NNNN

SAFETY ALERT

HEADQUARTERS
MULTI-NATIONAL CORPS-IRAQ
BAGHDAD, IRAQ
APO AE 09342

04 FEB 08

FICI-SAFE

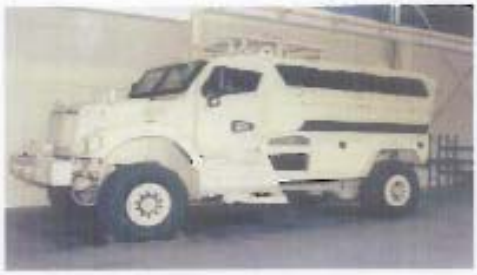
MEMORANDUM FOR SEE DISTRIBUTION

SUBJECT: Mine Resistant Ambush Protected (MRAP) Safety While Crossing Bridges

1. A Category I MRAP vehicle suffered a rollover while crossing a canal bridge. MRAPs are new to the Iraqi Theater of Operation (ITO) and Service Members are not 100% aware of their capabilities and vulnerabilities. The MRAP in this particular accident weighed approximately 38 000 pounds; some MRAP versions weigh more. This weight significantly exceeds that of HMMWV series vehicles and may have contributed to the bridge's collapse. The rollover resulted in one non-battle injury. Incidents like this can be avoided if personnel conduct a visual or hands-on bridge inspection prior to crossing unfamiliar bridges.

2. Our theater environment poses driving hazards which require extra precautions and a heightened attention to detail. Leaders must ensure that Service Members raise their MRAP proficiency. Accident and injury prevention starts with Service Members' awareness of their surroundings. Leaders must teach their personnel about equipment capabilities and limitations prior to movement and discuss situations that they may encounter.

3. Since many bridges in the ITO cannot withstand the weight of an MRAP, thorough route reconnaissance is paramount. Leaders must enforce strict standards, conduct spot checks, and do everything possible to ensure the safety of their personnel and equipment.



ENSURE WIDEST DISSEMINATION AND POST ON BULLETIN BOARDS

RAYMOND T. ODIERNO
Lieutenant General, USA
Commanding

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