UNITED STATES AIR FORCE
GROUND ACCIDENT INVESTIGATION BOARD REPORT

M1097A2 High Mobility Multipurpose Wheeled Vehicle
S/N 157874

366th Operations Support Squadron
366th Fighter Wing
Mountain Home AFB, ID

TYPE OF ACCIDENT: MOTOR VEHICLE FATALITY

LOCATION: SAYLOR CREEK BOMBING RANGE

MOUNTAIN HOME AFB, IDAHO

DATE OF ACCIDENT: 24 JUNE 2022

BOARD PRESIDENT: BRIGADIER GENERAL LYLE K. DREW

Conducted IAW Air Force Instruction 51-307

EXECUTIVE SUMMARY
UNITED STATES AIR FORCE
GROUND ACCIDENT INVESTIGATION

MOTOR VEHICLE FATALITY
M1097A2 High Mobility Multipurpose Wheeled Vehicle, S/N 157874
Saylor Creek Bombing Range, Mountain Home AFB, Idaho

24 June 2022

On 24 June 2022 at approximately 1134 local time (L), Mishap Cadet 1 (MC1) sustained fatal injuries at the Saylor Creek Bombing Range (SCBR) near Mountain Home Air Force Base (AFB), Idaho (ID). MC1 was a passenger in the Mishap Vehicle (MV), an M1097A2 High Mobility Multipurpose Wheeled Vehicle (HMMWV), Serial Number (S/N) 157874, when MV entered a slide and subsequently rolled 180 degrees on its roof. In addition to MC1, Mishap Team (MT) included Mishap Cadet 2 (MC2) and Mishap Vehicle Operator (MVO). Both MVO and MC2 sustained minor injuries from the rollover. All three members of MT were Air Force Reserve Officer Training Corps (AFROTC) cadets visiting Mountain Home AFB for Operations Air Force, a program that allows cadets to gain exposure to the Air Force mission. The MV was property of the 366th Operations Support Squadron (OSS). AFROTC cadets arrived at Mountain Home AFB on 19 June 2022 and departed on 25 June 2022.

Nineteen cadets visited SCBR. The scheduled 3-hour visit to SCBR included observing aircraft strafing, learning range procedures, and driving HMMWVs. These HMMWVs were acquired from Defense Logistics Agency (DLA) as disposition assets to be used as range targets. However, the Range Operations Officer (ROO) chose to also use the HMMWVs for range support. ROO provided a safety brief regarding range hazards and a 30 second brief on HMMWV operation.

At approximately 1130L, MV, operated by MVO, traveled westbound from the range tower to the main range building on an unnamed gravel service road. MV was travelling between 35-50 miles per hour (MPH). MVO felt the vehicle begin to slide off the gravel road, and MV briefly departed the northern edge of the road. MVO overcorrected the steering wheel, driving MV back onto the road and inducing a vehicular slide. The vehicular slide caused MV to rotate counterclockwise. MV continued to slide and moved toward the road's southern edge. As MV completed its rotation, the passenger side (right) tires fell off the road and dug into the dirt. The passenger side (right) tires acted as anchor points, causing MV to roll 180 degrees and land on its roof. MC2 was seated in the rear driver side (left) seat, and MC1 was seated in the front passenger side (right) seat. As MV was rolling, MC1 and MC2 were ejected. MVO's seatbelt was fastened, but neither MC1's nor MC2's seatbelts were fastened. As MV completed its 180-degree rollover on its roof, it landed on MC1, causing fatal injuries.

MC2 called 9-1-1 at approximately 1134L, which dispatched the Owyhee Emergency Medical Services (EMS). MVO summoned assistance from the remainder of the group located at the main range building. After arriving at the Mishap Site (MS), the AFROTC supervisors, AFROTC cadets, and range personnel lifted MV enough to slide MC1 out from under the MV. Members of the group began performing Cardiopulmonary Resuscitation (CPR) on MC1. Despite the group's rescue efforts, MC1's injuries were fatal.

TABLE OF CONTENTS

ACRONYMS AND ABBREVIATIONS

AED	Automated External Defibrillator
AETC	Air Education Training Command
AF	Air Force
AFB	Air Force Base
AFI	Air Force Instruction
AFMAN	Air Force Manual
AFROTC	Air Force Reserve Officer Training Corps
AU	Air University
Brig Gen	Brigadier General
CPR	Cardiopulmonary Resuscitation
DLA	Defense Logistics Agency
EMS	Emergency Medical Services
GAIB	Ground Accident Investigation Board
HMMWV	High Mobility Multipurpose Wheeled Vehicle
IAW	In Accordance With
ID	Idaho
L	Local Time
MC1	Mishap Cadet One
MC2	Mishap Cadet Two
MPH	Miles Per Hour
MS	Mishap Site
MT	Mishap Team
MV	Mishap Vehicle
MVO	Mishap Vehicle Operator
OSS	Operations Support Squadron
PM&I	Preventive Maintenance and Inspection
ROO	Range Operations Officer
RS1	AFROTC Supervisor 1
RS2	AFROTC Supervisor 2
RTO	Range Tower Officer
S/N	Serial Number
SCBR	Saylor Creek Bombing Range
SM	Site Manager
USAF	United States Air Force
VSCOS	Vehicle Support Chain Operations Squadron

SUMMARY OF FACTS

1. AUTHORITY AND PURPOSE

a. Authority

On 6 July 2022, Lieutenant General Brian S. Robinson, Commander, Air Education Training Command (AETC), appointed Brigadier General Lyle K. Drew as Board President of a Ground Accident Investigation Board (GAIB) to investigate a High Mobility Multipurpose Wheeled Vehicle (HMMWV) mishap at Saylor Creek Bombing Range (SCBR) near Mountain Home Air Force Base (AFB), Idaho (ID), on 24 June 2022 (Tab Y-6 to Tab Y-7). The GAIB convened at Mountain Home AFB from 1 August 2022 to 21 August 2022 and was conducted in accordance with (IAW) Air Force Instruction (AFI) 51-307, *Aerospace and Ground Accident Investigations*, dated 18 March 2019 (Tab Y-2). Additional members of the GAIB included a Medical Member (Colonel), Legal Advisor (Major), a HMMWV Training and Operations Subject Matter Expert (Master Sergeant), a HMMWV Maintenance Subject Matter Expert (Staff Sergeant), and a Recorder (Captain) (Tab Y-9 to Y-10).

b. Purpose

IAW AFI 51-307, *Aerospace and Ground Accident Investigations*, the GAIB conducted a legal investigation to inquire into all the facts and circumstances surrounding this Air Force (AF) ground accident, prepare a publicly releasable report, and obtain and preserve all available evidence for use in litigation, claims, disciplinary and adverse administrative action, and for other purposes.

2. ACCIDENT SUMMARY

At approximately 1130L, Mishap Vehicle (MV) traveled westbound from the range tower to the main range building on an unnamed gravel service road (Tabs O-6 and R-21). Mishap Vehicle Operator (MVO) operated MV, Mishap Cadet 1 (MC1) sat in the front passenger (right) seat, and Mishap Cadet 2 (MC2) sat in the rear driver side (left) seat (Tab R-22). MVO lost control of steering, and the HMMWV rolled 180 degrees and landed on its roof (Tab O-6). As MV rolled, MC1 and MC2 were ejected from MV (Tab O-4). MVO was restrained by a seatbelt and not ejected from MV (Tab O-4). MC1 and MC2 were not wearing their seatbelts (Tab O-4). As MV completed its rollover, it landed on MC1, causing fatal injuries (Tabs O-4 and O-6). MC2 was transported via air ambulance to St. Alphonsus Medical Center in Boise, ID (Tab O-6). MVO was transported via ground ambulance to St. Alphonsus Medical Center in Boise, ID (Tab O-6).

3. BACKGROUND

a. Air Education & Training Command (AETC)

AETC, headquartered at Joint Base San Antonio-Randolph, Texas, is one of ten major commands in the AF (Tab CC-2). AETC's primary mission is to find, recruit, train, and educate the Airmen the nation needs (Tab CC-2). AETC includes Air Force Recruiting Service, two Numbered Air Forces, and the Air University. Over the years, more than 25 million students have graduated from AETC training and education programs (Tab CC-2).

b. Air University (AU)

AU, headquartered at Maxwell AFB, Alabama, is a major component of AETC and is the lead agent for Air Force education (Tab CC-12). Air University, established in 1946, continues the proud tradition of educating tomorrow's planners and leaders in air and space power for the Air Force, other branches of the US armed forces, federal government civilians, and many international organizations (Tab CC-12).

c. Holm Center

The Holm Center's mission is to build leaders (Tab CC-18). Holm Center provides coordinated leadership and policy direction for the Air Force's officer recruiting, training, and commissioning programs at Officer Training School and at AFROTC detachments at 145 universities (Tab CC-18).

d. Air Force Reserve Officer Training Corps (AFROTC)

AFROTC's mission is to develop leaders of character for tomorrow's Air Force (Tab CC-19). AFROTC is the largest and oldest source of commissioned officers for the Air Force (Tab CC-19). AFROTC is designed to recruit, educate, and commission officer candidates through academic education, field training, and professional development training programs based on Air Force requirements (Tab CC-19).

e. Saylor Creek Bombing Range

SCBR is a 100,000-acre training range located 25 miles south of Mountain Home AFB, ID (Tab S-4). The range is primarily used by flying forces to train for air-to-ground warfare (Tab S-4).

f. High Mobility Multipurpose Wheeled Vehicle

The HMMWV is a diesel-powered, four-wheel drive tactical vehicle used to transport personnel (Tab BB-20). It can be equipped with integrated armor protection which provides added ballistic protection for armament components, crew, and ammunition (Tab BB-20). The HMMWV is

built to operate in various terrain (Tab BB-21). The M-1097A2 variant can transport a four-person crew and has a cargo bed with fold down gate (Tabs V-2.2 and BB-21).

Figure 1 – HMMWV (Tab S-6)

g. Operations Air Force

Operations Air Force is a jointly operated Academy and AFROTC program and is the largest single Cadet Development Program among Air Force commissioning sources (Tab K-12). Program objectives include focusing and orienting Air Force cadets on Air Force missions, organizational structure, and culture through direct exposure to and experience with Air Force units (Tab K-12). Operations Air Force is a program designed to expose cadets to Air Force missions, and cadets visit various installations and embed in different squadrons to learn daily operations at the base level (Tab K-12).

Two AFROTC supervisors, one Lieutenant Colonel, AFROTC Supervisor 1 (RS1), and one Major, AFROTC Supervisor 2 (RS2), arrived at Mountain Home AFB on 15 June 2022 (Tabs K-13 and V-2.6). Nineteen AFROTC cadets arrived on 19 June 2022 (Tab K-13). The official itinerary accounted for four days of activities as Monday, 20 June 2022, was an observed federal holiday (Tab K-13). During their visit, the duty day for AFROTC cadets began at 0800 local time (L) and ended NLT 1530L (Tab K-13). The visit concluded as originally scheduled on 25 June 2022 when the AFROTC supervisors and cadets departed Mountain Home AFB (Tab K-13).

4. SEQUENCE OF EVENTS

a. Narrative

On 24 June 2022, 19 AFROTC cadets observed range operations at SCBR (Tabs K-13 and V-4.9). The cadets departed Mountain Home AFB at approximately 0800L and arrived at the SCBR at approximately 0850L (Tab V-12.3 to V-12.4). Upon their arrival, Range Operations Officer (ROO) provided a brief to RS1, RS2, and the cadets that discussed range hazards (Tab R-

34). Specifically, ROO detailed the dangers of wildlife and instructed the cadets to use caution when climbing on target assets as there may be sharp metal edges (Tab R-34). Despite the existence of a formal training plan for HMMWV operation, ROO only explained to the cadet driver how to start the HMMWV and put it into gear (Tabs V-3.3, V-4.7, and BB-19-20). ROO briefed the cadet driver in each HMMWV individually and directed each driver to follow his HMMWV (Tab V-2.5 and V-4.9). Some of the passengers in the HMMWVs heard this brief while others did not (Tab V-2.2 and V-3.3). MVO, MC1, and MC2 were not drivers that received initial briefs as they were passengers (Tab V-1.3, V-2.5, and Tab V-3.8). There were more passengers than seats in at least one of the HMMWVs, which caused some cadets to sit on the center console (Tabs S-15 and V-3.4). There was conflicting testimony from the cadets regarding whether the HMMWV seat belts were operational (Tab V-1.3 and V-3.4). Nevertheless, ROO, RS1, RS2, and the cadets did not voice any safety concerns (Tab V-1.4). As ROO briefed the first cadet drivers on HMMWV operation, the two other HMMWVs filled with cadets left for the range tower (Tab V-4.9). ROO was concerned that the two HMMWVs left prior to receiving a brief (Tab V-4.9). Shortly thereafter, ROO and the third HMMWV rejoined the two HMMWVs that drove off at the range tower (Tab V-4.9). When the HMMWV caravan reached the range tower, ROO reminded the cadets that he would lead the HMMWVs (Tab V-4.9).

Led by ROO, RS1, RS2, and the cadets drove HMMWVs to different points of interest within the range (Tab V-4.8 to V-4.9). When they stopped, cadets rotated drivers (Tab V-4.9). Unlike the initial brief ROO provided to the first set of drivers, ROO never provided the subsequent drivers with a brief regarding HMMWV operation (Tab V-2.5). After observing some of the static range targets, the cadets observed a pair of A-10s strafe range targets (Tab V-4.9). The cadets returned to the main range building (Tab V-4.9). At the main range building, ROO offered the cadets another opportunity to drive the HMMWVs before their departure from SCBR (Tab V-4.9). MVO, MC1, and MC2 had all driven earlier that day, and all three decided to get into MV (Tab R-10). Other cadets also took the opportunity to drive HMMWVs again (Tab V-6.5). However, ROO, RS1, and RS2 remained at the range building, allowing the cadets to drive the HMMWVs unescorted (Tab R-10).

During the unescorted HMMWV trip, MC2 drove an M1097A2 HMMWV, Serial Number (S/N) 157874, with MC1 and MVO as passengers, to travel from the main range building to the range tower (Tabs R-10 and S-25). Around 1120L, MC2 drove in numerous tight circles at an accelerated speed near the range tower (Tab R-61). MC2 rotated out as the driver and MC1 began driving around the range tower (Tab R-10). MC1 also drove in numerous tight circles at an accelerated speed near the range tower (Tab V-1.6). MC1 rotated out as the driver and MVO began driving (Tab R-10). MVO drove in numerous tight circles at an accelerated speed (Tab V-1.6). The Range Tower Officer (RTO) noticed Mishap Team (MT) driving in tight circles at an accelerated speed and attempted to stop them by shouting at them from atop the range tower (Tab V-6.5). MT did not hear RTO (Tab R-11 and R-22). At approximately 1124L, RTO radioed Site Manager (SM) with a request that someone direct the cadets to drive in a safer manner (Tab R-61). At the range tower, MT changed drivers multiple times, allowing MVO, MC1, and then MC2 to operate Mishap Vehicle (MV) (Tab R-21). Before starting back for the main range building, MT swapped drivers one final time (Tab R-21).

Figure 2 – Tire Tracks as seen from Range Tower (Tab S-26)

MVO operated MV, MC1 sat in the front passenger (right) seat, and MC2 sat in the rear driver side (left) seat (Tab R-22). At approximately 1130L, MV was traveling westbound from the range tower to the main range building on an unnamed gravel service road (Tabs O-6 and R-21). Estimates of MV's speed vary between 35-50 miles per hour (MPH) (Tab V-2.4 and V-6.4). MVO lost control of steering and briefly departed the northern edge of the road (R-10 and Tab S-2). MVO overcorrected the steering wheel, driving MV back onto the road and inducing a vehicular slide to the left (R-10). The vehicular slide caused MV to rotate counterclockwise as the rear portion of the vehicle moved at a faster rate than the front of the vehicle (Tabs O-5, O-6, and S-18). MV continued its rotating slide and moved toward the road's southern edge (Tabs O-6 and S-18). As MV completed its rotation, the passenger side (right) tires fell off the road and dug into the dirt surface (Tab S-8). The passenger side (right) tires acted as anchor points causing MV to roll 180 degrees and land on its roof (Tab S-8). MC2 was seated in the rear driver side (left) seat and was ejected approximately 20 feet as MV rolled on its roof (R-21). MC1 was seated in the front passenger side (right) seat and was also ejected from MV (Tabs O-4 and O-6). As MV rolled, the passenger side (right) front door was in the open position and was the first part of MV to contact the ground, crushing the door against the vehicle hull (Tab S-29; Tabs O-4 and O-6). MVO was restrained by a seatbelt and was not ejected from the vehicle (Tabs O-4 and O-6). At the time of the rollover, MC1 and MC2 were not restrained by fastened seatbelts (Tabs O-4 and O-6). MC1 was ejected through the opened door (Tab U-4). As MV completed its rollover, it landed on MC1, causing fatal injuries (Tabs O-4 and O-6). MC1's torso and head were trapped underneath MV, leaving her legs and arms exposed (Tabs O-4, O-6, and R-24).

MV overturned about a third of a mile from the main range building (Tab S-2). The portion of the service road where the mishap occurred is flat (Tab S-24). The road returning to the main range building from the range tower has a slight bend to the right with a downhill portion followed by a slight uphill portion (Tabs S-2 and S-24).

Figure 3 – MV at Mishap Site (MS) (Tab S-10)

Figure 4 – MV at MS (Tab S-9)

b. Search and Rescue

MVO exited MV, and both MVO and MC2 oriented themselves to MS (R-10). MVO and MC2 attempted to lift MV off MC1, but they were unsuccessful given the weight of the vehicle (R-10). MC2 dialed 9-1-1 at approximately 1134L, which dispatched the Owyhee Emergency Medical Service (EMS) (Tabs N-2, O-2, and R-11). While MC2 was on the phone with 9-1-1, MVO ran back to the main range building, which was located approximately one third of a mile away, to summon assistance from the remainder of the AFROTC supervisors, cadets, and range personnel (Tabs R-11 and S-2). MC2 checked MC1's vitals but did not detect any vital signs (Tab R-24).

After arriving at MS, the group lifted the vehicle enough to allow others to slide MC1 out from under MV (Tab R-86). Members of the group immediately performed Cardiopulmonary Resuscitation (CPR) on MC1 (Tab R-86). ROO drove back to the range building and returned with an Automated External Defibrillator (AED) (Tab R-86). The AED cycled five times without initiating a shock, indicating it did not sense a heartbeat (Tabs R-86 and X-2). Despite the group's rescue efforts, MC1 sustained fatal injuries (Tab V-3.2). MC2 was transported via air ambulance to St. Alphonsus Medical Center in Boise, ID (Tab O-6). MVO was transported via ground ambulance to St. Alphonsus Medical Center in Boise, ID (Tab O-6).

c. Recovery of Remains

After being declared dead by the responding emergency medical technicians, MC1's remains were transported to the coroner's office (Tabs V-3.3 and X-2).

5. MAINTENANCE

SCBR HMMWVs, to include MV, were not procured for standard vehicle use (V-7.2). IAW the Mountain Home AFB Master Vehicle Listing, 366th Operational Support Squadron (OSS) SCBR had no assigned HMMWVs (Tab D-10 to D-11). 366th Logistics Readiness Squadron (LRS) Vehicle Management did not receive any requests for SCBR HMMWVs to be used as transportation vehicles (Tab R-125). IAW AFI 24-302, para. 4.28.1, a request to use a HMMWV as a vehicle should have been routed to 441st Vehicle Support Chain Operations Squadron (VSCOS) (Tab BB-10). The SCBR HMMWVs were acquired from Defense Logistics Agency (DLA) as disposition assets and should have been used only as range targets (Tabs R-67 and V-7.2). When HMMWVs were received, SCBR contractors inspected the HMMWVs (Tab V-7.3). ROO decided HMMWVs that could "run and move" could be used for range support (Tab R-45). Range support included firefighting, setting up targets, and movement throughout the range (Tab V-7.2). Since the SCBR HMMWVs were not on the Mountain Home Master Vehicle Listing and not maintained IAW military standards, they were not to be driven or used as vehicles, including for range support or as moving targets (Tabs D-10, D-11, and V-4.6). Nonetheless, 366 OSS personnel and SCBR contractors drove SCBR HMMWVs for firefighting, setting up targets, and moving throughout the range (Tab V-7.2).

a. Maintenance Documents

SCBR HMMWVs were not maintained IAW AFI 24-302 (Tabs BB-8, BB-9, V-7.2, and V-7.3). There are no maintenance documents pertaining to MV (Tab V-7.3).

b. Maintenance Forms

SCBR HMMWVs were not maintained IAW AFI 24-302 (Tabs BB-8, BB-9, V-7.2, and V-7.3). Any maintenance or repairs performed on SCBR HMMWVs by 366 OSS personnel or SCBR contractors were not formally tracked or documented (Tab V-4.7). There are no maintenance forms pertaining to MV (Tab V-7.3).

c. Scheduled Inspections

Since the HMMWVs were not considered AF vehicles, SCBR HMMWVs, to include MV, were not subject to scheduled inspections (Tab V-4.7).

d. Maintenance Procedures

Maintenance and repairs for MV were not conducted IAW AFI 24-302 (Tabs BB-8, BB-9, V-7.2, and V-7.3). SCBR contractors checked fluid levels daily (Tab V-4.6). These checks were not documented (Tab V-4.7). SCBR contractors performed basic maintenance and basic repairs to keep the HMMWVs drivable (V-7.3). When a HMMWV needed minor repairs, SCBR contractors used parts from other, non-operable target HMMWVs to repair the asset (Tab V-7.4). When HMMWVs were beyond repair, ROO and SCBR contractors made a determination to demilitarize the asset and return it to its intended purpose as a range target (Tab V-4.6 and V-7.3).

e. Unscheduled Maintenance

Since the SCBR HMMWVs, to include MV, were not considered AF vehicles, they were not subject to any documented unscheduled maintenance (Tab V-4.7).

f. Maintenance Personnel

366 OSS personnel and SCBR contractors are not certified IAW AFI 24-302 to perform maintenance or repairs on any HMMWVs, to include MV (Tab BB-11).

6. EQUIPMENT, VEHICLES, FACILITIES, AND SYSTEMS

a. Functional Status

SCBR HMMWVs, to include MV, were assets procured from DLA for use as range targets and range support (Tab V-4.6). SCBR HMMWVs, to include MV, were not procured for standard vehicle use (Tab R-47). However, ROO made the decision to use SCBR HMMWVs that "run

and move" for range support (Tab R-45). Range support included firefighting, setting up targets, and movement throughout the range (Tab V-7.2). MV was one of six HMMWVs used by SCBR contractors and ROO (Tab V-4.13). SCBR contractors knew that the range support HMMWVs could become inoperable without notice (Tab V-6.2 and V-7.3). MV was operable on the date of the mishap (Tab V-1.4). The exact condition of MV on 24 June 2022 and in the moments leading up to the mishap is unknown due to the lack of maintenance documents and records (Tab V-4.7).

To utilize MV appropriately as a vehicle, it would need to be reclassified as an AF vehicle (Tab BB-7). To reclassify MV, the asset would need to be approved by the local Vehicle Management installation authority and maintained (Tab R-125). The reclassification process for SCBR HMMWVs, to include MV, was never initiated by 366 OSS or SCBR contractors (Tab V-4.7).

b. Equipment Condition Post-Mishap

Using the Vehicle Preventive Maintenance and Inspection (PM&I) checklist via AF Form 4354, an inspection was performed on MV IAW AFI 24-302, para. 1.8, after the mishap (Tab BB-9, BB-15, and BB-16). SCBR contractors marked range vehicles when the vehicles were delivered (Tabs S- 27 and V-7.3). MV was marked "MH 669" (Tab S-27).

The B-pillar damage compromised the operability of the seatbelt retractor, so it is undetermined whether the retractor was operable at the time of the mishap (Tab S-27 and U-2). Regardless, no seatbelt could be pulled from the retractor after the mishap, which means the seatbelt was fully retracted at the time of the mishap (Tab U-2). This was further confirmed when the seatbelt that was cut by the safety investigation board lined up with the other half in the retracted position (Tab U-2). During the post-mishap assessment, the plastic housing of the front driver side (right) seatbelt buckle was broken off (Tab U-2). When attempting to fasten the cut seatbelt into the buckle, it fastened approximately 50% of the attempts and required additional attempts to fully fasten (Tab U-2). Had it buckled in every attempt, then it is highly likely that the buckle would have been operational prior to the mishap (Tab U-2).

On the air filter and oil filter, the date 25 April 2019 was handwritten (Tabs S-31 and S-32).

Figure 5 - Air Filter (Tab S-31)

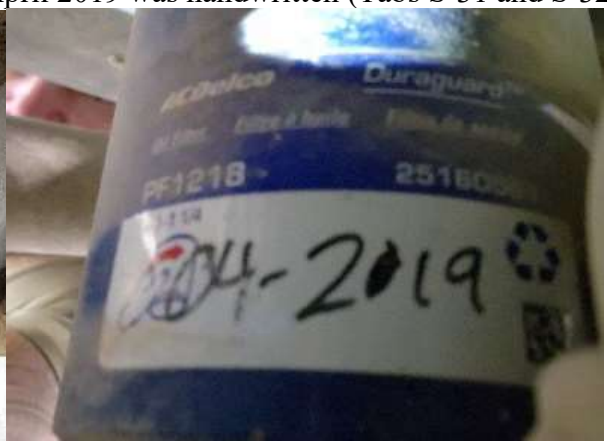

Figure 6 - Oil Filter (Tab S-32)

Figure 7 - Spare Part HMMWVs (Tab S-14)

Multiple deficiencies were found that, until repaired, would have barred the use of MV as a drivable asset (Tab BB-12). Nonetheless, there is no evidence to indicate that vehicle maintenance or the lack thereof played a significant role in the mishap.

First, the driver side (left) mirror assembly on MV was improperly mounted (Tabs S-26 and BB-15). The mounting hardware was stripped out and could no longer attach to the vehicle (Tab S-26). Self-tapping screws attached the driver side (left) mirror assembly to the frame of the windshield (Tab S-26). The self-tapping screws were pulling from the frame of MV and at risk of falling off (Tab S-26). Second, the lighting system and horn were inoperable (Tab BB-15). According to AFI 24-302, para. 9.16.2.4, both the lighting and horn systems are considered safety items that would have prevented MV from being used until the systems are repaired (Tab BB-12). Third, a review of the fuel pump showed it and the surrounding components were dripping wet with diesel fuel, indicating that the pump had been leaking prior to mishap (Tab S-33). Finally, the front passenger side (right) tire on MV should not have been utilized (Tab S-35). The passenger side (right) front tire on MV is a Goodyear Load Range "D," while the remaining three tires are BF Goodrich Load Range "E" (Tab S-34 to S-37). Load Range "D" and "E" tires should not be mixed on the same vehicle and that is explicitly noted on the tires (Tab S-35). Mixing tires of differing load ranges negatively affects handling (Tab U-3).

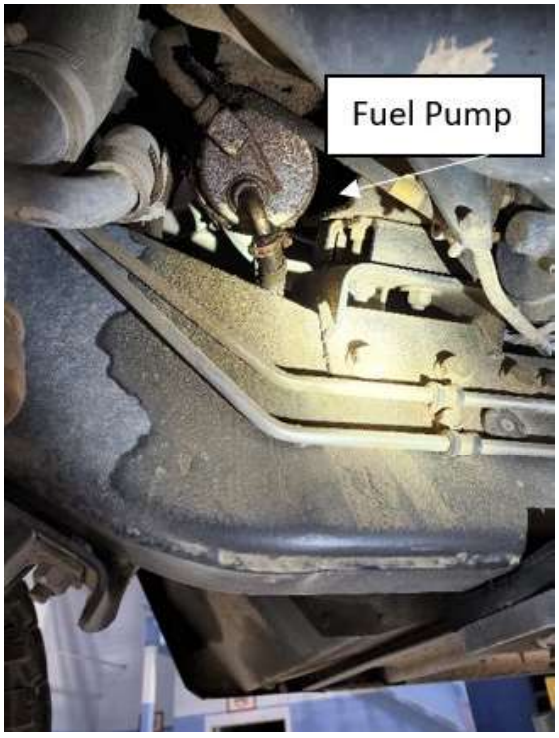

Figure 8 - MV Fuel Pump (Tab S-33)

Figure 9 - MV Mirror Bracket (Tab S-26)

Figure 10 - Load Range D Marking (S-36)

Figure 11 - Load Range E Marking (Tab S-37)

Figure 12 – "DO NOT MIX" Label (Tab S-35)

Figure 13 - Tire Comparison (Tab S-7)

As observed after the mishap, the brake pads on MV had sufficient pad material and would be considered serviceable (Tab BB-15). As a result of the damage to the B-pillar, MV sustained significant damage to its canvas top, center B-pillar cross-over support structure, rear C-pillar cross-over support structure, cab structure, and doors (Tab S-27). The passenger side (right) front door was crushed (Tab S-28). While damaged based on the pillars bending, there were no holes in the canvas top (Tab S-28).

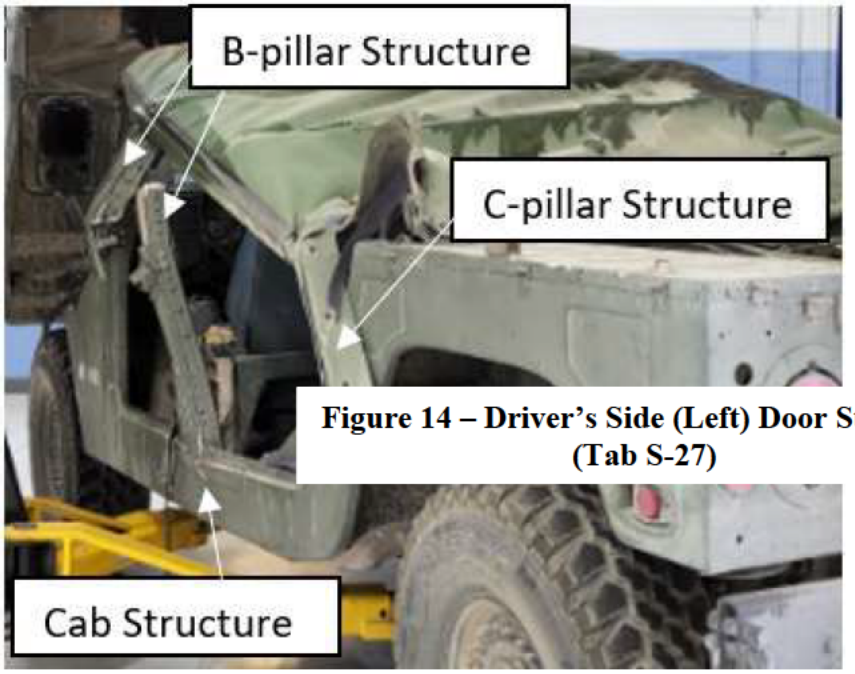

Figure 14 – Driver's Side (Left) Door Structure (Tab S-27)

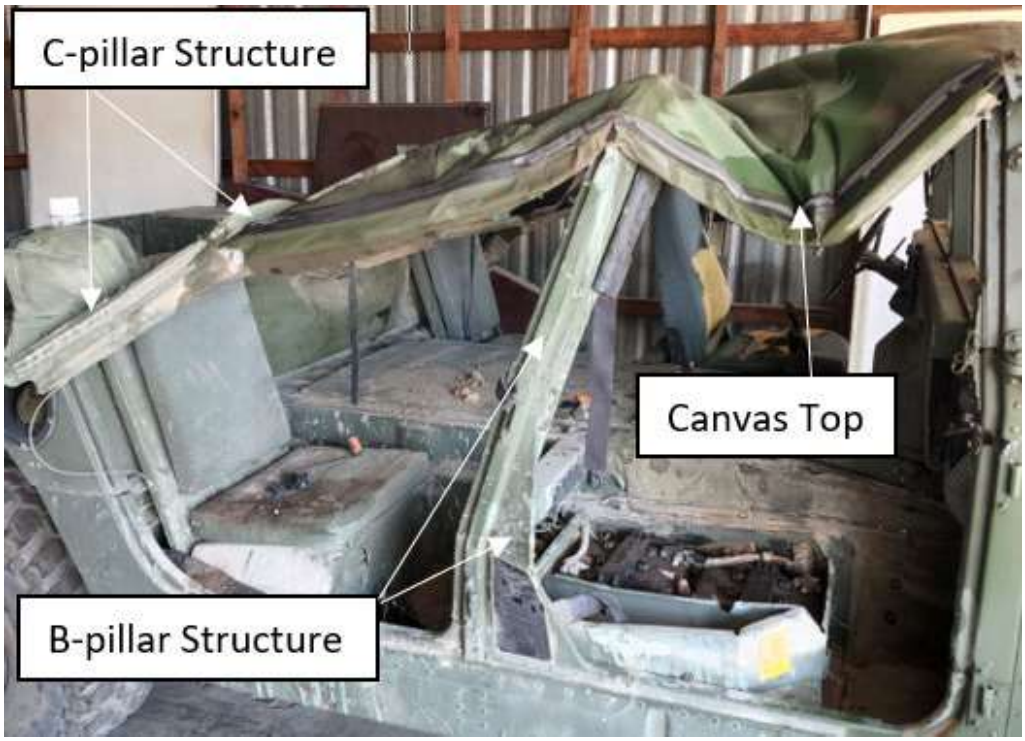

Figure 15 – Passenger's Side (Right) Door Structure (Tab-28)

Figure 16 – Doors
(Tab S-29)

The front and rear passenger side (right) tires of MV broke bead, which released air from the tire and collected debris (Tab S-12 to 13). The term "bead" is used to describe the point where the edge of the tire sidewall and the inner lip of the rim seal the pressurized air in the tire (Tab S-5).

Figure 17 - Tire Dig Point (Tab S-8)

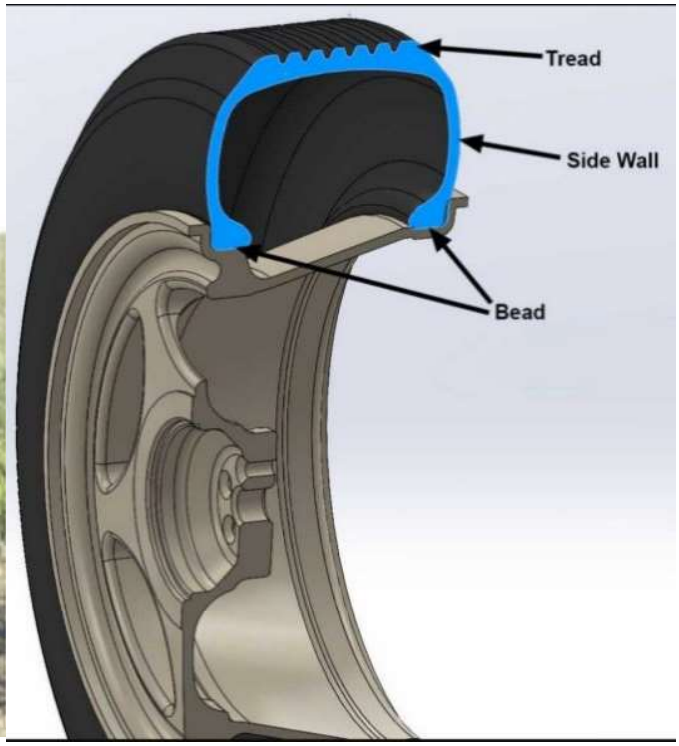

Figure 18 - Tire Bead to Rim (Tab S-5)

Figure 19 - Rear Tire Bead (S-12)

Figure 20 - Front Tire Bead (Tab S-13)

MV's steel wheel hub was bent as a result of the mishap (Tab S-34).

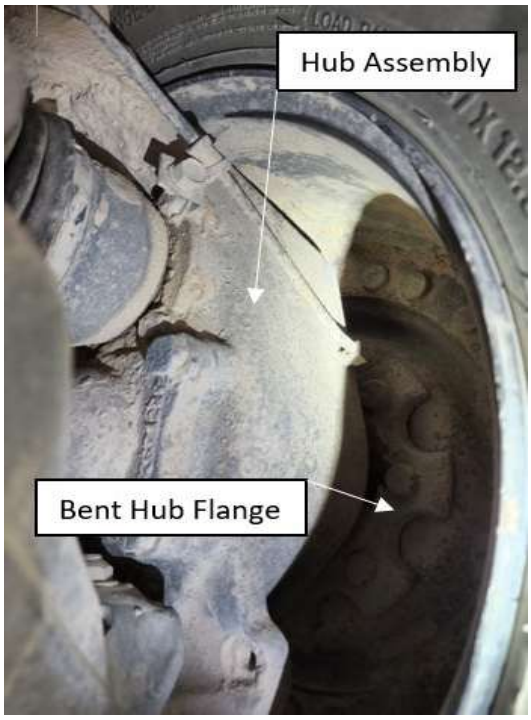

Figure 21 - Hub Assembly (Tab S-34)

Figure 22 - Passenger Wheel (Tab S-30)

7. ENVIRONMENTAL CONDITIONS

a. Forecasted Weather

The forecast on 24 June 2022 was clear skies with good visibility and warm temperatures (Tab F-2).

b. Observed Weather

The observed weather at the time of the mishap was consistent with the forecasted weather described above (Tab F-4). There was no precipitation on 24 June 2022 (Tab F-4).

c. Post-Accident Weather

The post-mishap weather was similar to the observed weather (Tab F-4).

d. Environmental Conditions

The range roadways are gravel roads (Tab R-21). The road on which the mishap occurred was most recently graded on 1 June 2022 (Tab V-4.12). The road is mostly straight between the range tower and the main range building (Tab S-2 and S-21). The road returning to the main range building from the range tower has a slight bend to the right with a downhill portion followed by a slight uphill portion (Tab S-2 and S-24).

Figure 23 – Picture of Road Segment between Range Tower and Range Building (Tab S-24)

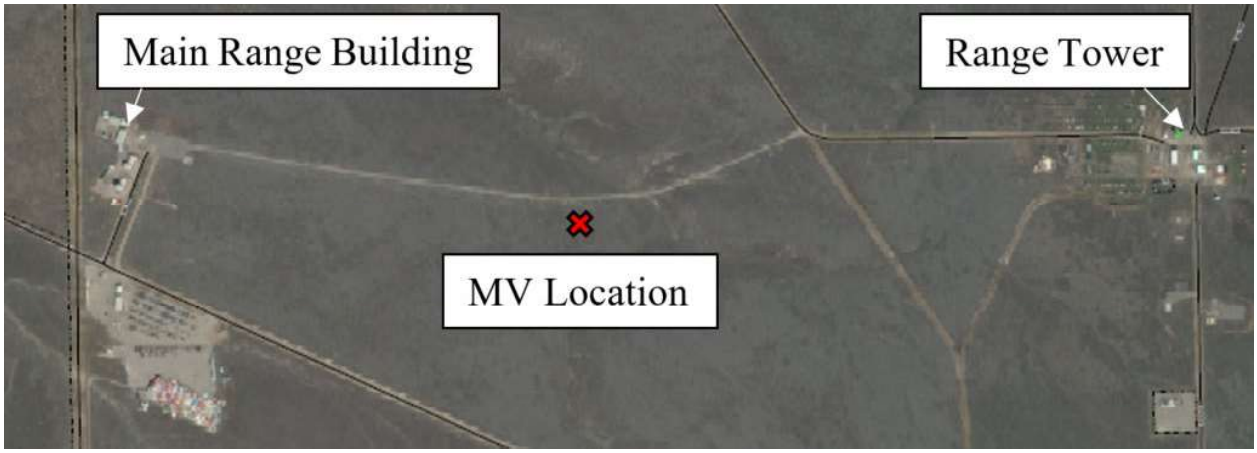

Figure 24 – Aerial View of Incident Road (Tab S-2)

There was no precipitation at SCBR from 23 June 2022 to 25 June 2022, and the road was dry on 24 June 2022 (Tab F-4).

There is no indication MVO was maneuvering to avoid a hazard, such as wildlife or debris in the road, at the time they lost control of MV (Tab R-10).

8. PERSONNEL QUALIFICATIONS

a. Relevant Training

MVO was a rising sophomore on summer recess at his university (Tab V-1.2). MVO had not driven a HMMWV prior to the date of the mishap (Tab V-1.3 to V-1.4). None were licensed to operate a HMMWV IAW AFI 24-301, para. 5.4.6.3 (Tab BB-3 and BB-19). Aside from the brief provided by ROO, which focused on operation of the HMMWV, there was no vehicle safety brief provided to any of the cadets (Tab V-3.3). IAW AFI 24-301, paras. 5.4.6, 5.4.8, and 5.5, unit Vehicle Control Officers and Vehicle Trainers must provide and document training for HMMWVs (Tab BB-3 to BB-5). No training was completed prior to MT taking control of the HMMWV (Tab V-3.3). There is no documentation that any 366 OSS personnel or SCBR contractors received training on HMMWVs IAW AFMAN 24-306, para 3.10 (Tab BB-14). Furthermore, there is no documentation that any 366 OSS personnel or SCBR contractors are authorized to train individuals on the operation of a HMMWV IAW AFI 24-301, para. 5.5.4 (Tabs BB-5, D-12, and D-13).

b. Training Currency

MVO did not receive formal training on HMMWV use and operation (Tab V-3.3). MVO possessed a state driver's license (Tab R-9).

9. MEDICAL

a. Qualifications

MVO, MC1, and MC2 were medically qualified for duty (Tab X-2).

b. Health

MVO, MC1, and MC2 had no indications of illness or other abnormal medical symptoms at the time of the mishap (Tab X-2).

c. Pathology

MVO received minor injuries and was treated and released the same day from the St. Alphonsus Medical Center in Boise, ID (Tabs X-2 and O-6).

MC1 was ejected and pinned by the MV during the rollover, causing fatal injuries. Emergency medical technicians pronounced MC1 deceased at MS (Tabs X-2 and O-6).

MC2 received minor injuries and was treated and released the same day from the St. Alphonsus Medical Center in Boise, ID (Tabs X-2 and O-6).

d. Toxicology

Mountain Home AFB Medical, Flight Medicine, and Flight Surgeons were notified but not activated as first responders (Tab R-140). Based on the confusion surrounding the legal status of AFROTC cadets, no toxicology testing was done on MVO or MC1 after the mishap (Tab R-161). MC2 was the only cadet who received any toxicology testing in the Emergency Room. MC2 was tested only for Ethanol (Alcohol), and that test was negative (Tab X-2).

e. Crew Rest and Crew Duty Time

MVO, MC1, and MC2 had normal duty days of 0800-1530 during Operations Air Force, so they were not subjected to abnormal crew duty time (Tab K-13). Crew rest appeared to be normal for the cadets in general and was not a factor in this mishap (Tab X-2).

10. OPERATIONS AND SUPERVISION

a. Operations

RS1 and RS2 arrived at Mountain Home AFB on 15 June 2022 (Tab K-13). The cadets arrived on 19 June 2022 (Tab K- 13). The official itinerary accounted for four days of activities as 20 June 2022 was an observed federal holiday (Tab K-13). The duty day began at 0800L and ended NLT 1530L (Tab K-13). RS1 and RS2 were tasked with supervising the cadets at the scheduled events to include the range visit (Tab V-2.6). The visit concluded on 25 June 2022 when RS1, RS2, and AFROTC cadets departed Mountain Home AFB (Tab K-13).

b. Vehicle Oversight

IAW the Mountain Home AFB Master Vehicle Listing, the 366 OSS SCBR has no HMMWVs assigned to their inventory (Tab D-10 to D-11). Accordingly, 366 LRS did not provide any oversight for the SCBR HMMWVs (R-126).

The SCBR HMMWVs were acquired by ROO through DLA to be used as range targets and, later, as range support (Tab V-4.6). Based on the status of any HMMWVs received by the range and IAW Department of Defense Manual 4160.21-V4, DLA should have provided a document that stated the following:

Figure 27. Transferring HMMWV Certification

"The agency accepts the transfer or donation of vehicle(s) "AS IS" with no warranty of any kind including any implied warranties, such as fitness for any purpose. Since the vehicle(s) do not comply with the Federal Motor Vehicle Safety Standards and is(are) designed for use under conditions unique to the DoD, extra operator competence and caution should be exercised in the operation and use of this vehicle outside the design specification. In accepting the transfer or donation, the agency acknowledges that there may be hazards associated with the use of the vehicles.

The agency warrants that it will provide necessary operators training and hold the DoD harmless against all suits, actions, demands, or claims involving the operation of

Figure 27. Transferring HMMWV Certification, continued

HMMWVs in its custody. The agency also agrees to maintain, at its expense, adequate liability and property damage insurance and workman's compensation insurance to cover such claims.

The agency agrees when vehicles are no longer needed they will be mutilated at the agency's expense according to mutilation requirements in DoD 4160.21-M, "Defense Materiel Disposition Manual."

Additionally, if the vehicles have DEMIL requirements, the agency agrees to perform the DEMIL at its expense according to DoD 4160.21-M-1."

Signature	Date
Name(Print/Type)	Title
Activity/Unit	Grade/Rank
Phone Number	

Figure 25 – DoDM 4160.21, Volume 4, Figure 27 (Tab BB-25 to BB-26)

It could not be determined whether the Transferring HMMWV Certification was provided for MV when DLA transferred the vehicle. By transfer via the DLA process, the acquired range HMMWVs, to include MV, no longer complied with Department of Transportation, Department of Defense, and United States Air Force (USAF) standards (Tab BB-25 to BB-26). However,

HMMWVs not in compliance with AFI 24-302, para 1.5, were driven by ROO and SCBR contractors for range support (Tabs V-4.13 and BB-8). SCBR contractors maintained a local log for all range targets and range support HMMWVs, and MV was included on that list (Tab V-7.3). Once ROO and the SCBR contractors determined a HMMWV was inoperable for range support, SCBR contractors would demilitarize the HMMWV in preparation for its use as a range target (Tab V-7.3).

11. GOVERNING DIRECTIVES AND PUBLICATIONS

a. Publicly Available Directives and Publications Relevant to the Mishap

AFMAN 13-212 Vol. 1, *Range Planning and Operations*, 22 June 2018

AFPD 24-3, Management, Operations and Use of Transportation Vehicles, 14 December 2017

AFI 24-301, Ground Transportation, 22 October 2019

AFI 24-302, *Vehicle Management*, 21 February 2020

AFMAN 24-306, *Operation of Air Force Government Motor Vehicles*, 30 July 2020

AFI 91-207, *The US Air Force Traffic Safety Program*, 26 July 2019

DoD 4160.21-M, Volume 4 Defense Material Deposition: Instructions for Hazardous Property and Other Special Processing Materiel, 22 October 2015, IC 3 30 September 2019

DoD 4160.28-M, Defense Demilitarization: Procedural Guidance, 31 August 2018

AFQTP 24-3-L350, High Mobility Multipurpose Wheeled Vehicle (HMMWV)

NOTICE: All directives and publications listed above are available digitally on the Air Force Departmental Publishing Office website at: https://www.e-publishing.af.mil.

b. Known or Suspected Deviations from Directives or Publications

All deviations previously discussed.

DREW.LYLE.K. Digitally signed by DREW.LYLE.K. Date: 2022.12.12 13:47:13 -06'00'

LYLE K. DREW
Brigadier General, USAF
President, Ground Accident Investigation Board

INDEX OF TABS