

Combat Motorcycle Helmets

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THE use of motorcycles in all branches of the United States Armed forces is well documented, beginning with the Mexican Border campaign of 1916–1917 and continuing on through World War II. By the 1950s the venerable motorcycle had all but disappeared from military inventories. This was to change however in the 1970s with the concept of Rapid Deployment.¹ The concept of Rapid Deployment was based on the ability to rapidly deploy fast moving, combined arms formations to any part of the world. This new strategic doctrine resurrected the motorcycle and changed its role from communications and security to more active actual combat related duties such as forward reconnaissance and Special Operations. Integral to this changing role was the requirement for a more suitable motorcycle helmet. Civilian produced helmets had been and would continue to be used for base security police functions. However a helmet combining the safety features of a civilian motorcycle helmet plus the ballistic properties of a combat helmet as well as radio communication capabilities was recognized as being a critical need for crews of the new fast attack vehicles and motorcycles being field tested.

The first known combat motorcycle helmets were Army and Marine Corps attempts at modifying existing helmet designs. Shown (FIG 1) is a USMC motorcycle helmet commercially produced by the Bell Company ca. 1974; this helmet has no inherent ballistic properties. The helmet has been modified for Marine Corps use by the addition of bayonet clips, made by Gentex Corporation, for the attachment of a lower face protective device. It also has been given a regulation Marine Corps paint scheme and insignia. FIG 2 shows a standard U.S. Army issue T56-6 Combat Vehicle Crewman helmet which has had 3 DOT type fasteners field installed over the brim for attaching a face shield. FIG 3 shows a T56-6 CVC helmet which has had the visor housing assembly from a SPH-4 flight helmet attached to provide a visor. A green/black camouflage paint scheme has also been added. While these attempts were probably marginally successful in providing basic head protection, wind and eye protection, and a communications ability, they did not address the ballistic protection requirement. The T56-6 CVC helmet was designed to provide a modicum of

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FIG 4. Marine motorcyclist during testing at Twenty Nine Palms in 1977. He is wearing an Army T56-6 Combat Vehicle Crewman's helmet. USMC photograph.

fragmentation protection but no ballistic protection.² FIG 4 shows a Marine of the 7th Marine Amphibious Brigade testing a motorcycle at Twenty Nine Palms, California, in 1977 wearing the standard Army T56-6 CVC helmet.

The first helmet known to be specifically designed to meet the needs of combat motorcycle, dune buggy, and similar fast attack vehicle crews was the MC-140D (FIG 5). The MC-140D was part of a helmet series developed cooperatively between the USMC and Gentex Corporation in 1981.³ The MC-140 series consisted of a basic protective helmet which



FIG 1. Bell motorcycle helmet ca. 1974. Earphones, goggle retention straps, and Gentex bayonet clips added by USMC probably in 1977 during motorcycle tests at TwentyNine Palms, CA. Author's collection.

could be configured, with the addition of specific components, to serve the needs of various USMC specialty jobs. The helmet designations were: MC-140 Helicopter Support Team Helmet, MC-140A Amphibious Crewman Helmet, MC-140B Artilleryman's Helmet with Communications, MC-140C Artilleryman's Helmet without Communications, MC-140D Motorcyclist's Helmet with Communications, and MC-140E Communicator's Helmet (CVC helmet).⁴ The MC-140D, while on the low end of the ballistic protection scale, did rate well with regards to weight, noise attenuation, wind resistance,



FIG 2. U.S. Army T56-6 Combat Vehicle Crewman helmet with 3 DOT type snap fasteners added over the brow for an eye shield. Author's collection.



FIG 3. U.S. Army T56-6 Combat Vehicle Crewman helmet. The visor housing assembly from an SPH-4 flight helmet has been attached to this helmet for an eye shield. Author's collection.

and radio communication. In 1984, the USMC requested that Gentex Corporation revisit this helmet design and try to reduce helmet weight, increase ballistic protection, and reduce per unit cost.⁵ The resulting helmet was called the MC-140D Modified (FIG 6). The MC-140D Modified version did, in fact, show a small increase in overall helmet weight which was the trade off for increased ballistic protection.⁶ To meet the request for increased ballistic protection, Gentex Corporation designers increased the number of Kevlar® layers used in the helmet's construction to fifteen plies which provided a protection level



FIG 5. The MC-140D, the first specially designed combat motorcycle helmet. Designed for the USMC by Gentex Corporation in 1981. Shown with ballistic face shield removed. Author's collection.

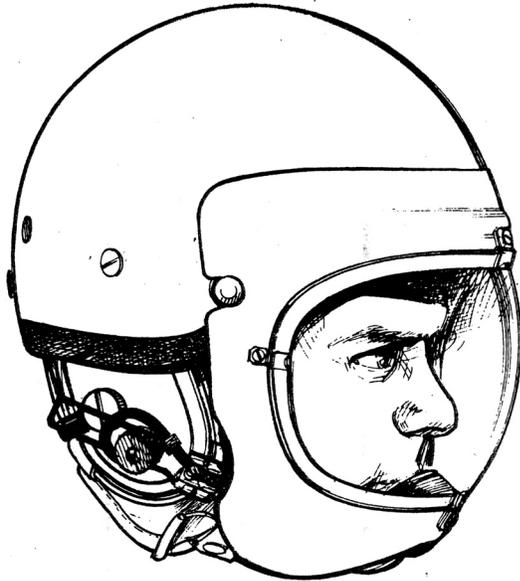


FIG 6. The MC-140D Modified with ballistic face shield as shown in the Gentex Configuration Performance Report of 1984. Author's collection.

of v50 1600 FPS. This level of protection was greater than the steel M-1 helmet and the CVC helmets then in use, but less than the newer PASGT infantry helmets which were rated at v50 2000 FPS.⁷ The USMC procured five thousand of the MC-140 helmet series, however the breakdown per model is not known, nor is it known if any of the MC-140D Modified were actually purchased and issued.⁸

In 1985, the U.S. Army expressed an interest in a helmet for crews of fast attack vehicles and motorcycles. Gentex



FIG 7. MMH I helmet produced by Gentex Corporation in 1985. Only twenty-five of these prototype helmets were made for Army field tests. Author's collection.



FIG 8. Produced in 1985, this prototype Scott Headguard SD-357 was very similar in appearance to the Gentex MMH I. Neither helmet was adopted by the Army. Author's collection.

Corporation submitted a design similar to the MC-140D Modified which it named the MMH I (FIG 7). This helmet had a ballistic protection rating of not less than v50 1600 FPS⁹ which made it at least equivalent to the MC-140D Modified. Only twenty-five of the MMH I helmets were produced for Army testing and field evaluations.¹⁰ Also in 1985, the Scott Company submitted a design which they called the Headguard SD-357 (FIG 8). This helmet provided ballistic protection of v50 1395 FPS (FIG 9). It is not known how many of the SD-357 helmets were produced or if any were actually procured, although based on the ballistic properties, it is doubtful the Army actually bought any.



FIG 9. Interior label of the Scott Headguard SD-357 showing the ballistic qualities of the helmet. Author's collection.



FIG 10. The Gentex MMH II helmet, designed in 1992 and still used today by U.S. Army and U.S. Air Force special operations forces. Author's collection.

The last combat motorcycle helmet produced, to date, is the Gentex Corporation produced MMH II (FIG 10). Produced in 1992, this helmet reflected a redesign of the previous MMH I. The MMH II has a ballistic protection rating of v50 at 1600 FPS and is compatible with the M40 Protective Mask and the MBU-12 Oxygen Mask. It can be configured with a protective lower face shield, an active hearing protection (AHP) system, and is compatible with a wide range of military radios and intercom systems.¹¹ The U.S. Army and U.S. Air Force purchased seven hundred of these helmets in 1992 for the use of special operations forces.¹² This helmet is still carried in Army and Air Force inventories as a special issue item and is still actively marketed by Gentex Corporation.

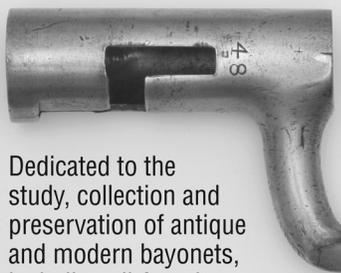
Notes

1. Jack M. Sands, *The Motorcycle Marines, An Illustrated History* (Andover,



FIG 11. Special Operations (Desert) version of the Gentex MMH II produced in July 1999 for the U.S. Army. This helmet is the same as shown in FIG 10 but instead of a smooth OD green surface it has a rough textured finish and sand yellow color. The MMH II also comes in a rough coat flat black color scheme. Author's collection.

- N.J.: Portrayal Press, 2002), 24.
- 2. *Your Combat Vehicle Crewman's Helmet* (U.S. Army, Office of the Quartermaster General), 1.
- 3. MC-140 Family of Helmets, Operators Manual, TM8415-10/1 (Carbondale, Pa.: Gentex Corporation, 1981), 4-6.
- 4. *Ibid.*, 2-5.
- 5. Configuration Performance Report, Military Motorcyclist's Helmet (MMH) MC140D Modified (Carbondale, Pa.: Gentex Corporation, 1984), 1-2.
- 6. *Ibid.*, 3.
- 7. Gentex Corporation, *Confirmation Performance Report*, 4.
- 8. Megan Bowman, Gentex Corporation, to the author, 2006.
- 9. *Military Motorcycle Helmet (MMH)* (Carbondale, Pa.: Gentex Corporation, 1985), 1.
- 10. Megan Bowman, Gentex Corporation, to the author, 2006.
- 11. *Gentex MMH II* (Carbondale, Pa.: Gentex Corporation, 2002).
- 12. Rick Long, Gentex Corporation, to the author, 2005.



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