

The Marvin Group

Marvin Engineering Company

261 West Beach Avenue
Inglewood, California 90302
Tel: +1 (310) 674-5030
Fax: +1 (310) 673-9472
www.marvingroup.com
sales@marvineng.com

Flyer Defense

151 West 135th Street
Los Angeles, California 90061
Tel: +1 (310) 324-5650
Fax: +1 (310) 324-5646
www.marvingroup.com
flyer@flyerdefense.com

Marvin Test Solutions

1770 Kettering
Irvine, California 92614
Tel: +1 (949) 263-2222
Fax: +1 (949) 263-1203
www.marvintest.com
sales@marvintest.com

Marvin Land Systems

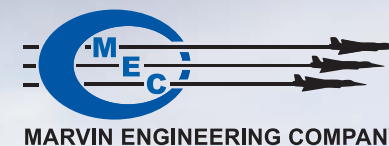
261 West Beach Avenue
Inglewood, California 90302
Tel: +1 (310) 674-5030
Fax: +1 (310) 677-6382
www.marvingroup.com
sales@marvinland.com

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The Marvin Group



AIRBORNE SOLUTIONS



MARVIN ENGINEERING COMPANY



www.marvingroup.com



Innovation. Quality. Tradition.

THE MARVIN GROUP

The Marvin Group provides comprehensive solutions for Alternate Mission Equipment (AME) / stores carriage and release needs across multiple manned and unmanned fixed and rotary wing aircraft, including design, manufacturing, qualification testing, maintenance, and sustainment.



Marvin Engineering Company

Established in 1963, Marvin Engineering is the flagship company of The Marvin Group and a worldwide leader in Alternate Mission, Auxiliary Aircraft and Role Equipment. We support both current in-service and emerging fixed wing platforms including the A-10, TA/FA-50, F-15, F-16, F/A-18, F-22 and F-35 as well as rotary-wing applications such as UH/MH/SH-60, AH-1, Airbus Tiger, and AH-64. Marvin Engineering also provides stores carriage and release equipment in support of several remotely piloted/unmanned aircraft such as MQ-1 Predator, MQ-9 Reaper and MQ-1C Gray Eagle. Ground launch missile systems supported include MML, SLAMRAAM, and NASAMS. Our latest development efforts are focused on innovative stores carriage and release solutions for 5th Generation platforms and beyond.

As the original equipment manufacturer, Marvin Engineering provides life of program sustainment and support including training, spare parts, upgrade options, test equipment, and depot services.

Marvin Engineering's products and services are offered both domestically and internationally and are currently being provided through the US Department of Defense (DoD), Foreign Military Sales (FMS), Foreign Military Funding (FMF), via PROS IV, via Prime Defense Contractors, and through Direct Commercial Sales (DCS). Marvin Engineering has the experience and resources available to support a contracting strategy that is tailored to each customer's individual needs.

Marvin Test Solutions

Marvin Test Solutions has delivered innovative, feature-rich automated test solutions for Military, Aerospace and Manufacturing organizations since 1988. Our proven expertise tackling the demanding requirements of aerospace and military test systems carries through to our work in developing manufacturing applications, quickly creating and delivering test equipment that is modular, high-performance, low power and ultimately reducing maintenance and sustainment costs.

As a vertically integrated aerospace test and measurement company with a solution-centric focus, our collective expertise in hardware, software, systems and applications offers the flexibility and innovation demanded by today's customers. By leveraging our design and test applications capabilities, we are able to translate challenging test requirements into turnkey solutions that are easy to use, simple to maintain, and result in products that enable customers to achieve high levels of mission readiness.

Inspired by the demanding and critical nature of our customers' missions, we strive to be the world's most innovative test solutions provider with unrivaled customer support throughout a product's life cycle—from requirements definition to lifetime sustainment.

Marvin Test Solutions also develops, qualifies, and produces airborne electronics control units and assemblies supporting AME products and systems produced by Marvin Engineering.

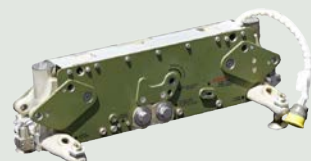


Remotely Piloted/Unmanned Aircraft/ Military Trainers

MQ-1 Predator, MQ-9 Reaper, MQ-1C Gray Eagle, Hawk,
TA/FA-50

Products manufactured by Marvin Engineering

- Hellfire Scalable Rail Launcher (HSRL)
- 16S210 AIM-9 Launcher
- LAU-7 AIM-9 Launcher
- LAU-7/AD A-Darter Launcher
- M299 Longbow/ M272 Hellfire Launcher
- M310 Longbow/Hellfire Launcher
- M299A1 Modernized Hellfire Launcher
- MA-4 Electro-Mechanical Ejector Rack
- MAU-12 Ejector Rack
- MAU-50 Ejector Rack
- TER-9A Triple Ejector Rack
- SUU-20 Bomb and Rocket Dispenser



MAU-50/A Ejector Rack

Products manufactured by Marvin Test Solutions

- TS-201B Longbow/Hellfire Launcher Test Set
- AN/TSM-205B Hellfire System Test Set
- MT1888 Laser Source Simulators
- MT3045 Advanced Hellfire Missile Simulator
- MTS-206 Maverick/Hellfire Field Test Set
- MTS-916 Modular Target Simulator
- MTS-209 Common Armament Test Set
- MTS-3060 Universal O-Level Armament Test Set



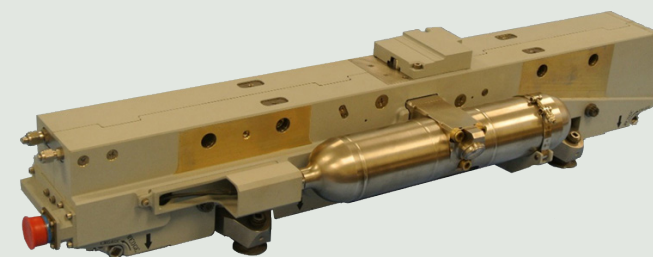
Hellfire Scalable Rail Launcher

- DC-only
- Lightweight
- Can be combined for multiple rails on one port
- Adaptable to support additional missiles

Next Generation Advanced Capability Carriage and Release

Products manufactured by Marvin Engineering

- High Performance Bomb Rack Unit
- MM299 (Modernized M299) Longbow Launcher
- Smart Triple Advanced Rack (STAR)



High Performance Bomb Rack Unit

- Applies MEC advanced technology for carriage and release equipment
- High energy pneumatic ejector rack family with integrated MIL-STD-1760 Electronic Control Unit
- Outperforms comparable pyrotechnic racks
- High eject velocity and pitch rate
 - Extreme repeatability through life cycle
 - Low reaction force
 - Integral high pressure gas bottle
- Multiple features safeguard operators
- Adaptable to a wide range of mission scenarios



MM299 (Modernized M299)
Longbow Launcher



Smart Triple Advanced Rack (STAR)



F-35 Lightning II - Joint Strike Fighter

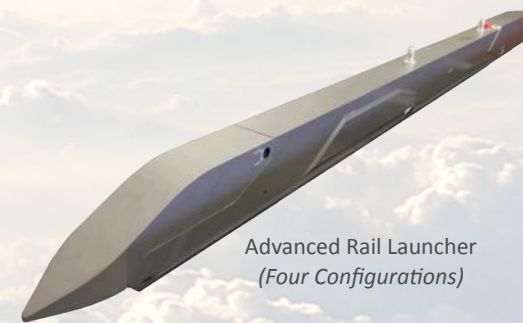
Products managed and manufactured by Marvin Engineering

- Alternate Advanced Rail Launcher
- Alternate Air-to-Air Pylon
- Air-to-Ground Pylon
- GBU-32 Internal Weapons Bay Adapter
- HIB Internal Weapons Bay Adapter
- LIB Internal Weapons Bay Adapter
- SDB Internal Weapons Bay Adapter
- GBU-12 Internal Weapons Bay Adapter
- Paveway IV Internal Weapons Bay Adapter
- Aerial Refueling Probe
- Aileron / Flap Spars
- Armrest
- Canopy Hinges
- Nose Landing Gear Uplock



F-35 Test Solutions designed and produced by Marvin Test Solutions

- MTS-235 F-35 AME Test Set – Production and Depot Test Set for the Launchers, Pylons and Sub-assemblies (Ready to serve at Intermediate Level)
- MTS-3060 SmartCan™ Universal Flightline Armament Test Set for Preload Testing
- MT1888 Laser Source Simulator



Advanced Rail Launcher
(Four Configurations)



Air-to-Air Pylon
(Three Configurations)



Air-to-Ground Pylon
(Two Configurations for CV
One Configuration for CTOL/STOVL)



Paveway IV Internal
Weapons Bay Adapter



GBU-32 Internal
Weapons Bay Adapter



High in Bay (HIB) Internal
Weapons Bay Adapter



Low in Bay (LIB) Internal
Weapons Bay Adapter



Small Diameter Bomb (SDB) Internal
Weapons Bay Adapter



GBU-12 Internal
Weapons Bay Adapter



MTS-3060 SmartCan™
Universal Armament Tester

- Supports pre-load and function checks of legacy and smart weapons systems
- AIM-9, AIM-120, and JDAM emulation
- Over 30 measurement channels



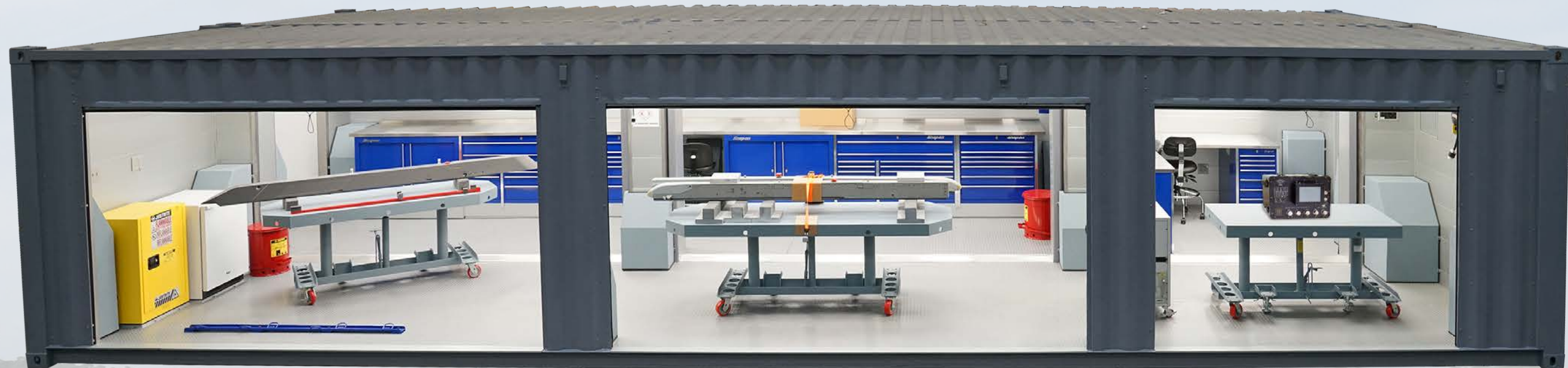
MTS-235 F-35 AME Test Set

- Full support for F-35 Alternate Mission Equipment
- Production and Depot Level testing of launchers, pylons and subassemblies
- Full parametric test with optional diagnostics
- Can be used in forward deployed, austere environments if used at the Intermediate Level



MT1888 Series
Laser Source Simulator

Configurable AME Repair Depot (CARD)



- Forward Deployable
- Optimizes Mission Readiness
- Reduced Logistics Footprint
- Streamlined Repair Process
- Spares Provisioning

To complete the loop of the AME Ecosystem, sustainment is achieved through either permanent or mobile repair depots at the customer site or The Marvin Group Material Fulfillment Centers located in Inglewood and Irvine, California.

In-country permanent depot experience includes the complete ground-up fabrication of the M113 Depot in Thailand for the overhaul and upgrade of M113 Armored Personnel Carriers to the dieselized M113A2 configuration and both the M109 Gun and M1A1 Turret Depots in Egypt. U.S. Navy and Air Force Depots have been operational at MEC for over twenty years.

Self-Contained Horizontal Sustainment Solution for 4th and 5th Generation Aircraft

- Supply “one-stop” repair capability for all AME used across multiple platforms and aircraft including equipment fault isolation, repair, and repair validation.
- Support multiple airbases with fewer dedicated facilities where applicable.
- Provide mobile repair capability for all AME without the need for a permanent dedicated building.
- Shorter repair turn-around times for all AME due to reduced transportation and consolidation of repair resources.
- CARD philosophy can be utilized in support of all levels of logistics for most aircraft systems.



Innovation. Quality. Tradition.

Innovation. Quality. Tradition.

F-16 Fighting Falcon

Products manufactured by Marvin Engineering

- 16S210 Sidewinder Missile Launcher
- TER-9/A Triple Ejector Rack
- LAU-117 Maverick Missile Launcher
- LAU-129 AMRAAM Missile Launcher
- Captive Air Training Missile - CATM-120B & CATM-120C
- LANTIRN Targeting Pod - AN/AAQ-14 Center Section
- 370-Gallon Fuel Tank Pylon
- MAU-12D/A Ejector Rack Assembly
- SUU-20 Bomb Dispenser & Launcher
- MAU-12D/A Conversion Kit
- Pylon for AMRAAM & Sparrow
- LAU-118 HARM Launcher



Modified TER-9/A Triple Ejector Rack



370-Gallon Fuel Tank Pylon



MTS-209

Common Armament Test Set

- Supports multiple platforms including F-16, F-15, TA-50, FA-50 and Hawk
- Field and Intermediate Level test capabilities

Products manufactured by Marvin Test Solutions

- TS-2000 F-16 SMS Test Set
- MTS-206 Maverick/Hellfire Field Test Set
- MTS-3060 SmartCan™ Universal Flightline Armament Test Set
- MTS-209 Common Armament Test Set
- MT1888 Laser Source Simulator
- MTS-916 Modular Target Simulator
- TS-217A Universal Armament Tester



LAU-129 AMRAAM Missile Launcher



MAU-12D/A Ejector Rack Assembly



TS-2000

F-16 Stores Management System

- Intermediate-Level test set for the F-16 Stores Management System (SMS) Line Replaceable Units (LRUs)
- Full parametric test capability with built-in diagnostics to the circuit card level



MTS-206 Maverick/Hellfire System Test Set

- Supports flightline and Intermediate Level testing of AGM-65 missiles, launchers and clusters and AGM-114 missiles
- Full parametric testing with diagnostics
- Safety certified by USAF NNMSB



MTS-3060 SmartCan™ Universal Armament Test Set



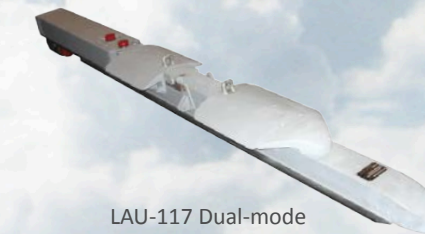
CATM-120B & CATM-120C Captive Air Training Missile



MT1888 Series Laser Source Simulator



LAU-117 Maverick Missile Launcher



LAU-117 Dual-mode Maverick Missile Launcher



16S210 Sidewinder Missile Launcher



MTS-916 Modular Target Simulator

- Target simulator for optically-guided weapons including Maverick, Paveway and Hellfire
- Supports IR, TV, CCD and Laser guided missiles and bombs
- Direct replacement for legacy target simulators, AN/DSM-129, AN/DSM-77 & SMU-127



SUU-20 Bomb Dispenser and Rocket Launcher

F/A-18 Hornet/Super Hornet

Products manufactured by Marvin Engineering

- LAU-7 Sidewinder Missile Launcher
- LAU-127A/A AMRAAM Missile Launcher
- BRU-32B/A Ejector Rack Assembly
- Captive Air Training Missile - CATM-120B & CATM-120C
- BRU-41/A Improved Multiple Ejector Rack
- BRU-42/A Improved Triple Ejector Rack

Products manufactured by Marvin Test Solutions

- TS-217A Universal Armament Tester
- MT1888 Series Laser Source Simulator
- MTS-206 Series Maverick/Hellfire Field Test Set
- MTS-209 Common Armament Systems Test Set
- MTS-3060 SmartCan™ Universal Flightline Armament Test Set
- MTS-916 Series Modular Target Simulator



AH-64 Apache Helicopter

Products manufactured by Marvin Engineering

- M272 Hellfire Missile Launcher
- M279 Lightweight Hellfire Launcher
- M299 Longbow Missile Launcher
- M310 Longbow Launcher
- M299A1 Modernized Longbow Missile Launcher

Products manufactured by Marvin Test Solutions

- TS-200 Apache Armament Test Set
- TS-345 TADS Lasers Test Set
- TS-201B Longbow Launcher Test Set
- AN/TSM-205B Apache Flight Line Test Set
- MT1888 Laser Source Simulator
- MT3045 Advanced Hellfire Missile Simulator
- MTS-206 Maverick/Hellfire Field Test Set
- MTS-916 Modular Target Simulator



LAU-127A/A
AMRAAM Missile Launcher



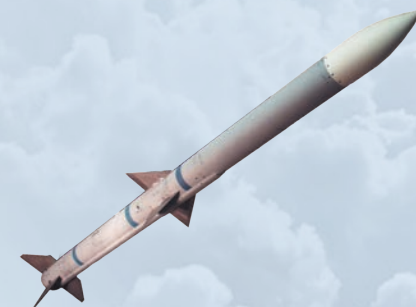
BRU-32B/A
Ejector Rack Assembly



LAU-7
Sidewinder Missile Launcher



BRU-41/A
Improved Multiple Ejector Rack



CATM-120B & CATM-120C
Captive Air Training Missile



TS-217A
Universal Armament Tester

- Supports Depot and Intermediate Level testing of armament systems LRUs and SRUs used on F-15, F-16, F/A-18 and more
- Optical bench options supports Paveway Guidance Kits testing
- Full parametric test capability with built-in diagnostics to the subassembly or component level



M299
Longbow Missile Launcher



AN/TSM-205B
Hellfire System Test Set

- Supports all Hellfire & Longbow platforms and M299 launcher for Operational and Intermediate Level test
- Full parametric testing with diagnostics to the LRU level
- Interactive missile simulation with fault injection
- Remote controllable for Hellfire integration and diagnostics



MT3045
Hellfire Missile Simulator

- Support for all Hellfire variants (including Romeo)
- Pre-load monitoring & missile simulation
- Remote controllable for Hellfire integration and diagnostics



TS-201B
Longbow Launcher Test Set

- Supports Depot, Production and Intermediate Level testing of M299 and MM299 launchers and the launcher electronics assemblies (LEAs)
- Simultaneous testing of all four rails/stations with comprehensive functional test troubleshooting to the circuit card level or to the component level
- Upgradeable to JAGM configurations



TS-345
TADS Test Set



MT1888 Series
Laser Source Simulator

Additional In Service Aircraft Support F-15, F-5, A-10, B-1B, P-3

Products manufactured by Marvin Engineering

- MAU-12D Bomb Rack Assembly
- BRU-12/A Bomb Rack Assembly
- BRU-14/A Bomb Rack Assembly
- BRU-15/A Bomb Rack Assembly
- BRU-56 B1-B 30" Ejector Rack
- LGTR Ejector Rack
- MA-4B Bomb Rack



Products manufactured by Marvin Test Solutions

- PATS-70 and PATS-70A A-10C Avionics/Armament Test Sets
- MT1888 Laser Source Simulator
- MTS-206 Maverick/Hellfire Field Test Set
- MTS-209 Common Armament Test Set
- MTS-3060 SmartCan™ Universal Flightline Armament Test Set
- MTS-916 Modular Target Simulator
- TS-217A Universal Armament Tester



BRU-12/A
Bomb Rack

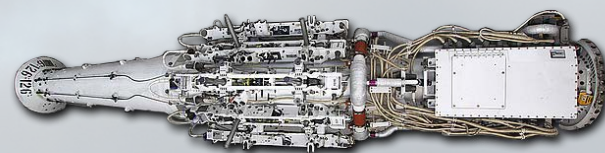
- Designed for bomb bay mounting in the P-3 aircraft
- Capable of releasing weapons/stores weighing up to 1,450 pounds
- Accommodates weapons/stores with 14-inch suspension



BRU-14/A
Bomb Rack



LGTR Ejector Rack
Laser Guided Training Round Rack



B-1B Rotary Launcher
(MEC product integrated)



BRU-56
B-1B 30-inch Ejector Rack



MA-4B
Bomb Rack



PATS-70
A-10C Avionics Flightline Test Set

Additional Legacy Rotary Wing AH-1, UH/MH/SH-60

Products manufactured by Marvin Engineering

- M272 Hellfire Missile Launcher
- M299 Longbow Missile Launcher
- M65 TOW Missile Launcher



Products manufactured by Marvin Test Solutions

- TS-200 Apache Armament Test Set
- TS-201 Longbow Launcher Test Set
- AN/TSM-205 Apache Flight Line Test Set
- MT1888 Laser Source Simulator
- MT3045 Advanced Hellfire Missile Simulator
- MTS-206 Maverick/Hellfire Field Test Set
- MTS-916 Modular Target Simulator



M65
TOW Launcher



M299
Longbow Launcher



TS-201
Longbow Launcher Test Set



M272
Hellfire Launcher