



**MAGELLAN**  
AEROSPACE CORPORATION

*THE POWER OF INTEGRATION*

## CRV7 ROCKET WEAPON SYSTEM

### Fixed Wing

#### What It Takes to be the Best

CRV7 is the leading 2.75" (70 mm) unguided rocket weapon system available, offering longer range, fastest time to target, and superior accuracy to both fixed wing and rotary wing users. Sold to 13 countries around the world, the CRV7 system includes rocket motors, launchers and warheads of various models depending upon mission objectives. Extremely cost effective, CRV7 rocket motors have a demonstrated reliability of over 99%.

#### PERFORMANCE ADVANTAGES

##### Superior Accuracy

The combination of high kinetic energy, aerodynamically optimized wrap-around fins and the spiral vanes of the nozzles, provides an extremely fast and accurate 2.75" rocket weapon system. United States Navy Foreign Comparative Testing demonstrated that CRV7 C15 rocket motor flight dispersion is significantly less than competing systems, when fired from a fighter aircraft. This results in a salvo of ripple-fired rockets producing an impact "footprint" one-third the size of the competing system. This equates to a target hit probability, within that footprint, which is three times greater.

##### Fastest to the Target (Penetration Capability)

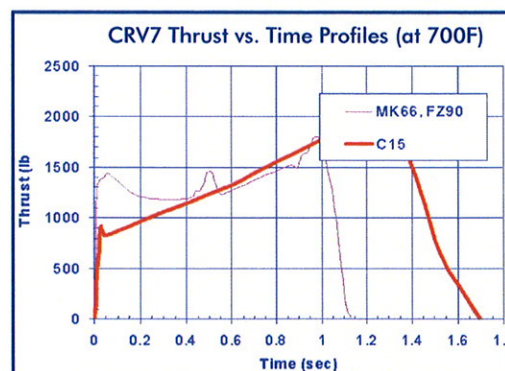
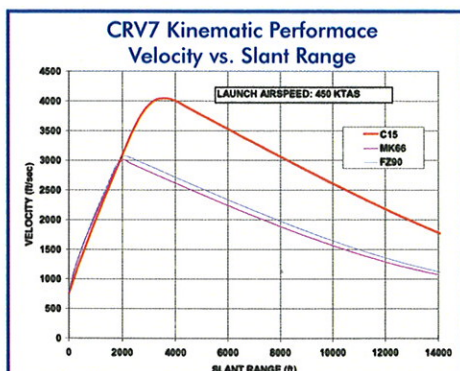
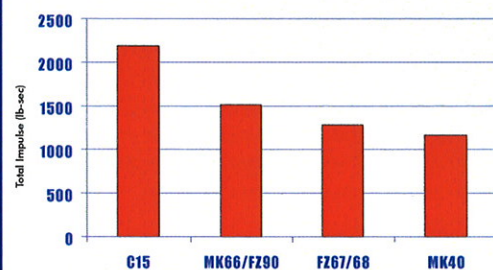
The kinetic energy provided by the high impulse of the C15 rocket motor, when combined with kinetic energy penetrator warheads, supplies users with an effective solution to defeat armoured targets.

##### Longest Stand-Off Range

The CRV7 C15 rocket motor allows users to approach a target at low altitudes and fire from long stand-off ranges without entering the surface-to-air envelope of ground defences. The best of the other commercially available 2.75" rocket motors must enter the surface-to-air envelope to achieve the identical terminal velocity of the CRV7.



CRV7 Rocket Motor Performance



## Safest to Use

The composite propellant and the design of the CRV7 C15 motor allows for storage and operations in climatic conditions from arctic to desert conditions (-54° to +71° C).

CRV7 motors are most compliant with Insensitive Munitions (IM) criteria, MIL-STD-2105.

The Head End Permanent Igniter (HEPI) features an integrated RF filter, providing protection against Hazards of Electromagnetic Radiation to Ordnance (HERO) and Electrostatic Discharge (ESD). The HEPI igniter is retained inside the head end of the motor for the duration of flight, minimizing ejecta from the motors and the possibility of damage to the aircraft.

The C15 rocket motor is equipped with the unique shear pin retention system that serves to firmly retain the rocket in the launcher until it is deliberately fired. Firing reliability with the shear pin system is an unrivalled 99.95% due to the systems new firing contact for each rocket motor.

## CRV7 RWS FOR FIXED WING PLATFORMS

### Motors

#### C15/HEPI (RLU-5002 A/B) Rocket Motor

The C15 Head End Permanent Igniter (HEPI) rocket achieves a nominal total impulse of 2185 lbf-sec and a nominal action time of 1.72 seconds. Burnout ranges and velocities of 876 m and 1034 m/s respectively are produced when used with 10 lb class warheads. Use of non-aluminized propellant results in reduced smoke and thermal signatures.

### Warheads

#### WTU-5001/B Practice

#### WTU-5001A/B Hardened Rod Practice

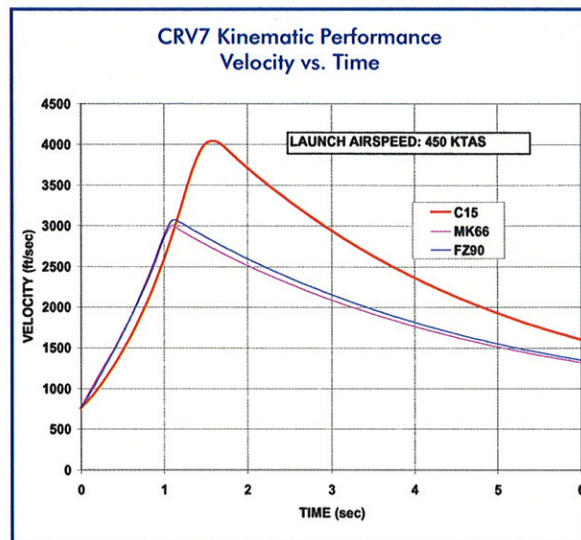
These 10 lb warheads are used as a training substitute for a variety of explosive-filled 2.75 inch rocket warheads. The WTU-5001/B consists of an 8 lb soft steel rod encased in a nylon/glass fibre shell. The WTU-5001A/B with a hardened rod may also be used as a kinetic energy penetrator in an anti-armour role.

#### WDU-5002/B Flechette Anti-Tank

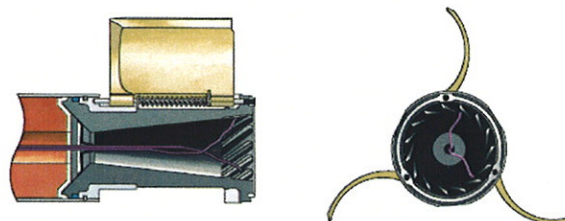
The Flechette Anti-Tank (FAT) warhead is designed to defeat NATO Standard heavy triple armour at angles of obliquity up to 40°. The warhead contains five tungsten alloy flechettes that are expelled at rocket motor burnout to provide five times the hit probability of a unitary penetrator warhead.

#### RA-79 High Explosive Incendiary Semi-Armour Piercing

The RA-79 High Explosive Incendiary Semi-Armour Piercing (HEISAP) warhead uses the kinetic energy of the rocket motor for target penetration and a fixed time delay fuze to function the warhead inside the target. The high explosive fill and the incendiary charge result in thousands of high velocity fragments with a pyrophoric effect. The RA-79 has a diverse target spectrum which includes ships, armoured vehicles, bunkers, trucks, buildings, attack helicopters, and ammunition and fuel dumps.



C15 Rocket Motor



C15 Nozzle



WTU-5001/B

WDU-5002/B  
FAT

RA-79  
HEISAP

### **M151 High Explosive Point Detonating**

The M151 High Explosive Point Detonating (HEPD) warhead with the M427 PD nose-mounted fuze is designed for antipersonnel applications. The 8.7 lb (unfuzed) warhead contains 2.3 lbs of high explosive. The warhead detonates upon impact, creating thousands of small, high velocity fragments.

### **M156 Smoke**

The M156 Smoke warhead is used primarily for target marking purposes. The total weight of the unfuzed warhead is 8.9 lbs.

### **M257 (M442 Fuze) Illumination**

#### **M278 Illumination**

The M257 (M442 Fuze) Illumination warhead is designed for battlefield target illumination. The flare illuminates approximately one square mile with one million candlepower for 120 seconds. The M278 operates in an identical manner but it emits illumination at the near-IR spectrum. The flare can be launched from either a fixed wing or rotary wing platform.

## **Launchers**

### **LAU-5002**

This 6-tube reusable launcher is proven on fixed wing aircraft. It is 25 cm in diameter, 162 cm in length with the rear fairing attached, and weighs 29.2 kg when empty. The launcher incorporates a selective single or ripple fire grounded type intervalometer.

### **LAU-5003**

This 19-tube disposable launcher is used on fixed wing aircraft. It is 39.9 cm in diameter, 149 cm in length with rear fairing attached, and weighs 42.5 kg when empty. It may be used with the standard Frangible Forward Fairing (FFF) or the Advanced Forward Fairing (AFF).

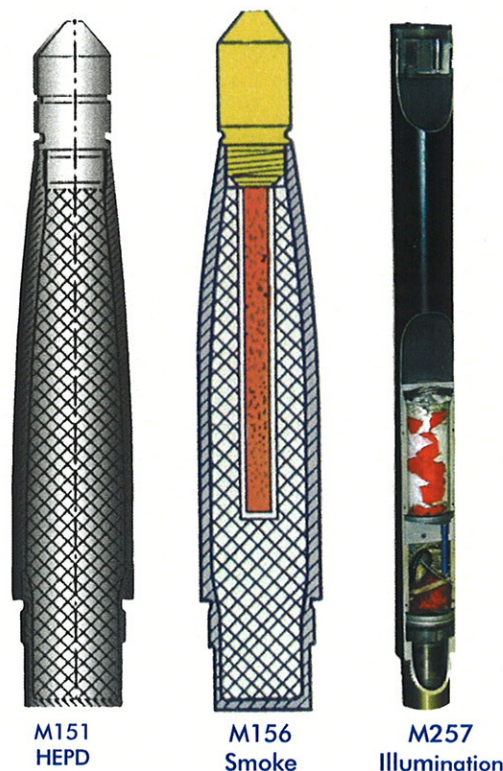
### **SUU-5003**

This modified SUU-20 bomb dispenser is capable of carrying 4 CRV7 C15 rockets and 6 practice bombs. This allows rocket firing and bomb practice to be carried out on the same training mission, reducing fuel costs and enhancing aircraft efficiency.

## **Accessories**

### **Advanced Forward Fairing**

The Advanced Forward Fairing (AFF) is an aerodynamic fairing designed to be used with the LAU-5003 launcher. Compared to its predecessor, the Frangible Forward Fairing (FFF), the AFF has improved all weather air carriage capability, decreased aerodynamic drag, and eliminates potential FOD to aircraft when firing rockets.



## Launcher Test Kits / Tools

### LAU-5002B/A - Tools

Multimeter

Launcher/Intervalometer Test Set (LITS)

Rocket Launcher Tube Cleaning Kit TLD 1279

### LAU-5002B/A - Spare Parts

Consumable parts that may require periodic replacement:

-Heat Deflector -Heat Shield -Aft Fairing

-Firing Fingers and Insulators (replaced after every firing)

### LAU-5003 D/A - Test Equipment

Launcher/Intervalometer Test Set (LITS)

### LAU-5003 D/A Spare Parts

Fairing Set, Forward and Aft

Launchers come complete with all other necessary parts (spare parts are available to return a damaged launcher or launcher missing parts back to serviceable condition)

(This is a tactical single-use, expendable, launcher)

### SUU-5003B/A Bomb and Rocket Dispenser

Tools and Test Equipment (rocket section only)

-Shop Tester -Launch Tube Cleaning Kit

-Rocket Tube Repair Kit -Gauge Rocket Tube Straightness

### SUU-5003B/A - Spare Parts

Finger Contact (Firing finger burns off each time a rocket is fired. Other parts are required primarily for cyclical calendar time maintenance).



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## ENGINEERING SERVICES

### Logistics Support

- Maintenance and revision of customer data (manual, engineering memorandum, safety notices)
- Provision of spares
- Test equipment
- Maintenance planning assistance
- Configuration management
- Pilot orientation training
- Ground crew training

### Systems Design and Development

- Design Authority (advice on system application, anomaly investigation, quality assurance, test and evaluation planning)
- New product development
- System improvements for launchers, fairings, warheads, and rocket motors
- Motor, warhead, and launcher compatibility testing and verification
- Platform airworthiness support
- Provision of ballistic data for weapons management system software
- Coordination of live fire demonstrations
- Kinematic modeling



The CRV7 RWS has been qualified and fired from over 35 fixed wing aircraft platforms including:

- F18 A/B Hornet
- Jaguar
- F-5 A/B Freedom Fighter
- GR7 Harrier
- Hawk
- L-159
- F-16 A/B
- Alpha Jet
- A-4 Skyhawk

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