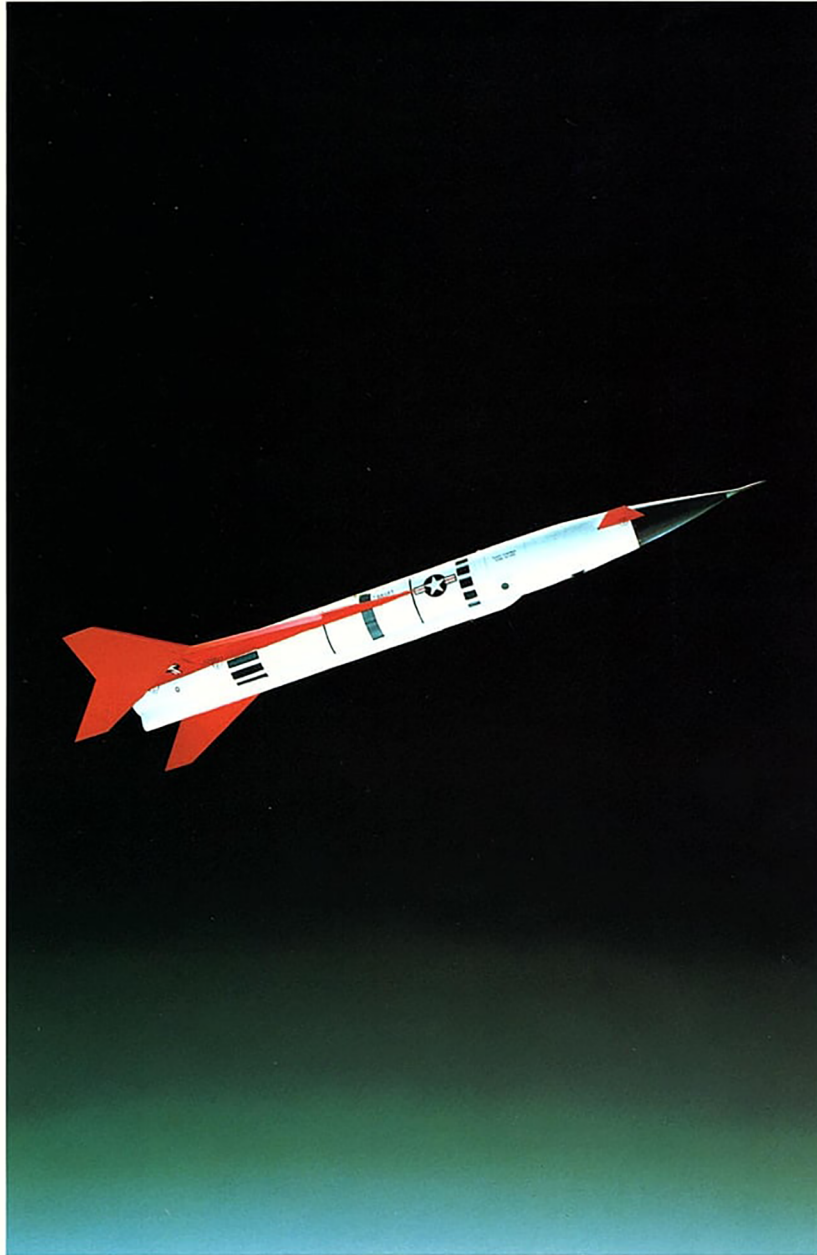


# AQM-37C TARGET SYSTEM



**Beechcraft**  
A **Raytheon** Company

## Propulsion

The AQM-37C has a liquid bi-propellant rocket propulsion system using a hypergolic mix of Inhibited Red Fuming Nitric Acid (IFRFA) as the oxidizer and a Mixed Amine Fuel (MAF-4) as the fuel.

The bi-propellant tanks are stainless steel pressure vessels filled and sealed during the final manufacture of the target. The fueled target can be stored for two years.

The propulsion system consists of one booster and one sustainer thrust chamber, with an orifice selector valve for propellant flow control. Boost and sustain thrust are selected for the mission by presetting the selector valve and a nitrogen pressure regulator. There are 16 possible thrust level settings, from 86 to 860 pounds (39 to 390 kg).

## AQM-37 Extended Performance Model

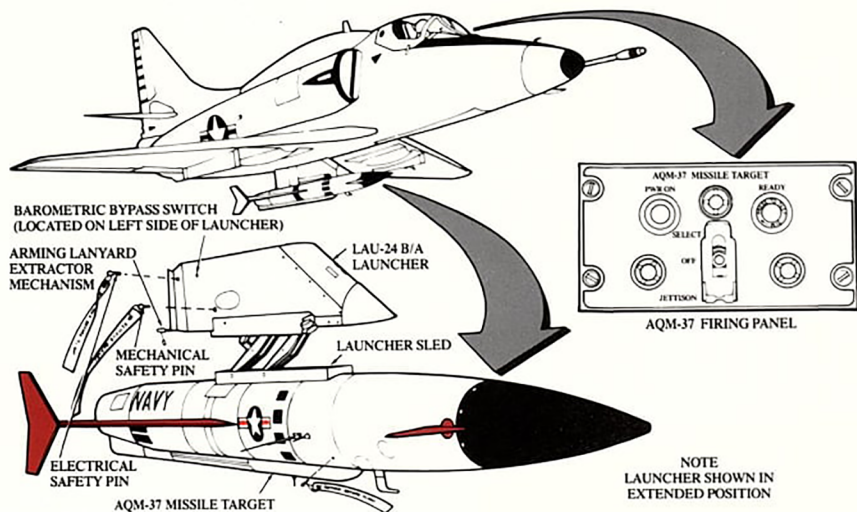
A field installed kit can be used to change the AQM-37C to an extended performance (EP) configuration, providing even greater performance.

The EP modification includes a high-temp radome, insulated wings and fins, and steel canards. This target can climb to a preset altitude up to 100,000 feet (30,480 meters), to fly "on-station" at a pre-selected speed of up to Mach 4.

## Low-Altitude Option

In addition, a modification can be made to allow the AQM-37C to fly at sea skimming altitudes, to simulate a high speed anti-ship missile threat. Launch occurs at Mach .6 to .8, at 1,500 feet, and the target descends to a pre-selected radar-altimeter-controlled altitude of between 50 and 1,000 feet (15 meters to 305 meters) above the water.

## Launch System



## Service and Support

Beech Aircraft supplies the complete AQM-37C target system including the targets, spare parts, support equipment, schooling and training as well as the advisory technical assistance.

Beech Aerospace Services, Inc. (BASI), a wholly owned subsidiary of Beech Aircraft, offers customers worldwide a complete training course for the independent operation of the AQM-37C, providing technical assistance from qualified personnel.

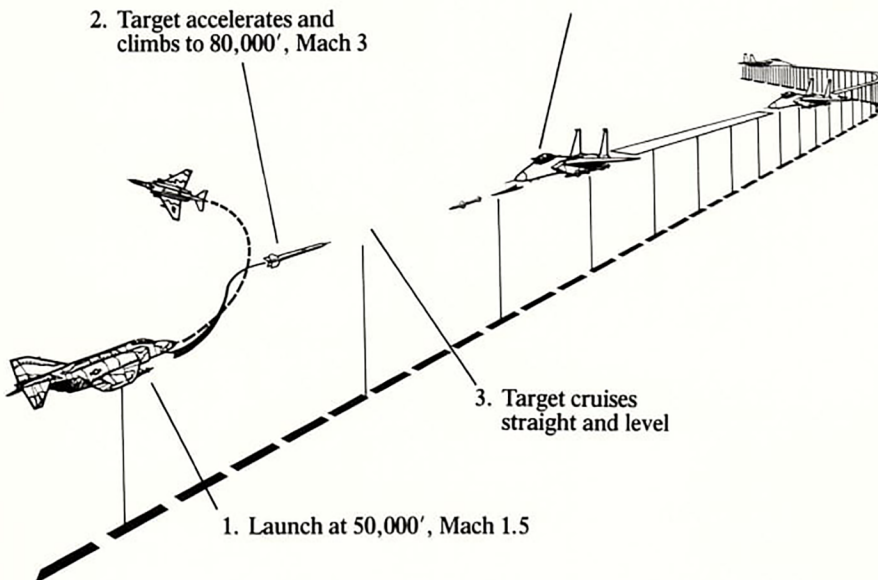
Also available through Beech Aircraft is a commercial supersonic launch service.

4. From 90 n.m. out, attack aircraft begins intercept

2. Target accelerates and climbs to 80,000', Mach 3

3. Target cruises straight and level

1. Launch at 50,000', Mach 1.5



One typical mission for the AQM-37C is a high-performance, high-altitude intercept.

## AQM-37C SPECIFICATIONS

### Dimensions

|                       | Inches | Meters |
|-----------------------|--------|--------|
| • Wing Span           | 39.52  | 1.004  |
| • Length Overall      | 168.26 | 4.274  |
| • Body Diameter (max) | 13.00  | 0.330  |

### Weight

|                    | Pounds | Kilograms |
|--------------------|--------|-----------|
| • Basic Empty Wt.  | 268    | 122       |
| • Max Launch Wt.   | 600    | 272       |
| • Payload Internal | 35     | 16        |

### Performance

- Maximum Speed Mach 3 (Mach 4 EP)
- Maximum Endurance, Powered  
Launch to rocket burnout:  
7.5 min./Mach 2 @ 75,000 ft.
- Maximum Altitude  
80,000 ft. (24,385 meters), AQM-37C  
100,000 ft. (30,480 meters), EP
- Electrical Power 28 VDC battery



Military readiness can be the key to a nation's survival. And in a modern era of supersonic threats, readiness training is more important than ever.

That's why Beech has developed the AQM-37C supersonic target system, the ideal readiness test for aircraft and missile defense crews—and the most realistic threat training device available.

The AQM-37C is the only target currently in production that can fly supersonic as well as subsonic missions. It can perform threat simulation dives at angles of 15 to 65 degrees, terminating with a pull-up for ship safety. Command sequences can be preprogrammed or initiated from the ground.

Variations of the AQM-37A target have been in continuous service with the U.S. armed forces since 1963. Over the course of thousands of launches, the system has achieved an overall reliability in excess of 90 percent.

The AQM-37C, the latest extension of the AQM-37 series, features a digital flight control system, expanded mach sensor, high-temp adhesives and enlarged vertical stabilizers.

## Training And Weapons Systems Support

The AQM-37C can provide training for crews using a variety of weapon systems to defeat high-speed threats at high and low altitudes.

The target provides air-to-air weapons training for pilots of aircraft using missiles such as the AIM-7 Sparrow, AIM-9 Sidewinder and the Matra Magic.

Training can also be provided for Surface-To-Air Missile (SAM) crews using such weapons as the improved Hawk, the Standard, the SA 6 and the Aegis missile defense system.

With performance capability over a wide range of altitudes and speeds, along with its specialized payload-carrying capacity, the AQM-37C has become a recognized standard in the production-lot acceptance testing of current missiles, and it can also provide realistic threat challenges in the research and development of advanced weapons systems.

## Mission Profiles

The AQM-37C is a versatile system that can be launched from a variety of aircraft and can fly at high, medium or low altitudes.

Launches can occur from Mach .6 at 5,000 feet (1,524 meters) to Mach 1.5 at 55,000 feet (16,764 meters). Supersonic launches increase time "on station" (straight and level) at selected altitude and airspeed as much as 50 percent.

High-altitude launches can be made from between 35,000 and 55,000 feet at Mach .8 to 1.5. The target then climbs to a pre-set altitude of up to 80,000 feet (24,384 meters), where it continues to fly on-station at a pre-determined speed of up to Mach 3.0.

During a mission, a variety of weapons can engage the target. For example, several aircraft can fire a mix of heat-seeking and radar air-to-air missiles at the target. With appropriate

safety spacing, multiple engagements can be accomplished. By positioning ships along the target's flight path, several ships can fire at the AQM-37C target. In this way, one expendable target can complete training requirements for a large number of crews serving different types of weapons.

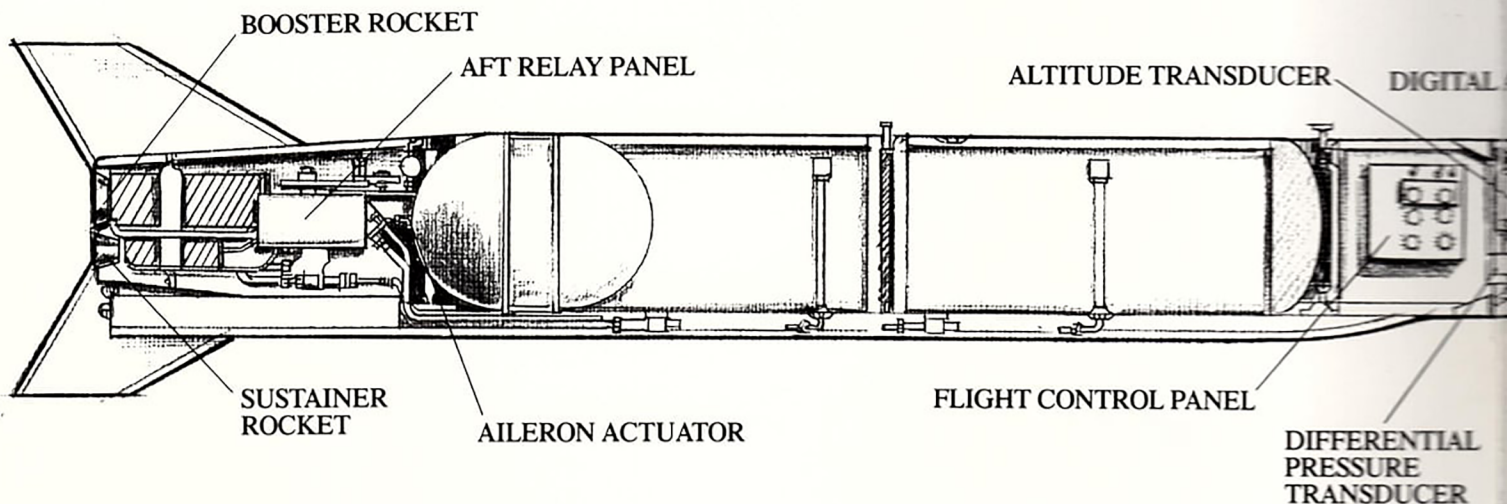
Each mission begins with a launch from a standard LAU-24B/A Airborne Ejection Launcher which is compatible with a variety of aircraft including the U.S. A-4, A-6, F-4 and F-8 as well as the British Canberra and French Mirage 3.

Prior to launch, the onboard computer compares sensor data to stored values, measures and compares computer and vehicle voltages, and checks to see that the flight stabilization gyros are uncaged.

Once activated by an MK-9 mod "0" launcher cartridge, a trapeze ejection mechanism pushes the target forward and down, resulting in a controlled stable separation.

AQM-37C missions are terminated either by a weapon interception or by the use of an aerodynamic flight termination feature which initiates a hard roll, causing the target to enter a terminal ballistic trajectory. As a safety feature, the aerodynamic flight termination will occur when the vehicle exceeds the allowable course deviation.

The maximum powered endurance of the target is 7.5 minutes with a range of 140 nautical miles.





**HIGH-ALTITUDE/SUPERSONIC LAUNCH**

- 100,000 Ft/Mach 4.0 (Extended Performance)
- 80,000 Ft/Mach 3.0
- 70,000 Ft/Mach 2.0



**MEDIUM-ALTITUDE/SUPERSONIC LAUNCH**

- 50,000 Ft/Mach 1.8
- 35,000 Ft/Mach 1.5
- 20,000 Ft/Mach 1.3



**LOW-ALTITUDE/SUBSONIC LAUNCH**

- 5,000 Ft/Mach .95
- 1,000 Ft/Mach .90
- 50 Ft/Mach .85 (Option)



**Guidance**

The AQM-37C is guided by a self contained system which includes a micro-processor based digital flight control system. It can be pre-programmed to include a preselected flight time, altitude and flight path.

The target launch point and initial flight heading are established by the launch aircraft. Heading changes, dives and pull-ups, and payload control adjustments can be made via ground-to-air commands.

Pitch control is maintained by canard surfaces mounted on the mid-nose, with roll control adjusted through full-span ailerons located on the trailing edge of the wings. Turns are accomplished by a roll-to-turn technique.

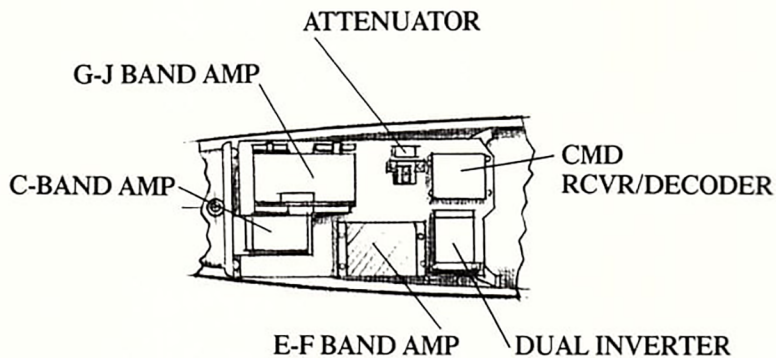
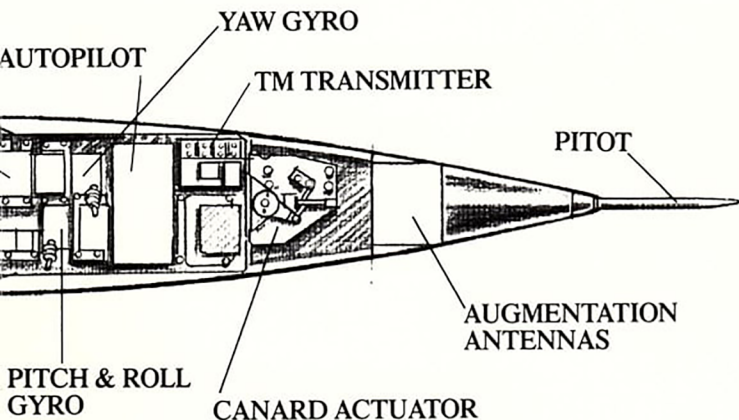
**Active & Passive Augmentation**

The AQM-37C uses either passive or active augmentation systems, to allow detection, acquisition, tracking and guidance radars to lock on to the target.

A fiberglass radome houses a passive C-X band radar reflector lens in the 5 to 12 GHz range, providing a 1-to-4-square meter radar cross section.

The passive-lens radome assembly is replaced by a nose radome/antenna, providing forward coverage for the multiband active radar augmentation system.

The AQM-37C provides expanded coverage, including the G/I/J, E/F and B bands. An air-to-air kit is also available, consisting of a high power I-band amplifier and an antenna module, which installs in the nose radome.







An F-4N Aircraft Launches An AQM-37 Extended Performance Missile Target.





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