BQM-74 Series: The Legacy Continues

NDIA Targets 2006

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Integrated Systems Western Region
Northrop Grumman Corporation
>100,000 Unmanned Vehicles Delivered
# BQM-74F Evolution

<table>
<thead>
<tr>
<th>Model</th>
<th>Year</th>
<th>Thrust</th>
<th>GFW</th>
<th>Flight Profiles</th>
<th>Avionics</th>
<th>LAC</th>
<th>Weave</th>
</tr>
</thead>
<tbody>
<tr>
<td>MQM-74A</td>
<td>1966</td>
<td>121 Lb</td>
<td>316 Lb</td>
<td>GL Only</td>
<td>Analog Avionics</td>
<td></td>
<td></td>
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<tr>
<td>MQM-74C</td>
<td>1973</td>
<td>180 Lb</td>
<td>454 Lb</td>
<td>GL Only</td>
<td>Analog Avionics</td>
<td></td>
<td></td>
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<tr>
<td>BQM-74C</td>
<td>1980</td>
<td>190 Lb</td>
<td>438 Lb</td>
<td>1st Generation Digital Avionics</td>
<td>30 Ft LAC</td>
<td></td>
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<tr>
<td>BQM-74E</td>
<td>1991</td>
<td>240 Lb</td>
<td>454 Lb</td>
<td>2nd Generation Digital Avionics</td>
<td>1997</td>
<td></td>
<td></td>
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<tr>
<td>BQM-74ER</td>
<td>1996</td>
<td>240 Lb</td>
<td>480 Lb</td>
<td>2nd Generation Digital Avionics</td>
<td>1997</td>
<td></td>
<td></td>
</tr>
<tr>
<td>BQM-74F</td>
<td>2006</td>
<td>300 Lb</td>
<td>625 Lb</td>
<td>3rd Generation Digital Avionics</td>
<td>7 Ft LAC</td>
<td>Weaves</td>
<td>Flight Profiles</td>
</tr>
</tbody>
</table>

- AL & GL
- Flight Profiles
- Weaves

*MQM-74A* and *MQM-74C* are based on the MQM-74A, with improvements in *BQM-74C*.

*MQM-74C* and *BQM-74C* are based on the MQM-74C, with improvements in *BQM-74E*.

*MQM-74F* is based on the MQM-74F, with improvements in *BQM-74ER*.

**Northrop Grumman**
MQM/ BQM-74 Growth to BQM-74F

Gross Weight (Lbs) vs. Thrust (Lbs)

- MQM-74A
- MQM-74C
- BQM-74C
- BQM-74E
- BQM-74F

Years: 1960 - 2010
BQM-74E Subsonic Aerial Target

Workhorse of the Fleet

<table>
<thead>
<tr>
<th>BQM-74E USN Deliveries</th>
</tr>
</thead>
<tbody>
<tr>
<td>FY06</td>
</tr>
<tr>
<td>60</td>
</tr>
</tbody>
</table>

- 10+ years legacy of on time deliveries to the U. S. Navy
- 1965-present over 8500 BQM-74 Series Targets have been delivered worldwide
- Conducting 250 operations/year supporting the warfighter
MQM/ BQM-74 and Chukar Production

The Highest Quantity Produced Jet in the United States

Over 8500 Vehicles Delivered of the MQM/BQM-74 and Chukar International Series!
Worldwide Targets Experience
BQM-74F Enhanced Aerial Target

- BQM-74E/Chukar Capability PLUS...
- Increased Speed, Range, Maneuvers & Payload Capability
- Modernized Support Equipment (PC Based)
- Modernized Mission Planning (PC Based)
### BQM-74F Cut Away View

<table>
<thead>
<tr>
<th>Specification</th>
<th>Measurement</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>180.0 in</td>
</tr>
<tr>
<td>Fuselage Diameter</td>
<td>14.0 in</td>
</tr>
<tr>
<td>Wing Span</td>
<td>84.0 in</td>
</tr>
<tr>
<td>Wing Area</td>
<td>8.0 ft²</td>
</tr>
<tr>
<td>Wetted Area</td>
<td>11,050 in²</td>
</tr>
</tbody>
</table>

- **Engine**
- **Parachute**
- **Bonded Wing Assembly**
- **Payload Compartment**
- **Fuel Tank**

Approved for Public Release:
USN 180/05 Dated 2 Nov 2005, TDEA #9356
BQM-74F vs BQM-74E Requirements

- **Max Speed**
  - BQM-74E: 0.82 M
  - BQM-74F: 0.92 M

- **Range** (300 kts, 20k ft)
  - BQM-74E: 342 NM
  - BQM-74F: 500 NM

- **Endurance** (300 kts, 20k ft)
  - BQM-74E: 68 Min
  - BQM-74F: 115 Min

- **G Limit**
  - BQM-74E: 6 G
  - BQM-74F: 8 G

Download the complete PDF for more detailed information.
Speed-Altitude Envelopes

BQM-74F - 600 Lbs
BQM-74E - 500 Lbs
BQM-74C - 450 Lbs
MQM-74C - 435 Lbs

Minimum Drag
Minimum Throttle
Thrust = Drag

BQM-74F Provides Significant Increase in Performance
BQM-74F Weave Maneuvers

- Programmable High-G Maneuvers in 3D Space
- G-Levels Up to 6 Gs
- Cruise and Engagement Altitudes Down to 7 Feet
- Radar Altimeter with Inertial Aiding Allows Unlimited Roll Attitude
- User Defined Trajectories Using PC Based Weave Planner, Plus 5 Fixed Weave Maneuvers
- Downrange Defined Relative to Distance Traveled or Time from Engagement
- Developed and Demonstrated on BQM-74E, 99-02

The BQM-74F Accurately Replicates Threat Terminal Maneuvers
BQM-74F Mission Payload Capabilities

- Power Capacity: 2,000 Watts
- Payload Volume/Weight: ~ 5 ft³/100lbs
- Command and Control Systems
  - AN/DKW-3B(V), SNTC
- Radar Altimeter: RT/1378
- Scalar Scoring: AN/DSQ-50A
- RCS Augmentation
- RCS Reduction @ 10GHz Nose-on
- IR Augmentation
  - Flares, Plumers
- Locator/ID Mission Equipment
  - IFF AN/DPN-88
  - Range AN/DPN-90(V)
  - Recovery T-1438/D
- Seeker Simulator: AN/DPT-2B
- ECM: ULQ-21 Suite
- Growth Capability in Payload Bay

Rapidly Reconfigurable Payloads
Modernized Support Equipment

Ground Support Power Supply (GSPS)

Computer Console

Integrated Test Set Provides User Friendly PC Based System Test Capability and Increased Ground Power for Payloads
PFPS Mission Planning Toolset

BQM-74F Integrated Test Set
Hosts PFPS for Mission Planning and Vehicle Loading

NORTHROP GRUMMAN
BQM-74F Integrated Product Team Members

- Aerospace Systems
- Coast Precision
- FXC/Guardian Parachute
- Mandaree
- Performance Plastics

- Rozendal Associates
- Senior Aerospace Composites
- Sensor Systems
- Smiths Aerospace
- Solid Concepts
- Viable Power Conversion