Characteristics Summary

Air Intercept Missile .......... AIM-4A [GAR-1D]

FALCON

Hughes

Wing Area: Not Applicable
Span: 20.0 in.
Length: 78.0 in.
Height: 20.0 in.

Availability

Number available
ACTIVE
RESERVE
TOTAL

Procurement

Number to be delivered in fiscal years

Status

1. Project Initiated: Jan 47 (GAR-1)
2. Complete Guided Aircraft Rocket Project Initiated: Mar 48
3. First Air-to-Air Hit: Jun 52
5. First Falcon-equipped Squadrons: Early 56

Mfr's Model: DPb

Power Plant

(1) Single-level Thrust,
Solid Rocket M58A2
Thiokol Chemical Corp.

Thrust Ratings
S.L.S. @ 70°F LB — SEC
Nominal: 4220 1.40

Features

Semi-active Radar Seeker
Spherical-nose Plastic Radome
Cruciform Surface Arrangement
"Roll-rate-limiting" Aileron Control
Blast Type Warhead
Contact Fuzes
Batteries and Compressed Gas-Hydraulic Supply
Miniaturized Precision Components and Circuitry
Snap-up Capability
Maximum Fuel: 31.02 lb

Guidance

Initial (Boost Phase)—None; Tracking Only
Mid-Course and Terminal—Homing, Semi-active X-band Pulse Radar Target Seeker, Proportional Navigation

Control

Hydraulically Actuated Rear Control Surfaces Provide Necessary Steering and Damping
Steering Signals Generated by Target Seeker Tracking Motion

Confidential

57 NC-4783
# Characteristics Summary Basic Mission

## Aim-4A (GAR-1D)

### Performance

<table>
<thead>
<tr>
<th>Targets</th>
<th>Range</th>
<th>Speed</th>
</tr>
</thead>
<tbody>
<tr>
<td>Subsonic propeller-driven</td>
<td>Nominal missile launch</td>
<td>MAX Launching aircraft</td>
</tr>
<tr>
<td>or jet bombers</td>
<td>range: 5000 to 28,500 ft</td>
<td>speed plus 1900 fps</td>
</tr>
</tbody>
</table>

### Launching

<table>
<thead>
<tr>
<th>Flight Time</th>
<th>Altitude</th>
</tr>
</thead>
<tbody>
<tr>
<td>Short-length tracks (5)</td>
<td>Effective up to 60,000 ft</td>
</tr>
<tr>
<td>Extended from F-89H wing-tip pods or F-102A and F-101B fuselage bays</td>
<td>Nominal missile flight time: 3.2 sec to 11.0 sec</td>
</tr>
<tr>
<td>16 sec minimum preparation</td>
<td></td>
</tr>
<tr>
<td>time from AI radar lock-on</td>
<td></td>
</tr>
<tr>
<td>(F-89H) or detection (F-102A and F-101B)</td>
<td></td>
</tr>
<tr>
<td>Salvo of 3 or 6 missiles</td>
<td></td>
</tr>
</tbody>
</table>

### Load Weights Target Accuracy

<table>
<thead>
<tr>
<th>Load</th>
<th>Weights</th>
<th>Target Accuracy</th>
</tr>
</thead>
<tbody>
<tr>
<td>Warhead and Fuzes (installed)</td>
<td>8.4 lb</td>
<td>P_k = 0.78 for salvo of 3 missiles in rear hemisphere attacks against subsonic bombers</td>
</tr>
<tr>
<td>Explosive</td>
<td>2.75 lb</td>
<td>Pre-launch 126.0 lb</td>
</tr>
<tr>
<td>Motor (loaded)</td>
<td>45.5 lb</td>
<td>Burnout 95.0 lb</td>
</tr>
<tr>
<td>Useful Fuel</td>
<td>31.02 lb</td>
<td></td>
</tr>
</tbody>
</table>

### Notes

1. Performance Basis:
   (a) Calculation based on experimental FALCON flight tests, component tests, and estimated data.
   (b) NACA standard atmospheric conditions.
2. Revision Basis: To reflect change in model designation (AFR 66-20).
3. Probability of kill (P_k) value is based upon 90% missile reliability and 0.90 kills per hit.
4. Nominal values correspond to idealized operation of the fire control system.