Standard Aircraft Characteristics

XGAR-1A

FALCON
HUGHES

ONE SOLID ROCKET
HUGHES

XGAR-1A
(AIR-AIR)

Declassified After 20 Years

15 NOV 54
### POWER PLANT

<table>
<thead>
<tr>
<th>No. &amp; Model:</th>
<th>(1) Solid Rocket Motor; Two-Phase Thrust</th>
</tr>
</thead>
<tbody>
<tr>
<td>Mfr</td>
<td>Hughes Aircraft Co.</td>
</tr>
<tr>
<td>Engine Spec. No.</td>
<td>..................................</td>
</tr>
<tr>
<td>Weight (loaded)</td>
<td>37 lb</td>
</tr>
</tbody>
</table>

### ENGINE RATINGS

<table>
<thead>
<tr>
<th>S. L. Static</th>
<th>LB</th>
<th>SEC</th>
</tr>
</thead>
<tbody>
<tr>
<td>Nominal:</td>
<td>1</td>
<td>4700</td>
</tr>
<tr>
<td></td>
<td>2</td>
<td>5000</td>
</tr>
</tbody>
</table>

**Boost Phase**

**Sustaining Phase**

### Dimensions

<table>
<thead>
<tr>
<th>Span</th>
<th>24.0&quot;</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length</td>
<td>86.5&quot;</td>
</tr>
<tr>
<td>Height</td>
<td>24.0&quot;</td>
</tr>
<tr>
<td>Diameter</td>
<td>6.4&quot;</td>
</tr>
</tbody>
</table>

### Mission and Description

**Navy Equivalent:** None

**Mfr's Model:** E

The XGAR-1A (FALCON) is a small supersonic guided aircraft rocket whose prime mission is the destruction of subsonic and supersonic bombers. The stabilizers and fuselage are assembled in a cruciform arrangement. The nose is a radome fabricated from laminated fiberglass impregnated with a thermo-setting resin. The power plant consists of a two-phase, solid rocket motor.

The FALCON uses a semi-active target seeker consisting of a gyro-controlled antenna and a receiver which depends upon the launching aircraft for radar illumination of the target. The seeker receiver contains a circuitry which synchronizes with the launching aircraft radar to maintain 'lock-on'. The seeker, in so maintaining the 'line-of-sight' to the target, generates signals which are applied to the guidance circuits so as to produce a proportional navigation correction at all times.

The rocket is launched forward from an interceptor on a collision course and depends upon a direct hit for detonation. The XGAR-1A has a launching range of 5000 ft to 25,000 ft with speeds at the end of boost equal to the launching aircraft speed plus 1200 feet-per-second. The weapon is effective at altitudes up to 60,000 feet.

### Development

Extension of the GAR-1 development. This guided aircraft rocket is an improvement over the GAR-1 (FALCON) in that the radome nose shape will be more compatible to a supersonic vehicle and thus improve the range and other performance characteristics of the rocket. Other changes include aerodynamic (control surface) improvements to provide better maneuverability at high altitudes; a miniature turbine unit to provide electric and hydraulic power; and many electronic improvements, e.g. for better counter-countermeasure performance. Development of this particular rocket will follow the GAR-1 by approximately three years.

### GUIDANCE

**ACCURACY**

<table>
<thead>
<tr>
<th>Pk</th>
<th>50 to .99 for salvo of 6 rockets against subsonic and supersonic bombers</th>
</tr>
</thead>
</table>

**CONT'NOL**

Hydraulic: Initiated by the Error Signal from Target Seeker.

### LAUNCHING

**METHOD**

Short Length Roll (Internal Storage)

**LAUNCH TIME**

Approximately 20 seconds required from time target is sighted to time rocket is launched.

### WEIGTS

<table>
<thead>
<tr>
<th>Loading</th>
<th>Lb</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max Launch</td>
<td>135.0 (E)</td>
</tr>
<tr>
<td>Burnout</td>
<td>110.3 (E)</td>
</tr>
</tbody>
</table>

(E) Estimated

### FUEL

**Type**

Thiokol

**Useful Weight (lb)**

24.7

### WARHEAD

**Blast Type**

**Gross Weight (lb)**

12

**Net Weight (lb)**

5

**FUZE**

Contact Type

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**SECRET**

**XGAR-1A**

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DATA NOT AVAILABLE