Black Book

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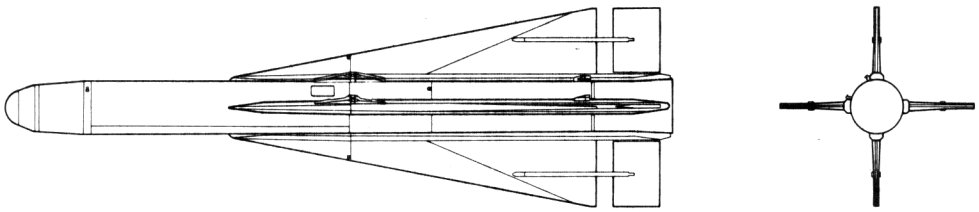
Characteristics Summary

GUIDED AIRCRAFT ROCKET YGAR-4



FALCON HUGHES

Wing Area	Not Applicable	Length	83.4 in.
Span	24.0 in.	Height	24.0 in.

AVAILABILITY			PROCUREMENT			
Number available			Number to be delivered in fiscal years			
ACTIVE	RESERVE	TOTAL				

STATUS

1. Extension of GAR-2 development initiated in March 1954
2. Improved warhead, power supply, and electronic circuitry
3. Improved performance characteristics
4. Development will parallel YGAR-3.

Navy Equivalent: None

Mfr's Model: GG

POWER PLANT

(1) Two-phase Boost-sustain, Solid Rocket T-63

Hughes Aircraft Co.

THRUST RATINGS

S.L.S.	LB	—	SEC
Nominal (Average) —			
Boost:	4640	—	0.61
Sustain:	685	—	2.95
Total:	—	—	3.63

FEATURES

Passive Infrared Seeker

Spherical-nose Quartz Nirdome

Cruciform Surface Arrangement

"Roll-rate-limiting" Aileron Control

Blast Type Warhead

Contact Fuze

Turbine-driven Electrical and Hydraulic Power Supply

Miniaturized Precision Components and Circuitry

Simplified Fire Control System Capability

Snap-up Capability

Maximum Fuel . . 23.6 lb

GUIDANCE

INITIAL (BOOST PHASE)— None; Tracking Only

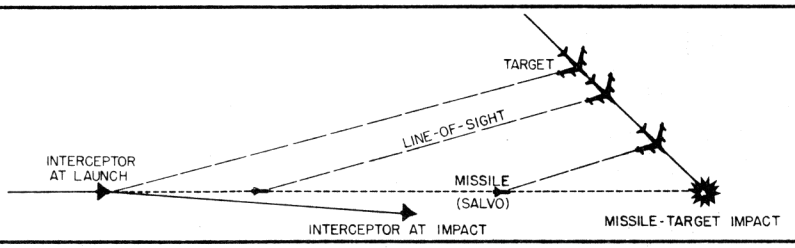
MID-COURSE AND TERMINAL— Homing, Passive Infrared Target Seeker, Proportional Navigation

CONTROL

Hydraulically Actuated Rear Control Surfaces Provide Necessary Steering and Damping

Steering Signals Generated by Target Seeker Tracking Motion

Characteristics Summary Basic Mission YGAR-4



PERFORMANCE

TARGETS	RANGE	SPEED
Subsonic propeller-driven or jet bombers Supersonic jet bombers Subsonic or supersonic jet fighters	Nominal missile launch range: 3400 ft to 25,000 ft	MAX Launching aircraft speed plus 1200 fps
LAUNCHING	**FLIGHT TIME**	**ALTITUDE**
Extensible short-length tracks (6) located in F-102B fuselage bay 16 sec minimum preparation time from AI radar detection Salvos of 3 or 6 missiles	Nominal missile flight time: 4.3 sec to 17.3 sec	Effective up to 70,000 ft
LOAD	**WEIGHTS**	**TARGET ACCURACY**
Warhead and Fuze (installed) . . . . . 10.7 lb Explosive . . . . . 5.00 lb Motor (loaded) . . . . . 40.5 lb Useful Fuel . . . . . 23.6 lb	Empty . . . . . 122.6 lb Pre-launch . . . . . 135.0 lb End of Boost Phase . . . . 119.8 lb Burnout . . . . . 111.4 lb	P_k — 0.95 for salvo of 3 missiles in rear hemisphere attacks against subsonic and supersonic bombers

NOTES

1. Performance Basis:
   (a) Calculation based on experimental FALCON flight tests, component tests, and estimated data. (Not substantiated by WADC)
   (b) NACA standard atmospheric conditions.
2. Revision Basis: **To reflect latest characteristics and performance data.**
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.