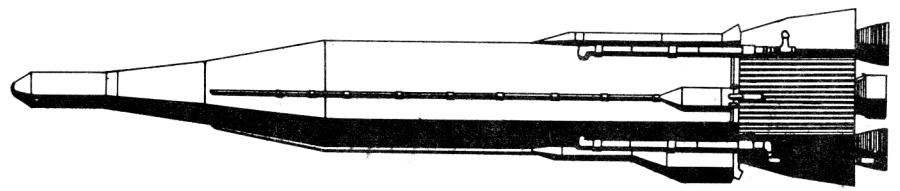


unclassified
~~CONFIDENTIAL~~

SECRET

Characteristics Summary

PILOTLESS SPACECRAFT HGM-16F (SM-55F)



"ATLAS"

GENERAL DYNAMICS - ASTRONAUTICS

Length (overall) 81.6 Diameter (nominal) —

D. M. White 3/21/77
Report

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

STATUS	
Initial Design Complete (SM-65F)HGM-16F Dec 60	First Flight (Test Vehicle) (SM-65F)HGM-16F Aug 61
Static Test, Start of (SM-65F)HGM-16F Apr 61	Delivery of First Operational Missile to operational site 1961

POWER PLANT		
NAA - Rocketdyne		
Booster	Sustainer	Vernier
(2)* LR-89-NA-3	(1)**LR-105-NA-3	***LR-101-NA-3
Thrust (lb) @S. L.		
165,000(ea)	57,000	1000(ea)
Duration (sec)		
124.8****	312	
Total thrust at Launch 389,000 lb		
*Gimbale Yaw ± 5.0°		
Pitch & Roll ± 5.0°		
**Gimbale Yaw ± 3.0°		
Pitch ± 3.0°		
***Gimbale Yaw - Roll ± 70°		
***Pitch 28° - 50° ref missile ctr line		
****Jettisoned at end of first stage		
FUEL		
Grade RP-1 77,031 lb		
Oxidizer (Liquid Oxygen) 175,226 lb		

FEATURES

HGM-16F is a ballistic-type pilotless spacecraft designed to provide proficiency training; establish confidence in reliability; tactical use.

The airframe consists of a forward section, mid section and aft section with no external aero-dynamic surfaces. The re-entry vehicle separates from the mid section at the end of powered flight and follows a ballistic flight path to the target.

HGM-16F is a one-and-one-half stage spacecraft; all engines are started on the ground; the booster unit is jettisoned early in flight.

GUIDANCE

Guidance and control are performed by an All Inertial Guidance System in conjunction with a Missileborne Autopilot and Hydraulic Powered Control System.

ARMAMENT

The re-entry vehicle separates from the mid section at the end of powered flight and follows a ballistic flight path to the target.

DOWNGRADED AT 3 YEAR INTERVALS;
 DECLASSIFIED AFTER 12 YEARS
 DOD DIR 5200.10

Feb 64

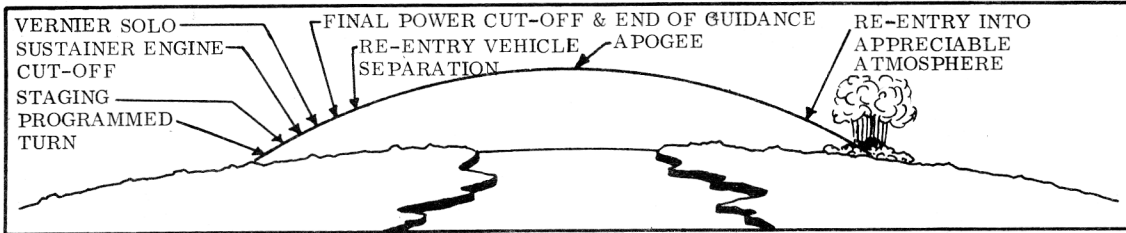
SECRET

HGM-16F (SM-55F)

(AFG 1, Addn 59) (43 of 98)

C6/A+1as HGM-16F/C11ar

Characteristics Summary Basic Mission HGM-16F (SM-55F)



PERFORMANCE		
FLIGHT TIME	RANGE	VELOCITY
GUIDANCE 312.0 Seconds Not including vernier stage TOTAL FLIGHT 2552 Seconds	6,788 Nautical Miles Based on non-rotating earth	Burnout 23,529 ft/sec Re-entry 24,409 ft/sec Impact (Vacuum 24,797 ft/sec Entry)
LAUNCHING	ACCELERATION	ALTITUDE
Spacecraft is elevated from the underground silo to the launch position and launched at completion of countdown.	POWERED FLIGHT Thrust/Weight 'G' Launch 1.46 Staging-Initiation 6.95 Burnout 7.20	SURFACE - SURFACE Burnout 1,007,915 ft (165.9 Nautical Miles) Apogee 4,635,551 ft (763 Nautical Miles) Re-entry 300,000 ft
RE-ENTRY VEHICLE	WEIGHTS	TARGET ACCURACY
Type Special Weight 3825 lb Location Forward Section	Empty 16,123 lb Residuals 1981 lb Propellant 249,032 lb Re-entry Vehicle 3825 lb Launching 267,136 lb	Maximum accuracy attainable with an all Inertial Guidance System.

- N O T E S**
1. Programmed turn to reach flight path starts at 1800 ft altitude.
 2. Jettison of first-stage booster unit 127.8 sec after launch.
 3. Sustainer engine cut-off 312.0 sec after launch.
 4. Final power cut-off and end of guidance as determined by range and azimuth of target with a maximum allowable of 349 seconds.
 5. Re-entry vehicle section separation immediately after final cut-off.
 6. Apogee 1331 sec after launch, 763 nautical mile altitude.
 7. Re-entry into appreciable atmosphere 2484 sec after launch.
- REVISION BASIS: To change Model Designation in accordance with AFR 66-20.