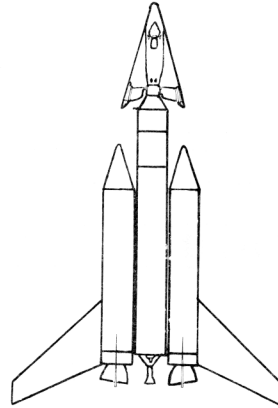
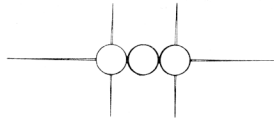
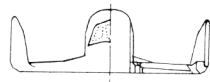
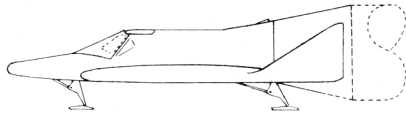


unclassified
~~CONFIDENTIAL~~

B1
Dyna Soar "A" / CHAR

Characteristics Summary

MILITARY TEST SYSTEM DYNA SOAR



BOEING

Air Vehicle: Length (overall)	132.8 ft	Glider: Wing Area	345 sq ft
Booster Length (overall)	89.4 ft	Wing Span	20.8 ft
Strap-on Stage Length	79.2 ft	Length (glider only)	35.4 ft
Horizontal Fin Span	81.8 ft	(glider and transition section) 43.4 ft	
Vertical Fin Span	36.8 ft		

PROCUREMENT

Number to be delivered in fiscal years

	FY 63	FY 64	FY 65	FY 66	FY 67	TOTAL
Glider/Transition Section	0	2	4	0	0	6
Refurbished Glider/Transition Section	0	0	0	4	3	7

STATUS

- Orbital Program Go-Ahead . . . 12 Dec 61
- Launch Dates:
 - First Air Drop Jul 64
 - First Unmanned Ground Launch (est) Feb 65
 - First Manned Ground Launch (est) May 65

POWER PLANT

Booster:
 Model Titan IIIC
 Mfr SSD and their contractors

Titan IIIC consists of the two stage Titan II liquid propellant booster with two strap-on solid propellant boosters.

Glider:
 A solid propellant rocket is provided for escape purposes only in event of abort on the pad or during boost.

Nr & Model . . . (1) XM92
 Mfr Thiokol
 Type Solid Rocket
 Duration 13.4 sec
 Thrust 40,000 lb@SL

FEATURES

Crew 1

Radiation Cooled Glider Structure with compartment water wall structure utilizing latent heat of evaporation for heat dissipation. Reaction plus aerodynamic controls with pilot in the loop. Full time three axis self-adaptive stability augmentation. Skid-type three point landing gear. Inertial guidance for boost, orbit and re-entry.

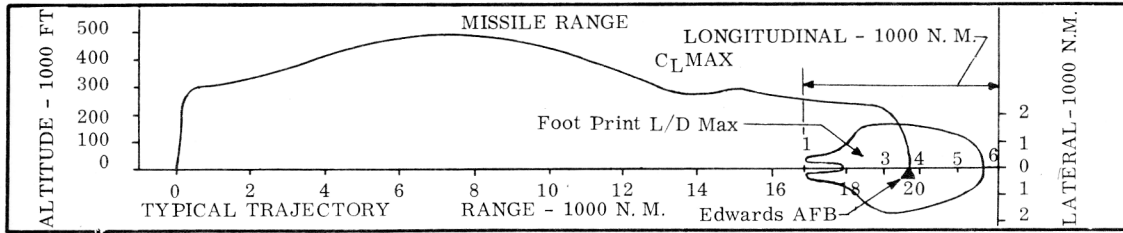
SHF & UHF Communications. Large data handling capacity telemetry. Total glider abort escape system during boost with pilot seat ejection escape below .9 Mach. Pilot Vision. Side windows only during boost and orbit. Side windows and forward windshield after re-entry and during the landing phase.

Provides manned, maneuverable vehicle and associated equipment for conducting experiments in the hypersonic and orbital flight regime in order to: (1) gather research data to solve design problems of controlled, lifting re-entry from orbital flight; (2) demonstrate manned, controlled, maneuvering re-entry with tangential recovery at a pre-selected landing site; (3) test vehicle equipments and explore military man's function in space.

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

57WC-4982

Characteristics Summary Basic Mission DYNA SOAR



PERFORMANCE		
LAUNCH	BOOST	VELOCITY
Site: Cape Canaveral Initial Heading: 105° (planned)	Thrust (nominal) 1st stage: 1,540,000 lb 2nd stage: 474,000 lb 3rd stage: 100,000 lb End of Boost Altitude (max): 490,000 ft (orbital): 300,000 ft	V burnout 24,650 fps V apogee 24,120 fps V re-entry 24,400 fps V approach 290 knots
ACCELERATION	RANGE	LANDING
Peak load factor value during boost End Second Stage boost: 5.0 Glider acceleration rocket: 3.3	Longitudinal Range Orbital Once Around Distance 19,700 n mi Time 104 min	Site: Edwards AFB Nominal Landing Speed: 175 knots Nominal Run-out Distance . . 2750 ft
TEMPERATURE	WEIGHTS	LOADS
Max during Flight Re-entry Nose Stagnation 4050° F ($\xi = 0.6$) Wing Leading Edge 2700° F ($\xi = 0.9$)	Launch (gross) . . . 1,292,000 lb Glider/Transition (launch) Max 28,000 lb Nominal 18,000 lb Glider (re-entry) 11,000 lb	Pay load: Compartment capacity 75 cu ft and 1000 lb Glider acceleration rocket: Solid Propellant . . . 2200 lb

- N O T E S**
- Performance Basis:
 - Estimated data
 - Booster thrust, length of strap-on solids and size and shape of booster fins based on preliminary data.
 - Drone recovery employed in unmanned launches.
 - B-52C (AF53-399) will be modified for use as air launch vehicle and for ferry purposes.
 - Revision Basis: To reflect latest characteristics and performance data.