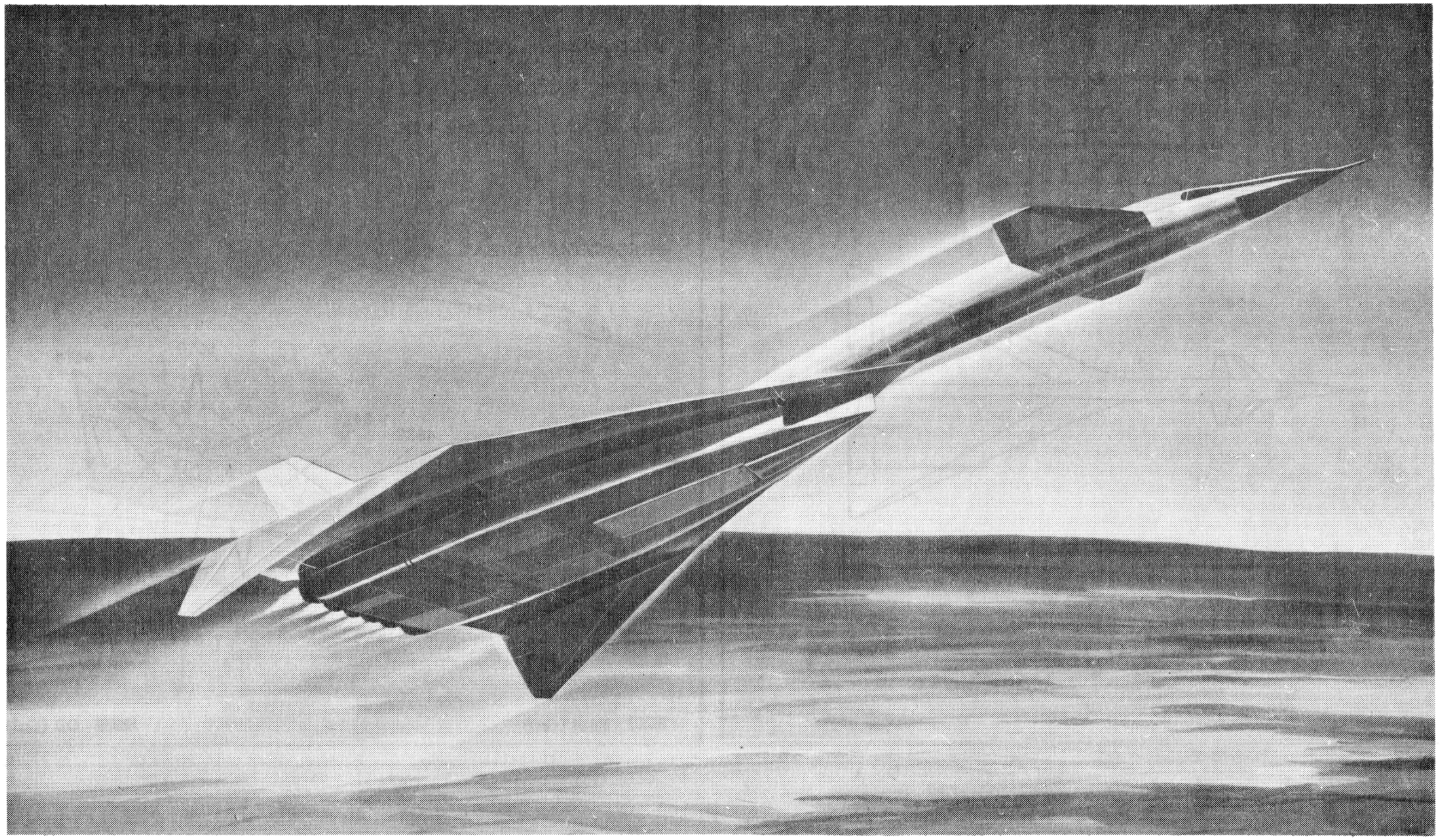
A-1
(X) B-70B/char

EXPERIMENTAL

Classification cancelled or changed to Unclassified
By AUTH Signature and Grade

RESTRICTED DATA
ATOMIC ENERGY ACT 1954

EXCLUDED FROM AUTOMATIC REGRADING; DOD DIR 5200.10 DOES NOT APPLY



Standard Aircraft Characteristics

BY AUTHORITY OF
THE SECRETARY
OF THE AIR FORCE

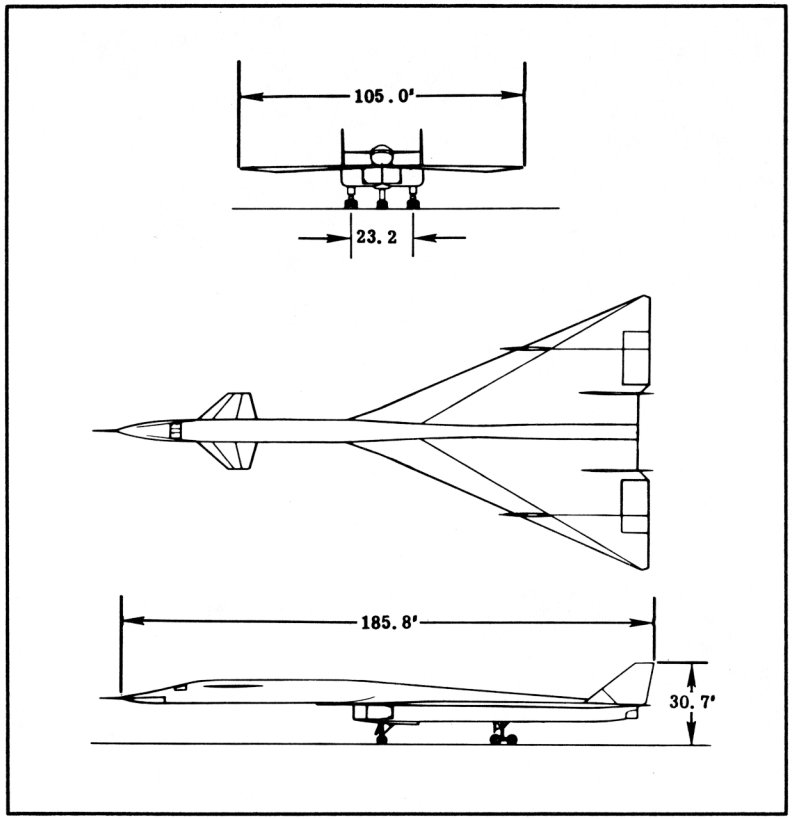
XB-70B

VALKYRIE

North American

SIX YJ93-GE-3
GENERAL ELECTRIC

57WC-4984



WING AREA..... 6297 SQ FT

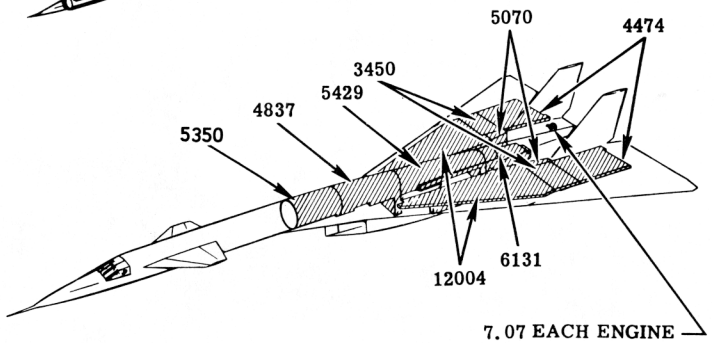
ASPECT RATIO..... 1.75

M. A. C. .....942.4 IN.

WING SECTION

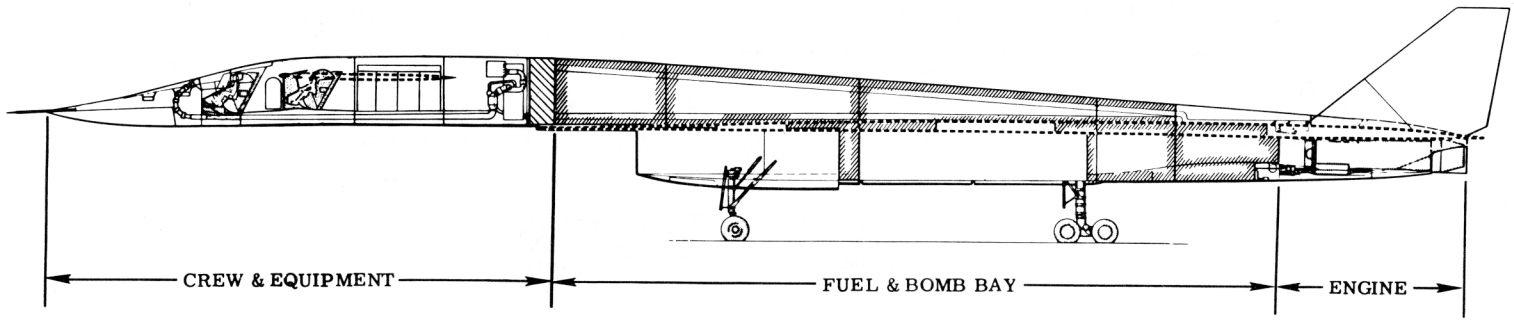
SEE NOTE "b" PAGE 6

PRESSURIZED AREA



Fuel (Gal)

Oil (Gal)



RESTRICTED DATA
ATOMIC ENERGY ACT 1954

POWER PLANT

Nr and Model	(6)YJ93-GE-3
Mfr	General Electric
Engine Spec Nr	*E757F
Type	Axial Turbo Jet
Length	236.3"
Diameter	54.15"
Weight (dry)	*5220 Lb
Tail Pipe	Mech, Variable C/D
Augmentation	Afterburner

*As modified by ASD Letter ASNVPP dated Sep. 12, 1962

ENGINE RATINGS

SLS	LB	-	RPM	-	MIN
Max	28,000	-	6825	-	Cont
Mil	19,900	-	6825	-	Cont
Nor	17,700	-	6825	-	Cont

Mission and Description

Navy Equivalent: None

Mfr's Model: NA-278

The primary purpose of this Air Vehicle is to demonstrate the technical feasibility of the B-70 configuration and the functional operation of a prototype bombing-navigation system in a sustained Mach 3 high altitude environment.

Special features include selective placement of wing, body and inlet duct for obtaining high lift-to-drag ratios, a canard configuration, variable area inlet with mechanically controlled convergent-divergent nozzle, and airframe construction of steel and titanium. A bombing and navigation system is provided for release of test weapons and navigational demonstration.

The crew consists of a pilot, co-pilot, bombing-navigation operator, and flight observer.

Development

XB-70B designation replaces XB-70A(Air Vehicle Nr 3)

Design initiated	Nov 55
Date of contract	Dec 57
Mock-up	Mar 59
First flight	(est) Dec 64

WEIGHTS

Loading	Lb	L.F.
Empty	206,100 (E)	
Basic	209,030 (E)	
Design	534,792	2.0
Combat	*310,687	2.0
Max T.O.	*542,029	
Max in flt	534,792	2.0
Max landing	+296,292	

(E) Estimated
* For standard mission
** Limited by mission
\+ Limited by structure

F U E L

Location	Nr Tanks	Gal
Fuselage	5	26,817
Wing and duct	6	19,928
		46,745

Grade: JP-6
Specification: MIL-F-25656A

OIL

Fuselage	6	42.4
Specification		MIL-L-9236B

DIMENSIONS

Wing	
Span	105.0'
Incidence (root)	0°
(tip)	-3.0°
Dihedral	0°
Sweepback (25% chord)	58.8°
Length	185.8'
Height	30.7'
Tread	23.2'

B O M B S

Nr		Weight
	Special Weapons*	
1	Class A	25,000
2	Class B	20,000

*Space provisions only

ELECTRONICS

Glide path-localizer marker beacon receivers, AN/ARN-58

IFF transponder, AN/APX-46

UHF command radio set, AN/ARC-50

Intercommunications set, AN/AIC-18

Tactical aid to navigation (TACAN), AN/ARN-65

Flight control system

Bomb nav subsystem, AN/ASQ-28

Loading and Performance—Typical Mission

CONDITIONS		STANDARD MISSION I	BASIC MISSION II	ALTERNATE BASIC MISSION III	FERRY MISSION IV
TAKEOFF WEIGHT	(lb)	537,899	542,029	537,899	537,899
Fuel at 6.7 lb/gal (grade JP-6)	(lb)	313,192	307,322	313,192	313,192
Payload	(lb)	*	10,000 (6)	*	none
Wing loading	(psf)	85.4	86.1	85.4	85.4
Minimum usable flying speed	(kn)	162.8	163.3	162.8	162.8
Takeoff speed	(kn)	206.7	207.5	206.7	206.7
Takeoff ground run at SL (1)	(ft)	7770	7900	7770	7770
Takeoff to clear 50 ft (1)	(ft)	11,110	11,290	11,110	11,110
Rate of climb at SL	(fpm)	7330 (2)	7260 (2)	7330 (2)	7330 (2)
Time: SL to 20,000 ft (3)	(min)	3.55 (2)	3.53 (2)	3.50 (2)	3.55 (2)
Time: SL to acceleration altitude (3)	(min)	5.38 (2)	5.36 (2)	5.25 (2)	5.38 (2)
Service ceiling (100 fpm)	(ft)	27,800 (2)	27,600 (2)	27,800 (2)	27,800 (2)
COMBAT RANGE (4)	(n mi)	3972	4644	4890	3972
Recovery distance	(n mi)	1200	1200	1200	----
Average cruise speed (subsonic/supersonic)	(kn/kn)	----/1721	----/1721	----/1721	----/1721
Initial supersonic cruise altitude	(ft)	65,000	65,000	65,000	65,000
Final supersonic cruise altitude	. (ft)	72,000	73,100	73,000	72,900
Refuel speed	(kn)	-----	-----	-----	-----
Total mission time	(hr)	2.46	3.54	3.69	2.46
COMBAT WEIGHT	(lb)	310,687	291,036	279,105	261,887
Combat altitude	(ft)	69,600	70,900	71,600	72,900
Combat speed (1)	(kn)	1721	1721	1721	1721
Combat climb (1)	(fpm)	14,000	14,000	14,100	13,900
Combat ceiling (500 fpm) (1)	(ft)	77,800	79,000	79,800	81,050
Service ceiling (100 fpm) (1)	(ft)	78,050	79,250	80,050	81,300
Max rate of climb at SL (1)	(fpm)	31,100	33,100	34,400	36,600
Max speed at optimum altitude (1)	(kn/ft)	1721/78,100	1721/80,100	1721/79,300	1721/81,350
Basic speed at 35,000 ft	(kn)	1089	1089	1089	1089
LANDING WEIGHT	(lb)	261,887	242,527	232,337	261,887
Ground roll at SL	(ft)	5920	5580	5370	5920
Ground roll (auxiliary brake) (5)	(ft)	4110	3870	3720	4110
Total from 50 ft	(ft)	7610	7180	6930	7610
Total from 50 ft (auxiliary brake) (5)	(ft)	5800	5470	5280	5800
Minimum usable flying speed	(kn)	113.6	109.4	107.0	113.6
Touchdown speed	(kn)	153.6	148.0	145.0	153.6

NOTES

* Space provisions only
(1) Maximum power
(2) Military power
(3) Allows for weight reduction during ground operation and climb
(4) Detailed description of RANGE missions given on page 6
(5) With drag chute

PERFORMANCE BASIS:
(a) Data source: Estimated
(b) Performance is based on powers shown on page 6
(c) Fuel flow data used in computing STANDARD and FERRY missions are increased 5%.

RESTRICTED DATA
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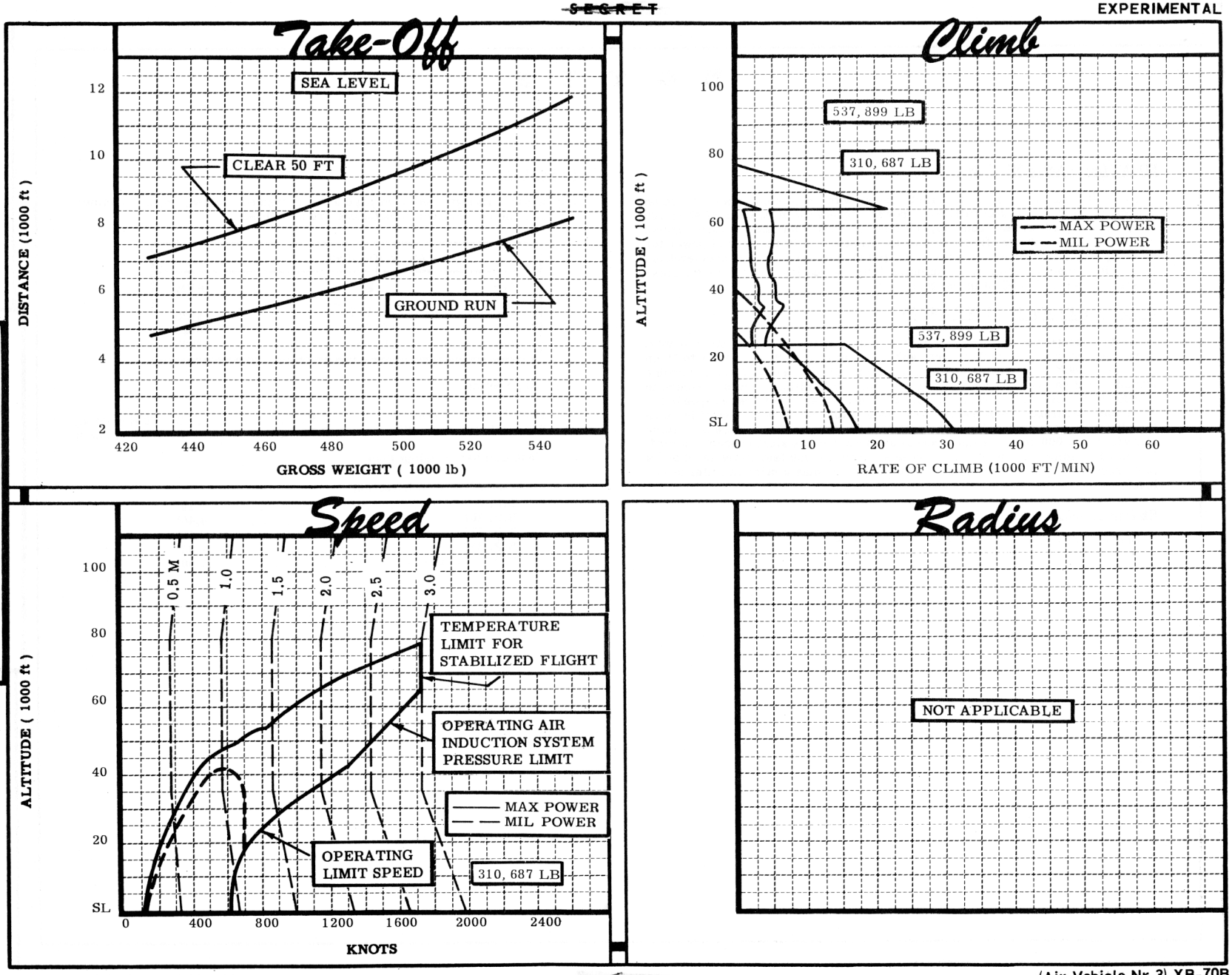

N O T E S

FORMULA: RANGE MISSION I AND IV

Take-off and accelerate to climb speed with maximum power, climb on course to 25,000 feet with military power, accelerate to Mach 1.37 at 25,000 feet, accelerated climb from 25,000 feet to Mach 3.0 cruise altitude, cruise at Mach 3.0. Range free allowances include 5 minutes normal power for starting engines, 1 minute maximum power for take-off and acceleration, and a fuel reserve equal to 30 minutes loiter at sea level at speeds for maximum endurance plus 5% of initial fuel.

FORMULA: RANGE MISSION II AND III

Alert concept take-off, accelerate to climb speed with maximum power, climb on course to 25,000 feet with military power, accelerate to Mach 1.37 at 25,000 feet, accelerated climb from 25,000 feet to Mach 3.0 cruise altitude, cruise out at Mach 3.0. Decelerate with military power, descend to 20,000 feet with idle power, loiter 16 minutes at 20,000 feet at speeds for maximum endurance, descend to sea level with idle power. Credit is taken for distance covered during deceleration and descent from Mach 3.0 cruise altitude to 20,000 feet. Range free allowances include alert concept take-off, 16 minutes loiter at 20,000 feet, descent from 20,000 feet to sea level and a fuel reserve equal to 1 minute military power plus 9 minutes loiter at sea level.

REVISION BASIS:

To reflect changes in weights of weight block.

GENERAL DATA:

(a) Engine ratings shown on page 3 are guaranteed values. Installed values used in performance calculations are as follows:

(6) YJ93-GE-3		
SLS	LB	RPM
Max	24,277	6825
Mil	16,803	6825
Nor	15,599	6825

(b) Wing Section:

Root to W.S. 186 . . . . . 2.0% . . . . . 30-.70 Hex (Mod)
W.S. 460 to W.S. 630 . . . . 2.5% . . . . . 30-.70 Hex (Mod)

Mean Camber (Leading Edge)

In the Airstream Direction

B.P. O	0.15°
B.P. 107	4.40°
B.P. 153	3.15°
B.P. 257	2.33°
B.P. 367 - Tip	0.00°