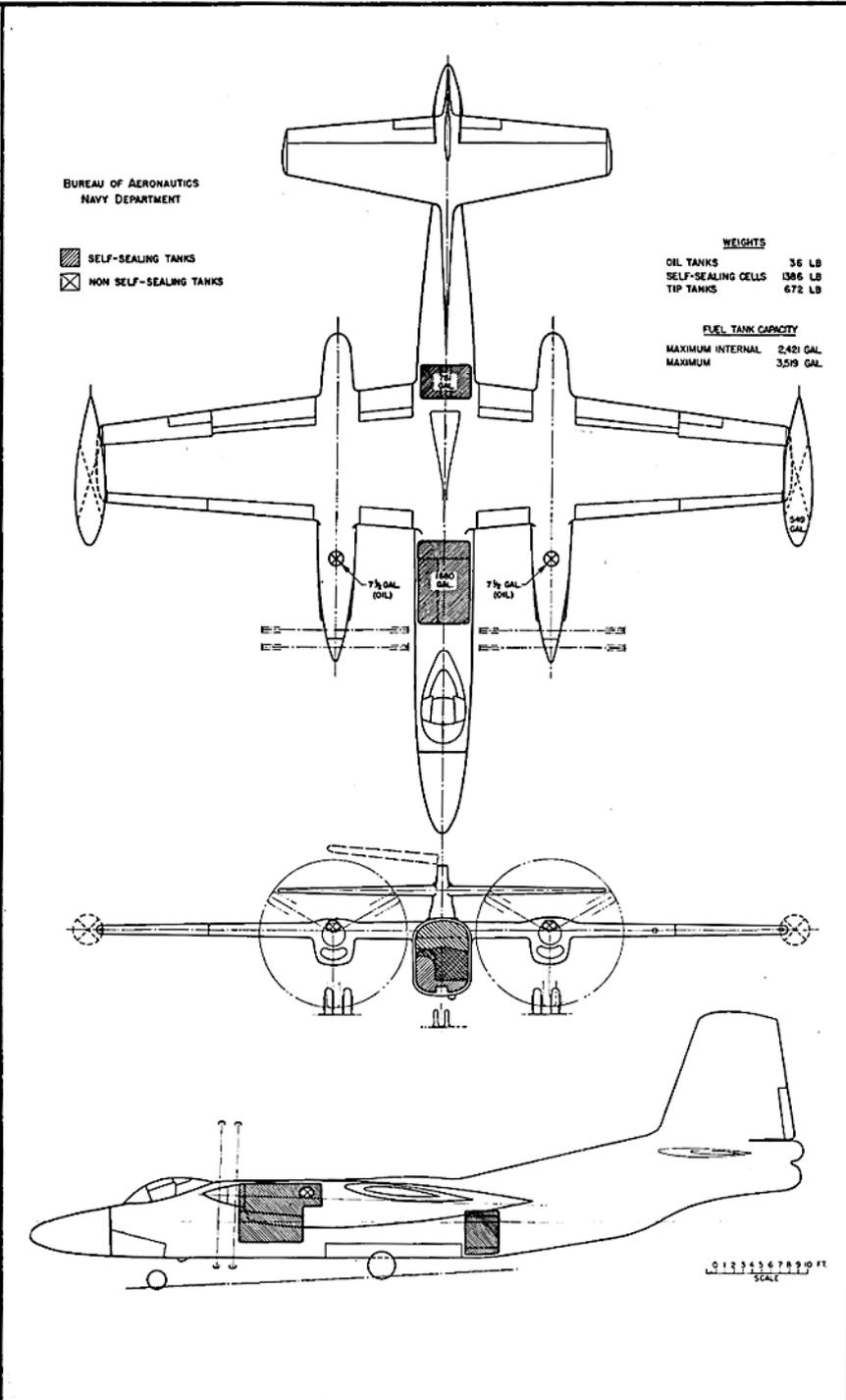
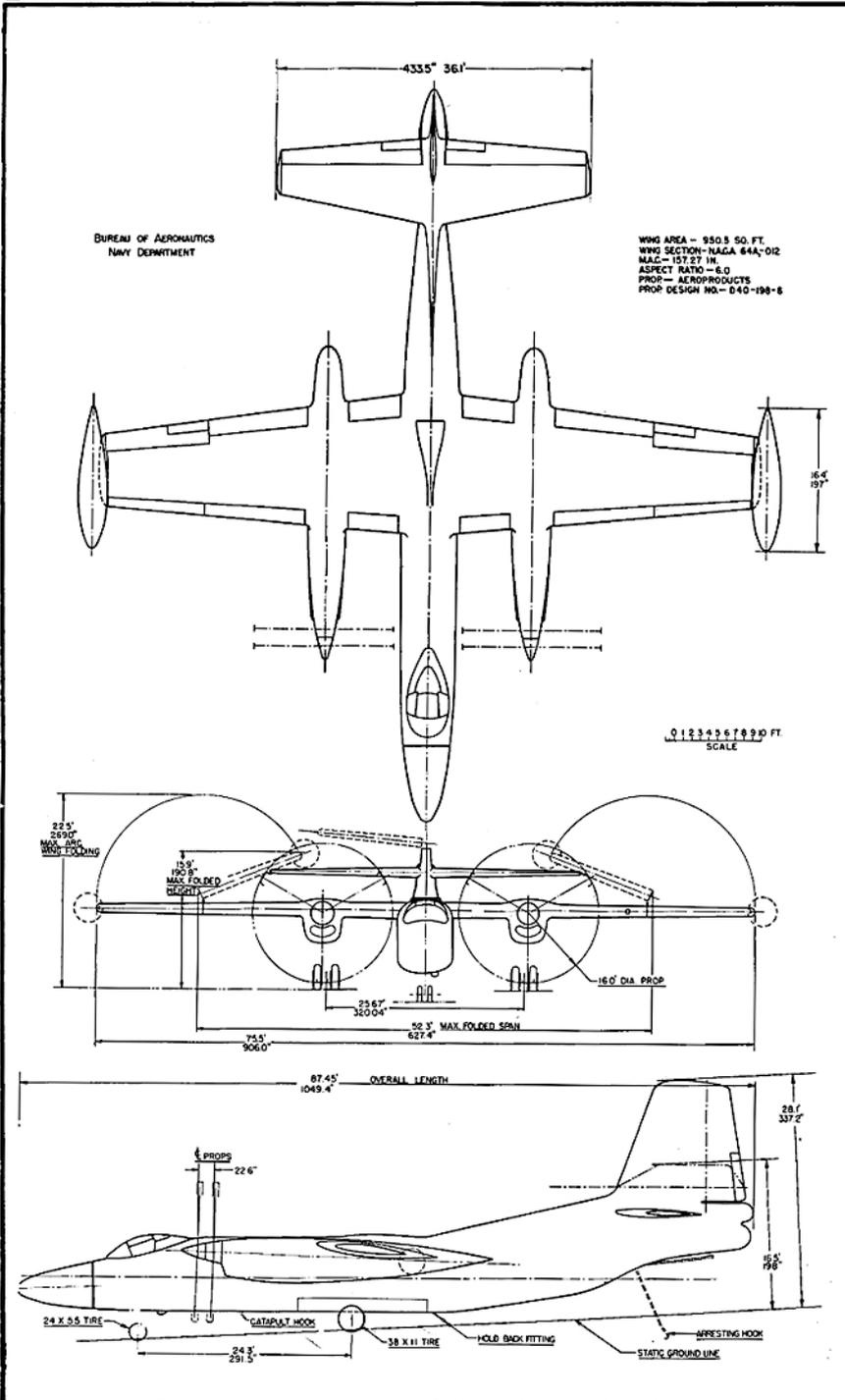


STANDARD AIRCRAFT CHARACTERISTICS

XA2J-1

NORTH AMERICAN



MISSION AND DESCRIPTION

The primary mission of this airplane is attack.

It is a three-place airplane capable of take-off with or without catapult aid from the deck of a CVB Class aircraft carrier or landing field, and landing in an arresting gear or on a landing field.

Provisions are made for folding outer wing panels and for droppable wing tip tanks. Double slotted trailing edge flaps, and nose flaps, are fitted.

The tail is conventional except provisions are made for folding the vertical tail to decrease storage space.

The fuselage provides for crew, equipment, bombs, and a turbo-jet engine. Pilot's seat only is of the ejection type.

The controls are operable by the pilot only. Power boost is provided for ailerons, elevators, and rudder, but it is possible to fly and land the airplane safely with the boosts inoperative.

Equipment for pressurizing, heating, and cooling cabin air is provided.

DIMENSIONS

WING AREA.....951 sq. ft.
SPAN.....75'-6"
LENGTH.....87'-5"
HEIGHT.....28'-1"
TREAD.....25'-8"
PROP. CLEAR.....17"
M.A.C.....13'-1"

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY.....	37,792.....	
BASIC.....	38,250.....	
DESIGN.....	57,912.....	3.0
COMBAT.....	53,272.....	3.25
MAX.T.O.....	71,000.....	2.25
MAX. LAND....	55,800.....	

All weights are estimated.

FUEL AND OIL

Gals.	No. Tanks	Location
1,660	1*	Fuse.,Fwd.
761	1*	Fuse.,Aft.
1,098	2	Wing Tip
* Self Sealing		
FUEL GRADE.....		100/130
FUEL SPEC.....		AN-F-48

OIL

	J33	XT40
CAP.(Gal.)..	1	15
GRADE.....	1010	M
SPEC.....	AN-0-9	AN-0-3-6

ELECTRONICS

VHF COMM. EQUIP.....AN-ARC-1A
HOMING REC.....AN/ARR-2A
IFF.....AN/APX-6
ALTIMETER.....AN/APN-1
RANGE REC.....AN/ARC-5
HF REC.....AN/ARR-15
HF TRANS.....AN/ART-13

POWER PLANT

NO. & MODEL.....(2) XT40-A-6
(1) J33-A-12
MFR.....Allison
PROP. GEAR RATIO.....15.6:1
PROP. MFR.....Aeroproducts
PROP. DES. NO.....D40C1-198-8
NO. BL./DIA.....6/16 ft.

RATINGS

All ratings are S. S. L.

	Shp	/ Lbs.	@ Rpm
Allison XT40-A-6 Turbo-Prop:			
T. O.	5,100	830	13,620
MIL.	5,100	830	13,620
NORM.	4,500	800	13,620
SPEC. NO. 264			
Allison J33-A-12 Turbo-Jet:			
T. O. (dry)	5,850	11,800	
MIL.	5,850	11,800	
NORM.	4,800	11,200	
SPEC. NO. 275			

ORDNANCE

GUNS - None

BOMBS

Type	Size	Location	No.
Bomb	100 #	Fuselage	16
Bomb	250 #	Fuselage	12
Mine	450 #	Fuselage	12
Bomb	1,000 #	Fuselage	8
Bomb	1,600 #	Fuselage	6
Bomb	2,000 #	Fuselage	4
Mine	Mk. 25	Fuselage	3
Mine	Mk. 39	Fuselage	2
Mine	Mk. 10-8	Fuselage	2

FIRE CONTROL

Bomb Director.....Mk. 5

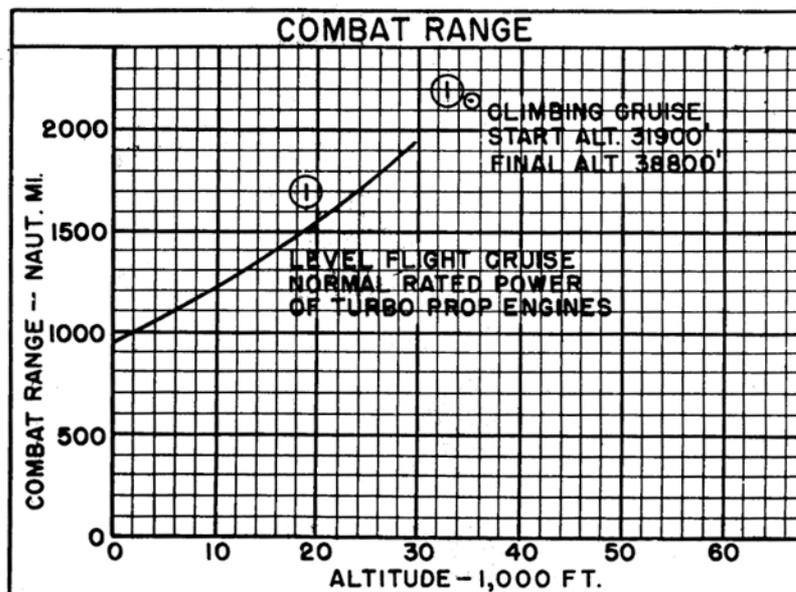
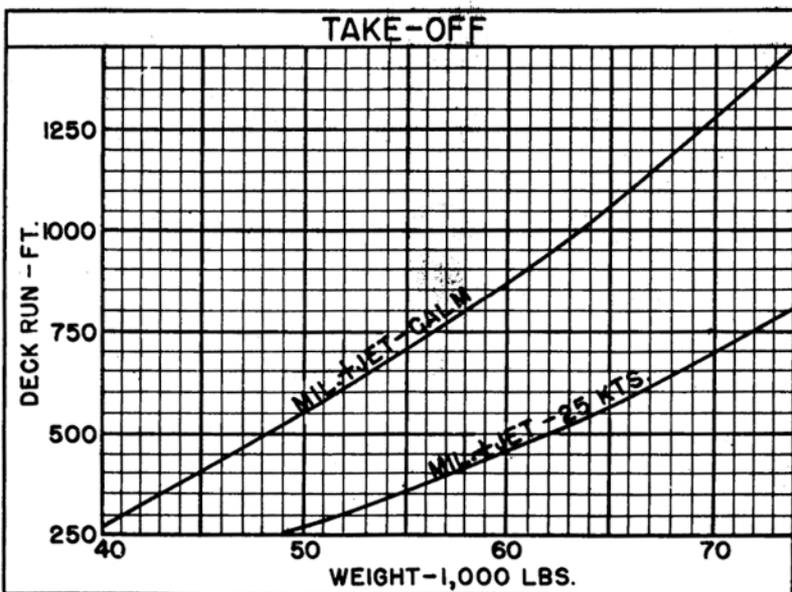
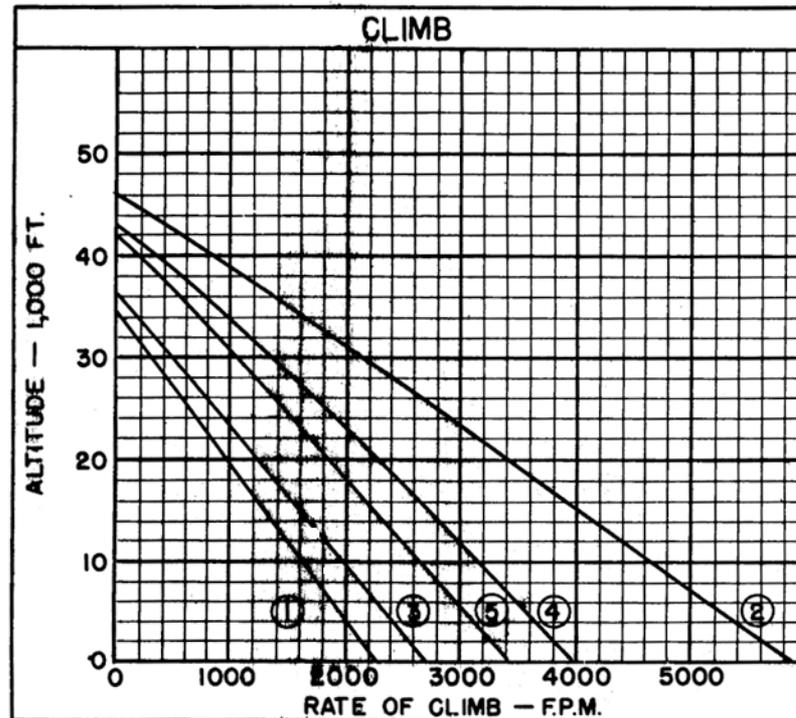
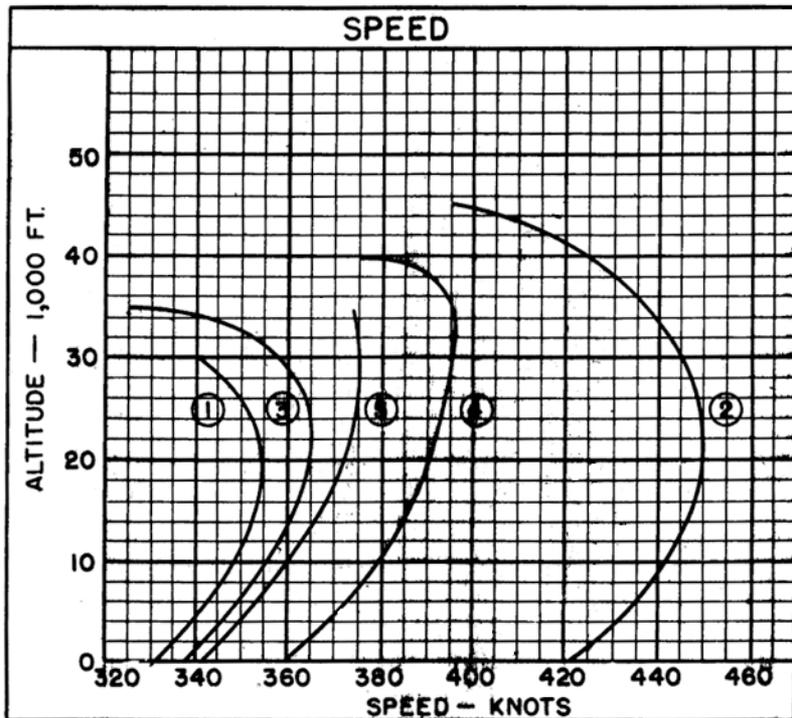
MAXIMUM BOMB LOAD....12,000#



PERFORMANCE SUMMARY				
LOADING CONDITION		(1) ATTACK 10,500 # Bombs 2-548 Gal. Tip Tanks		(3) ATTACK 10,500 # Bombs
TAKE-OFF WEIGHT	lbs.	71,000		63,762
Fuel	lbs.	14,526/6,588		14,526
Bombs	lbs.	10,500		10,500
Wing/Power Loading (A)	lbs/sq.ft; lbs/bhp.	74.7/-		67.1/-
Stall Speed--Power off	kn.	103.5		98.1
Stall Speed--Power off - No Fuel	kn.	86.6		86.1
Stall Speed--Power on	kn.	93		88.1
Maximum Speed/Alt (B)	kn/ft.	354/20,000		365/20,000
Take-off Distance, deck -- calm (D)	ft.	1,810(1,320)		1,355(1,010)
Take-off Distance, deck 25 kn. (D)	ft.	1,005(730)		720(540)
Take-off Distance, Airport	ft.	2,625(2,150)		2,100(1,700)
Rate of climb -- sea level (B)	ft/min.	2,270		2,640
Service Ceiling (B)	ft.	33,000		35,000
Time-to-climb 20,000 ft. (B)	min.	12.9		10.8
Time-to-climb 30,000 ft. (B)	min.	29.6		22.9
Combat Range/V av (C)	ft. n.mi./kn.	2,150/361		1,495/367
Combat Radius/V av (C)	ft. n.mi./kn.	1,220/364		814/371
LOADING CONDITION		(2) COMBAT	(4) COMBAT	(5) COMBAT
GROSS WEIGHT	lbs.	53,262	53,262	53,262
Engine power		Mil. with Jet	Mil. W.O. Jet	Norm. W.O. Jet
Fuel	lbs.	14,526	14,526	14,526
Bombs/Tanks		None	None	None
Max. speed at sea level	kn.	422	360	342
Max. speed/Alt	kn/ft.	450/20,000	396/35,000	375/30,000
Combat speed/Alt	kn/ft.	439/35,000	396/35,000	374/35,000
Rate of climb SL	ft/min.	5,830	3,980	3,400
Ceiling for 500 fpm R/C	ft.	42,500	38,200	36,000
Time-to-climb/Alt.	min/ft.	8.1/30,000	12.3/30,000	14.8/30,000

NOTES

- (A) BHP at Maximum Critical Altitude
 (B) Normal BHP
 (C) All Cruise Calculated at NRP
 (D) Figures in Parenthesis are Military with Jet



○ LOADING CONDITION COLUMN NUMBER

NOTES

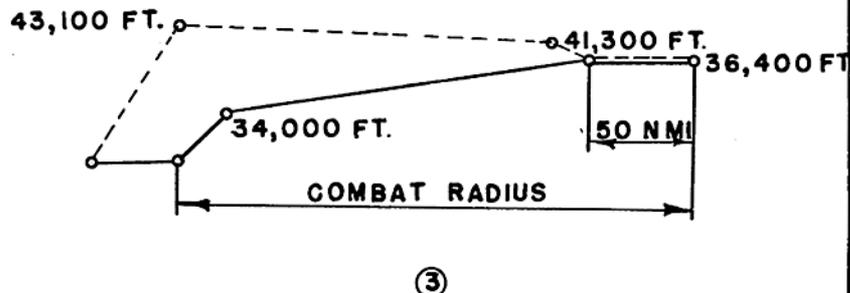
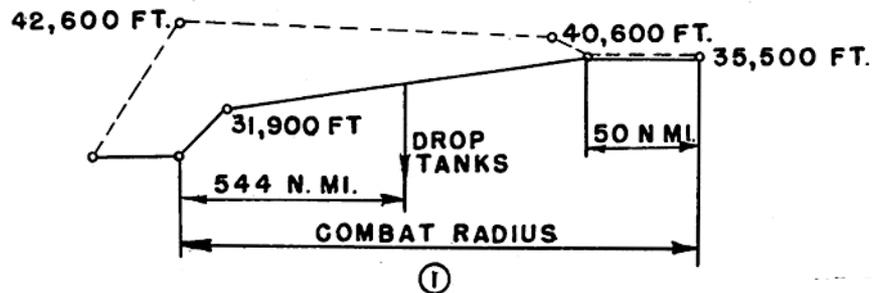
Performance is based on calculations. Range and radius are based on engine specification fuel consumption data increased by 5%.

Provisions are incorporated for fuel transfer from droppable wing tip tanks to internal tanks.

COMBAT RADIUS PROBLEM NO. A-3

WARM-UP TAKE-OFF RENDEZVOUS	CLIMB (A)	CRUISE-OUT	DROP TANKS	CONTINUE CRUISE-OUT	RUN IN	RUN OUT	CLIMB (B)	CRUISE-BACK	RESERVE
5 min. at sea level static normal power of all engines	At max. rate with mil. power to initial cruise-out alt. (Alt. not greater than alt. for 300 ft./min. max. rate of climb with normal power.)	With optimum range operation to reach 35,000' min. alt. at not less than 100 n. mi. from target. (State altitudes and any special engine operations involved.)	Only when empty and state when dropped.	With optimum range operation at 35,000 ft. min. alt. to 50 n. mi. from target. (State any special engine operation involved.)	For 50 n. mi. at Vmax. at 35,000 ft. min. altitude with max. power available all engines. <u>DROP</u> Expendable ordnance retain amm.	For 50 n. mi. at Vmax. at 35,000 ft. min. altitude with max. power available all engines.	To optimum alt. for cruise-back alt. not greater than 300 ft./min. max. rate of climb with normal power (fuel used and distance made good).	Under optimum cruise conditions, alt. not greater than altitude for 300 ft./min. max. rate of climb with normal power (State altitudes and any special engine operations involved.)	10% of total initial fuel load.

$$\text{COMBAT RADIUS} = \text{CLIMB (A)} \div \text{TOTAL CRUISE-OUT} \div 50 \text{ N.MI.} = 50 \text{ N.MI.} \div \text{CRUISE-BACK} \div \text{CLIMB (B)}$$



AIRPLANE CHARACTERISTICS & PERFORMANCE

COLUMN NUMBER		1	2
LOADING CONDITION		Bomber 60% Fuel	Bomber 2 - 300 gal. Tip Tanks
GROSS WEIGHT	LBS	53860	61800
EMPTY WEIGHT (ESTIMATED)	LBS	30861	
FUEL/OIL	GALS.	1897/13	3162/22
FIXED GUNS/AMMUNITION		NONE	
FLEXIBLE GUNS/AMMUNITION		NONE	
ENGINE POWER USED FOR PERFORMANCE		TURBO-PROP MIL. + JET	TURBO-PROP MILITARY
WING LOADING	LBS/SQ.FT.	64.5	74.0
POWER LOADING ①	LBS/BHP.		
V-MAX. SEA LEVEL	KN	425	369
V-MAX.	KN/FT.	450/25000	400/25000
V-STALL GROSS WEIGHT ②	KN	93.4	100.1
V-STALL WITHOUT FUEL ②	KN	82.9	83.4
TIME-TO-CLIMB -10000 FT-	MIN.	2.0	3.3
TIME-TO-CLIMB -20000 FT-	MIN.	4.6	8.1
SERVICE CEILING	FT.		39000
TAKE-OFF DISTANCE -CALM-	FT.		1098
TAKE-OFF DISTANCE -15 KN-	FT.		797
TAKE-OFF DISTANCE -25 KN-	FT.		619
TAKE-OFF DISTANCE -50 FT. OBST.	FT.		
TAKE-OFF TIME	SECONDS		
RATE OF CLIMB -SL-	FT/MIN.	5500	3440
MAX. RANGE / V-AV ③	N MI/KN.		2900/330
RANGE / V-AV -60% NSP-③-	N MI/KN.		
SEARCH RADIUS / V-AV -20% R-	N MI/KN.		
A.S.W. RADIUS / V-AV -20% R-	N MI/KN.		
SCOUT RADIUS	N MI.		
COMBAT RADIUS (SEE NOTE)	N MI.		1215

ENGINE / PROP GEAR RATIO 2 - Allison "500" Turbo-Prop/15.75:1 - J33-A-8 TURBO JET

ENGINE RATING BHP/RPM/ALT	MILITARY	NORMAL	TAKE-OFF
	5100	830# JET/13620/SL	4500 + 800#/13620/SL
J-33-A-8			
Military Take-off		4600# STATIC/11750/SL	

	TANKAGE IN GALLONS	OIL	FUEL
FIXED	PROTECTED	22	2562
	UNPROTECTED		
	TOTAL - FIXED INTERNAL	22	2562
	DROPPABLE		
	DROPPABLE 2 - 300 GAL. TIP TANKS		600
TOTAL	22	3162	

NOTE	① BHP AT MAX. CRIT. ALT.
	② STALL - WITH POWER
	③ AT 35000' ALTITUDE

PROPOSAL

AIRPLANE CHARACTERISTICS & PERFORMANCE

BUREAU OF AERONAUTICS, NAVY DEPT.

Cond. (1) represents the airplane when 40% of fuel of cond. (2) has been burned and tip tanks have been dropped.

Bomb capacity varies from 8000# to 12000#. This chart is based on an average bomb load.

RADIUS PROBLEM - COND. (2)

<u>WARM-UP</u>	<u>RENDEZVOUS</u>	<u>CLIMB</u>	<u>CRUISE OUT</u>	<u>COMBAT</u>
30 sec. at Max. Static Thr.	10 min. at SL at V for max. endur. on prop. engs.	to 35000' on prop. at rated power	at 35000' on props. at normal rated power <u>Drop external tanks</u>	50 miles in on all engs. Mil. power Drop bomb 50 miles out All engines Military power
<u>TAKE-OFF</u> 1 min. at T.O. Thrust				
<u>CRUISE BACK</u> at 35000' on props at normal rated power	<u>RESERVE</u> 45 min. at S.L. with props at V for max. End.			

DESCRIPTION:

The XA2J-1 will be a modification of the XAJ-1 in which the R-2800 reciprocating engines will be replaced by Allison XT40 propeller turbine engines. Additional changes made necessary by these new power plants will result in some modifications of the tail, nacelles and fuselage. The fuel load will be greatly increased with a resulting increase in combat radius. Like the XAJ-1, the XA2J-1 can be accommodated only on the CVB's or equivalent carriers. The XA2J-1 cannot be catapulted under average conditions at maximum gross weight.

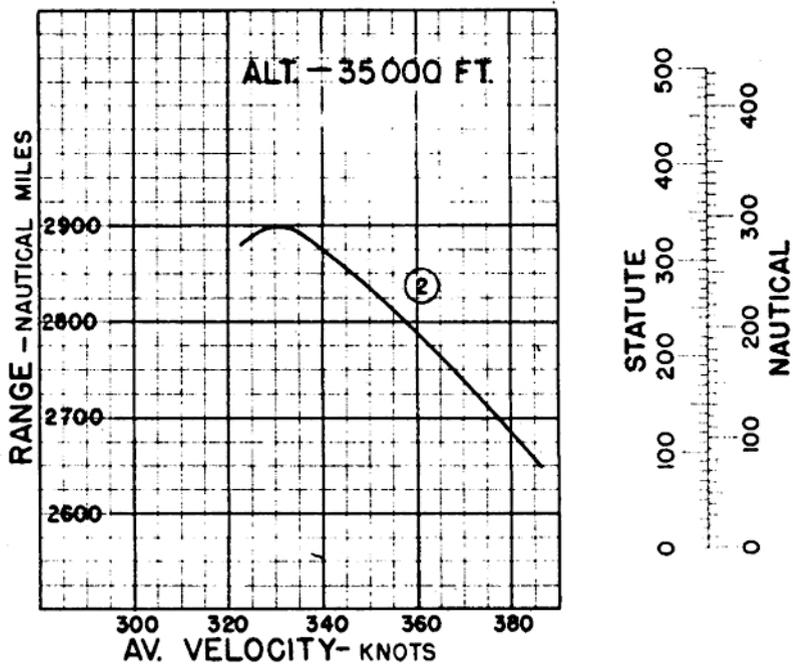
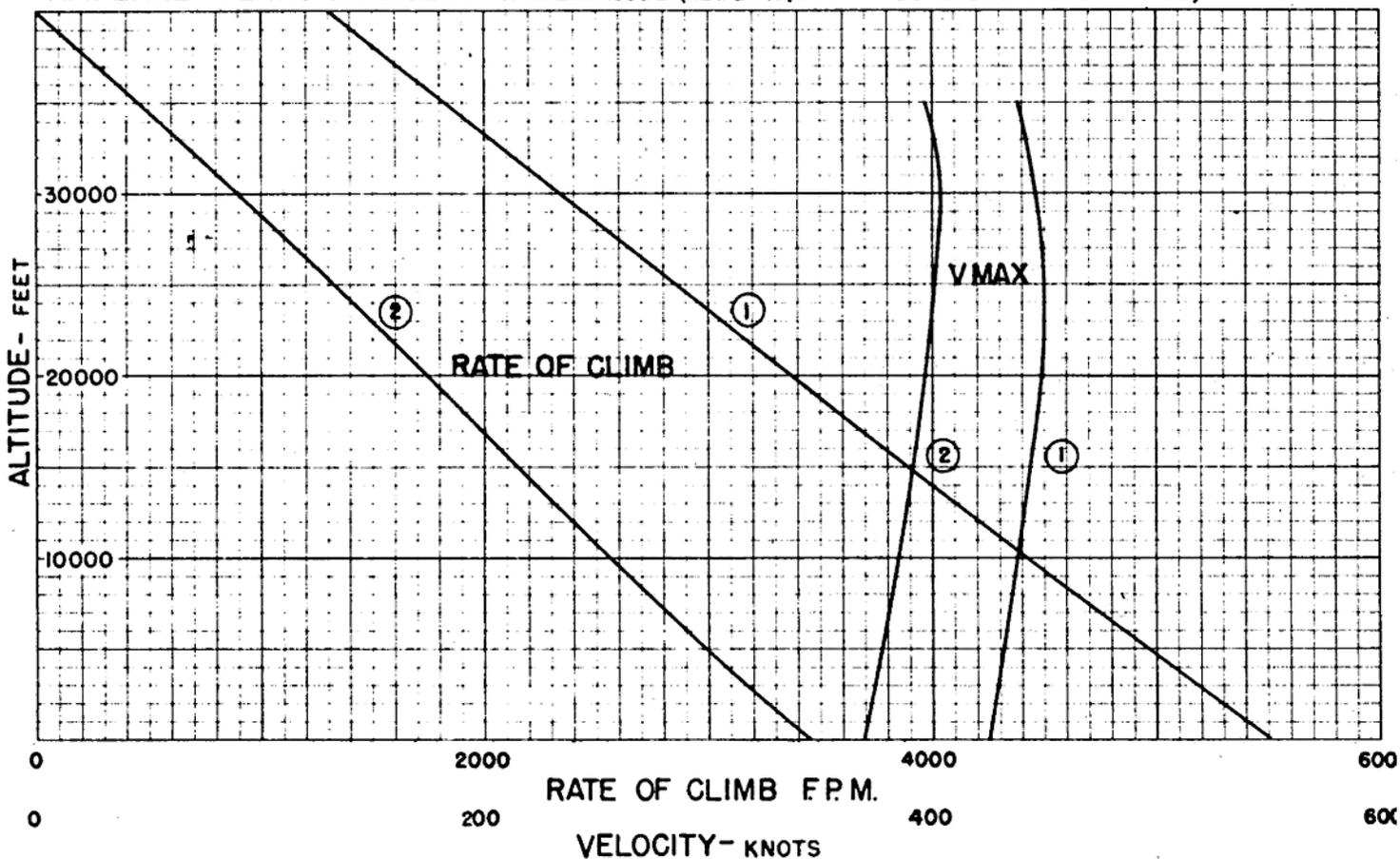
Wing Area	835.45 sq. ft.
Span	78.38'
Length	68.56'
Height	23.50'

CONTRACTURAL:

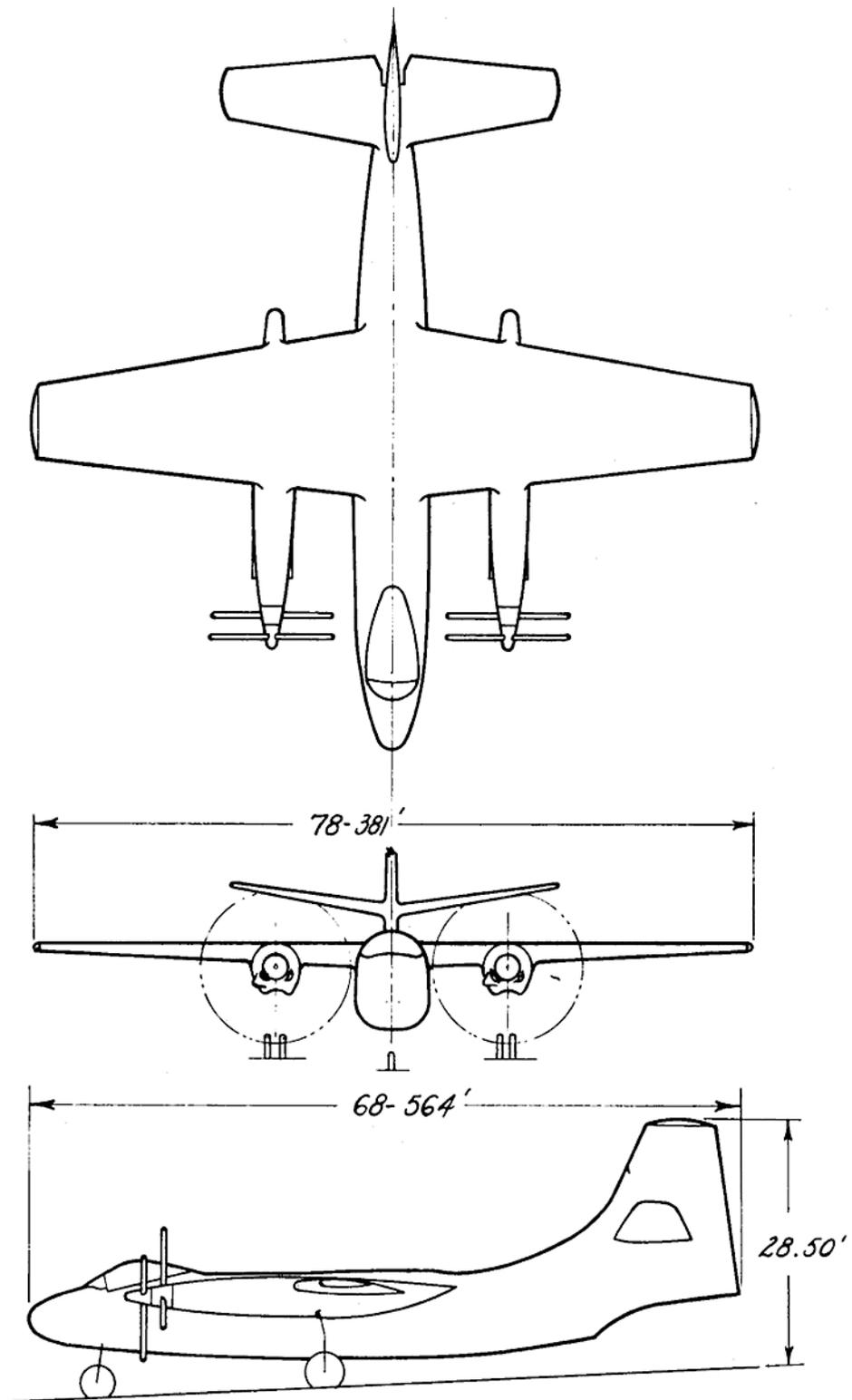
- Phase I. Preliminary investigation, engineering development, wind tunnel model testing, and mock-up will be completed during Summer and Fall, 1948.
- Phase II. Complete engineering and construction will be completed about the end of 1949. This phase will be initiated early in Fiscal 1949.

Estimated first flight -- Jan. 1950.

PROPOSAL



○ LOADING CONDITION COLUMN NUMBER



PROPOSAL

26 FEB. 1948

PAGE 4

MODEL XA2J-1