HELL

Built in a new Navy plant in Columbus, Ohio (now Rockwell International's Columbus Division), production deliveries started in late 1942. To increase production, Canadian Car and Foundry and Fairchild of Canada were given production contracts for the *Helldiver* as the SBW and SBF series, respectively.

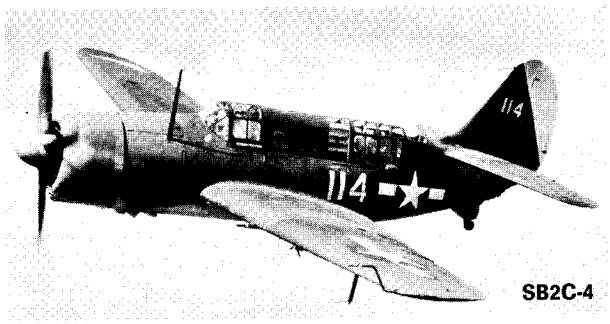
In November 1943, VB-17 took the SB2C-1 into combat from the *Bunker Hill.* From this time on, *Helldivers* increasingly replaced the *Dauntlesses* on Pacific Fleet carriers. As the improved models, 3s, 4s and 5s, came off the production lines, they successively took over the combat duties, with the 5s just getting into action before the end of the war.

In addition to the carrier *Helldivers*, a land-based version, the A-25A, was built for the Army Air Force. Almost half of these were transferred to the Navy for Marine and Navy training use when the AAF decided dive bombers did not fit into its operations. Two other models which didn't reach production were the XSB2C-2 seaplane and XSB2C-6 with a P&W R-2800 and lengthened fuselage.

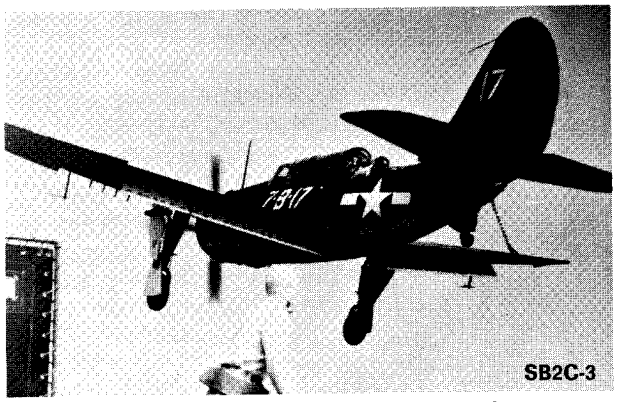
Of the 7,139 production *Helldivers* which followed the prototype, the 4Es and 5s continued in service after WW II, used by both fleet and reserve squadrons. While the British did not find their SBW-1s satisfactory during WW II, several foreign air forces found a use for U.S.-provided SB2C-5s in the postwar years.

Not one of WW II's most popular carrier aircraft, the Curtiss SB2C *Helldiver* did finally achieve an effective record in Pacific Carrier Task Force operations. The popular Douglas SBD *Dauntless* dive bomber was a hard act to follow and the early SB2Cs, ordered off the drawing board before Pearl Harbor, weren't up to it. However, after intensive development and improvement, the later models proved themselves in the last year of the war.

From the prototype XSB2C-1 as it first flew on December 18, 1940, the major changes to the overall configuration through the final production SB2C-5 model were a lengthening of the forward fuselage and a considerable increase in the size of the tail surfaces. Design and construction was generally typical of WW II aircraft. The result of a late 1938 Navy design competition, the XSB2C-1 used the then new Wright R-2600 engine. (All production aircraft were to use this engine.) The design required a short length to fit two aircraft on a carrier elevator, and this short length, even with the larger tail surface, was to give the *Helldiver* poor stability characteristics which were never fully corrected.

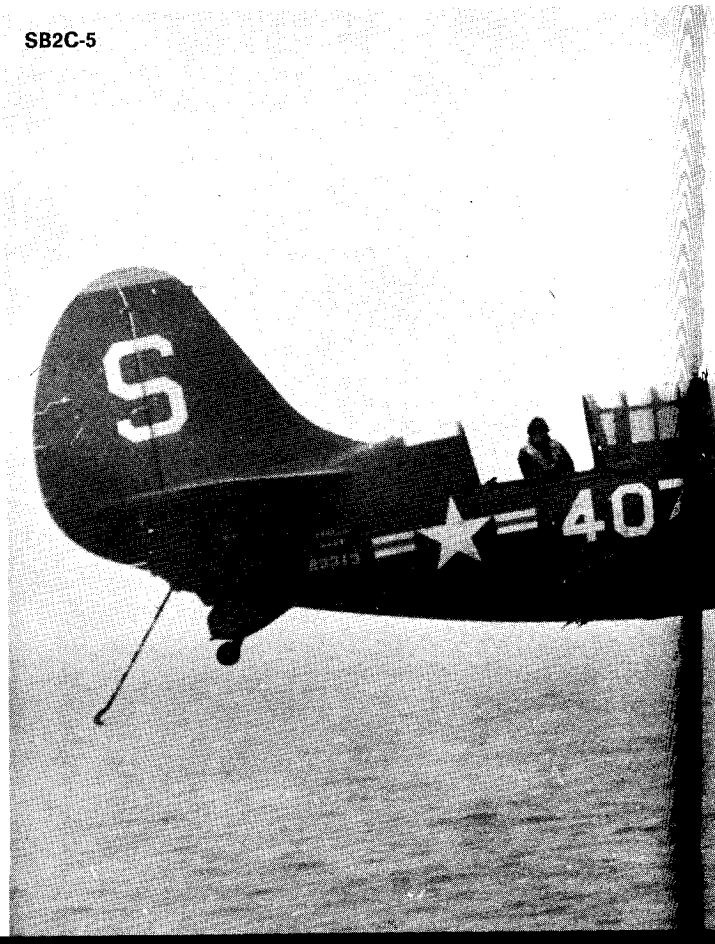


SB2C-4



SB2C-3

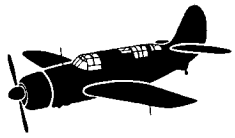
SB2C-5

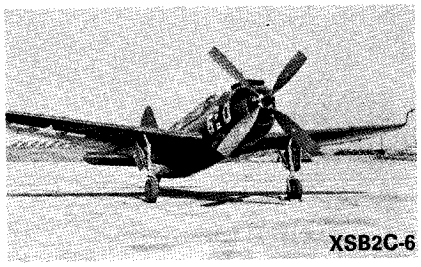


LDIVER

Wing span	49'8⅝"
Length	36'8"
Height	14'9"
Power plant	
SB2C-1 Wright R-2600-8	1,700 hp
SB2C-3, 4, 5 Wright R-2600-20	1,900 hp
Maximum speed	
SB2C-1	281 mph
SB2C-3, 4, 5	295 mph
Service ceiling	
SB2C-1	25,900'
SB2C-3, 4	29,200'
SB2C-5	27,600'
Range	1,420 miles
Crew	pilot and radioman-gunner
Armament	
Fixed guns	
SB2C-1	four .50 machine guns
SB2C-1C, 3, 4, 5	two 20 mm
Flex guns	two .30 machine guns
Bomb bay	up to 2,000-lb. bomb load; or one MK 13 torpedo, partially external
Wings	
SB2C-1	up to two 235-lb depth bombs
SB2C-3, 4	up to two 650-lb depth bombs
SB2C-5	up to two 1,000-lb bombs
SB2C-4, 5	eight 5" rockets

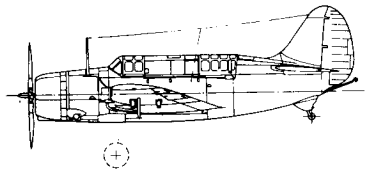
SB2C-1C

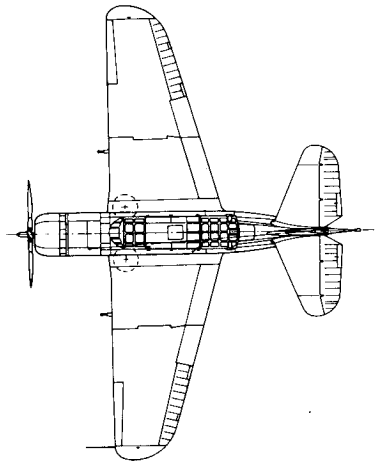


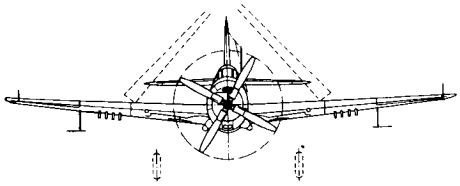


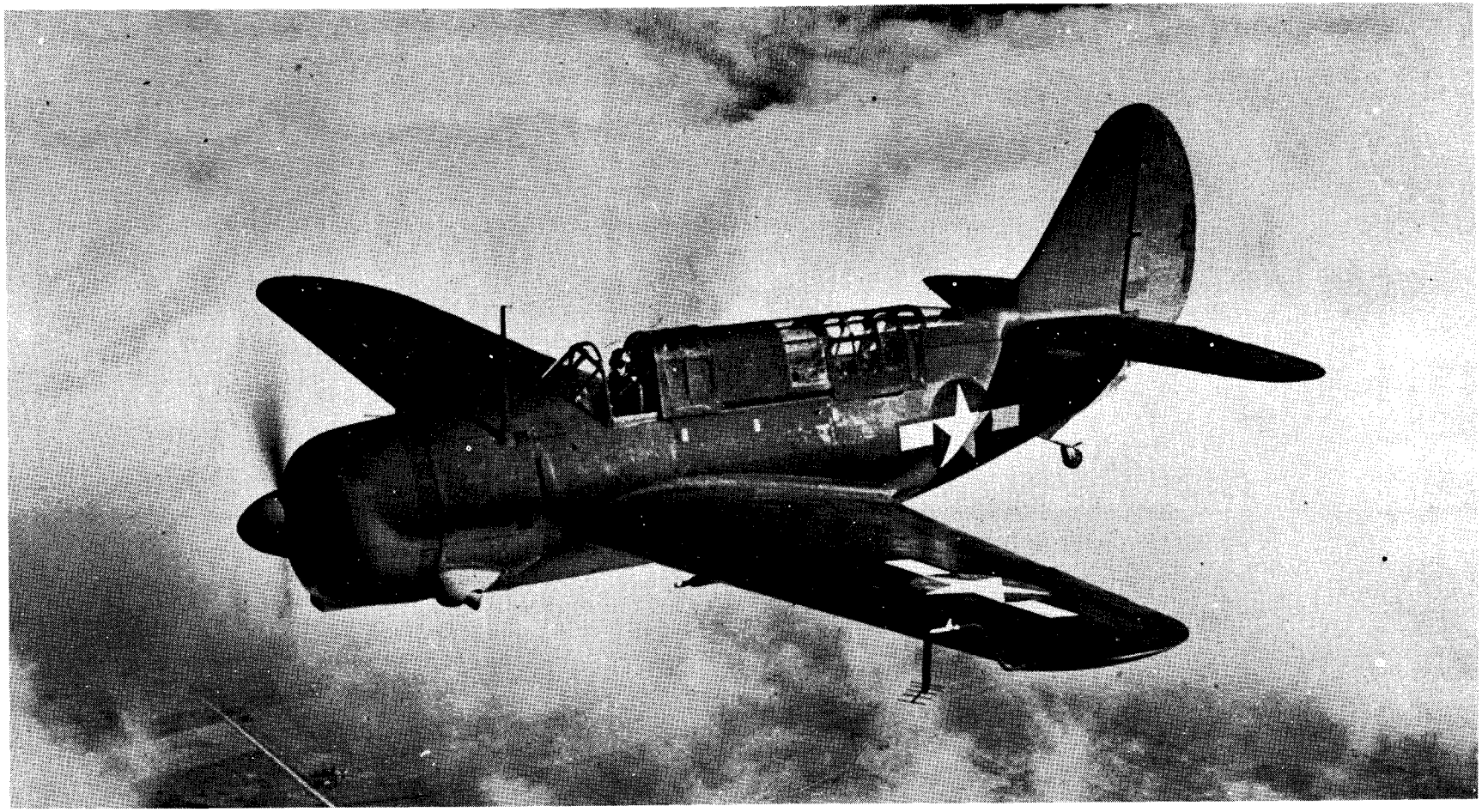
XSB2C-6

XSB2C-2







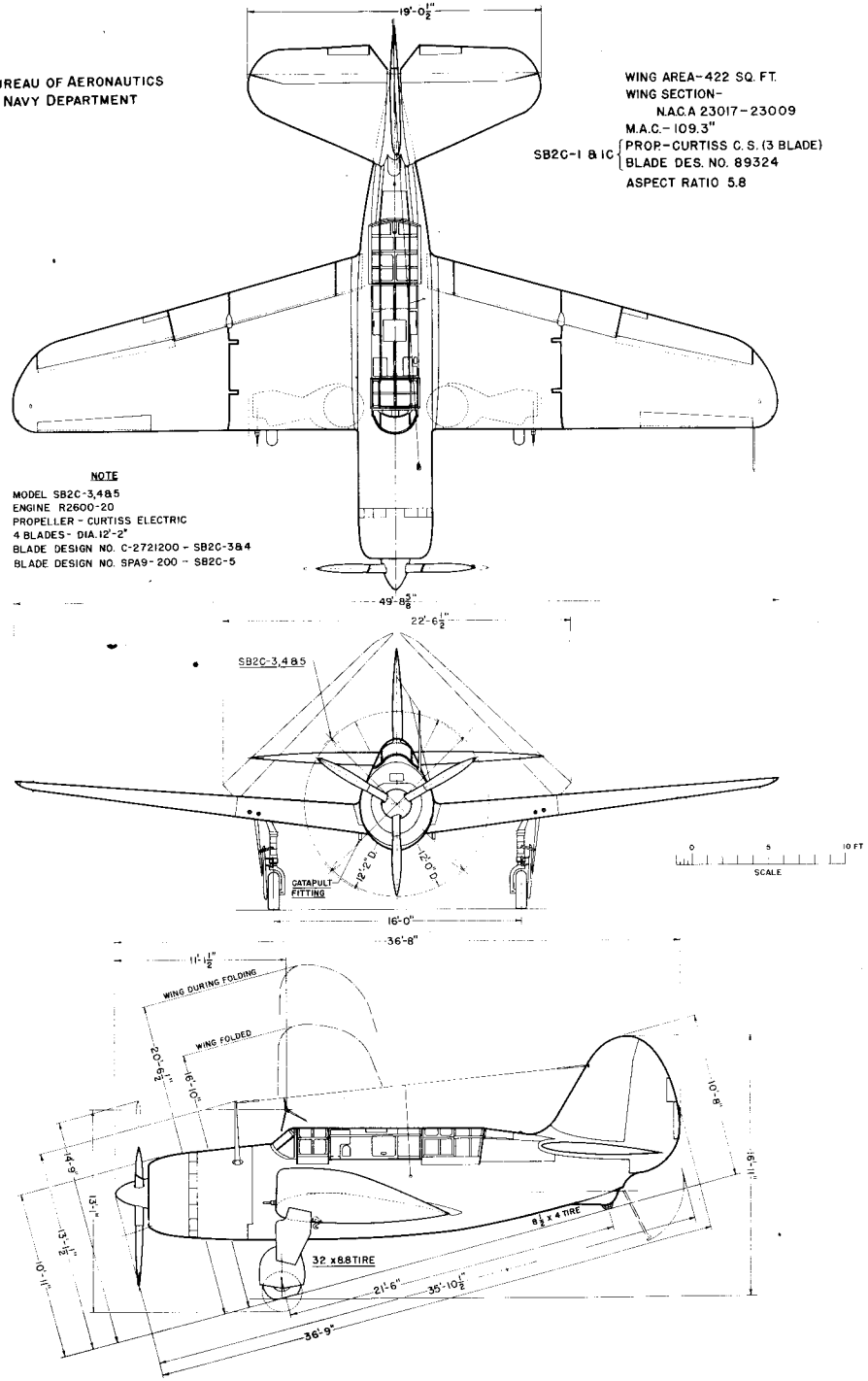


STANDARD AIRCRAFT CHARACTERISTICS

SB2C-5 "HELLDIVER"

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

WING AREA-422 SQ. FT.
WING SECTION-
N.A.C.A 23017-23009
M.A.C.- 109.3"
SB2C-1 & 1C { PROP.-CURTISS C. S. (3 BLADE)
BLADE DES. NO. 89324
ASPECT RATIO 5.8



NOTE
MODEL SB2C-3,4&5
ENGINE R2600-20
PROPELLER - CURTISS ELECTRIC
4 BLADES - DIA. 12'-2"
BLADE DESIGN NO. C-2721200 - SB2C-3&4
BLADE DESIGN NO. SPA9-200 - SB2C-5

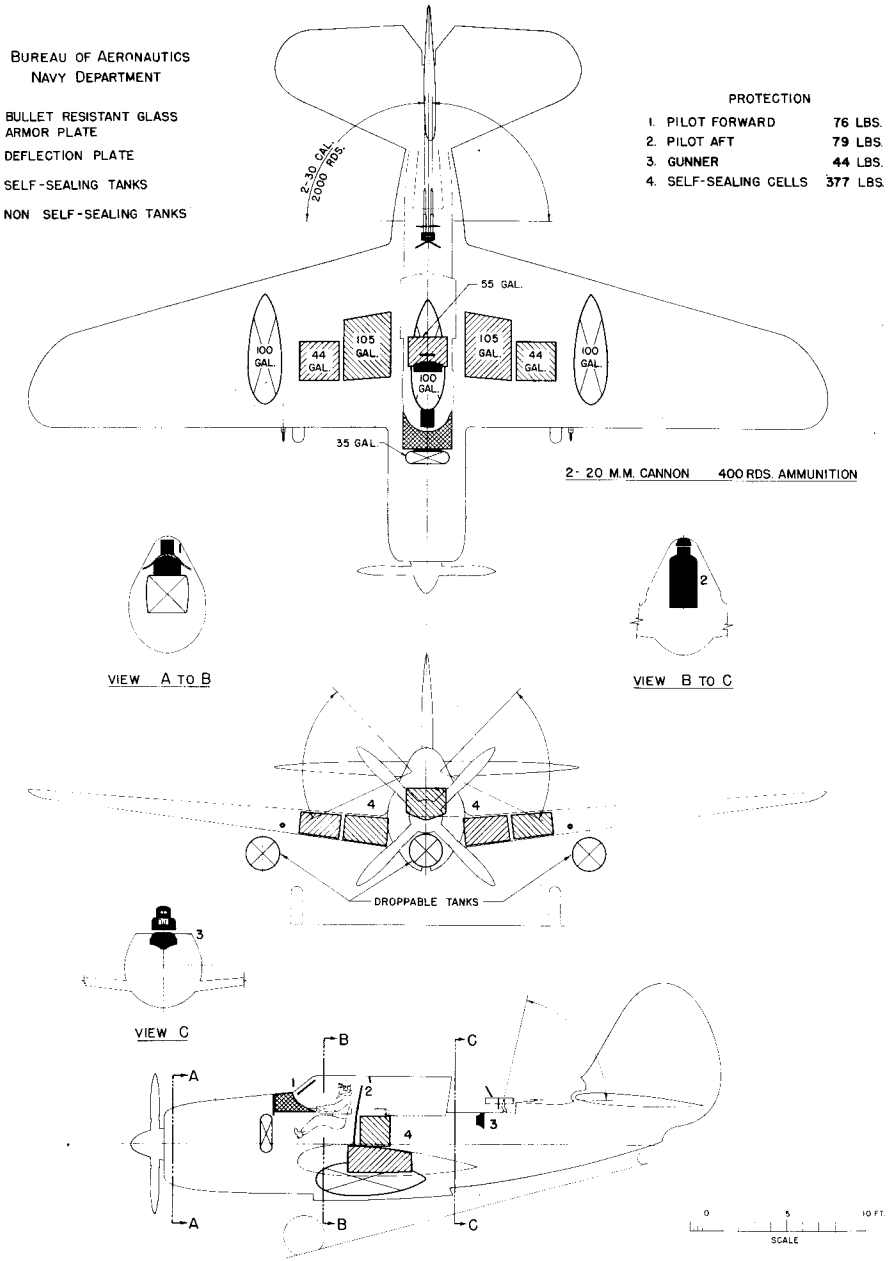
DESCRIPTIVE ARRANGEMENT

BUREAU OF AERONAUTICS
NAVY DEPARTMENT

BULLET RESISTANT GLASS ARMOR PLATE
DEFLECTION PLATE
SELF-SEALING TANKS
NON SELF-SEALING TANKS

PROTECTION

1.	PILOT FORWARD	76 LBS.
2.	PILOT AFT	79 LBS.
3.	GUNNER	44 LBS.
4.	SELF-SEALING CELLS	377 LBS.



ARMAMENT & TANKS

MISSION AND DESCRIPTION

A carrier based dive bomber widely used in combat during the last three years of World War II, and in carrier complements until 1947 when its replacement by the AD series began. The plane is still employed in air groups where replacement has not been effected.

Dive brakes enable steep angle dive attack and structural design allows high angle rocket firing and strafing.

Structure is conventional. Flaps are split type, perforated.

WEIGHTS

Loadings	Lbs.	L.F.
EMPTY	10589	
BASIC		
DESIGN	17000	6.5
COMBAT	14415	7.5
MAX.T.O.		
MAX.LAND	17000	

All weights are actual.

POWER PLANT

NO. & MODEL.....(1) R-2600-20
MFR.....WAC
SUPERCH.....1 Stage, 2 Speed
PROP.GEAR RATIO.....16:9
PROP. MFR.....Curtiss
PROP.DES.NO.....SPA-9-200
NO.BL./DIA.....4/12'-2"

RATINGS

	Bhp.	@ Rpm.	@ Alt.
T.O.	1900	2800	S.L.
MIL.	1750	2600	3200'
	1450	2600	15000'
NORMAL	1600	2400	5000'
	1350	2400	14800'

SEE NOTE
SPEC NO. N-776-B

FUEL AND OIL

Gals.	No. Tanks	Location
355	5	Wing (protected)
200	2	Wing (drop)
100	1	B.B. (drop)(open door)

FUEL GRADE.....100/130
FUEL SPEC.....AN-F-48

OIL

CAPACITY (Gals.).....37
SPEC.....AN-O-8
GRADE.....1120

ORDNANCE

GUNS

No.	Size	Location	Rds.
2	20mm.	Wing	400
2	30 Cal.	Aft	2000

SIGHT

MK. 8-6 Illuminated Sight

BOMBS

Type	Size	Location	No.
Bomb	2000#	B.B.	1
Bomb	1000#	B.B.	1
Bomb	500#	B.B.	2
Bomb	100#	B.B.	3
D.B.	325#	B.B.	2
Torp.	MK13-3	B.B.	1
Bomb	1000#	Wings	2
Bomb	500#	Wings	2
Bomb	100#	Wings	2
D.B.	325#	Wings	2

ROCKETS

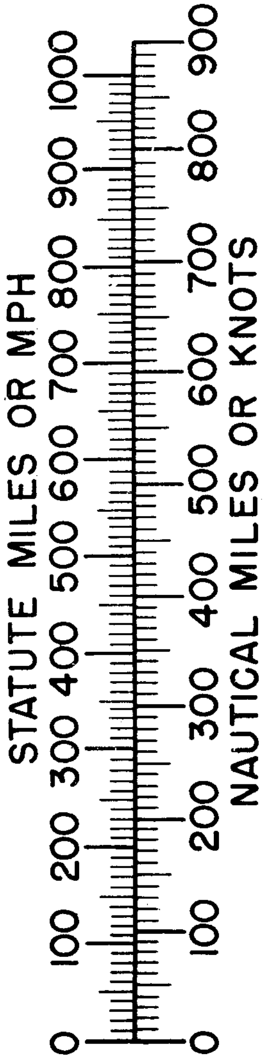
8-5" HVAR on MK. 5 Rocket Launchers

DIMENSIONS

SPAN.....49'-9"
LENGTH.....36'-8"
HEIGHT..... 14'-9"
WING AREA.....422 sq. ft.
M.A.C.....109.3"
TREAD.....16'-0"

ELECTRONICS

RANGE RECEIVER.....AN/ARC-5
VHF COMMAND.....AN/ARC-1
HOMING.....AN/ARR-2A
IFF.....AN/APX-2B
RADAR.....AN/APS-4
ALTIMETER..... AN/APN-1
BOMB DIRECTOR.....AN/ASG-10A



PERFORMANCE SUMMARY

LOADING CONDITION		(1) Bomber 1-1000# AN/APS-4 1-100 Gal. Tank	(3) Bomber 1-1000# 2-250#		
TAKE-OFF WEIGHT	lbs	16287	15915		
Fuel - Fixed/Drop	lbs	2130/600	2130		
Bombs	lbs	1000	1500		
	lbs				
Wing/Power Loading (A) lbs/sq.ft. lbs/	bhp	38.6/12.0	37.7/11.8		
Stall Speed--Power off	kn	77.8	77.0		
Stall Speed--Power off - No Fuel	kn	71.0	71.6		
Stall Speed--Power on	kn	66.2	65.5		
Maximum Speed/Alt (B)	kn/ft	226/16900	232/16900		
Take-off Distance, deck -- calm	ft	1243	1142		
Take-off Distance, deck 25 kn.	ft	584	531		
Take-off Distance, Airport	ft				
Rate of climb -- sea level (B)	ft/min	1320	1380		
Service Ceiling (B)	ft	24700	25300		
Time-to-climb 10000 ft. (B)	min	8.8	8.3		
Time-to-climb 20000 ft. (B)	min	22.4	20.6		
Combat Range/V av 15000 ft.	n.mi/kn	890/150	690/155		
Combat Radius/V av ft.	n.mi/kn	345/175	260/175		
LOADING CONDITION		(2) Combat	(4) Combat		
GROSS WEIGHT	lbs	14415	14415		
Engine power		Military	Normal		
Fuel	lbs	2130	2130		
Bombs/Tanks					
Max. speed at sea level	kn	232	224		
Max. speed /ACA ft.	kn	252/16500	249/17100		
Combat speed/Alt.	kn/ft	235/1500	228/1500		
Rate of climb SL	ft/min	1850	1650		
Ceiling for 500 fpm R/C	ft	23300	22900		
Time-to-climb/Alt.	min/ft	14.9/20000	16.2/20000		

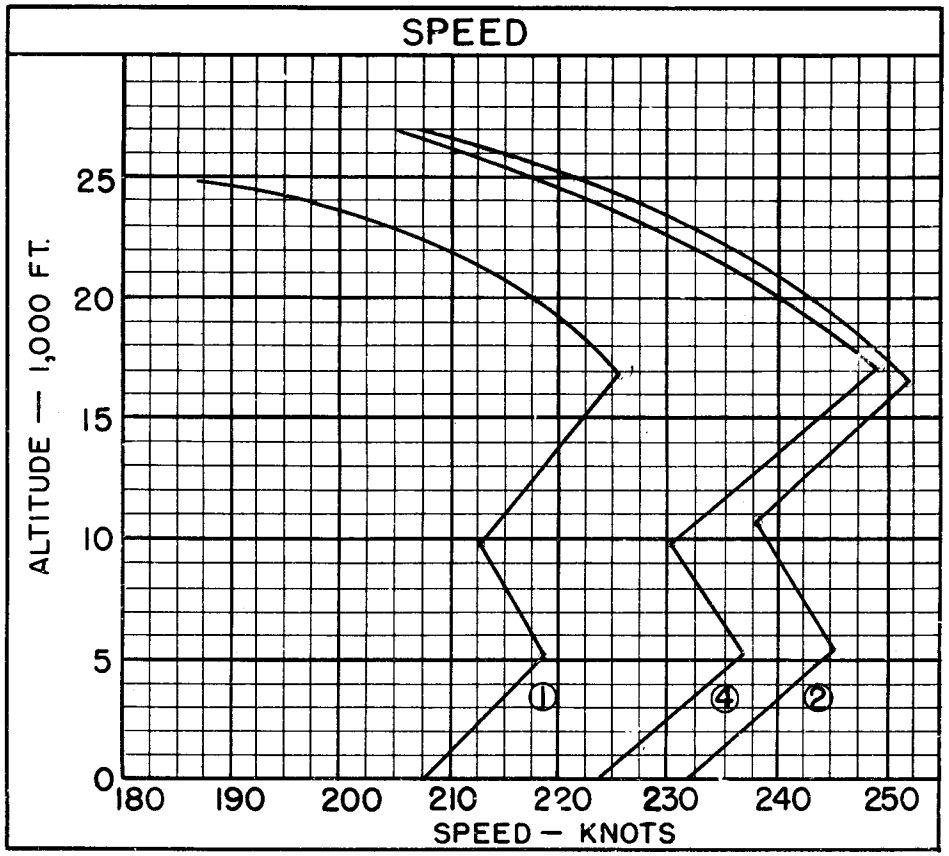
NOTES

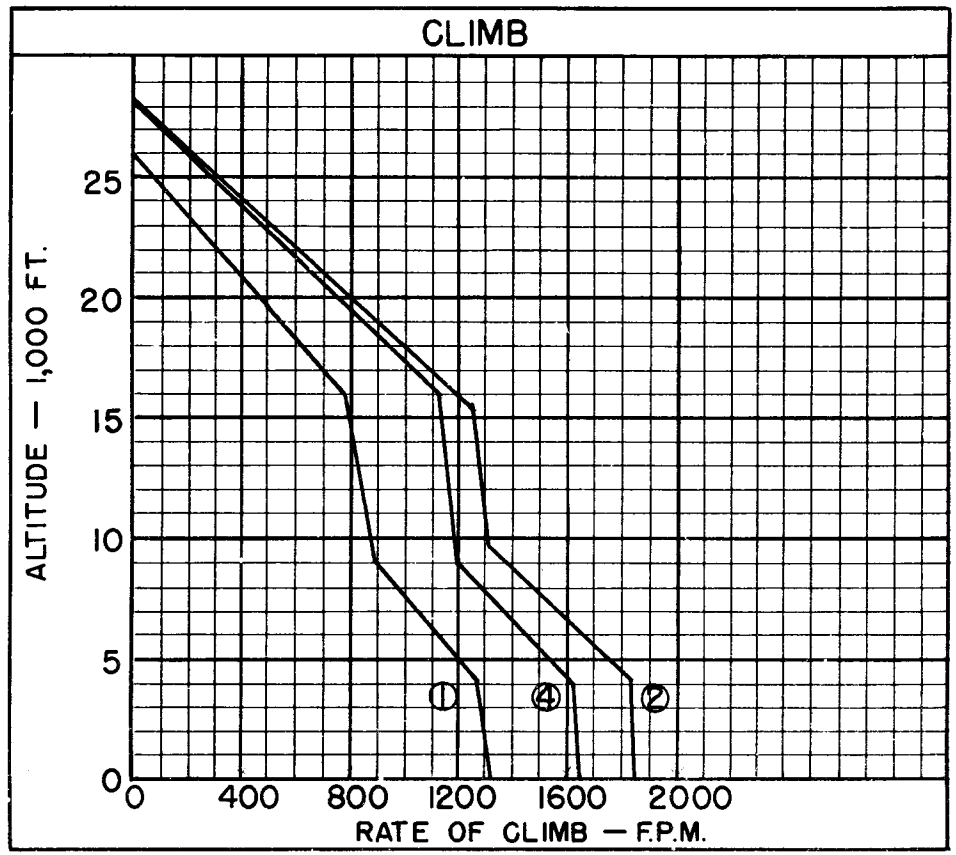
(A) BHP at Maximum Critical Altitude
(B) Normal BHP

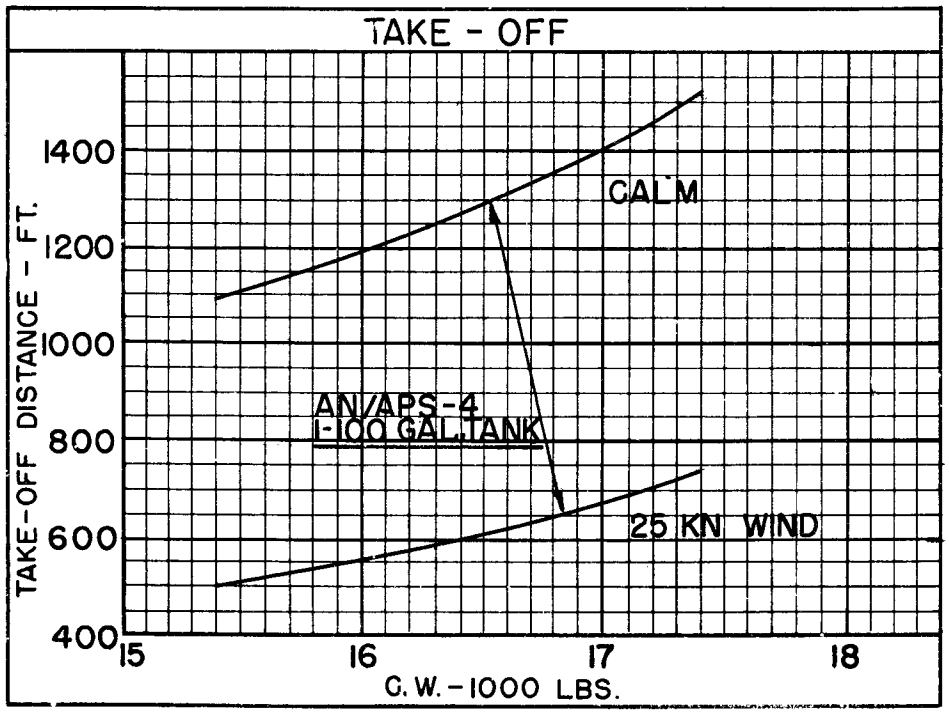
Performance is based on flight test of the SB2C-5 airplane. Range and radius are based on flight test fuel consumption data of the SB2C-5 airplane increased by 5%.

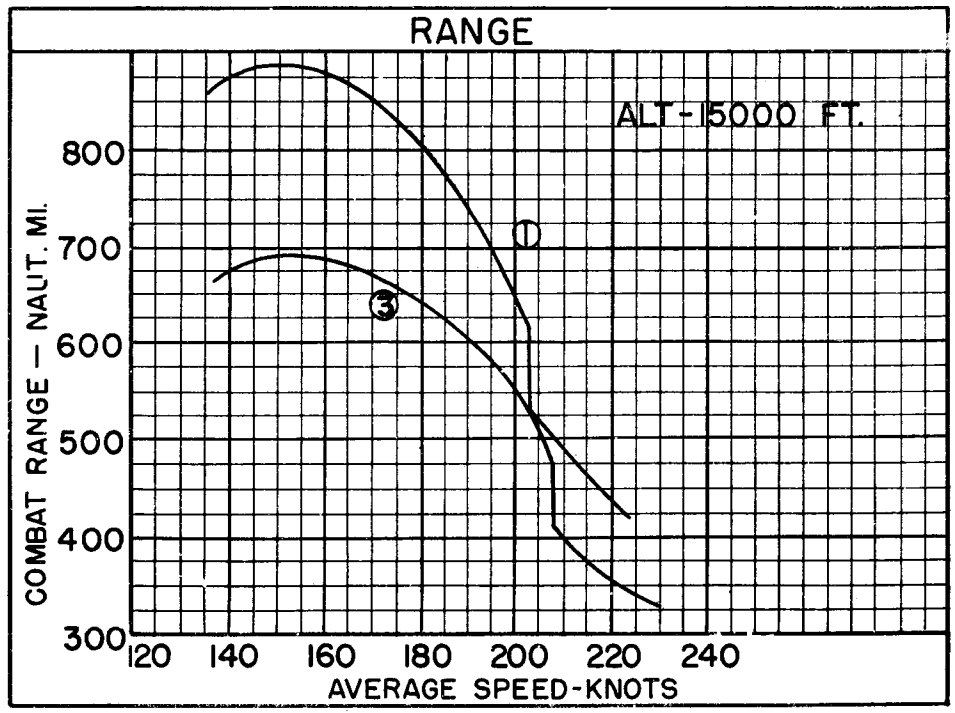
- -

NOTES CONTINUED ON LAST PAGE


SPEED
ALTITUDE — 1,000 FT.
0
5
10
15
20
25
180
190
200
210
220
230
240
250
SPEED — KNOTS
①
④
②


CLIMB
ALTITUDE — 1,000 FT.
0
5
10
15
20
25
0
400
800
1200
1600
2000
RATE OF CLIMB — F.P.M.
①
④
②


TAKE - OFF
TAKE-OFF DISTANCE - FT.
400
600
800
1000
1200
1400
15
16
17
18
G.W. - 1000 LBS.
CALM
AN/APS-4
1-100 GAL. TANK
25 KN WIND


RANGE
ALT-15000 FT.
COMBAT RANGE — NAUT. MI.
300
400
500
600
700
800
120
140
160
180
200
220
240
AVERAGE SPEED-KNOTS
①
③

NOTES

Combat Condition: Two MK51-7 wing bomb racks aboard. Bombs, rocket launchers and AN/APS-4 radar not aboard
The addition of 8 MK5-1 launchers reduces Condition 2 Vmax at SL to 229 kn. and Vmax/ACA to 249 kn/16400 ft.

Two MK51-7 wing bomb racks and sway bracing aboard in all conditions. AN/APS-4 radar on wing bomb rack in Condition (1) only.

BOMBER COMBAT RADIUS FORMULA NO. B-1 CONDITIONS NOS. -(1) & (3) RADIUS=CLIMB/CRUISE-OUT=CRUISE BACK

WARM-UP	RENDEZVOUS	CLIMB	CRUISE-OUT	DROP TANKS	COMBAT	CRUISE-BACK	RESERVE
20 min. TAKE-OFF ,1 min.	20 min. at sea level at 60% N.S.P. Auto.Lean.	to 15000 ft. at N.R.P. Auto Lean.	at 15000 ft. 180 kts. TAS Auto Lean.	DESCEND to 1500 ft. DROP BOMBS FIRE ROCKETS	15 min. at 1500 ft. 5 min. Mil. 10 min.Nor.Pr.	at 1500 ft. 170 kts.TAS Auto. Lean.	60 min. at Vel. for Max. Range Auto.Lean.

Engine ratings from Flight Test:

	Bhp.	Rpm.	Alt.
T.O.	1900	2800	S.L.
Mil.	1750	2600	4400
	1450	2600	15400
Norm.	1600	2400	4200
	1350	2400	16000