

Vultee A-31 Vengeance

Country: USA

Service Entry Date: March, 1941

A/C Type: Dive-bomber
 Engine(s): One Wright R-2600-17 Radial
 Eng. Pwr: 1600 hp, Air-cooled
 A/C Crew: Pilot, gunner

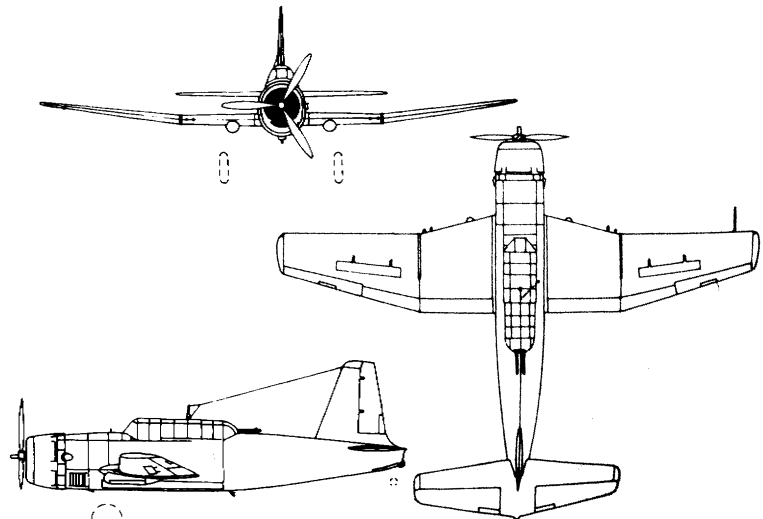
Maximum Speed: 275 mph at 11,000 ft
 Maximum Ceiling: 22,300/17,500/11,000 ft.
 Defense factor: 5 Size Modifier: 0
 Damage Factor: 10/15 Endurance: 360
 Cockpit View: Fair Blind Area: Rear,Low

Protection: Cockpit +2 Fuel +2 Engine +0

Climb Dece/ Dive Accel: 3.0 / 1.0

Weight and Load Limit: 2,000 / 5-10

Wpn Stations	Weight	Allowed Loads
1,3	500 lb	1 Bomb
2 (bombbay)	1000 lb	2 bombs



Class: LD

Victory Points: 6-9

AIRCRAFT PERFORMANCE CHART

Altitude		Minimum Speed	Maximum Speed	Maximum Dive Spd	Min TT(4)	Min HT(5)	Min BT(6)	Min ET(7)	Altitude		Average Rate of Climb
Levels	Bands								Levels	Bands	
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	--	--	--	--	--	--	--	31-36	VH	--
25-30	HI	--	--	--	--	--	--	--	25-30	HI	--
19-24	MH	2.5	4.5	8.5	3.5	5.0	6.0	7.0	19-24	MH	700
13-18	ML	2.0	5.0	8.5	3.5	4.5	5.5	6.5	13-18	ML	1,000
7-12	LO	2.0	5.5	8.5	3.0	4.0	5.0	6.0	7-12	LO	1,200
1-6	VL	2.0	5.5	8.0	3.0	4.0	4.5	5.5	1-6	VL	1,300

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
W1	1x .50 cal MG	12	3
W2	1x .50 cal MG	12	3
W3	1x .50 cal MG	12	3
W4	1x .50 cal MG	12	3
DG	2x .30 cal MG	10	4

GUN ATTACK FACTORS

Rng	W1	W2	W3	W4	DG	Total
0	9	9	9	9	8	36
1	6	6	6	6	6	24
2	4	4	4	4	4	16
3	3	3	3	3	3	12
4	2	2	2	2	2	8
5	1.5	1.5	1.5	1.5	1	6
6	1	1	1	1	--	4
7	--	--	--	--	--	--

WEAPON STATION LOCATION



1 2 3

POWER VERSUS SPEED CHART

Levels	Bands	1.0 - 4.5	5.0 - 7.5	8.0 - 9.5	10.0+	Band
43+	UH	--	--	--	--	UH
37-42	EH	--	--	--	--	EH
31-36	VH	--	--	--	--	VH
25-30	HI	--	--	--	--	HI
19-24	MH	3	1	--	--	MH
13-18	ML	3	1	--	--	ML
7-12	LO	4	2	--	--	LO
1-6	VL	4	2	--	--	VL
Banking FPs		2	3	4	--	
Side Slip FPs		3	4	5	--	

NOTES AND VARIANTS

Defensive Gun Arcs

DG: 04:08, level to high; 6:00 high only.

Vultee A-31: Avail Mar-41. Dive bomber for export through Lend-lease to the Commonwealth, including the RAF & RAAF. Designed in 1940, when Stuka was king. Large, but with unimpressive performance. Called "a waste of metal" by one USAAF general. Known as Vengeance I, IA, or II to RAF/RAAF (difference was which factory built the aircraft). Mostly used for training and as target tugs. Few used operationally. 700 built.

Useless trivia: More Vultee Vengeance dive bombers were built than Aichi D3A Vals.

Vultee A-35B Vengeance

Country: USA

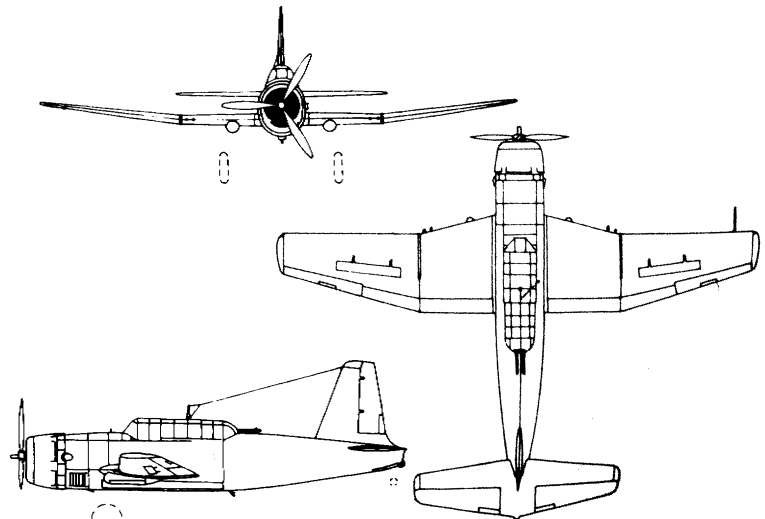
Service Entry Date: March, 1943

A/C Type: Dive-bomber
 Engine(s): One Wright R-2600-13 Radial
 Eng. Pwr: 1700 hp, Air-cooled
 A/C Crew: Pilot, gunner

Maximum Speed: 279 mph at 13,000 ft
 Maximum Ceiling: 21,500/17,000/12,000 ft.
 Defense factor: 5 Size Modifier: 0
 Damage Factor: 10/15 Endurance: 360
 Cockpit View: Fair Blind Area: Rear, Low

Protection: Cockpit +2 Fuel +2 Engine +1
 Climb Dece/ Dive Accel: 3.0 / 1.0
 Weight and Load Limit: 2,000 / 5-10

Wpn Stations	Weight	Allowed Loads
1,3	500 lb	1 Bomb
2 (bombbay)	1000 lb	2 bombs



Class: LD

Victory Points: 6-9

AIRCRAFT PERFORMANCE CHART

Altitude		Minimum	Maximum	Maximum	Min	Min	Min	Min	Altitude		Average
Levels	Bands	Speed	Speed	Dive Spd	TT(4)	HT(5)	BT(6)	ET(7)	Levels	Bands	Rate of Climb
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	--	--	--	--	--	--	--	31-36	VH	--
25-30	HI	--	--	--	--	--	--	--	25-30	HI	--
19-24	MH	2.5	4.5	8.0	3.5	5.0	6.0	7.0	19-24	MH	700
13-18	ML	2.0	5.0	8.5	3.5	4.5	5.5	6.5	13-18	ML	1,000
7-12	LO	2.0	5.0	8.5	3.0	4.0	5.0	6.0	7-12	LO	1,200
1-6	VL	2.0	5.5	8.0	3.0	4.0	4.5	5.5	1-6	VL	1,300

FIRE POWER CHART

Guns	Type	Weapons	Ammo	Criticals
W1	2x	.50 cal MG	12	3
W2	2x	.50 cal MG	12	3
W3	1x	.50 cal MG	12	3
W4	1x	.50 cal MG	12	3
DG	1x	.50 cal MG	10	3

Canon can be fired with MGs.

GUN ATTACK FACTORS

Rng	W1	W2	W3	W4	DG	Total
0	18	18	9	9	6	54/36
1	12	12	6	6	4	36/24
2	8	8	4	4	3	24/16
3	6	6	3	3	2	18/12
4	4	4	2	2	1	12/8
5	3	3	1.5	1.5	1	9/6
6	2	2	1	1	1	6/4
7	--	--	--	--	--	--

WEAPON STATION LOCATION



1 2 3

POWER VERSUS SPEED CHART

Levels	Bands	1.0 - 4.5	5.0 - 7.5	8.0 - 9.5	10.0+	Band
43+	UH	--	--	--	--	UH
37-42	EH	--	--	--	--	EH
31-36	VH	--	--	--	--	VH
25-30	HI	--	--	--	--	HI
19-24	MH	4	2	--	--	MH
13-18	ML	5	3	--	--	ML
7-12	LO	5	3	--	--	LO
1-6	VL	5	3	--	--	VL
Banking FPs		2	3	4	--	
Side Slip FPs		3	4	5	--	

NOTES AND VARIANTS

Defensive Gun Arcs

DG: 04:08, level to high; 6:00 high only.

Vultee A-35A Vengeance: Available Jun-42. Slight improvement over earlier A-31 (better supercharger). Not used by USAAF except for training and target towing. Divebrakes. 4 wing MGs (use total to right of slash).

Vultee A-35B Vengeance: Available Mar-43. Dive bomber for export through Lend-lease to the Commonwealth. Used by the RAF & RAAF in Burma (4 sqdns) and New Guinea. Dubbed the "Vultee Vibrator" by crews, it tended to overheat in the tropics and hadan insufficient bombload, range and cruising speed. Not used by USAAF except for training and target towing. Divebrakes. 830 built: 562 to RAF&RAAF in Asia/Pacific as Vengeance IV; 67 to Free French; 30 to Brazil.

North American A-36A Apache

Country: USA

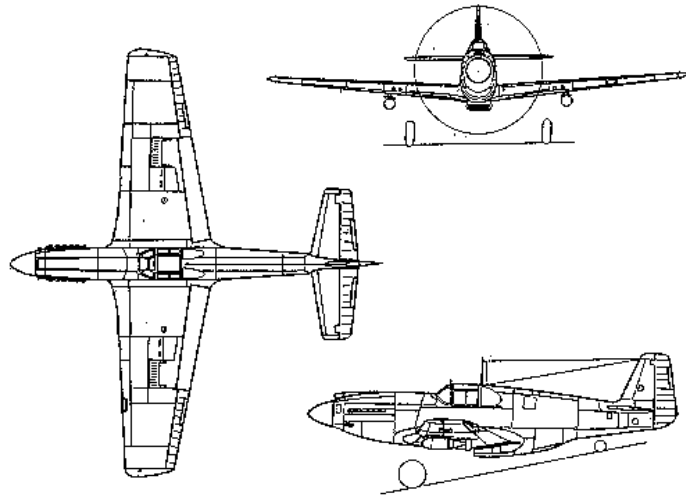
Service Entry Date: March, 1943

A/C Type: Dive-bomber
 Engine(s): One Allison V-1710-95 V-12
 Eng. Pwr: 1140-1325 hp, Liquid-cooled
 A/C Crew: Pilot

Maximum Speed: 356 mph at 19,300 ft
 Maximum Ceiling: 30,200 / 25,100 / 16,000 ft.
 Defense factor: 5 Size Modifier: +0
 Damage Factor: 10/14 Endurance: 80
 Cockpit View: Poor Blind Area: Rear

Protection: Cockpit +2 Fuel +2 Engine +0
 Climb Dece/ Dive Accel: 3.0 / 1.0
 Weight and Load Limit: 1,000 lbs / 3-5

Wpn Stations	Weight	Allowed Loads
1,2	500 lb	1 bomb or 75-gal DT



Class: LD

Victory Points: 5-9

AIRCRAFT PERFORMANCE CHART

Altitude		Minimum	Maximum	Maximum	Min	Min	Min	Min	Altitude		Average
Levels	Bands	Speed	Speed	Dive Spd	TT(4)	HT(5)	BT(6)	ET(7)	Levels	Bands	Rate of Climb
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	--	--	--	--	--	--	--	31-36	VH	--
25-30	HI	2.5	7.0	11.0	3.5	5.5	6.5	7.5	25-30	HI	600
19-24	MH	2.5	7.5	12.0	3.5	5.0	5.5	6.5	19-24	MH	1,200
13-18	ML	2.0	7.5	11.0	3.0	4.5	5.0	6.0	13-18	ML	2,000
7-12	LO	2.0	7.0	10.0	3.0	4.0	4.5	6.0	7-12	LO	2,400
1-6	VL	2.0	6.5	9.0	2.5	3.5	4.5	5.5	1-6	VL	2,600

FIRE POWER CHART

Guns	Type Weapons	Ammo	Criticals
N1	2x .50 cal mg	10	3
W1	2x .50 cal mg	10	3
W2	2x .50 cal mg	10	3

GUN ATTACK FACTORS

Rng	N1	W1	W2	Total
0	18	18	18	54/36
1	12	13	13	38/26
2	8	9	9	26/18
3	6	6	6	18/12
4	4	4	4	12/8
5	3	3	3	9/6
6	2	2	2	6/4
7	--	--	--	--

WEAPON STATION LOCATION



1 2

POWER VERSUS SPEED CHART

Levels	Bands	1.0 - 4.5	5.0 - 7.5	8.0 - 9.5	10.0+	Band
43+	UH	--	--	--	--	UH
37-42	EH	--	--	--	--	EH
31-36	VH	--	--	--	--	VH
25-30	HI	3/4	1/2	--	--	HI
19-24	MH	4/5	2/3	--	--	MH
13-18	ML	5/6	3/4	--	--	ML
7-12	LO	6/7	4/5	--	--	LO
1-6	VL	6/7	4/5	--	--	VL
Banking FPs		2	3	4	6	
Side Slip FPs		3	4	6	8	

NOTES AND VARIANTS

North American A-36A Apache: Available Mar-43. Dive-bomber version of P-51A Mustang. Engine optimized for low alt 800 ft and below. Nose guns usually removed in field: 3+ on D10 to remove. If present, add +05LH to possible jam. Served with 3 BGs - 27th & 86th in Med and 311th in CBI. Replaced in Europe during 1944 by P-47s. Divebrakes. 500 built.

A-36C Apache: P-51D with divebrakes.

75-gal Drop Tank: Wgt: 500 lbs **Ld:** 3.0/2.0 **End:** +70

Beech A-38A Grizzly

Country: USA

Service Entry Date: Nov-45

A/C Type: Heavy Attack aircraft
 Engine(s): Two Wright R-3350-432 Cyclones
 Eng. Pwr: 4600-5700 hp, air-cooled
 A/C Crew: Pilot, Gunner



Maximum Speed: 376 mph at 4800 ft
 Maximum Ceiling: 27,800/23,400/14,000 ft.
 Defense factor: 5 Size Modifier: 0
 Damage Factor: 12/18 Endurance: 110
 Cockpit View: Fair Blind Area: None

Protection: Cockpit +2 Fuel +2 Engine +2
 Climb Dece/ Dive Accel: 2.0 / 1.0
 Weight and Load Limit: 2000 / 5-9

Wpn Stations	Weight	Allowed Loads
1,4	500lb	1 bomb or rkts
2,3	500lb	bomb, DC or DT

Class: L

Victory Points: 3-5

AIRCRAFT PERFORMANCE CHART

Altitude		Minimum	Maximum	Maximum	Min	Min	Min	Min	Altitude		Average
Levels	Bands	Speed	Speed	Dive Spd	TT(5)	HT(6)	BT(7)	ET(8)	Levels	Bands	Rate of Climb
43+	UH	--	--	--	--	--	--	--	43+	UH	--
37-42	EH	--	--	--	--	--	--	--	37-42	EH	--
31-36	VH	--	--	--	--	--	--	--	31-36	VH	--
25-30	HI	3.0	6.5	10.5	4.0	5.5	6.5	7.5	25-30	HI	600
19-24	MH	3.0	7.0	10.5	3.5	5.0	6.0	7.0	19-24	MH	1,600
13-18	ML	2.5	7.0	10.5	3.5	4.5	5.5	6.5	13-18	ML	2,400
7-12	LO	2.5	7.0	10.0	3.0	4.0	5.0	6.0	7-12	LO	3,000
1-6	VL	2.0	7.5	9.5	3.0	4.0	5.0	5.5	1-6	VL	3,400

FIRE POWER CHART

Guns	Type	Weapons	Ammo	Criticals
N1	Two	.50 cal M2 MG	15	3
TT	Two	.50 cal M2 MG	15	3
BT	Two	.50 cal M2 MG	15	3
N2	One	75mm T15E1 can	10	3 each

* N1 may be used to sight for N2. N2 must fire separate from other weapons.

GUN ATTACK FACTORS

Rng	N1	TT	BT	N2	Total
0	18	18	18	5	54
1	12	12	12	3	36
2	8	8	8	3	24
3	6	6	6	2	18
4	4	4	4	2	12
5	3	3	3	1	9
6	2	2	2	1	6
7	--	--	--	1	--

WEAPON STATION LOCATION



1 2 3 4

POWER VERSUS SPEED CHART

		(per engine)				
Levels	Bands	1.0 - 4.5	5.0 - 7.5	8.0 - 9.5	10.0+	Band
43+	UH	--	--	--	--	UH
37-42	EH	--	--	--	--	EH
31-36	VH	--	--	--	--	VH
25-30	HI	1/2	0.5/1.0	--	--	HI
19-24	MH	2/3	1.0/1.5	--	--	MH
13-18	ML	3/4	2.0/2.5	--	--	ML
7-12	LO	3/4	2.0/2.5	--	--	LO
1-6	VL	3/4	2.0/2.5	--	--	VL
Banking FPs		2	4	5	8	
Side Slip FPs		3	5	7	9	

NOTES AND VARIANTS

Defensive Gun Arcs

TT: All lvl to high but 05 & 07 lines hi only Turrets can be locked forward for strafing (use total). One gunner - only 1 (unlocked) turret may fire.
 BT: All level to all low.

Beech XA-38A Grizzly: Available Nov-45. Originally designed as a high-alt. bomber destroyer, then developed for ground attack. Turrets were aimed and fired remotely through periscope, like on a B-29. Flight tested starting May 1944; proved wonderful a/c, but it could not be in operation before the Invasion of Japan. No production ordered. 2 built.

75mm cannon: Must be fired separately. N1 can sight for cannon.

75 gal DT **Wgt:** 500 lb **Ld:** 3.0/2.0 **End:** +30