DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION

A-2-571
Revision 11
CONS. VULTEE
BT-13
BT-13A (Navy SNV-1)
BT-13B (Navy SNV-2)
BT-15

January 23, 1950

AIRCRAFT SPECIFICATION NO. A-2-571

Manufacturer	Consolidated-Vultee Aircraft Corp. San Diego, Calif.

I - Model BT-13, BT-13A(Navy SNV-1), BT-13B(Navy SNV-2), 2 PCLM, Approved June 2, 1945.

Engine (See Item 108 for optional engine)	(1) P&W Wasp Jr. TIB2 or Military Model R-985-25 or -27 (2) P&W Wasp Jr. TIB3 or Military Model R-985-AN-1 or -AN-3 (3) P&W Wasp Jr. SB-3 or Military Model R-985-AN-8
Fuel	87 min. octane aviation gasoline 80 min. octane may be used provided engine power is limited to 400 hp for all operations.
Engine limits (With 87 min. octane fuel)	(1) & (2) For all operations, 2300 rpm (450 hp) (3) Maximum continuous, (Sea level) 34.5 in. Hg., 2200 rpm (400 hp) (Straight line manifold pressure variation with altitude to 5000 ft.) 33.5 in. Hg., 2200 rpm (400 hp) Take-off (one minute), 36.5 in. Hg., 2300 rpm (450 hp)
Airspeed limits	Level flight or climb 177 mph True Ind. Glide or Dive 207 mph True Ind. Flaps extended 111 mph True Ind.
C.G. range	(+31.9) to (+41.3)
Empty weight C.G. range	(+30.6) to (+32.1) If the empty weight C.G. falls within this range, checking of critical forward and aft C.G. positions is unnecessary. This range is not valid for 3 or 4 place or any other non-standard arrangements.
Maximum weight	4350 lbs. (See NOTE 2 re 4745 lbs. for passengers and NOTE 3 re 3920 lbs. with wing tips removed). 4745 lbs. for cargo only
No. seats	2 (1 at +45) (1 at +105)
Maximum baggage	175 lbs. (+132.5)
Fuel capacity	120 gal. (+56) (one 60-gal. tank in each side of center section. Right tank has reserve of 17 gal. included in the capacity of 60 gal.)
Oil capacity	10.9 gal. (-8.5)
Control surface movements	Wing flaps Down 60° Elevator Up 30° Down 25° Elevator trim tab Up 25° Down 25° Aileron Up 25° Down 11.5° Aileron trim tab Up 3° Down 6° Rudder Right and Left 35° Rudder trim tab Right and Left 25°
Serial Nos. eligible	All Army and Navy serial numbers. Use mfgs. serial number for certification if available.
Required equipment	Items 1(a), 101, 103, 104, 106, 107, 201, 202 Note: Wood components may be interchanged with similar metal parts, provided one wood wing is not used with one metal wing.

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Note: When constant speed propeller is used with any approved engine, or when P&W Wasp Jr. SB-3 or Military model R-985-AN-8 engine is installed, a manifold pressure gauge must be installed in each cockpit. When the aircraft is not engaged in flight training, the manifold pressure gage in the rear cockpit is not required.

II - Model BT-15, 2 PCLM, Approved May 31, 1945

Engine	Wright R-975E3 or Military Model R-975-11 (See Item 108 for optional engine)		
Fuel	80 min. octane aviation gasoline		
Engine limits	Maximum continuous,		2200 rpm (420 hp)
	Take-off (one minute),		2250 rpm (450 hp)
Airspeed limits	Level flight or climb		177 mph True Ind.
	Glide or Dive		207 mph True Ind.
	Flaps extended		111 mph True Ind.
C.G. range	(+31.9) to (+41.3)		
Empty weight C.G. range	(+30.6) to (+32.1) If the empty weight C.G. falls within this range, checking of critical forward and aft C.G. positions is unnecessary. This range is not valid for 3 or 4 place or any other non-standard arrangements.		
Maximum weight	4350 lbs. (See NOTE 2 re 4745 lbs. for passengers) 4745 lbs. for cargo only		
No. seats	2 (1 at +45) (1 at +105)		
Maximum baggage	175 lbs. (+132.5)		
Fuel capacity	120 gal. (+56) (one 60-gal. tank in each side of center section. Right tank has reserve of 17 gal. included in the capacity of 60 gal.)		
Oil capacity	10.9 gal. (-8.5)		
Control surface movements	Wing flaps		Down 60°
	Elevator	Up 30°	Down 25°
	Elevator trim tab	Up 25°	Down 25°
	Aileron	Up 25°	Down 11.5°
	Aileron trim tab	Up 3°	Down 6°
	Rudder	Right and Left 35°	
	Rudder trim tab	Right and Left 25°	
Serial Nos. eligible	All Army and Navy serial numbers. Use mfgs. serial number for certification if available.		
Required equipment	Items 1(b), 101, 103, 104, 106, 107, 201, 202		

Note: Wood components may be interchanged with similar metal parts, provided one wood wing is not used with one metal wing.

Note: When constant speed propeller is used with any approved engine, or when P&W Wasp Jr. SB-3 or Military model R-985-AN-8 engine is installed, a manifold pressure gauge must be installed in each cockpit. When the aircraft is not engaged in flight training, the manifold pressure gage in the rear cockpit is not required.

Specifications Pertinent to All Models

Datum	Forward Face of Firewall
Leveling means	Lugs at right of rear cockpit at stations 113-5/32 and 132-33/64
Certification basis	Airworthiness Certificate only (CAR 4a.031)
Export eligibility	Eligible for export to all countries except as follows subject to the provisions of ASR 312 (MOP 2-4 contains the same information): (NOTE: Export license from State Dept. may be necessary for these models). Canada - landplane eligible. skiplane not eligible.

Equipment:

Propellers and Propeller Accessories

1. Propeller - Ham. Std. two-position controllable, hub 2D30, blades 6101A-12 to 6101A-14
   (a) Models BT-13, -13A, -13B, SNV-1, SNV-2 — 163 lbs. (-59)
   (b) Model BT-15 — 163 lbs. (-62.5)
   Diameter - 9' 1/8" maximum, 8' 9-3/4" minimum

Pitch settings at 42 inch station:
Models BT-13, -13A, -13B, SNV-1, SNV-2:
Low - 12.5°; High - 18.5°
Model BT-15:
Low - 13.5°; High - 18.5°

2. Propeller - Army two-position controllable, hub 2D30
Blades 42K13717 (for models BT-13, -13A, 13B, SNV-1, SNV-2 only) 177 lbs. (-59)
Diameter - 9' 1/8" maximum, 8' 9-3/4" minimum
Pitch settings at 42 inch station: Low 13.5°; High 19.5°

3. (a) Propeller - Ham. Std. constant speed, hub 2D30, blades 6101A-12 to 6101A-14 163 lbs. (-59)
Dia. 9' 1/8" max., 8' 9-3/4" min.
Min. low pitch setting 9° at 42 in sta.
(Models BT-13, -13A, -13B, SNV-1, -2 only)
(b) Constant speed governor - Ham. Std. 1A2

4. (a) Propeller - Ham. Std. constant speed, Hub 2D30, blades 6101A-18 to 6101A-20.
Dia. 8' 6" max. 8' 4" min.
Min. low pitch setting stop 10°
(Models BT-13, -13A, -13B, SNV-1, -2 only)
(b) Constant speed governor - Ham. Std. IC2

5. (a) Propeller - Ham. Std. constant speed, Hub 2D30, blades 6101A-24 to 6101A-26. Dia. 8' 0" max. 7' 10" min.
Min. low pitch setting 12°
(Models BT-13, -13A, -13B, SNV-1, -2 only)
(b) Constant speed governor - Ham. Std. IC2

6. Propeller - Ham. Std. two-position, hub 2D30, blades 6101A-18 to 6101A-20. Dia. 8' 6" max. 8' 4" min.
Pitch settings: Low 13 1/2°, high 20 1/2°
(Models BT-13, -13A, -13B, SNV-1, -2 only)

7. Propeller - Ham. Std. two-position, hub 2D30, blades 6101A-24 to 6101A-26. Dia. 8' 0" max. 7' 10" min.
Pitch settings: Low 15°, high 20°

8. Propeller - Ham. Std. hub 12D40, blades 6101A-12 for use with 175 lbs.
Item 108 an Item 9 only. Pitch settings at 42" R.: Low 11°, high 27°.

9. Ham. Std. Model 1A12-G constant speed governor.

Engine and Engine Accessories - Fuel and Oil System

101. Carburetor air preheater and muff
Model BT-13A 16 lbs. (-28)
Model BT-15 16 lbs. (-31)

102. Starter
Eclipse H-5 (Model BT-13A) 37 lbs. (-23)
Eclipse Type 444 (Model BT-15) 37 lbs. (-26)

103. Oil cooler
U.A.P. U-3170-W-D5 (Model BT-13A) 18 lbs. (-14.5)
Air Research 2D-3281 (Model BT-15) 19 lbs. (-16)

104. Engine-driven fuel pump
Chandler Evans, Type F (Model BT-13A) 2 lbs. (-34)
Pesco, F-4A (Model BT-15) 2 lbs. (-25.5)

105. Engine-driven vacuum pump
Pesco, Type B-12 (Model BT-13A) 6 lbs. (-31.5)
Pesco, Type B-12 (Model BT-15) 6 lbs. (-24.0)

106. Fuel unit (strainer, hand pump and controls) 9 lbs. (+49.5)

107. Engine cowl and supports
Model BT-13A39 lbs. (-28)
Model BT-1539 lbs. (-31.5)

108. Engine - P & W Military Model R-1340 AN-1 with the following limits:
Max. continuous
(Sea level) 34.0 in. Hg., 2200 rpm (550 hp)
(Straight line manifold pressure variation with altitude to 5000 ft.)
32.5 in. Hg., 2200 rpm (550 hp)
Take-off (one minute) 36.0 in. Hg., 2250 rpm (600 hp)

Installation of above engine requires North American AT-6 engine cowling, cylinder baffles, induction and exhaust system, oil cooler and AT-6 engine mount, as modified by Precipitation Control Company of Phoenix, Arizona, per Dwg. G-2351M.
C.G. range for this installation is (+31.9) to (+36.8), unless extended by additional flight testing.
This item requires propeller item 8.

Landing Gear and Floats

201.	27 inch smooth contour wheels and brakes (Hayes Model 2750A) 6 or 8 ply tires	127 lbs. (+14)
202.	10 inch smooth contour tail wheel (Goodyear) with 4 or 6 ply tire	6 lbs. (+248)

Electrical Equipment

301.	Battery-Gould D-6-A, 12 volt	71 lbs. (-4)
302.	Generator- 50 Amp.	
	Leese-Neville E-5A (Model BT-13A)	24 lbs. (-28.5)
	Eclipse Type 790 (Model BT-15)	24 lbs. (-27)

Interior Equipment

401. "DT TWIN SEAT" installation manufactured by Vest Aircraft Co., Repair Dept, 4600 Dahlia St., Hayden Field, Denver, Colorado
Seat kits to be installed in accordance with manufacturer's installation instructions and Dwg. Nos. 1, 2, 3, 4, and 5, and Nos. I, II, an III dated November 29 and 30, 1946.

402. Model V40 Kit for three place conversion manufactured by Aircraft Fabrications Co., 424 Richards Road, Municipal Airport, Kansas City 6, Missouri.
Seat kits to be installed in accordance with manufacturer's installation instructions and drawing diagrams A, B, C, D, E, F, G, and H.

403. Twin seat for 3-place conversion mfg. by Rawdon Bros. Aircraft Co., 6628 E. Central, Wichita, Kansas
Seat kits to be installed in accordance with mfg.'s installation instructions and Dwg. No. BT-3600.

404. Three place conversion (twin rear seat)
North Aviation Company
Northport
White Bear Lake 10, Minnesota
Seat kits to be installed in accordance with manufacturer's installation instructions, drawings and photographs.

405. BT Twin Seat "Standard"
Vest Aircraft Company - Repair Depot
4600 Dahlia Street
Denver, Colorado
Seat kits to be installed in accordance with manufacturer's installation instructions and drawing Nos. I, II, III, and IV dated April 25, 1947.

406. Four-place Conversion Kit
Les Farrar Aircraft Sales
San Bernardino Airport
900 42nd Street
San Vernardino, California
Conversion to be made in accordance with manufacturer's installation instructions, photograph, and drawings 103-1, 103-2, and 103-3.

407. Three-place Conversion (twin rear seat)
Aircraft Conversion Company
2849 Pinckard Street
North Redondo Beach, California
Seat kits to be installed in accordance with manufacturer's installation instructions and drawings 10003.5, 20001, 30002, and 30003, dated May 25, 1947, May 25, 1947, May 24, 1947, May 23, 1947 respectively.

408. Two to Three-Passenger Seat Kit.
Valiant Aero Service
P.O. Box 99
Roscoe, California
Conversion to be made in accordance with manufacturer's installation instructions and Drawings Nos. BT-1A, BT-1B, and BT-1C.

NOTE 1. The following must be accomplished prior to certification of the aircraft:

(a) Placard rear cockpit, "Solo Flying From Front Seat Only."

(b) Placard both cockpits, "Intentional Spinning Prohibited" and "Caution: Unless Right Tank is full, use Reserve or Left Tank for Take-off and Landing."

(c) Provide an oil measuring stick for oil tank.

(d) Deleted - April 10, 1947

(e) Modify the elevator trim tabs by adding a two-inch wide strip of .032 inch Alclad along the trailing edges so that 1.5 inches of the strips extend rearward from the present trailing edges. On the aluminum tabs, rivet the strip of the present tabs by means of 1/8 inch diameter rivets spaced two inches on centers. On wood tabs, rivet the strips to the present tabs by means of 1/8 inch diameter hollow rivets and washers spaced two inches on centers. Metal elevator trim tabs manufactured in accordance with Drawing No. 1, Paul T. Arnold, 4042 Tilden Avenue, Culver City, California, are acceptable for use on all models. These tabs incorporate the 1-1/2" extension required.

(f) For day operation, only circuit protectors in the circuits to electrical equipment used in the operation need be made accessible to the pilot in flight. The airplane should be restricted to day operation.

(g) To make the airplane eligible for night operation the following must be accomplished:
(1) Provide certificated position lights.
(2) Remove position light resistors.
(3) Relocate all electrical circuit protective devices so that they are accessible to the pilot in flight.

(h) Removal of the propeller spinner is optional.

(i) Placard the baggage compartment, "Maximum capacity 175 lbs."

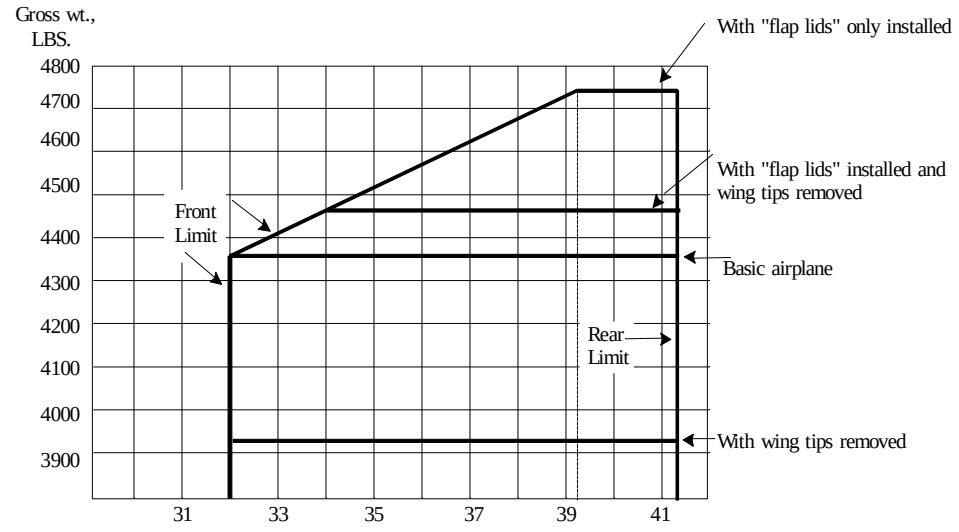
(j) BT-13. A generator field switch should be installed adjacent to the battery actuating toggle switch now installed on the front cockpit electrical panel, and the levers of the two switches should be ganged for master switch operation.
BT-13A and BT-15. A generator field switch should be installed to be controlled by the pilot in the front cockpit. In addition, the battery solenoid circuits now connected to the ignition switch should be removed and connected to a separate switch installed adjacent to the generator switch and ganged with it.
BT-13B. Either the battery or generator switch should be moved so that these switches are adjacent to each other, and the levers of the two switches should then be ganged.

NOTE 2. (a) Airplanes with all metal wings equipped with "flap lids" and/or with wing tips removed, in accordance with approved data listed in NOTE 2(b) below, are eligible as passenger carriers with the following limitations:

Maximum take-off and landing weights:

(1) With "flap lids" only	4745 lbs.
(2) With wing tips removed	3920 lbs.
(3) With "flap lids"and removed tips	4450 lbs.

C. G. limits (See diagram below)



(b) Approved modification kits may be obtained from the following agencies:
(1) "Flap lids" - Dixie Air, Inc., Van De Graff Field, Tuscaloosa, Alabama, Drawing No. R-101-1 or Installation instructions and Drawing No. D-1 furnished with kit.
(2) Wing tip modification: Clover Clip Company, Box 2013, Tucson, Arizona, Drawings 101-1 and 101-2.

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