

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

A2EA  
Revision 7  
ALLIANCE  
500  
September 18, 1997

TYPE CERTIFICATE DATA SHEET NO. A2EA

This data sheet, which is a part of Type Certificate No. A2EA, prescribes conditions and limitations under which the product, for which the type certificate was issued, meets the airworthiness requirements of the Civil Air Regulations/Federal Aviation Regulations.

Type Certificate Holder                      Alliance Aircraft Group, LLC  
17644 SE 293rd Place  
Kent Washington 98042

I. Model 500, 6 PCLM (Normal Category), approved June 11, 1963

Engine                                              2 Lycoming O-540-A2B (Carb. Setting No. 10-4404)

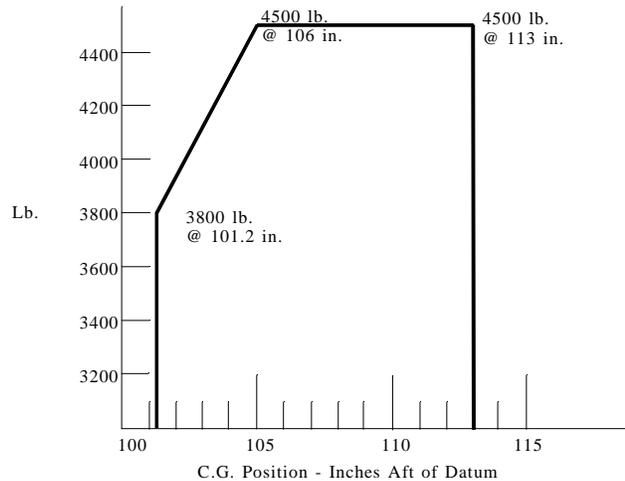
Fuel                                                 91/96 minimum grade aviation gasoline

Engine Limits                                    All operations, 2575 rpm (250 hp)

Propeller and propeller limits             Hartzell HC92ZK-2B/8447  
Pitch settings at 30 in. station:  
Low 11.4°, high 82.7° (feathered)  
Diameter: not over 84 in., not under 82 in.

Airspeed Limits                                 Maneuvering                                    Vp 116 mph (101 knots) CAS  
Maximum structural cruising                Vno 189 mph (164 knots) CAS  
Never exceed                                    Vne 212 mph (184 knots) CAS  
Flap extended                                    Vfe 92 mph ( 80 knots) CAS  
Minimum control                                Vmc 59 mph ( 51 knots) CAS

C.G. range                                        (106.0) to (113.0) at 4500 lbs.  
(101.2) to (113.0) at 3800 lbs.  
Straight line variation between points given.



Page No.	1	2	3
Rev. No.	7	5	5

Empty weight C.G. range	None				
Datum	Longitudinal reference Station O located 90.79 in. ahead of leading edge of wing proper (without slats). Horizontal reference is 38.75 in. below centerline of and parallel to fuselage lower longeron.				
Leveling means	Two leveling bushings threaded to receive AN-4 bolts or 1/4-28 screws. Aft bushing on inside of right rear door sill. Forward bushing 16 in. forward of aft bushing, 2 in. above floor.				
Maximum weight	4500 lbs.				
No. of seats	6 (2 at +103.5, 2 at +136.0, 2 at +164.5)				
Maximum baggage	425 lbs. (+136.0) with middle seat removed 425 lbs. (+164.5) with rear seat removed				
Fuel capacity	120 gal. (4 tanks, 2 in each wing, each tank 30 gal. at +123.0) See NOTE 1 for data on unusable fuel.				
Oil capacity	6 gal. (3 gal. each engine at +65.0) See NOTE 1 for data on system oil.				
Control surface movements	Wing flaps	Up	$0^{\circ} \pm 1-1/2^{\circ}$	Down	$40^{\circ} \pm 1-1/2^{\circ}$
	Aileron	Up	$20^{\circ} \pm 1^{\circ}$	Down	$20^{\circ} \pm 1^{\circ}$
	Aileron trim tab (optional - left side only)	Up	$19^{\circ} \pm 1^{\circ}$	Down	$19^{\circ} \pm 1^{\circ}$ (measured from aileron chordline)
	Stabilator (trailing edge)	Up	$25^{\circ} \pm 1^{\circ}$	Down	$8^{\circ} \pm 1^{\circ}$ from neutral. Neutral is $2.5^{\circ}$ down from horizontal reference.
	Stabilator trim tabs	Measured from horizontal stabilator chordline Tab trailing edge up (+) Tab trailing edge down (-)			
	Stabilator neutral, flaps up	$+19.1^{\circ} \pm 2^{\circ}$ pilot's trim indicator full nose down $-31.7^{\circ} \pm 2^{\circ}$ pilot's trim indicator full nose up			
	Stabilator trailing edge full up, flaps up	$+37.9^{\circ} \pm 2^{\circ}$ pilot's trim indicator full nose down $-30.4^{\circ} \pm 2^{\circ}$ pilot's trim indicator full nose up			
	Stabilator trailing edge full down, flaps up	$+4.0^{\circ} \pm 2^{\circ}$ pilot's trim indicator full nose down $-44.3^{\circ} \pm 2^{\circ}$ pilot's trim indicator full nose up			
	Stabilator anti-balance tabs	Same tabs as trim tabs - measured in same manner			
	Trim indicator neutral				
	Stabilator neutral	0°			
	Stabilator T.E. full up 25° from neutral	+42.9°			
	Stabilator T.E. full down 8° from neutral	-20.0°			

	Flap interconnect effect on Stabilator trim tabs Flaps down 30°, pilot's trim indicator in takeoff position, stabilator trailing edge down 8° Trim tab trailing edge	-28° ± 2°	
	Rudder	Right 25° ± 1°	Left 25° ± 1°
	Rudder trim tab	Right 25° ± 2°	Left 25° ± 2°
		measured from rudder chordline	
Serial Nos. Eligible	2 and up		
Certification Basis	CAR 3 dated May 15, 1956, plus Amendments 3-1 through 3-5 thereto. Type Certificate No. A2EA issued June 11, 1963. Date of application for Type Certificate July 28, 1961.		
Production Basis	None. Prior to original certification of each aircraft, an FAA representative must perform a detailed inspection for workmanship, materials, and conformity with the approved technical data, and a check of flight characteristics.		
Equipment	The basic required equipment as prescribed in the applicable airworthiness regulations (see Certification Basis) must be installed in the aircraft for certification.  In addition, the following items of equipment are required:  (a) Shoulder harnesses and seat belts must be installed for all seats. (b) FAA Approved Flight Manual, Helio Model 500, dated June 11, 1963.		

NOTE 1. Current weight and balance report including list of equipment included in the certificated empty weight, and loading instructions when necessary, must be provided for each aircraft at the time of original certification. The certificated empty weight and corresponding center of gravity location must include unusable fuel of 17 lbs. at (+123) and undrainable oil of 11.5 lbs. at (+65).

NOTE 2. The following placards must be displayed:

- (a) On the instrument panel in full view of the pilot:
  - (1) "1. This airplane must be operated as a normal category airplane in compliance with the operating limitations stated in the form of placards, markings, and manuals.
  - 2. No acrobatic maneuvers (including spins) are approved.
  - 3. Do not exceed 80 knots CAS flaps down.
  - 4. Do not exceed 184 knots CAS flaps up.
  - 5. Maneuvering speed at maximum gross weight is 101 knots CAS.
  - 6. Maneuvering speed at minimum flying weight is 86 knots CAS.
  - 7. Minimum single engine control speed at sea level is 51 knots CAS."
  - (2) "Fuel gauges are not accurate in the three-point position."
  - (3) "Auxiliary tanks level flight only."
  - (4) "No smoking."
  - (5) "Cross wind gear. Pull to unlock. Unlock for all landing and takeoff."
- (b) On the cargo door sill at Fuselage Station 52.5.
  - "1. Total load to be carried on the floor behind the front seat - 850 lb.
  - 2. Cargo floor pressure not to exceed 51 p.s.f."

.....END.....