DEPARTMENT OF TRANSPORTATION FEDERAL AVIATION ADMINISTRATION

A15EA Revision 11 BOHICA, Inc. (Teal) (Schweizer) (Thurston) TSC-1A TSC-1A1 TSC-1A2

February 10, 1993

TYPE CERTIFICATE DATA SHEET NO. A15EA

This data sheet which is a part of type certificate No. A15EA, prescribes conditions and limitations under which the product for which the type certificate was issued meets the airworthiness requirements of the Federal Aviation Regulations.

Type Certificate Holder	BOHICA Incorporated 3128 Pheasant Run Road Norman, OK 73072		
I - Model TSC-1A, 2PCAmM (Normal	Category), Approved 28 August 1969.		
Engine	Lycoming O-320-A3B (Carburetor setting 10-3678-32)		
Fuel	80/87 minimum grade aviation gasoline		
Engine limits	For all operations, 2700 r.p.m. (150 hp.)		
Propeller and propeller limits	Hartzell Model HC-C2YL-1B/7663-4 2 bladed metal Pitch setting at 30 in. station: Low 12° High 27.5° Diameter: Maximum 72" minimum 70"; no further reduction permitted Governor: Hartzell F-2-6A		
Airspeed limits (CAS)	 *V_{ne} (Never exceed speed) *V_{no} (Maximum structural cruising speed) *Va (Design maneuvering speed) Vlo (Maximum speed for landing gear operation) Vle (Maximum speed for landing gear extended) Side windows open *See NOTE 2. 	135 mph (117 knots) 106 mph (92 knots) 106 mph (92 knots) 100 mph (97 knots) 135 mph (117 knots) 110 mph (96 knots)	
Center of Gravity (C.G.) range (Landing gear extended)	+102.3 to +109.7 at 1900 lb. or less (Moment change due to landing gear retraction, plus 860 inlb.)		
Empty weight C.G. range	+109.2 to +112.7 When the empty weight C.G. falls within the range given, complete computations of critical fore and aft C.G. positions are unnecessary. Range is not valid for non-standard arrangements.		
Datum	Bow of airplane, Hull Sta. 0; located 91.5 in. forward of wing leading edge at side of hull.		
Leveling means	Entrance sill, left or right side.		
Maximum weight	1900 lb.		
Number of seats	2 at (+71)		
Maximum baggage	230 lb. at (+96)		
Fuel capacity	 24.5 gal. at (+118) 24 gal. usable (single hull tank system) 46.0 gal. at (+103) 40.6 gal. usable (standard 2 tank system) 70.5 gal. at (+103) wing tanks (+118) hull tank, 64.6 gal. usable (3 tank system) 		
	(see NOTE 1 for data on system fuel and oil)		
Oil capacity	2 gal. at (+126) 6 qt. usable		

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Control surface movements (measured from surface chord line)	Rudder Elevator Elevator tab Aileron Rudder Tab	Left 28° + or -2° Up 15° + 2° -0° Up 7.5° + 2.5° -0 Up 30° + 3° -0° Left 30° + or -2°	$ \begin{array}{c} \text{Right } 28^{\circ} + \text{ or } -2^{\circ} \\ \text{Down } 20^{\circ} + 2^{\circ} -0^{\circ} \\ \text{Down } 21^{\circ} + 2^{\circ} -0^{\circ} \\ \text{Down } 20^{\circ} + 3^{\circ} -0^{\circ} \\ \text{Right } 30^{\circ} + \text{ or } -2^{\circ} \end{array} $			
Manufacturer's Serial Numbers	2, 3, 4, 5, 7, 9, 11, 12, 13					
II - Model TSC-1A1, 2PCAmM (Normal Category), Approved 23 September 1971						
Engine	Lycoming O-320-A3B (Carburetor setting 10-3678-32)					
Fuel	80/87 minimum grade aviation gasoline					
Engine limits	For all operations, 2700 r.p.m. (150 hp.)					
Propeller and propeller limits	Hartzell Model HC-C2YL-1B/7663-4 2 bladed metal Pitch setting at 30 in. station: Low 12° High 27.5° Diameter: Maximum 72" minimum 70"; no further reduction permitted Governor: Hartzell F-2-6A					
Airspeed limits (CAS)	*Vne (Never exceed speed *Vno (Maximum structural *Va (Design maneuvering Vlo (Maximum speed for l Vle (Maximum speed for l Side windows open *See NOTE 2.	cruising speed) speed) anding gear operation)	123 mph (107 knots) 97 mph (84 knots) 97 mph (84 knots) 100 mph (87 knots) 123 mph (107 knots) 110 mph (96 knots)			
Center of Gravity (C.G.) range (Landing gear extended)	+103.5 to +107.8 at 2200 lb. +103.1 to +108.4 at 2100 lb. +102.3 to +109.7 at 1900 lb. or less Straight line variation between points given (Moment change due to landing gear retraction, plus 860 inlb.)					
Empty weight C.G. range	+110.2 to +112.7 When the empty weight C.G. falls within the range given, complete computations of critical fore and aft C.G. positions are unnecessary. Range is not valid for non-standard arrangements.					
Datum	Bow of airplane, Hull Sta. 0; located 91.5 in. forward of wing leading edge at side of hull.					
Leveling means	Entrance sill, left or right side.					
Maximum weight	2200 lb. for land operations 2100 lb. for water operations					
Number of seats	2 at (+71)	2 at (+71)				
Maximum baggage	230 lb. at (+96)					
Fuel capacity	46 gal. at (+103.0) 40.6 gal. usable (standard 2 tank system) 70.5 gal. at (+103) wing tanks (+118) hull tank, 64.6 gal. usable (3 tank system) (see NOTE 1 for data on system fuel and oil)					
Oil capacity	2 gal. at (+126) 6 qt. usabl	e				
Control surface movements (measured from surface chord line)	RudderLeftElevatorUpElevator tabUpAileronUpRudder tabLeft	$28^{\circ} + \text{ or } -2^{\circ}$ $15^{\circ} + 2^{\circ} -0^{\circ}$ $7.5^{\circ} + 2.5^{\circ} -0^{\circ}$ $30^{\circ} + 3^{\circ} -0^{\circ}$ $30^{\circ} + \text{ or } -2^{\circ}$	Right $28^{\circ} + \text{ or } -2^{\circ}$ Down $20^{\circ} + 2^{\circ} -0^{\circ}$ Down $21^{\circ} + 2^{\circ} -0^{\circ}$ Down $20^{\circ} + 3^{\circ} -0^{\circ}$ Right $30^{\circ} + \text{ or } -2^{\circ}$			
Manufacturer's Serial Numbers	1, 6, 8, 10, 14 through 21, 2	23				

III - Model TSC-1A2, 2PCAmM (Normal Category), Approved June 28, 1973

II - Model ISC-IA2, 2PCAMM (Nor	mai Category), Approved June 28, 1973		
Engine	Lycoming O-320-A3B (Carburetor setting 10-3678-32)		
Fuel	80/87 minimum grade aviation gasoline		
Engine limits	For all operations, 2700 r.p.m. (150 hp.)		
Propeller and propeller limits	Hartzell Model HC-C2YL-1B/7663-4 2 bladed metal Pitch setting at 30 in. station: Low 12° High 27.5° Diameter: Maximum 72" minimum 70"; no further reduction permitted Governor: Hartzell F-2-6A		
Airspeed limits (CAS)	*Vne (Never exceed speed)123 mph (107 knots)*Vno (Maximum structural cruising speed)97 mph (84 knots)*Va (Design maneuvering speed)97 mph (84 knots)Vlo (Maximum speed for landing gear operation)100 mph (87 knots)Vle (Maximum speed for landing gear extended)123 mph (107 knots)Side windows open110 mph (96 knots)Vfe (Maximum speed for flaps extended)90 mph (78 knots)*See NOTE 2.90 mph (78 knots)		
Center of Gravity (C.G.) range (Landing gear extended)	+102.8 to +107.4 for all weights to 2200 pound max. gross weight (Moment change due to landing gear retraction, plus 860 inlb.)		
Empty weight C.G. range	+110.2 to +112.7 When the empty weight C.G. falls within the range given, complete computations of critical fore and aft C.G. positions are unnecessary. Range is not valid for non-standard arrangements.		
Datum	Bow of airplane, Hull Sta. 0; located 91.5 in. forward of wing leading edge at side of hull.		
Leveling means	Entrance sill, left or right side.		
Maximum weight	2200 lb. for land and water operations		
Number of seats	2 at (+71), 1 at (+96)		
Maximum baggage	230 lb. at (+96)		
Fuel capacity	46 gal. at (+103.0) 40.6 gal. usable (std 2 tank system) 70.5 gal. at (+103) wing tanks (+118) hull tank, 64.6 gal. usable (3 tank system) (see NOTE 1 for data on system fuel and oil)		
Oil capacity	2 gal. at (+126) 6 qt. usable		
Control surface movements (measured from surface chord line)_	RudderLeft $28^{\circ} + \text{ or } -2^{\circ}$ Right $28^{\circ} + \text{ or } -2^{\circ}$ ElevatorUp $21^{\circ} + \text{ or } -2^{\circ}$ Down $17^{\circ} + \text{ or } -2^{\circ}$ Elevator tabUp $16^{\circ} + \text{ or } -2^{\circ}$ Down $30^{\circ} + \text{ or } -2^{\circ}$ AileronUp $30^{\circ} + 3^{\circ} -0^{\circ}$ Down $20^{\circ} + 3^{\circ} -0^{\circ}$ Rudder tabLeft $30^{\circ} + \text{ or } -2^{\circ}$ Right $30^{\circ} + \text{ or } -2^{\circ}$ FlapDown $15^{\circ} + 2^{\circ} -0^{\circ}$		
Manufacturer's Serial Numbers	22, 24 and subsequent, IFR operation approved per note 2 (a) (8).		
Certification basis	Federal Aviation Regulations Part 23, effective 1 February 1965 and Amendments 23-1 through 23-6.		
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 the 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:		
	Stall warning indicator installed per TAC drawing No. 1-6715		

- NOTE 1. Current weight and balance report including list of equipment included in certificated empty weight, and loading instruction 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 undrainable system oil of 1 lb. at +126 and unusable fuel as follows:
 - 3 lb. at (+118.0) (single tank system)
 - 32 lb. at (+103.0) (standard 2 tank system)
 - 35 lb. at (+103) wing tanks (+118) hull tank (3 tank system)
- NOTE 2. The following placards must be displayed:
 - (a) In front of and in full view of the pilot:
 - (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. ALL ACROBATIC MANEUVERS, INCLUDING SPINS PROHIBITED."
 - (2) Models TSC-1A, TSC-1A1 and TSC-1A2 S/Ns 22 and 24 only "OPERATION OF THIS AIRPLANE IS LIMITED TO VFR FLYING UNDER NON-ICING CONDITIONS."
 - (3) Model TSC-1A only "OPERATE LANDING GEAR BELOW GEAR DOWN SPEED LIMIT WINDOW OPEN SPEED LIMIT CROSSWIND OPERATING LIMIT DESIGN MANEUVERING SPEED ALTITUDE LOSS IN POWER OFF STALL USABLE FUEL IS AVAILABLE IN ALL APPROVED FLIGHT CONDITIONS."
 - (4) Models TSC-1A1 and TSC-1A2 only "OPERATE LANDING GEAR BELOW GEAR DOWN SPEED LIMIT WINDOW OPEN SPEED LIMIT CROSSWIND OPERATING LIMIT DESIGN MANEUVERING SPEED ALTITUDE LOSS IN POWER OFF STALL USABLE FUEL IS AVAILABLE IN ALL APPROVED FLIGHT CONDITIONS."

100 m.p.h. 135 m.p.h. 110 m.p.h. 15 m.p.h. land; 20 m.p.h. water 106 m.p.h. 250 ft.

- 100 m.p.h. 123 m.p.h. 110 m.p.h. 15 m.p.h. land; 20 m.p.h. water 97 m.p.h. 250 ft.
- (5) Model TSC-1A only "WEIGHT AND BALANCE LIMITS MAXIMUM DESIGN GROSS WEIGHT - 1900 LB. CENTER OF GRAVITY RANGE - 102.3 TO 109.7 INCHES - 18.0% TO 30.4% MAC REFER TO AIRPLANE WEIGHT & BALANCE REPORT FOR PROPER LOADING INFORMATION."
- (6) Model TSC-1A1 only
 "WEIGHT AND BALANCE LIMITS MAXIMUM DESIGN GROSS WEIGHT - 2200 LB., 2100 lb. water CENTER OF GRAVITY RANGE 103.5 to 107.8 at 2200 lb.
 +103.1 to +108.4 at 2100 lb.
 +102.3 to +109.7 at 1900 lb. or less STRAIGHT LINE VARIATION BETWEEN POINTS GIVEN REFER TO AIRPLANE WEIGHT AND BALANCE REPORT FOR PROPER LOADING INFORMATION."
- (7) Model TSC-1A2 only "TEAL II - WEIGHT AND BALANCE LIMITS MAXIMUM DESIGN GROSS WEIGHT: 2200 LB. CENTER OF GRAVITY RANGE: 102.8 to 107.4 in. at 2200 lb. or less REFER TO AIRPLANE WEIGHT AND BALANCE REPORT FOR PROPER LOADING INFORMATION."
- (8) Model TSC-1A2, S/N's 25 and up "THIS AIRPLANE APPROVED FOR DAY OR NIGHT VFR OR IFR FLIGHT IN NON-ICING CONDITIONS WHEN PROPERLY EQUIPPED IN ACCORDANCE WITH FAR 91."

(b) On top surface of landing gear retraction mechanism housing:

"RAISE PIVOT TO LOWER GEAR IN WATER. LOWER PIVOT PRIOR TO WATER TAKE OFF."

(c) On top surface of landing gear retraction mechanism housing:

"NOTE: IF GEAR IS INADVERTENTLY LOWERED IN FLIGHT WITH PIVOT UP, BLEED AIR CYLINDERS TO RETRACT GEAR."

(d) On or adjacent to air cylinder:

"CAUTION"

"PRESSURIZED AIR CYLINDER. RELEASE PRESSURE BEFORE REMOVING. AFTER INSTALLATION INFLATE TO 300 PSI WITH NITROGEN OR AIR WITH GEAR DOWN."

(e) On or adjacent to baggage compartment:

"BAGGAGE LIMIT, 60 LB. WITH PILOT AND PASSENGER, 230 LB. WITH PILOT ONLY."

- (f) Adjacent to fuel filler cap:
 "23.0 GALLON CAPACITY 80/87 OCTANE (WING TANKS) 24.5 GALLON CAPACITY 80/87 OCTANE (HULL TANK)."
- (g) Adjacent to fuel control valve:

"FUEL VALVE 20.3 GAL. USABLE (STANDARD 2 TANK SYSTEM) FUEL VALVE 24 GAL. USABLE (SINGLE TANK AND 3 TANK SYSTEM)."

(h) Such that horizontal bar on placard is 10.38 in. above side window sill.

"MAXIMUM WINDOW OPENING IN FLIGHT."

(i) Adjacent to light switches on instrument panel:

"WARNING: TO AVOID OPTICAL ILLUSION AND SEVERE VERTIGO, TURN ANTI-COLLISION LIGHTS OFF UPON ENTERING CLOUDS, FOG OR HAZE."

(j) Adjacent to cabin heater controls (Janitrol model B-1500, P/N 99C42):.

"WARNING: WAIT 2 MINUTES AFTER TURNING HEATER OFF BEFORE TURNING OFF HEATER MASTER SWITCH."

(k) Beneath the left and right fuel quantity gages on the instrument panel:

"THE 2.7 GALLONS OF UNUSABLE FUEL IN EACH WING TANK WHEN QUANTITY INDICATOR READS ZERO CANNOT BE SAFELY USED IN FLIGHT."

(l) On the selector valve plate for the three tank system (Model TSC-1A2 only):

"CAUTION: USE HULL FUEL FIRST"

In addition to the placards specified above, the prescribed operating limitations indicated by an asterisk (*) under Section I, II and III of this data sheet must also be displayed by permanent markings.

- NOTE 3. None
- NOTE 4. Model TSC-1A Type Certificate issued 28 August 1969 for a maximum gross weight of 1850 lb. Maximum gross weight of 1900 lb. approved 9 December 1969.

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