

SPECIFICATIONS PERTINENT TO ALL MODELS

Leveling means	Hatch sill on either side of fuselage
Datum	The firewall bulkhead
Certification basis	Part 4a of the Civil Air Regulations Type Certificate No. 718 issued March 25, 1940 Application for Type Certificate dated April 20, 1938
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.
Export eligibility	Eligible for export to all countries subject to the provisions of FSP 8130.1, except as follows: Canada - Landplane and skiplane eligible
Equipment	A plus (+) or minus (-) sign preceding the weight of an item indicates net weight change when that item is installed. Approval for the installation of all items of equipment listed herein has been obtained by the aircraft manufacturer except those items preceded by an asterisk (*). This symbol denotes that approval has been obtained by someone other than the aircraft manufacturer. An item marked with an asterisk may not have been manufactured under an FAA monitored or approved quality control system, and therefore conformity must be determined if the item is not identified by a Form FAA-186 or 8130-3 Airworthiness Approval Tag, TSO, PMA or other evidence of FAA production approval.

Propellers and Propeller Accessories

1. Propeller - Beech controllable, R002 or R003 with blades as follows:
(See NOTE 6 of Propeller Spec. P-804 for interchangeable blades) 26 lb. (-35)
 - (a) With Continental A-65 engine: R002-205-72
 - (b) With Continental C-75 or C-85 engine (see item 106 or 110)
R-003-72 or R003-225-72
Diameter: not over 72 in., not under 70.5 in. (a) and (b)
Pitch settings at 27 in. sta.:

	<u>Low</u>	<u>High</u>
(a) With Continental A-65 engine	12-1/2°	19-1/2°
(b) With Continental C-75 engine	12-1/2°	21-1/4°
(c) With Continental C-85 engine	13° to 14°	18.5° to 20.5°

Note: With C-85 engine (item 110) the following additional Ercoupe engine baffles are required:
Ercou P/N 415-40487, left and right; 415-40488, one; 415-40597, two; 415-40598, two.
Check aircraft weight and balance to determine if ballast required in cargo compartment when aircraft flown solo.
- Propeller control 1 lb. (-10)
2. Propeller - fixed pitch metal, McCauley 1A90CF or 1B90CM 26 lb. (-32)
 - (a) With Continental C-75 series engines only
Static r.p.m. at maximum permissible throttle setting:
not over 2100, not under 1950. No additional tolerance permitted.
Diameter: not over 73 in., not under 71 in.
 - (b) With Continental A-65 series engines only
Static r.p.m. at maximum permissible throttle setting:
not over 2260, not under 2110. No additional tolerance permitted.
Diameter: not over 74 in., not under 72.5 in.
3. Propeller with Continental C-75 or C-85 series engines 15 lb. (-32)
Sensenich 74FC (pitch 48 to 52 in.) (including hub) or any fixed pitch wood propeller eligible for engine speed and power which meet static r.p.m. and diameter limits as follows:
S/N 113 and up.
Static r.p.m. at maximum permissible throttle setting: not over 2100, not under 1850. No additional tolerance permitted.
Diameter: not over 74 in., not under 72 in.

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therein such portions of the aviation industry, Federal, and military specifications respecting such materials, parts, processes, and appliances as he finds appropriate.

(b) Any material, part, process, or appliance shall be deemed to have met the requirements for approval when it meets the pertinent specifications adopted by the Administrator, and the manufacturer so cer-

tifies in a manner prescribed by the Administrator.

4a.31-1 *Approval of aircraft components (FAA rules which apply to sec. 4a.31)*. Aircraft components, made the subject of Technical Standard Orders, shall be approved upon the basis and in the manner provided in Part 514 of this title.

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Subpart B—Definitions

4a.37 *Weights.*

(a) *Weight, W.* The total weight of the airplane and its contents.

(b) *Designed weight.* The weight of the airplane assumed for purposes of showing compliance with the structural requirements specified in this part.

(c) *Minimum design weight.* Weight empty with standard equipment, plus crew, plus fuel of 0.25 pound per maximum (except take-off) horsepower, plus oil as per capacity.

(d) *Standard weight.* The maximum weight for which the airplane is certificated as complying with all the airworthiness requirements for normal operations.

(e) *Provisional weight.* The maximum weight for which the airplane is certificated as complying with the airworthiness requirements as modified for scheduled air carriers in section 4a.687.

4a.38 *Structural terms.*

(a) *Design wing area, S.* The area enclosed by the projection of the wing outline, including ailerons and flaps but ignoring fairings and fillets, on a surface containing the wing chords. The outline is assumed to extend through nacelles and through the fuselage to the plane of symmetry.

(b) *Design power, P.* The total engine horsepower chosen for use in determining the maneuvering load factors. The corresponding engine output will be incorporated in the aircraft certificate as a maximum operational limitation in all flight operations other than take-off or climbing flight (see sec. 4a.727).

(c) *Design wing loading, W/S.* The design weight (sec. 4a.37(b)) divided by the design wing area (sec. 4a.38(a)).

(d) *Design power loading, W/P.* The design weight (sec. 4a.37(b)) divided by the design power (see sec. 4a.38(b) and Fig. 4a-3).

4a.39 *Air density, ρ .* The mass density of the air through which the airplane is moving, in terms of the weight of a unit volume of air divided by the acceleration of gravity. The symbol ρ_0 denotes the mass density of air at sea level under standard atmospheric conditions and has the value of 0.002378 slugs per cubic foot.

Cross Reference: For definition of standard atmosphere, see sec. 4a.45.

4a.40 *Speed.*

(a) *True air speed, V_t .* The velocity of the airplane, along its flight path, with respect to the body of air through which the airplane is moving.

(b) *Indicated air speed, V_i .* The true air speed multiplied by the term $\sqrt{\rho/\rho_0}$. (See sec. 4a.39.)

(c) *Design level speed, V_L .* The indicated air speed chosen for use in determining the pertinent structural loading conditions. This value will be incorporated in the aircraft certificate as a maximum operational limitation in level and climbing flight (see sec. 4a.726).

(d) *Design gliding speed, V_g .* The maximum indicated air speed to be used in determining the pertinent structural loading conditions (see secs. 4a.73 and 4a.726).

(e) *Design stalling speed, V_s .* The computed indicated air speed in unaccelerated flight based on the maximum lift coefficient of the wing and the design gross weight.

(g) A generator. (See sec. 4a.573 for requirements.)

(h) Radio equipment same as section 40.61.

4a.550 *ACP landplanes; instrument day flying.* The same as specified in section 4a.548 except section 4a.548(b) and, in addition, the following:

(a) A gyroscopic rate-of-turn indicator combined with a bank indicator.

(b) A gyroscopic instrument showing bank and pitch.

(c) A gyroscopic direction finder.

(d) Two sensitive-type altimeters, both of which shall be adjustable for changes in barometric pressure and compensated for changes in temperatures: *Provided*, That aircraft in use on or before January 1, 1939, and thereafter replacements and additions of aircraft of the same make and model may, for purposes of standardization, be deemed to have met this requirement, if there are installed in each such aircraft one sensitive type altimeter and one standard type altimeter, provided each is adjustable for changes in barometric pressure and compensated for changes in temperature.

(e) A free air thermometer of the distance type with an indicating dial in the cockpit.

(f) A clock with a sweep second hand.

(g) A vacuum gauge, installed in the lines leading to instruments in paragraphs (a), (b) and (c) of this section.

(h) Type certificated radio equipment as specified in Part 40 of this subchapter.

(i) Means shall be provided to indicate icing conditions, or the probability thereof, in the carburetor if the de-icing device specified in section 4a.616 requires the manual manipulation of controls.

(j) A storage battery suitable as a source of energy supply for the radio equipment installed.

Cross Reference: For installation requirements, see secs. 4a.571, 4a.573.

(k) A generator.

Cross Reference: For installation requirements, see sec. 4a.573.

4a.551 *ACP landplanes; instrument night flying.* The same as specified in sections 4a.549 and 4a.550 combined. The storage

battery, in this case, shall be of sufficient capacity for all radio equipment and all lights installed.

4a.552 *ACP seaplanes and amphibians.* The same as specified for landplanes. (Secs. 4a.548-4a.551) and including the life preservers specified in section 4a.537, except that when certificated for night operation they shall also have installed the anchor light specified in section 4a.537.

Installation Requirements

4a.557 *Installation requirements.* The regulations in sections 4a.558-4a.581 apply to the installation of specific items of equipment and are additional to the regulations of section 4a.523.

Instrument Installation

4a.558 *Instruments.* The regulations in sections 4a.559-4a.564 shall apply to the installation of instruments when such instruments are required by the regulations in this part.

4a.559 *Air-speed indicator.* This instrument shall be so installed as to indicate true air speed at sea level with the maximum practicable accuracy, but the instrument error shall not be more than plus or minus 3 percent, except that it need not be less than plus or minus 5 miles per hour, at the level flight speed corresponding to the design power (sec. 4a.38(b)), at V_L (sec. 4a.40(c)), or at the maximum attainable level flight speed, whichever is lowest.

4a.560 *Powerplant instruments and controls.* See sections 4a.642, 4a.643.

4a.561 *Fuel quantity gauge.* See section 4a.609.

4a.562 *Magnetic compass.* This instrument shall be properly damped and compensated and shall be located where it is least affected by electrical disturbances and magnetic influences.

4a.563 *Navigational instruments.* Navigational instruments for use by the pilot shall be so installed as to be easily visible to him with the minimum practicable deviation from his normal position and line of