

DEPARTMENT OF COMMERCE
CIVIL AERONAUTICS ADMINISTRATION

A-701 Revision 2
CESSNA C-145 C-165 (ARMY UC-94)
February 28, 1950

AIRCRAFT SPECIFICATION NO. A-701

Manufacturer Cessna Aircraft Company
Wichita, Kansas

I - Model C-145 4 PCL-SM Approved October 1, 1938

(Same as C-38 except truss ribs and mid-chord flaps instead of plywood ribs and fuselage flap)

Engine	Warner Super Scarab Series 50 or 50A				
Fuel	73 min. octane aviation gasoline				
Engine limits	For all operations, 2050 rpm (145 hp)				
Airspeed limits	Landplane	Level flight or climb	165 mph True Ind.		
		Glide or dive	215 mph True Ind.		
		Flaps extended	110 mph True Ind.		
	Seaplane	Level flight or climb	145 mph True Ind.		
		Glide or dive	175 mph True Ind.		
			Flaps extended	110 mph True Ind.	
Propeller limits	Maximum permissible diameter (for clearance):				
	Landplane	- 86 inches			
	Seaplane	- 96 inches			
C.G. range	Landplane	- (+41.2) to (+49.3)			
	Seaplane	- (+41.5) to (+49.8)			
Empty weight C.G. range	Landplane	- (+42.6) to (+44.1)			
	Seaplane	- (+42.8) to (+45.6)			
	Ranges are not valid when Item 217, Cabin fuel tank, or Item 224, Photographic installation, are installed or for any other non- standard arrangement. When Empty weight C.G. falls within proper range, computation of critical fore and aft C.G. positions is unnecessary.				
Maximum weight	Landplane	- 2350 lbs. (See NOTE 2 regarding eligibility higher weight)			
	Seaplane	- 2550 lbs.			
No. seats	4 (two at +34, two at +68).				
Maximum baggage	64 lbs. (+82)				
Fuel capacity	35 gals. (+60.9). (two 17 1/2 gal. wing tanks).				
Oil capacity	3 1/2 gals. (+4)				
Control surface movements	Elevators	25°	up	23.5°	down
	Elevator tab	6.5°	up	22°	down
	Rudder	right and left 25° from centerline			
	Ailerons	25°	up	25°	down
	Flaps			60°	down
Serial Nos. eligible	403, 414, 450 and up				
Required equipment	Landplane	- Items 101(a), 102, 103(a), 104, 105, 106, 107 and 108.			
	Seaplane	- Items 101(a), 102, 105, 106, 107, 108, 151 and 152.			

Page No.	1	2	3	4	5
Rev. No.	2	2	2	-	-

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II - Model C-165 (Army UC-94) 4 PCL-SM Approved October 3, 1939

(Same as C-145 except for engine installation).

Engine	Warner Super Scarab 165 (See Item 226 for optional engine)			
Fuel	73 min. octane aviation gasoline			
Engine limits	For all operations, 2100 rpm (165 hp)			
Airspeed limits (See NOTE 3 when Item 226 is installed).	Landplane	Level flight or climb		150 mph True Ind.
		Glide or dive		180 mph True Ind.
	Seaplane	Flaps extended		110 mph True Ind.
		Level flight or climb		145 mph True Ind.
		Glide or dive		175 mph True Ind.
		Flaps extended		110 mph True Ind.
Propeller limits	Maximum permissible diameter (for clearance):			
	Landplane	- 86 inches		
	Seaplane	- 96 inches		
C.G. range	Landplane	- (+41.2) to (+49.3) (See NOTE 3 when Item 226 is installed).		
	Seaplane	- (+41.5) to (+49.8)		
Empty weight C.G. range	Landplane	- (+42.6) to (+44.1)		
	Seaplane	- (+42.8) to (+45.6)		
	Ranges are not valid when Item 217, Cabin fuel tank, or Item 224, Photographic installation, are installed or for any other non- standard arrangement. When Empty weight C.G. falls within proper range, computation of critical fore and aft C.G. positions is unnecessary.			
Maximum weight	Landplane	- 2350 lbs. (See NOTE 2 regarding eligibility for higher weight)		
	Seaplane	- 2550 lbs.		
No. seats	4 (two at +34, two at +68).			
Maximum baggage	64 lbs. (+82)			
Fuel capacity	35 gals. (+60.9). (two 17 1/2 gal. wing tanks).			
Oil capacity	3 1/2 gals. (+4)			
Control surface movements	Elevators	25°	up	23.5° down
	Elevator tab	6.5°	up (See Note 5)	22° down
	Rudder	right and left 25° from centerline		
	Ailerons	25°	up	25° down
	Flaps			60° down
	Serial Nos. eligible	403, 412, 450 and up and all AAF numbers, Use mfgs. number when available. See NOTE 4 regarding eligibility of C-38 models.		
Required equipment	Landplane	- Items 101(b), 102, 103(a), 104, 105, 106, 107 and 108.		
	Seaplane	- Items 101(b), 102, 105, 106, 107, 108, 151 and 152.		

Specifications Pertinent to All Models

Datum	Centerline of Bulkhead No. 1 (firewall).
Leveling means	Blocks located in baggage compartment.
Certification basis	Type Certificate No. 701 (CAR 4a).
Production basis	None (See NOTE A)
Export eligibility	Eligible for export to all countries, subject to the provisions of ASR 312 (MOP contains the same information) except as follows: Canada - Landplane and Seaplane - eligible. Skiplane - not eligible. However, structure (Dwg. C38357, Rev.A) complies with Canadian requirements for ski gear with maximum pedestal height of 14 inches and tread of 79 inches with gear in half-deflected position. Tail skid structure is satisfactory for installation of tail ski on tail wheel fork and axle assembly (Dwg. C38383).
Equipment:	A plus (+) or minus (-) sign preceding the weight of an Item indicates net weight change when that Item is installed.

Propellers and Propeller Accessories

102.	Propeller - fixed pitch wood	25 lbs. (-28)
213.	Propeller	
	(a) Fixed metal (Curtiss model 55511) on C-145	+20 lbs. (-27)
	(b) Adjustable metal (Ham. Std., hub 7056, blades 19B1/2-16 or -17; dia. 7' 2" max., 7' 1/4" min.) on C-145	+36 lbs. (-27)
	(c) Fixed metal (Curtiss model 55518) on C-145 and C-165	+26 lbs. (-28)
	The following limits apply when this propeller is installed:	
	<u>C-145</u>	<u>C-165</u>
	Diameter	84 inches
	Pitch	79-1/2 inches
	84 or 86 inches	79-1/2 or 81 inches
(d)	Constant speed metal (Ham. Std. Hub 2B20, blades 6165A-12 or -13; dia. 7' 2" max., 7' 1/4" min.) (Low pitch setting 16° at 30" station)	+67 lbs. (-29)
(e)	Koppers Aeromatic 221/1-85A (Model C-145 only) Diameter 85 in. Pitch settings at 30 in. sta.: Low 16° high 29°	+37 lbs. (-28)
(f)	Koppers Aeromatic 220/0-85 Parts List Assembly No. 4347 (for Model C-165) Parts List Assembly No. 4397 (for Model C-145) Low pitch setting at 30 in. sta.: 13.7° (for Model C-165) Low pitch setting at 30 in. sta.: 14.0° (for Model C-145) Static rpm at max. permissible throttle setting: Not over 2250, not under 2150 (for Model C-165) Not over 2050, not under 1950 (for Model C-145) No additional tolerance permitted. Diameter: not over 85 in., not under 83.5 in. When this item is installed, installation and operation must be accomplished in accordance with Koppers' "Installation Procedure and Operating Limitations" dated July 3, 1948, on Model C-165 and Koppers' "Installation Procedure and Operating Limitations No. 63" on Model C-145.	+30 lbs. (-28)
229.	Constant speed governor (Ham. Std. IP 12-A)	5 lbs. (-5)

Engines and Engine Accessories - Fuel and Oil System

101.	Engine cowl (NACA type with baffles)	
	(a) (Model C-145)	24 lbs. (-16)
	(b) (Model C-165)	22 lbs. (-16)
107.	Carburetor heater	3 lbs. (-8)
201.	Starter	
	(a) (Eclipse Y-150)	23 lbs. (0)
	(b) (Eclipse Y-150 - on model C-145 with general adapter)	23 lbs. (+2)
210.	Engine shielding	5 lbs. (-13)
217.	Cabin fuel tanks	
	(a) 10 gal.	8 lbs. (+49.5)
	(b) 17 1/2 gal.	12 lbs. (+51.3)
225.	Oil dilution and hopper tank installation (Dwgs. 51695 and 51697) C-145	2 lbs. (0)
226.	Engine -Warner Super Scarab 165D Engine limits	+7 lbs. (-15)
	Maximum continuous, 2100 rpm (165 hp)	
	Take-off (one minute), 2250 rpm (175 hp)	
	For additional limits for this installation, See NOTE 3.	
227.	Oil Radiator (Harrison No. 307440 with by-pass)	6 lbs. (-4)
228.	Cambridge Mixture Analysis Cell	5 lbs. (-4)
303.	Air maze installation (Dwg. 55312) - for C-165	+2 lbs. (-22)

Landing Gear and Floats

103.	(a)	7.50-10 wheels (Goodyear 10HBM) with 6.50-10 tires and tubes	60 lbs. (+28)
	(b)	Hydraulic brake controls (Required with hydraulic brakes only)	9 lbs. (+14)
104.		8 in. streamline tail wheel, tire and fork	7 lbs. (+243)
152.		Edo 44-2425 floats with water rudder	329 lbs. (+53)
207.	(a)	22x10-4 wheels (Goodyear 4MBA or 4HBM) tire and tubes	+9 lbs. (+28)
	(b)	7.50-10 wheels (Goodyear 10 HBM) with 7.50-10 tires and 7.50-10 tubes with 7.50-10 tires and 6.50-10 tubes	+6 lbs. (+28)
		with 8.50-10 tires and 7.50-10 tubes	+4 lbs. (+28)
	(c)	21 in. streamline wheels (Hayes 2100M, mech. or hyd. brakes) with tires and tubes	+11 lbs. (+28)
	(d)	6.50-10 wheels (Warner M-3270) tires and tubes	No weight change -3 lbs. (+28)
214.		Wheel streamlines	27 lbs. (+28)
218.		Heavy duty landing gear	
	(a)	Tail wheel fork	+2 lbs. (+243)
	(b)	Main landing gear	+10 lbs. (+28)
301.		Puncture proof tubes	
	(a)	One 8 in. streamline	+2 lbs. (+243)
	(b)	Two 6.50-10	+4 lbs. (+28)
	(c)	Two 7.50-10	+7 lbs. (+28)
	(d)	Two 21 in. streamline	+7 lbs. (+28)
	(e)	Two 22x10-4	+9 lbs. (+28)
302.		Skis	Use actual weight
	(a)	Wien Alaska W-2500	
	(b)	Wien Alaska W-2500-A	
	(c)	Wien Alaska GS-5	
	(d)	Federal SC-3	

Electrical Equipment

105.		Battery (Exide 6TS-7-1) (aft of baggage compartment)	26 lbs. (+97)
106.		Battery box	7 lbs. (+97)
108.		Generator - wind driven (Hodges H-12V)	10 lbs. (+31)
204.		Generator - engine driven (Add adapter weight 5 lbs. on C-145)	
	(a)	(Hodges H-12V)	+4 lbs. (-4)
	(b)	(Bosch LE70-12R5)	+6 lbs. (-4)
	(c)	(Eclipse D)	+10 lbs. (-4)
	(d)	(Eclipse G)	+6 lbs. (-4)
206.		Landing lights	
	(a)	Two (Grimes ST-250)	11 lbs. (+53)
	(b)	One or two (Grimes ST-1000)	7 lbs. each (+54)
	(c)	one or two (Grimes ST-1220)	8 lbs. each (+54)

Interior Equipment

205.	Flares	(a) Three 1 1/2 minute	18 lbs. (+92)
		(b) Five 1 minute	15 lbs. (+92)
211.		Cabin heater	5 lbs. (-9)
223.		Adjustable pilot's seat (Cessna Dwg. 39612)	+2 lbs. (+34)
224.		Photographic equipment (Weight and balance report both with and without photographic equipment required where alternate operation is proposed)	
	(a)	Photographer's seat (One person only) (Dwg. C38602)	8 lbs. (+82)
	(b)	Photographer's stool (Dwg. C37908-13)	7 lbs. (+82)
	(c)	Camera and camera support (Dwgs. C37908-3, -2, -14 and -17) maximum (Inspector should list type, weight, and make of camera)	62 lbs. (+55)
	(d)	Camera aperture (Dwg. C37908-3)	1 lb. (+55)
	(e)	Pilot's view apertures (Dwgs. C37908-2, -4)	2 lbs. (+14)
	(f)	Oxygen bottles installation	62 lbs. (+56)
	(g)	Pilot's seat - Transverse sliding (Dwg. 37908-16)	-5 lbs. (+36)

Miscellaneous (Not listed above)

151.	Seaplane fin (Dwg. 37451)	6 lbs.(+240)
209.	Pilot hatch	3 lbs. (+36)
215.	Emergency exit	5 lbs. (+53)
222.	Stabilizer abrasion shoes	2 lbs. (+212)

- NOTE A. Prior to original certification, each aircraft manufactured subsequent to December 4, 1946 must satisfactorily pass:
- (a) An inspection for workmanship, materials and conformity before any covering, metal priming or final finish is applied. All woodwork may be varnished.
 - (b) A final inspection of the completed aircraft.
 - (c) A check of the flight characteristics.

NOTE 1. Weight and balance report including list of equipment included in certificated weight empty, and loading instructions, when necessary, must be submitted for each aircraft with original inspector's report and each subsequent report covering changes in equipment.

- NOTE 2. Eligible for certification at a maximum weight of 2450 lbs. when Items 103(a), 207(b), (c) or (d) are installed, and fuselage front spar fittings are reinforced as follows:
- (a) Serial Nos. 575 and up in accordance with Drawing C38203, Revision B.
 - (b) Serial Nos. 414, 450 to 574 inclusive, in accordance with drawing 51061.

NOTE 3. When 165 D engine (Item 226) is installed, constant speed propeller (Item 213(d)), constant speed governor (Item 229) and oil radiator (Item 227) are required. The following information then applies:

Airspeed limits - Landplane -	Level flight or climb	165 mph True Ind.
	Glide or dive	215 mph True Ind.
	Flaps extended	110 mph True Ind.

C.G. range - Landplane - (+38.8) to (+49.3)

Tab movement - 5° up, 35° down

Placard fuel selector valve:

"Take-off and land with both tanks on."

NOTE 4. Model C-38 aircraft may be converted to model C-165 by installing the model C-165 engine- propeller combinations. This will include all necessary revisions so that the resulting installations will be as shown on Cessna Drawings C39220 (Motor Mount), C39750 or C40751 (Oil Tank), C39750-5 or C-40750-5 (Oil Drain), C39900 (C-165 Motor Installation), C39911 (Exhaust Collector), C39914 (Cold Air Scoop), C39920 (Firewall) and C38766 (Gas Lines), revision C. These aircraft, when converted, will conform in general to the model C-165 except or the plywood ribs and fuselage flap.

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