DEPARTMENT OF COMMERCE CIVIL AERONAUTICS ADMINISTRATION

A-729 Revision 5 COMMONWEALTH REARWIN 175 180 180F 185 190F

December 20, 1949

AIRCRAFT SPECIFICATION NO. A-729

Manufacturer Commonwealth Aircraft, Inc.

Valley Stream, Long Island

New York

I - Model 175, 2 PCLM, Approved August 16, 1940

Engine Continental A-75-8. See Item 311 for optional engines.

Fuel 73 min. octane aviation gasoline For all operations, 2600 rpm (75 hp) Engine limits

Airspeed limits Level flight or climb 115 mph True Ind.

Glide or dive 145 mph True Ind. Propeller limits Static r.p.m. at maximum permissible throttle setting -

not over 2420, not under 2170. No additional tolerance permitted.

Diameter - not over 82 in., not under 68 in.

(+11.9) to (+17.2) C.G. range

Empty weight C.G. range (+10.3) to (+12.6) with standard fuel system.

(+10.3) to (+10.8) with 18 gal. fuel tanks and 2 gal. oil tank.

When Empty weight C.G. falls within pertinent range, computation of critical fore and aft C.G. positions is unnecessary. Ranges are not valid for non-standard arrangements except as

noted.

Maximum weight 1350 lbs. 2(+20)No. seats Maximum baggage 100 lbs. (+41.5)

24 gals. (two 12 gal. wing tanks at +22). See Item 203 for larger fuel capacity. Fuel capacity

Oil capacity 5 qts. (-41). See Item 204 for larger oil capacity.

Control surface movements Aileron 27 degrees up 27 degrees down 30 degrees up Elevator 33 degrees down

27 degrees left Rudder 27 degrees right 20.5 degrees down 27.5 degrees up Elevator trim tab 1501 and up mfrd. prior to 2-4-49. Approval expired as of that date.

Serial Nos. eligible Items 101, 102, 103, 104, 105 and 106 Required equipment

II - Model 180, 2 PCLM, Approved October 25, 1941

Engine Continental A-80-8. See Item 205 for optional engines.

Fuel 80 min. octane aviation gasoline Engine limits For all operations, 2700 rpm (80 hp)

Airspeed limits Level flight or climb 115 mph True Ind. Glide or dive 145 mph True Ind. Propeller limits Static rpm at maximum permissible throttle setting -

not over 2325, not under 2225. No additional tolerance permitted.

Diameter - not over 70 in., not under 68 in.

C.G. range (+11.9) to (+17.2)

Empty weight C.G. range (+10.3) to (+12.6) with standard fuel system.

(+10.3) to (+10.8) with 18 gal. fuel tanks and 2 gal. oil tank.

When Empty weight C.G. falls within pertinent range, computation of critical fore and aft C.G. positions is unnecessary. Ranges are not valid for non-standard arrangements except as noted.

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 Maximum weight
 1350 lbs.

 No. seats
 2 (+20)

 Maximum baggage
 100 lbs. (+41.5)

Fuel capacity 24 gals. (two 12 gal. wing tanks at +22). See Item 203 for larger fuel capacity.

Oil capacity 5 qts. (-45). See Item 204 for larger oil capacity.

Control surface movements Aileron 27 degrees up 27 degrees down

Elevator 30 degrees up 33 degrees down
Rudder 27 degrees left 27 degrees right
Elevator trim tab 27.5 degrees up 20.5 degrees down

Serial Nos. eligible 1501 and up mfrd. prior to 2-4-49. Approval expired as of that date.

Required equipment Items 101, 102, 103, 104, 105 and 106

III - Model 180F, 2 PCLM, Approved October 25, 1941

Engine Franklin 4AC-176-F3. See Item 311 for optional engines.

Fuel 80 min. octane aviation gasoline Engine limits For all operations, 2500 rpm (80 hp)

Airspeed limits Level flight or climb 115 mph True Ind.
Glide or dive 145 mph True Ind.

Propeller limits Static rpm at maximum permissible throttle setting -

not over 2350, not under 2150. No additional tolerance permitted.

Diameter - not over 70 in., not under 68 in.

C.G. range (+10.4) to (+17.2)

Empty weight C.G. range (+8.4) to (+12.6) with standard fuel system.

(+8.4) to (+10.8) with 18 gal. fuel tanks and 2 gal. oil tank.

When Empty weight C.G. falls within pertinent range, computation of critical fore and aft C.G. positions is unnecessary. Ranges are not valid for non-standard arrangements except as noted.

 Maximum weight
 1350 lbs.

 No. seats
 2 (+20)

 Maximum baggage
 100 lbs. (+41.5)

Fuel capacity 24 gals. (two 12 gal. wing tanks at +22). See Item 203 for larger fuel capacity.

Oil capacity 5 qts. (-45). See Item 204 for larger oil capacity.

Control surface movements
Aileron
Elevator
Rudder
27 degrees up
27 degrees down
33 degrees down
27 degrees left
27 degrees right

Rudder 27 degrees left 27 degrees right
Elevator trim tab 27.5 degrees up 20.5 degrees down
1530 and up mfrd. prior to 2-4-49. Approval expired as of that date.

Required equipment Items 101, 102, 103, 104, 105 and 106

IV - Model 190F, 2 PCLM, Approved September 1, 1942

Serial Nos. eligible

Engine Franklin 4AC-199-B3.

Fuel 80 min. octane aviation gasoline
Engine limits For all operations, 2500 rpm (90 hp)

Airspeed limits

Level flight or climb 115 mph (100 knots) True Ind.

Glide or dive 145 mph (126 knots) True Ind.

Propeller limits

Static rpm at maximum permissible throttle setting:

Not over 2200, not under 2100. No additional tolerance permitted.

Diameter: not over 72 in., not under 70 in.

C.G. range (+10.3) to (+16.2)

Empty weight C.G. range (+8.5) to (+11.5) with standard fuel system.

 $\left(+8.5\right)$ to $\left(+9.9\right)$ with 18 gal. fuel tanks and 2 gal. oil tank.

When Empty weight C.G. falls within pertinent range, computation of critical fore and aft C.G. positions is unnecessary. Ranges are not valid for non-standard arrangements except as noted.

 Maximum weight
 1450 lbs.

 No. seats
 2 (+20)

 Maximum baggage
 100 lbs. (+41.5)

Fuel capacity 24 gals. (two 12 gal. wing tanks at +22). See Item 203 for larger fuel capacity.

Oil capacity 5 qts. (-45). See Item 204 for larger oil capacity.

Control surface movements

Aileron

Elevator

Rudder

Elevator trim tab

27 degrees up

30 degrees up

33 degrees down

33 degrees down

27 degrees left

27 degrees right

20 degrees down

20 degrees down

Serial Nos. eligible 1575 and up mfrd. prior to 2-4-49. Approval expired as of that date.

Required equipment In addition to the pertinent required basic equipment specified in CAR 4a, the following items of

equipment must be installed: 101, 102, 103, 104, 105 and 106

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V - Model 185, 2 PCLM, Approved February 12, 1946 Continental C85-12 Engine Fuel 73 min. octane aviation gasoline Engine limits For all operations, 2575 rpm (85 hp) 115 mph (100 knots) True Ind. Airspeed limits Level flight or climb 155 mph (135 knots) True Ind. Glide or dive Propeller limits Static rpm at maximum permissible throttle setting: Not over 2300, not under 2050. No additional tolerance permitted. Diameter: Not over 74 in., not under 72 in. C.G. range (+10.3) to (+16.2) Empty weight C.G. range (+8.5) to (+11.5). When Empty weight C.G. falls within this range, computation of critical fore and aft C.G. positions is unnecessary. Range is not valid for non-standard arrangements. Maximum weight 1450 lbs. No. seats 2(+20)100 lbs. (+41.5) Maximum baggage 24 gals. (two 12 1/2 gal. wing tanks at +22). Fuel capacity 4.6 qts. (-41). See Item 107 for larger oil capacity. Oil capacity Control surface movements Aileron 25 degrees up 26 degrees down Elevator 32 degrees up 31 degrees down Elevator tab 25 degrees up 21 degrees down Rudder 27 degrees right or left Serial Nos. eligible 1601 and up mfrd. prior to 2-4-49. Approval expired as of that date. Required equipment In addition to the pertinent required basic equipment specified in CAR 4a, the following items of equipment must be installed: 101, 102, 103, 104, 208 and 209 SPECIFICATIONS PERTINENT TO ALL MODELS Wing loading edge Datum Leveling means Spirit level aft of seat, left side of fuselage Certification basis Type Certificate No. 729. (Expired) (CAR 4a) Export eligibility Eligible for export to all countries subject to the provisions of MOP 2-4 except as follows: Canada - landplane eligible. skiplane not eligible. Equipment: A Plus (+) or minus (-) sign preceding the weight of an optional item indicates the net weight change when that item is installed. Propellers and Propeller Accessories 180F 190F 175 180 185 1. Propeller - Koppers Aeromatic F200, blades +25 lbs. (-60)00-74C. Pitch settings at 24 in. sta.: high 21.6 degrees, low 12.6 degrees Diameter: 74 in. Parts List No. 4306. No change permitted in parts list assembly without CAA engineering approval. Oil cooler, Item 108, required with this item. 2. Propeller - McCauley 1A-90-CF-7146. +11 lbs. (-60)Static rpm at max. permissible throttle setting: Not over 2320, not under 2220. No additional tolerance permitted. Diameter: Not over 71 in., not under 69.5 in. A 3 pound ballast weight required at fuselage station +170. 3. Propeller - Flottorp, Controllable pitch, R003, Blades R003-232-72T (See NOTE 6, Propeller Spec. P-804 for interchangeable blade.) Weight, including propeller and controls 30 lbs. (-60)Pitch setting at 27" sta.: High 19 degrees, Low 14 degrees Diameter: Not over 74 in., not under 72.5 in.

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					1000	
			<u>175</u>	180	180F 190F	185
			175	100	1701	103
4. Prop	eller - Sensenich M76AK-2, fixed pitch metal	24 lbs.				(-60)
	Static rpm at maximum permissible throttle		_	_	_	` /
	setting: Not over 2320, not under 2220.					
	No additional tolerance permitted.					
	Diameter: Not over 74 in., not under 72 in.					
5. Pro	peller - Sensenich M74Ck-2, fixed pitch metal21 lbs. (-60)					
	Static rpm at maximum permissible throttle					
	setting: Not over 2470, not under 2120.					
	No additional tolerance permitted.					
404	Diameter: Not over 72 in., not under 70 in.	40.11	(40)	(40)	(= 0)	(50)
101.	Propeller - wood (fixed or adjustable pitch)	12 lbs.	(-60)	(-60)	(-58)	(-60)
	including hub.					
	Limits as shown under pertinent model.					
Engines	and Engine Accessories - Fuel and Oil System					
102.	Engine cowl and baffles	9 lbs.	(-39)	(-39)	(-39)	(-39)
103.	Two exhaust manifolds	3 lbs.	(-41)	(-41)	(-41)	(-41)
104.	Carburetor air heater	3 lbs.	(-38)	(-38)	(-36)	(-38)
107.	5 qt. oil tank (Model 185 only).	<i>5</i> 105.	(50)	(20)	(50)	(50)
108.	Oil cooler (Continental Motors Type					
	EQ5334 (Required with Item 1).	+4 lbs.				(-39)
109.	Oil filter, Fram PB-5 Kit K-510	4 lbs.	_	_		(-27)
	Fram installation dwg. 61520.		_			
203.	Two 18 gal. fuel tanks (replacing 12 gal.					
	tanks) (Item 204 required)	+9 lbs.	(+22)	(+22)	(+22)	_
204.	2 gal. oil tank (replacing 5 qt. tank) +1 lb.	(-41)	(-41)	(-45)	_	
205.	Engines					
	(a) Continental A-80-9	+3 lbs.		(-46)	_	_
305.	Starter					
	(a) (Eclipse E-80)	18 lbs.	(-32)	(-32)	_	
	(b) (Eclipse Type 635 Model 4, Style A)	17 lbs.	(-34)	(-34)	— (25 5)	
	(c) (Auto-Lite MBG)	16 lbs.	_		(-35.5)	(25)
200	(d) (Delco-Remy 110965-6, 12 volt)	15 lbs. 2 lbs.	(25)	(-35)	(25)	(-35)
308. 311.	Engine shielding Engines	2 108.	(-35)	(-33)	(-35)	(-35)
311.	(a) Continental A-75-9 or 9J	+3 lbs.	(-46)	_	_	_
	(b) Continental A-75-8J	15 103.	(40)			
	(Item 104 not required)	+3 lbs.	(-46)	_	_	_
(c) Franklin 4AC-176-F2		No weight change				
. ,	(Applies only to Model 180F)	Ü	U			
	,					
Landing	Gear and Floats					
105.	6.00-6 wheels (Shinn 6C5) with 6.00-6					
	4 ply tires	28 lbs.	(-5)	(-5)	(-5)	_
106.	6x2.00 tail wheel (Steerable) (Firestone					
•••	206-8BK) with 6x2.00 tail wheel tire (solid)	11 lbs.	(+180)	(+180)	(+180)	_
208.	6.00-6 wheels with brakes (Goodyear L6H/MBD)	22.11				(5)
200	and 6.00-6 4 ply tires	33 lbs.	_			(-5)
209.	6x2.00 tail wheel, steerable, and 6x2.00	1.2 lb.s				(+190)
210.	solid tire (Scott 3000-81) Parking brake (Scott 4200)	13 lbs. 1 lb.	_	_	_	(+180) (-23)
302.	Parking brake (Scott 4200)	2 lbs.	(-14)	(-14)	(-14)	(-23)
303.	6.00-6 wheels	2 103.	(-14)	(-14)	(-14)	
303.	(a) Mechanical brakes (Shinn 6C5HB)	+4 lbs.	(-5)	(-5)	(-5)	_
	(b) Hydraulic brakes (Shinn 6C5YFB)	+7 lbs.	(-5)	(-5)	(-5)	_
304.	Wheel pants	12 lbs.	(-5)	(-5)	(-5)	(-5)
312.	Skis		al weight ch		(-)	(-)
	(a) Federal SC-2		5	J		
	(b) Federal SC-1					
	(c) Federal A-1500, Federal Installation Dwg. 11R247					
	(d) Federal A-1500A, Federal Installation Dwg. 11R247					
	(e) Federal A-1850, Federal Installation Dwg. 11R247					
	(f) Federal A-2000, Federal Installation Dwg. 11R247					
	(g) Federal A-2000A, Federal Installation Dwg. 11R247					
	(h) Federal CA1850-6, Federal Installation Dwg. 11R247					

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Electric	al Equipment		175	180	180F 190F	185
	Battery and box		175	100	1701	100
	(a) Airguide radio battery	8 lbs.	(-21)	(-21)	(-21)	_
	(b) 12 bolt (Exide (6-TS-7-1)	31 lbs.	(-29)	(-29)	(-29)	(-29)
	(c) 6 volt (Exide 3-AC-7-1)	13 lbs.	(-39)	(-29)	(-29)	
	(d) 12 bolt (Willard SYR-7-6)	20 lbs.	(-28)	(-28)	(-29)	(-28)
	(e) 6 volt (Roading 333L)	17 lbs.	(-29)	(-29)	_	_
306.	Generator					
	(a) 12 volt (Auto-Lite GDY)	14 lbs.			(-33)	
	(b) 6 volt (Auto-Lite GAS)	14 lbs.			(-33)	_
	(c) 12 volt (Lear 1030-A)	9 lbs.	(+6)	(+6)		
	(d) 12 volt (Delco-Remy 1101876)10 lbs.	_			(-34)	
310.	Landing lights					
	(a) One (Grimes ST-250)	4 lbs.	(+12)	(+12)	(+12)	(+12)
	(b) Two (Grimes ST-250)	8 lbs.	(+12)	(+12)	(+12)	(+12)
Interior	Equipment					
301.	Cabin heater	2 lbs.	(-32)	(-32)	(-30)	(-32)
Miscellaneous (not Listed Above)						
207.	Fuselage and control system protective covering	5 lbs.	(+95)	(+95)	(+95)	(+95)

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 agent's report and each subsequent report covering changes in equipment.