

DEPARTMENT OF TRANSPORTATION  
FEDERAL AVIATION ADMINISTRATION

3A3 Revision 7 Helio (Taylorcraft) 15A 20  March 1, 1991
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AIRCRAFT SPECIFICATION NO. 3A3

Manufacturer                      Helio Aircraft Corporation  
    165 Scott Avenue  
    Morgantown, West Virginia 26505

I. Model 15A, 4PCLM, approved April 3, 1951

Engine	Aircooled Motors Franklin 6A4-150-B31 (See also Item 103 for optional engine.)																				
Fuel	80 minimum grade aviation gasoline																				
Engine limits	For all operations, 2600 rpm (150 hp)																				
Airspeed limits	Level flight or climb    120 mph (104 knots) True Ind. Never exceed              162 mph (141 knots) True Ind. Flaps extended            85 mph ( 74 knots) True Ind.																				
C.G. range	Rearward limit (+20.9) at 2200 lbs. Forward limit (+13.9) at 1751 lbs. with a straight line variation between points given.																				
Maximum weight	2200 lbs.																				
No. of seats	4 (2 at (+14) and 2 at (+51)).																				
Baggage	100 lbs. (+70)																				
Fuel capacity	42 gals. (40 gals. at (+24), 2 gals. at (-12)).																				
Oil capacity	2 gals. (-47)																				
Control surface movements	<table style="width: 100%; border-collapse: collapse;"> <tr> <td style="width: 40%;">Elevator</td> <td style="width: 20%;">Up 26½°</td> <td style="width: 20%;">Down 25½°</td> <td style="width: 20%;"></td> </tr> <tr> <td>Elevator trim tab</td> <td>Up 24°</td> <td>Down 55°</td> <td></td> </tr> <tr> <td>Rudder</td> <td>Right 28½°</td> <td>Left 28½°</td> <td></td> </tr> <tr> <td>Aileron</td> <td>Up 21°</td> <td>Down 19°</td> <td></td> </tr> <tr> <td>Flap</td> <td></td> <td>Down 32°</td> <td></td> </tr> </table>	Elevator	Up 26½°	Down 25½°		Elevator trim tab	Up 24°	Down 55°		Rudder	Right 28½°	Left 28½°		Aileron	Up 21°	Down 19°		Flap		Down 32°	
Elevator	Up 26½°	Down 25½°																			
Elevator trim tab	Up 24°	Down 55°																			
Rudder	Right 28½°	Left 28½°																			
Aileron	Up 21°	Down 19°																			
Flap		Down 32°																			
Serial nos. eligible	6452 and 6-13,000 and up, and 5-13045 and up																				
Required equipment	In addition to the pertinent required basic equipment specified in CAR 4(a), the following items of equipment must be installed: 1, 2, 101, 102, 201(a), 202(a), 204(a)																				

II. Model 20, 4PCLM, approved May 12, 1955 (See item 209 for seaplane.)

Engine	Continental O-470-A or O-470-J		
Fuel	80 minimum grade aviation gasoline		
Engine limits	Continental O-470-A: For all operations (full throttle), 2450 rpm (208 hp) Continental O-470-J: For all operations 2550 rpm (225 hp)		
Airspeed limits	Level flight or climb	141 mph (123 knots)	True Ind.
	Never exceed	170 mph (148 knots)	True Ind.
	Flaps extended	95 mph (83 knots)	True Ind.
C.G. range	(+15.3) to (+23.0) for serial nos. 20-001 to 20-034 (+16.0) to (+23.0) for serial nos. 20-034 and up. See Item 209 for seaplane.		
Maximum weight	2750 lbs. See Item 209 for seaplane.		
No. of seats	4 (2 at (+14) and 2 at (+51)).		
Baggage	100 lbs. (+95)		
Fuel capacity	66 gals. (+24)		
Oil capacity	3 gals. (-47)		
Control surface movements	Elevator	Up 26½°	Down 25°
	Elevator trim tab	Up 24½°	Down 53°
	Rudder	Right 20°	Left 20°
	Aileron	Up 22°	Down 17°
	Flap		Down 28½°
Serial nos. eligible	20-001 and up		
Required equipment	In addition to the pertinent required basic equipment specified in CAR 4(a), the following items of equipment must be installed: 4 or 5, 104, 105, 106, 201(b), 202(b), 204(c).		

SPECIFICATIONS PERTINENT TO ALL MODELS

Datum	Leading edge of wing	
Leveling means	Top surface or stabilizer -3° incidence	
Certification basis	Type Certificate No. 3A3 (CAR 4a)	
Production basis	None. Prior to original certification a CAA agent 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 MOP 2-4, except as follows:	
	(a) 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

	<u>15A</u>	<u>20</u>
1. Propeller - with Franklin 6A4-150-B31 engine only:	15 lbs. (-66)	-----
(a) Sensenich 76JA-54 or any other fixed pitch wood propeller eligible for the engine speed and power rating and which meets the following static rpm and diameter limits: Static rpm at maximum permissible throttle setting: Not over 2270, not under 2170. No additional tolerance permitted. Diameter: Not over 76 in., not under 74 in.		
2. Propeller spinner, Dwg. 0586-3		
3. Propeller - With Continental C-145-2 (item 103) engine only:		
(a) Sensenich 76JR56 or any other fixed pitch wood propeller eligible for the engine speed and power rating and which meets the following static rpm diameter limits: Static rpm at maximum permissible throttle setting: Not over 2400, not under 2350. No additional tolerance permitted. Diameter: Not over 76 in., not under 74.5 in.	15 lbs. (-55)	-----
or (b) McCauley 1A170-DM7651, fixed pitch metal, with the following limits: Static rpm at maximum permissible throttle setting: Not over 2300, not under 2200. No additional tolerance permitted. Diameter: Not over 76 in., not under 74 in.	33 lbs. (-66)	-----
4. Propeller - with Continental O-470-A engine only		
(a) Hartzell constant speed HC82XF-1, blades 8433 Diameter: not over 84 in., not under 82.5 in. Pitch settings at 30 inch sta.: Low 11.8°, high 27.5° with propeller spinner Hartzell HC82XF-1 and propeller governor Hartzell Model 52	-----	64 lbs. (-66)  4 lbs. (-66) 4 lbs. (-66)
5. Propeller - with Continental O-470-J only:		
(a) McCauley constant speed 2A36C hub, 90M-8 blades Diameter: Not over 84 in., not under 80 in. Pitch settings at 36 in., sta.: Low 10.5°, high 22.5 Spinner - Hartzell HC82XF-1 Governor - Woodward 210065		63 lbs. (-66)  4 lbs. (-66) 4 lbs. (-66)
or (b) Hartzell constant speed HC82XF-1, blades 8433 Diameter: Not over 84 in., not under 82.5 in. Pitch setting at 30 in. sta.: Low 12°, High 28° With propeller spinner Hartzell HC82XF-1 With propeller Governor Hartzell Model 52		64 lbs. (-66)  4 lbs. (-66) 4 lbs. (-66)

#### Engine and Engine Accessories - Fuel and Oil System

101. Carburetor air heater, Dwgs. 2591 and 2592	9 lbs. (-45)	-----
102. Carburetor air scoop, Dwgs. 2591 and 2592	9 lbs. (-41)	-----
103. Engine	-19 lbs. (-29)	-----
(a) Continental C-145-2 Limits: for all operations, 2700 rpm (145 hp) Eligible only with propeller item 3(a) or 3(b)		
104. Cylinder head (No. 1) temperature gage	-----	negligible
105. Carburetor air scoop Cessna 0750114	-----	9 lbs. (-41)
106. Carburetor air heater Cessna 0750111	-----	9 lbs. (-45)

<u>Landing Gear</u>		<u>15A</u>	<u>20</u>
201.	Two main wheel-brake assemblies, 6.00-6, Type III		
(a)	Goodyear Model L6HBD Wheel Assembly No. 511413-M Brake Assembly No. 511640-M	15 lbs. (-2)	-----
(b)	Cleveland Aircraft Products Model DHB3 Wheel Assembly C38500-HA Brake Assembly C2000H	-----	19 lbs. (-2)
202.	(a) Two main wheel 4-ply rating tires, 7.00-6, Type III (with regular tubes)	20 lbs. (-2)	-----
	(b) Two main wheel 6-ply rating tires, 7.00-6, Type III (with regular tubes)	-----	12 lbs. (-2)
204.	Tail wheel assembly		
(a)	Goodyear Model SK-4-12795	16 lbs. (+187)	-----
(b)	Maule Model SFS-1-2	6 lbs. (+203)	-----
(c)	Maule Model SF-1-2-P8	-----	7 lbs. (+203)
(d)	Scott Model 3200	-----	8 lbs. (+203)
209.	Two floats		
(a)	Edo 249-2870 (eligible on Model 20 only) installed in accordance with Edo Dwg. 21120. Requires auxiliary fin installation in accordance with Taylorcraft Dwg. 20-D1346.		+262 lbs. (+22.5)
	Serial Nos. 20-000 to 20-019 inclusive require installation of Taylorcraft fittings 20-A1265 to 20-A1272 inclusive per Dwg. 20-H17, and structural modifications in accordance with Taylorcraft Engineering Deviation 5273.		
	Serial Nos. 20-020 to 20-039 inclusive require structural modifications in accordance with Taylorcraft Engineering Deviation 5273.		
	The following weight and C.G. range applies: (+19.3) to (+23.0) at 3040 lbs. (+16.3) to (+23.0) at 2420 lbs. or less Straight line variation in forward C.G. between weights shown.		
210.	Wheel streamlines, Taylorcraft Dwg. 0954	14 lbs. (-3)	-----

Electrical Equipment

301.	Battery, 12-volt, Willard AWS-9-6	38 lbs. (-23)	-----
302.	Generator, 15 amp, Auto-Lite Part No. 10110	12 lbs. (-32)	-----
303.	Voltage regulator, Delco-Remy Model 6221-25	2 lbs. (-22)	-----
304.	Starter, 12-volt, Delco-Remy Model 1109651	9 lbs. (-34)	-----
305.	Battery, 12-volt, Bowers B-34	-----	26 lbs. (+76)
306.	Battery, 35 amp, Delco Remy 1101892	-----	16 lbs. (-32)
307.	Starter, Delco Remy 1109668	-----	16 lbs. (-34)

NOTE 1. Current weight and balance report, including list of equipment included in certificated weight empty, and loading instructions must be in each aircraft at the time of original certification and at all times thereafter. A copy of the approved loading instructions should be posted inside the baggage compartment at all times.

NOTE 2. The following placards must be displayed in full view of the pilot:

(a) "Intentional spins prohibited."

(b) Model 20 only:

"Two main tanks, 22 gals. each.

Additional fuel tank, 22 gals. not gaged.

To use, switch on when right gage reads 3/4 or less.

Gas is then transferred to right main tank."

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