

Amateur-Built Fabrication and Assembly Checklist (2011) (Helicopter)

Name(s): _____

Address: _____

Aircraft Model: _____

Date: _____

Remarks: _____

NOTE: This checklist is only applicable to Helicopter aircraft. Evaluation of other types of aircraft (i.e., Fixed Wing, Gyroplane, Balloons, Lighter than air) will not be accomplished with this form.

NOTE: This checklist is invalid for and will not be used to evaluate an altered or modified type certificated aircraft with the intent to issue an Experimental Amateur-built Airworthiness Certificate. Such action violates FAA policy and DOES NOT meet the intent of § 21.191(g).

INSTRUCTIONS FOR USING THE AMATEUR-BUILT AIRCRAFT FABRICATION AND ASSEMBLY CHECKLIST (2011):

A point (each task equals 1 point) can be divided over multiple categories (Manufacturer, Commercial Assistance, Amateur Builder Assembly and Amateur Builder Fabrication) into 1/10 fractions. A Manufacturer may be a kit manufacturer, a component manufacturer or a part(s) manufacturer. Commercial assistance (for hire or compensation) may include assistance provided by kit manufacturers, commercial assistance centers, individuals (e.g. A & P mechanics or avionics technicians).

For example, 0.5 (half point) can be assigned to the Manufacturer, 0.3 (3/10 - 3 tenths) as Commercial Assistance, 0.2 to the Amateur Builder as Fabrication, for a total of 1 point.

Enter "N/A" in any box where a listed task is not applicable to the particular aircraft being evaluated. Use the "Add item" boxes at the end of each section to add applicable unlisted tasks and award credit

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/	Commercial	Am-Builder	Am-Builder
		Component	Assistance	Assembly	Fabrication
Task	Fuselage – 20 Listed Tasks				
F1	Fabricate Longitudinal/Tubing Structural Members				
F2	Fabricate Airframe Composite Cores or Shells				
F3	Fabricate Bulkheads, Formers or Cross Members				
F4	Assemble Components from F1, F2 or F3 to form Fuselage Primary Structure				
F5	Fabricate All Fuselage Brackets, Pulleys and Fittings				
F6	Assemble Brackets, Pulleys and Fittings to Fuselage Structure				
F7	Assemble Any Structural Components not included in F1, F2 or F3 to Fuselage (Likely N/A)				
F8	Fabricate All Fuselage Cables, Wires, and Lines (Includes but not limited to Pitot Static and Fuel Lines)				

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/	Commercial	Am-Builder	Am-Builder
		Component	Assistance	Assembly	Fabrication
F9	Assemble Cables, Wires, and Lines to Fuselage Structure				
F10	Fabricate Fuel Tanks				
F11	Assemble Fuel Tanks to Fuselage				
F12	Assemble Fuel System Components (Valves, Pumps, Vents) to Fuselage				
F13	Fabricate Fuselage Covering or Skin				
F14	Assemble Covering or Skin to Fuselage Structure				
F15	Fabricate Windshield/Windscreen				
F16	Assemble Windshield/Windscreen to Fuselage				
F17	Fabricate Windows				
F18	Assemble Windows to Fuselage Structure				
F19	Fabricate Doors, Canopy Components				
F20	Assemble Doors/Canopy to Fuselage				
F21	Add Fab item:				
F22	Add Assy item:				
F23	Add Fab item:				
F24	Add Assy item:				
Total # of Fuselage Tasks	<u>Fuselage Subtotal</u>	Mfr Kit/Part/Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
	<u>Fuselage Total Points</u> ►				
Fuselage Comments:					

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
Task Main Rotor Drive System and Control Mechanism – 9 Listed Tasks					
MR1	Assemble Main Rotor Drive Train to Next Level Structure				
MR2	Assemble Main Rotor Shaft/Mast to Next Level Structure				
MR3	Assemble Main Rotor Hub Assy to Next Level Structure				
MR4	Fabricate Main Rotor Rotating Controls				
MR5	Assemble Main Rotor Rotating Controls to Next Level Structure				
MR6	Fabricate Main Rotor Non-Rotating Controls				
MR7	Assemble Main Rotor Non-Rotating Controls to Next Level Structure				
MR8	Assemble Rotor Blades to Rotor Hub				
MR9	Perform all Main Rotor System Static and Dynamic Track and Balance Requirements (Treat as Assembly Function)				
MR10	Add Fab item:				
MR11	Add Assy item:				
MR12	Add Fab item:				
MR13	Add Assy item:				
Total # of Main Rotor Tasks	<u>Main Rotor Subtotal</u>	Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
	<u>Main Rotor Total Points ►</u>				
RotorWing Comments:					

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
Task Tail Boom & Tail Rotor Drive System and Control Mechanism – 16 Listed Tasks					
T1	Fabricate Tail Boom or Frame Structural Components				
T2	Assemble Tail Boom or Frame Structural Components to Form Primary Tail Structure				
T3	Fabricate Tail Boom Skin or Covering				
T4	Assemble Skin or Covering to Tail Boom Structure				
T5	Assemble Tail Boom or Frame to Fuselage Structure				
T6	Fabricate All Stabilizer(s) Components (Includes Structural Components and Skin)				
T7	Assemble All Stabilizer(s) Components in Task T6 to Form Stabilizer Structures				
T8	Assemble All Stabilizer(s) to Next Level Structure				
T9	Assemble Tail Rotor Drive Train to Next Level Structure				
T10	Assemble Tail Rotor Shaft and Hub Assy to Next Level Structure				
T11	Assemble Tail Rotor Blades to Next Level Structure				
T12	Fabricate Tail Rotor Rotating Controls				
T13	Assemble Tail Rotor Rotating Controls to Next Level Structure.				
T14	Fabricate Tail Rotor Non-Rotating Controls				
T15	Assemble Tail Rotor Non-Rotating Controls to Next Level Structure.				
T16	Perform all Tail Rotor System Static and Dynamic Track and Balance Requirements (Assembly Function)				
T17	Add Fab item:				
T18	Add Assy item:				
T19	Add Fab item:				
T20	Add Assy item:				
Total # of Tail Group Tasks	<u>Tail Group Subtotal</u>	Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
	<u>Tail Group Total Points ►</u>				
Tail Group Comments:					

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
Task Landing Gear – 6 Listed Tasks					
LG1	Fabricate Struts, Skids, Tubes, Braces or Leg Components				
LG2	Assemble All Components in LG1				
LG3	Fabricate Landing Gear Bracket and Fittings				
LG4	Assemble Landing Gear Bracket and Fittings to Landing Gear System				
LG5	Assemble Wheels and Tires and Brakes to L/G				
LG6	Assemble Landing Gear System to Next Level Structure				
LG7	Add Fab item:				
LG8	Add Assy item:				
Total # of Land Gear Tasks	<u>Landing Gear Subtotal</u>	Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
	<u>Landing Gear Total Points ▶</u>				
Landing Gear Comments:					

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/	Commercial	Am-Builder	Am-Builder
		Component	Assistance	Assembly	Fabrication
Task Propulsion – 19 Listed Tasks					
P1	Fabricate Engine Mounts				
P2	Assemble Engine Mounts to Next Level Structure				
P3	Fabricate Engine Cooling System/Baffles				
P4	Assemble Engine Cooling System Baffles to Engine				
P5	Fabricate Induction System				
P6	Assemble Induction System to Engine				
P7	Fabricate Exhaust System				
P8	Assemble Exhaust System to Engine				
P9	Fabricate Engine Controls				
P10	Assemble Engine Controls to Next Level Structure				
P11	Fabricate All Engine Compartment Brackets and Fittings				
P12	Assemble Brackets and Fittings to Next Level Structure				
P13	Fabricate Firewall				
P14	Assemble Firewall to Airframe				
P15	Assemble Engine (Likely N/A)				
P16	Assemble Engine to Engine Mount				
P17	Fabricate Engine Cowling				
P18	Assemble Engine Cowling to Airframe				
P19	Assemble Engine Fuel System Components to Next Level Structure (Gascolator, Valves etc.)				
P20	Add Fab item:				
P21	Add Assy item:				
P22	Add Fab item:				
P23	Add Assy item:				
Total # of Propulsion Tasks	<u>Propulsion Subtotal</u>	Mfr Kit/Part/Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
	<u>Propulsion Total Points ►</u>				
Propulsion Comments:					

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/	Commercial	Am-Builder	Am-Builder
		Component	Assistance	Assembly	Fabrication
Task Cockpit and Flight Controls - 20 Listed Tasks					
C1	Fabricate Instrument Panel, Sub Panels, Brackets and Fittings				
C2	Assemble Panels, Brackets and Fittings to Next Level Structure				
C3	Fabricate Seats and All Seat Brackets and Fittings				
C4	Assemble Seats, Brackets and Fittings to Next Level Structure				
C5	Fabricate All Seat Belts/Harnesses Brackets and Fittings				
C6	Assemble Seat Belts/Harnesses, Brackets and Fittings to Next Level Structure				
C7	Fabricate Electrical System Wiring, Controls and Switches				
C8	Assemble Electrical System Wiring, Controls and Switches to Next Level Structure				
C9	Fabricate Floor/Close-out Panels				
C10	Assemble Floor/Close Out Panels to Next Level Structure				
C11	Fabricate Anti-Torque Pedals				
C12	Assemble Anti-Torque Pedals to Next Level Structure				
C13	Fabricate All Flight Control Tubes/Cables				
C14	Assemble All Flight Control Tubes/Cables to Next Level Structure				
C15	Fabricate Cyclic Control Components				
C16	Assemble Cyclic Control Components to Next Level Structure				
C17	Fabricate Collective Control Components				
C18	Assemble Collective Control Components to Next Level Structure				
C19	Fabricate Rotor Brake Components				
C20	Assemble Rotor Brake System to Next Level Structure				
C21	Add Fab item:				
C22	Add Assy item:				
C23	Add Fab item:				
C24	Add Assy item:				
Total # of Cockpit Tasks	<u>Cockpit & Flight Controls Subtotal</u>	Mfr Kit/Part/Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
	<u>Cockpit & Flight Controls Total Points</u>				
Cockpit Comments:					

Total # of Aircraft Tasks	
	◀ SUM #1

▶ **TOTAL TASKS AND LINE ITEMS**



FABRICATION AND ASSEMBLY SUMMARY	A	B	C	D
	Mfr Kit/Part/Component	Commercial Assistance	Am Builder Assembly	Am Builder Fabrication
1. Total Number Of Aircraft Tasks (Note 1)	(SUM #1) ▶			
2. Total Points for Each Category. (Note 2)				
3. Total Points for Complete Aircraft Construction (SUM # 2 should equal SUM # 1 above). (Note 3)	(SUM #2) ▶			
4. Percentage of Each Category as Part of Total Aircraft Construction. (Note 4)				
5. Total Percentages for Complete Aircraft Construction (Add all percentages in row 4) Total should equal 100% (± .5%). (Note 5)				
6. Total Builder Points – Add points in row 2, column C and D only, together. (Note 6)				
7. Total Builder Percentage- Add percentages in row 4, columns C and D only, together. (Note 7)				

NOTES: Instructions For Completing Fabrication and Assembly Checklist Summary

1. TOTAL NUMBER OF AIRCRAFT TASKS (Sum #1): To find the total points awarded for all tasks, add together the six individual “Total # of Tasks” blocks located at the bottom left of each aircraft tasks section.

2. TOTAL POINTS FOR EACH CATEGORY: [Columns A, B, C and D]. Each columns’ total points are tallied by adding the sum of the points awarded in each respective column for each of the tasks in the section (i.e. Fuselage/Airframe, Wings, Empennage, Landing Gear, Propulsion, Main and Tail Rotor and Cockpit). Include points assigned to ‘Additional Items’ at the end of each section. Boxes with a N/A (not applicable) or an asterisk, have zero points.

3: Total POINTS FOR COMPLETE AIRCRAFT CONSTRUCTION: (SUM#2) In row 3 of the Summary section, add together the numbers in each block in row 2, tallied from each of the four column category totals, (Columns A+B+C+D). Compare SUM #1 to SUM #2. SUM #1 should be equal to SUM #2, (Verify the two sums are equal within a deviation of ± 0.5). Total points will vary from aircraft to aircraft depending on number of add items and N/As (Not Applicable) applied. (e.g., 133 listed task points, plus 5 Add items, minus 22 N/As = 116 tasks).

4: PERCENTAGE OF EACH CATEGORY AS PART OF TOTAL AIRCRAFT CONSTRUCTION: To compute category percentages, divide the number in each individual block found on row 2 by Sum #2 on row 3. For example if the total points of Mfr Kit/Part/Component category (Column A) = 40 and Sum #2 = 120, then divide 40 by 120 to reach 33.3%. Do this for each individual block on row 4 for each column. Percentages may be rounded to the nearest tenth, (22.86% is rounded to 22.9%).

5: TOTAL PERCENTAGES FOR COMPLETE AIRCRAFT CONSTRUCTION: Add up the percentages of each of the four categories (Columns A+B+C+D) found on row 4. Total must be equal to 100% with a (\pm) deviation limited to $\frac{1}{2}$ % (0.5%). Example; a derived percentage between 99.5% and 100.5% is acceptable. If this computation falls outside the accepted deviation then an error has occurred in row 2, 3 or 4.

6: TOTAL BUILDER POINTS: Add together the two point tallies from row 2, Columns C and D blocks only. Total will vary from aircraft to aircraft depending on number of N/As applied.

7. TOTAL BUILDER PERCENTAGE: Add together the two percentage tallies from row 4 Columns C and D blocks only. Total must exceed 50% to be eligible for amateur built status and to meet major portion requirement under 14 CFR, Part 21.191(g) Operating amateur-built aircraft.

EXPLANATIONS AND EXAMPLES

► All Points are added at the end of the form in the Summary section under their respective categories. The point total is comprised of all the credits awarded for primary delineated tasks plus any credits given for 'Additional items.

► "Additional Items" may be assigned points the same as primary listed tasks if work or parts not reflected in the main entries need to be credited.

► The applicants completion of tasks can be documented in a number of ways and may include:

- (1) Builder's logs.
- (2) Photographs/video/DVD.
- (3) Drawings.
- (4) Engineering data when necessary.
- (5) Relevant documentation (e.g., plans) and references (e.g., handbooks) used.
- (6) Documentation concerning any commercial assistance used.
- (7) Documentation concerning any non-commercial assistance used.
- (8) Part inventories and histories.
- (9) Receipts, Catalogs.
- (10) Log book entries.

In addition to using this checklist, the builder should document the entire fabrication and assembly process. To issue an airworthiness certificate the FAA must make a major portion determination (the major portion of an aircraft was fabricated and assembled by an amateur builder (s)). Making this finding requires sufficient, credible and adequate documentation.