

Amateur-Built Aircraft Fabrication and Assembly Checklist (2011) (Gyroplane)

This prototype checklist will be incorporated into the next revision of FAA Order 8130.35, Amateur-Built Aircraft National Kit Evaluation Team. Until publication of that revision FAA employees performing a major portion evaluation on gyroplane aircraft shall use this checklist.

Name(s):	_____
Address:	_____
Aircraft Model:	_____
Date:	_____
Remarks:	_____

NOTE: This checklist is only applicable to gyroplane aircraft. Evaluation of other types of aircraft (i.e., rotorcraft, balloons, weight shift control) 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 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/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
Task #	Airframe & Enclosure – 15 Listed Tasks				
A1	Fabricate Basic Airframe Structural Components (Usually Metal Frame)				
A2	Assemble Basic Airframe Structure				

A3	Fabricate All Airframe/Enclosure Brackets and Fittings				
A4	Assemble Brackets and Fittings to Airframe/Enclosure				
A5	Fabricate Enclosure (Composite or Metal Seating Area)				
A6	Assemble Enclosure				
A7	Fabricate Enclosure Covering or Skin				
A8	Assemble Covering or Skin to Enclosure				
A9	Assemble Enclosure to Next Level Structure				
A10	Fabricate Windshield or Windscreen				
A11	Assemble Windshield/Windscreen to Enclosure				
A12	Fabricate Doors/Canopy and/or Window Components				
A13	Assemble Doors/Canopy and/or Window components to Next Level Structure				
A14	Fabricate Fuel Tank				
A15	Assemble Fuel Tank to Next Level Structure				
A16	Add Fab item:				
A17	Add Assy item:				
A18	Add Fab item:				
A19	Add Assy item:				
Total of # Airframe Tasks	<u>Airframe/Enclosure Subtotal</u>	Mfr Kit/Part/Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
	<u>Airframe/Enclosure Total Points</u> ►				

Comments:

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
Task #	Rotor – 9 Listed Tasks				
R1	Assemble Rotor Blades to Hub Bar				
R2	Assemble Rotor Head				
R3	Assemble Rotor Head/Teeter Hinge to Next Level Structure				
R4	Assemble Rotor Bearing Block/Spindle to Next Level Structure				
R5	Assemble Pitch/Roll Hinge Components to Next Level Structure				
R6	Fabricate Pre-rotator Components				
R7	Assemble Pre-rotator Components to Next Level Structure				
R8	Fabricate Jumb Takeoff Components				
R9	Assemble Jump Takeoff Componets to Next Level Structure				
R10	Add Fab item:				
R11	Add Assy item:				
R12	Add Fab item:				
R13	Add Assy item:				
Total # of Rotor Tasks	<u>Rotor Subtotal</u>	Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
	<u>Rotor Total Points ▶</u>				
Comments:					

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
Task #	Tail Group – 17 Listed Tasks				
T1	Fabricate Horizontal Stabilizer Structural Components (Spars, Ribs, Framing or Composite Materials)				
T2	Assemble Structural Components to Form Basic Horizontal Stabilizer Structure				
T3	Fabricate Horizontal Stabilizer Covering or Skin				
T4	Assemble Covering or Skin to Horizontal Stabilizer				
T5	Assemble Horizontal Stabilizer to Next Level Structure				
T6	Fabricate Vertical Stabilizer Structural Components (Spars, Ribs, Framing or Composite Materials)				
T7	Assemble Structural Components to Form Basic Vertical Stabilizer Structure				
T8	Fabricate Vertical Stabilizer Covering or Skin				
T9	Assemble Covering or Skin to Vertical Stabilizer				
T10	Assemble Vertical Stabilizer to Next Level Structure				
T11	Fabricate Rudder Structural Components (Spars, Ribs, Framing, Composite Materials)				
T12	Assemble Structural Components to Form Basic Rudder Structure				
T13	Fabricate Rudder Covering or Skin				
T14	Assemble Covering or Skin to Rudder				
T15	Assemble Rudder to Vertical Stabilizer				
T16	Fabricate All Tail Group Trim Tab Components				
T17	Assemble All Tail Group Trim Tab Components to Next Level Structure				

T18	Add Fab item:				
T19	Add Assy item:				
T20	Add Fab item:				
T21	Add Assy item:				
Total # of Tail Group Tasks	<u>Tail Group</u>	Mfr Kit/Part/Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
	<u>Tail Group Total Points ►</u>				

Comments:

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
Task #	Landing Gear – 9 Listed Tasks				
LG1	Fabricate Landing Gear Brackets and Fittings				
LG2	Assemble Landing Gear Brackets and Fittings to Landing Gear System				
LG3	Fabricate Struts or Leg Components				
LG4	Fabricate Landing Gear System Cables/Lines				
LG5	Assemble Landing Gear System Cables/Lines to Next Level Structure				
LG6	Assemble Wheels/Tires and Brakes to Landing Gear				
LG7	Fabricate Fairings/Wheel Pants				
LG8	Assemble Fairings/Wheel Pants to Wheels				
LG9	Assemble Landing Gear to Next Higher Structure				
LG10	Add Fab item:				
LG11	Add Assy item:				
LG12	Add Fab item:				
LG13	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>				
Comments:					

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
Task #	Propulsion – 22 Listed Tasks				
P1	Fabricate Engine Mounts				
P2	Assemble Engine Mounts to Next Higher Structure				
P3	Fabricate Engine Cooling System/Baffles				
P4	Assemble Engine Cooling System/Baffles to Engine				
P5	Fabricate Induction System				
P6	Assemble Induction System to Propulsion System				
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 Cables, Wires and Lines				
P14	Assemble Cables, Wires and Lines to Next Higher Structure				
P15	Fabricate Firewall (includes blanket or overlay)				
P16	Assemble Firewall to Airframe				
P17	Assemble Engine (Likely N/A)				
P18	Assemble Engine to Engine Mount				
P19	Fabricate Spinner Components				
P20	Assemble Propeller and Spinner to Engine				
P21	Fabricate Engine Cowling				
P22	Assemble Engine Cowling to Airframe				

P23	Add Fab item:				
P24	Add Assy item:				
P25	Add Fab item:				
P26	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>				
Comments:					

FABRICATION AND ASSEMBLY TASKS		A	B	C	D
		Mfr Kit/Part/ Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
Task Cockpit /Flight Controls – 23 Listed Tasks					
#					
C1	Fabricate Instrument Panel, Sub Panels, Brackets and Fittings				
C2	Assemble Instrument Panel Components in C1 to Next Level Structure				
C3	Fabricate Seats				
C4	Assemble Seats to Next Level Structure				
C5	Fabricate Seat Belts/Harness, Brackets and Fittings				
C6	Assemble Seat Belts/Harness, Brackets and Fittings to Next Higher Structure				
C7	Fabricate Electrical System Wiring, Controls and Switches				
C8	Assemble Electrical System Wiring Controls and Switches to Next Level Structure				
C9	Fabricate Floor Panels				
C10	Assemble Floor Panels to Next Level Structure				
C11	Fabricate Rudder Pedals				
C12	Assemble Rudder Pedals Together to Form Rudder Pedal Assembly				
C13	Assemble Rudder Pedal Assy to Next Level Structure				
C14	Fabricate All Flight Control Tubes /Cables				
C15	Assemble All Flight Control Tubes/Cables to Next Level Structure				
C16	Fabricate Pitch/Roll Control Stick Components				
C17	Assemble Pitch/Roll Control Stick Components to Next Level Structure				

C18	Fabricate Rotor Trim Control Components				
C19	Assemble Rotor Trim Control Components to Next Level Structure				
C20	Fabricate Rotor Brake Components				
C21	Assemble Rotor Brake System to Next Level Structure				
C22	Fabricate Cables, Wires and Lines				
C23	Assemble Cables, Wires and Lines to Next Level Structure				
C24	Add Fab item:				
C25	Add Assy item:				
C26	Add Fab item:				
C27	Add Assy item:				
Total # of Cockpit Tasks	<u>Cockpit Subtotal</u>	Mfr Kit/Part/Component	Commercial Assistance	Am-Builder Assembly	Am-Builder Fabrication
	<u>Cockpit Total Points ▶</u>				
Comments:					

► **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 (Fuselage, Wings, Empennage, Landing Gear, Propulsion 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 on 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.