

MidJet a personal Jet

A student project

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Time Span	Aircraft projects
1950-1980	XP-5Y, A-2D, XC-120, F-4D, F-3H, B-52, A-3D, X-3, S-2F, X2, F-10F, F-2Y, F-100, B-57, F-102, R-3Y1, F-104, A-4D, B-66, F-11F, C-130, F-101, T-37, XFY, F-8U, F-6M, U-2, XY-3, F-105, X-13, C-133, F-107, B-58, F-106, F-5D, X-14, C-140, T-2, F-4, A-5, T-39, T-38, AQ-1, X-15, F-5A, X-1B...
1960-1990	A-6, SR-71, SC-4A, X-21, X-19, C-141, B-70, XC-142, F-111, A-7, OV-10, X-22, X-26B, X-5, X-24
1970-2000	F-14, S-8, YA-9, A-10, F-15, F-18, YF-17, B-1B, YC-15, YC-14, AV-8B, F/A-18
1980-2010	F-117, F-20, X-29, T-46, T-45, B-2, V-22
1990-2020	YF-22, YF-23, JSF, C-17
2000-2030	UCAV, B-3?...

Challenges within Aircraft design

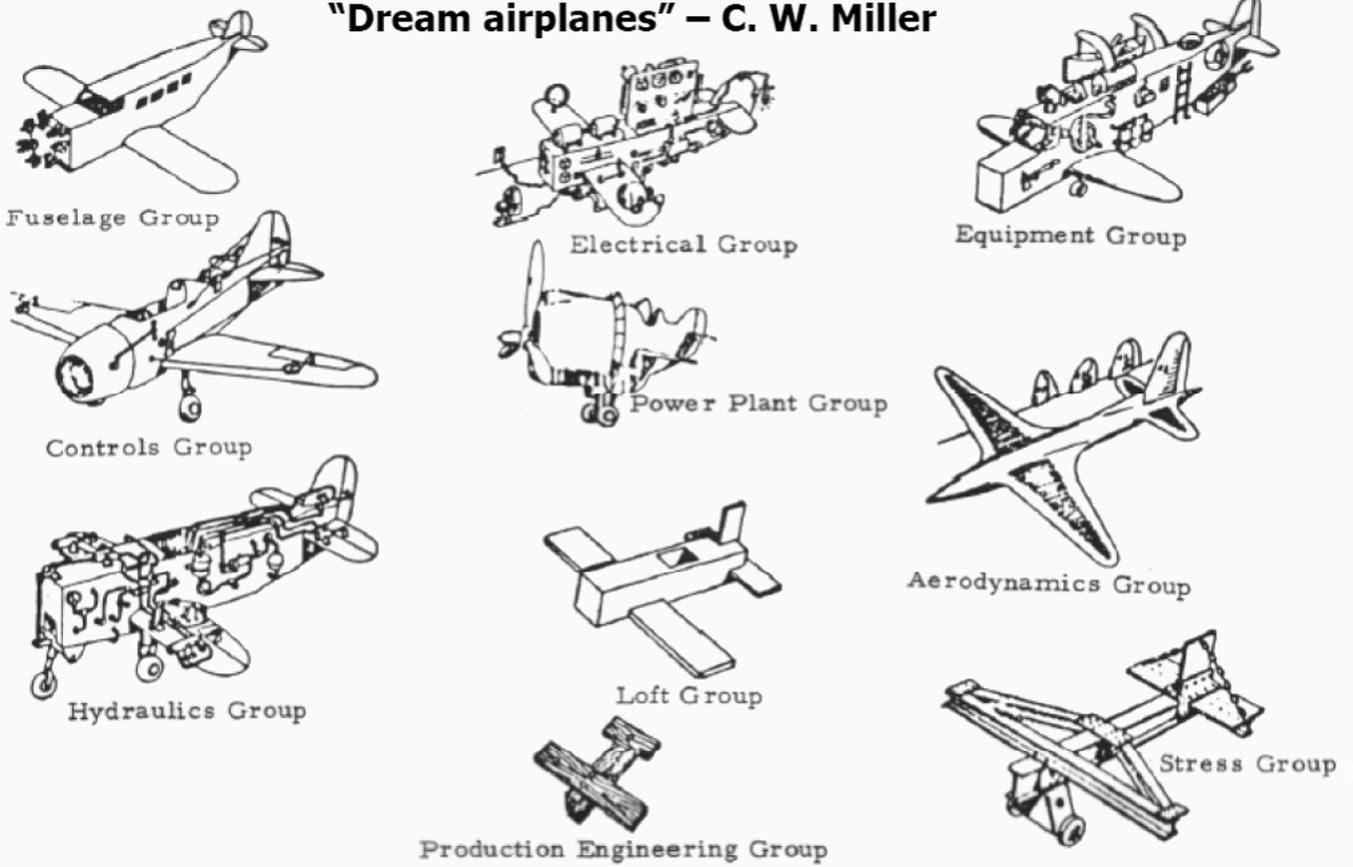


- Aircraft designers are:
 - Broad specialists...
 - Will unfortunately only participate to a few number of project during is career...should have been born in the 40's
 - High number of disciplines involved
 - Need experience



Aircraft Design

"Dream airplanes" – C. W. Miller



Students project, why?

- Educate
- Give a broad view
- Educate generalist and not specialist
- A chance to see a product from requirement to first flight
- Have fun and be proud
- Team work



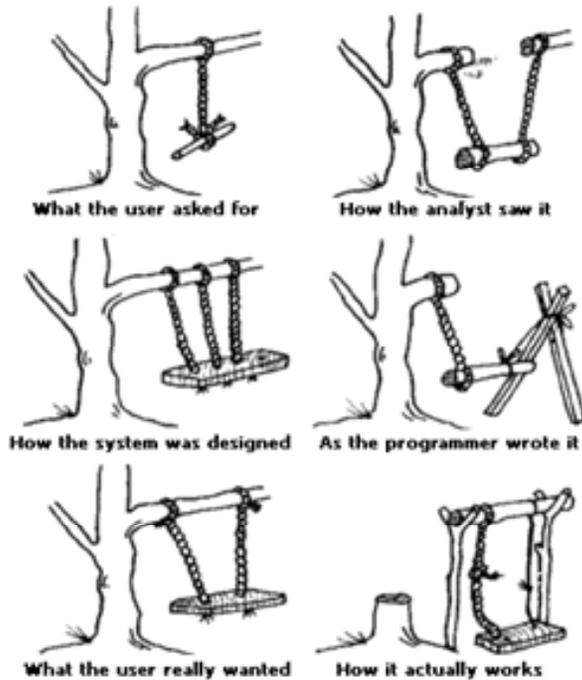


Project requirements

- Need to be stimulating
- Need to be a challenge
- Need to show interaction between the different disciplines
- Need to be something new...or old...
- Need to

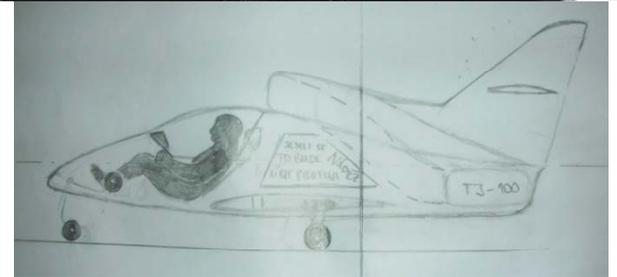
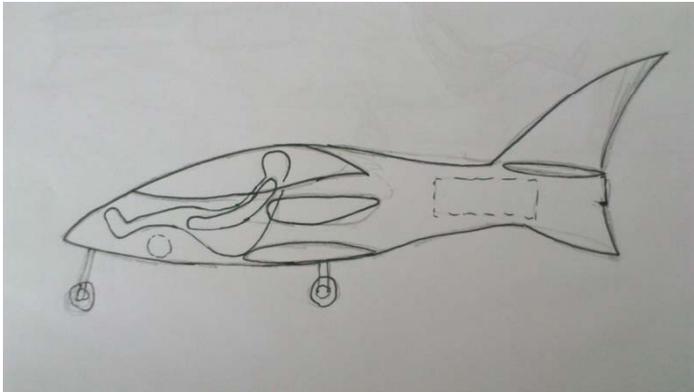
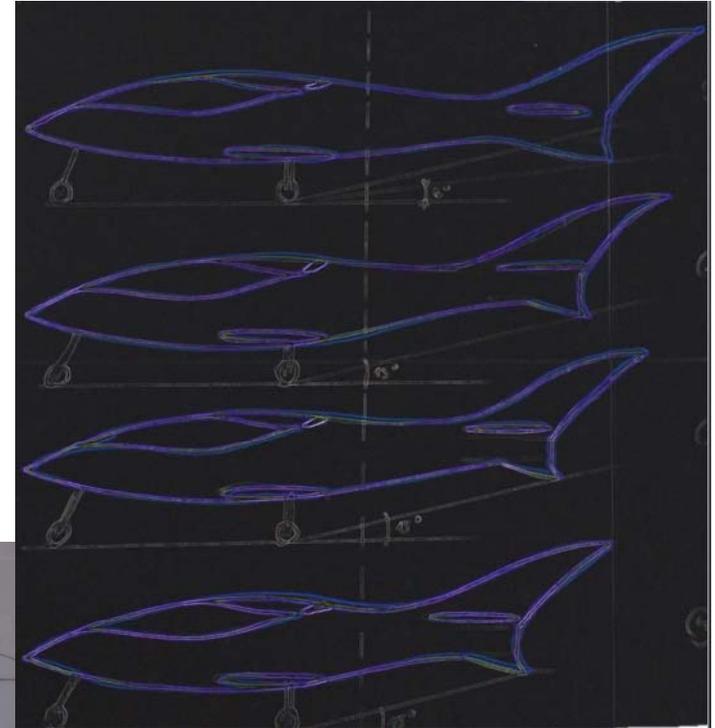


MidJet Requirements

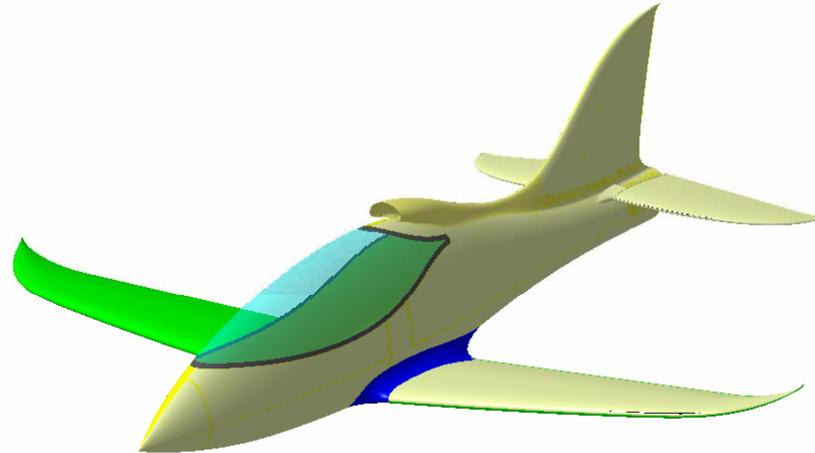
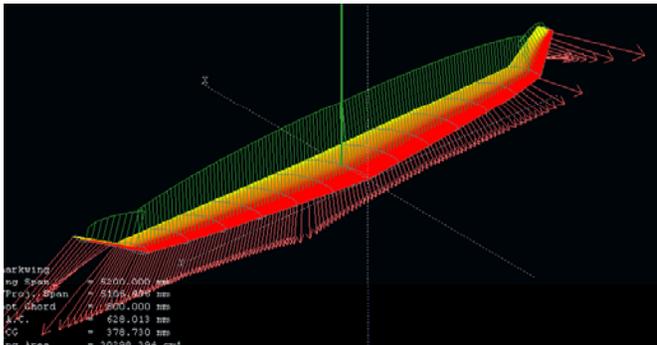
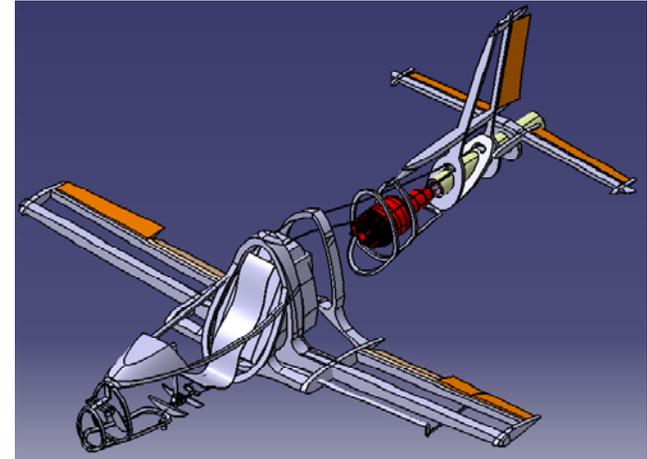
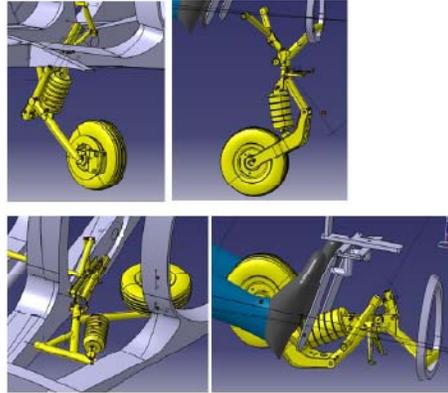
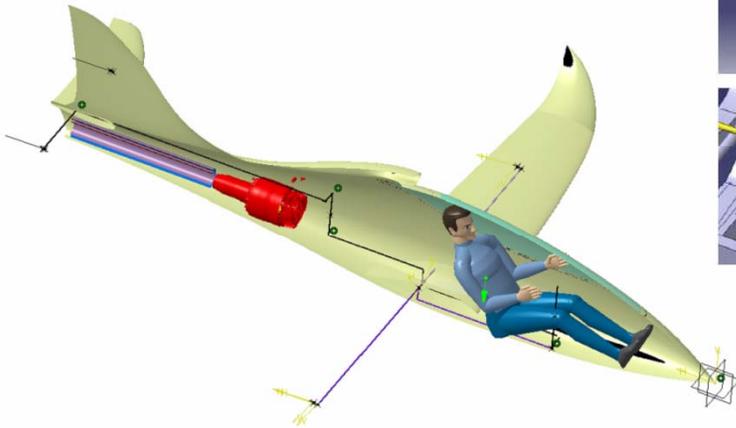


- Replacement of the outdated BD5J
- Appealing design
- Good handling qualities
- Performance level similar to BD5J
- Defined under which certification this aircraft can be certified

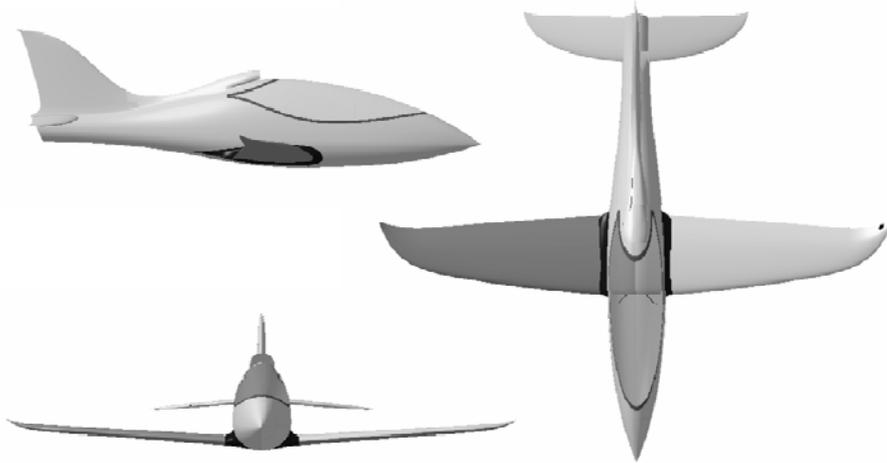
Concepts



Design



Characteristics



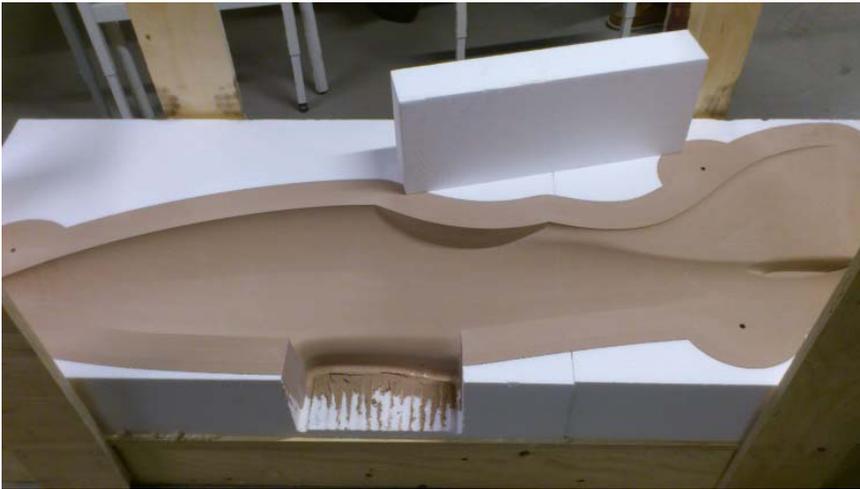
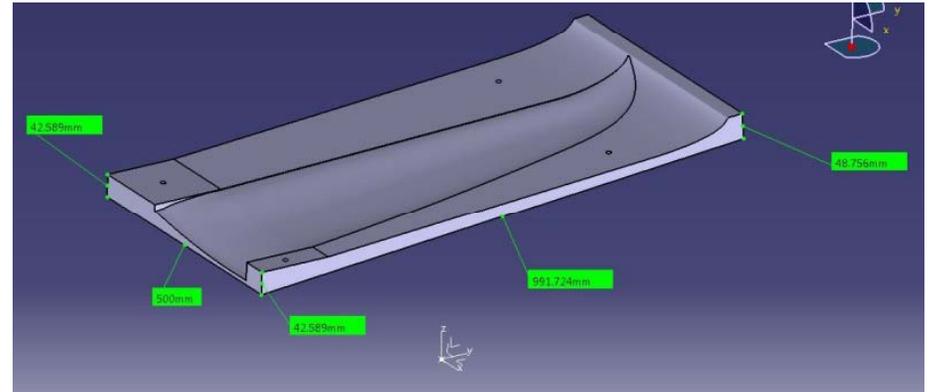
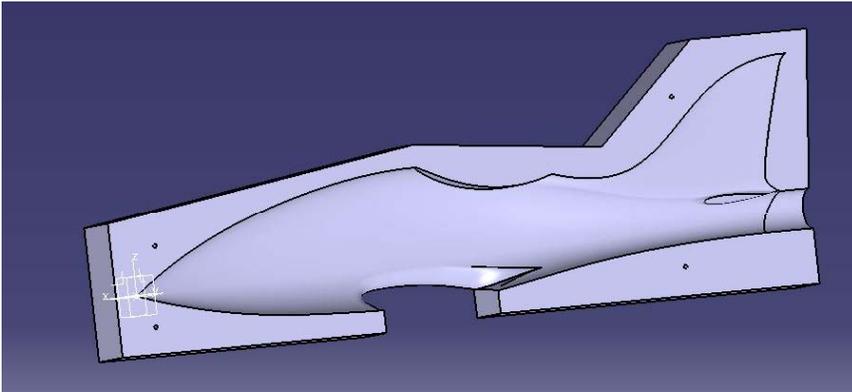
	MidJet	BD5J
MTOW [kg]	320	386
OEW [kg]	146	163
Vcruise [km/h]	437	386
Stall speed [km/h]	104	107
Wing loading [kg/m ²]	100	137
Sref [m ²]	3,2	2,8
Wing span [m]	5,2	4,36
Length [m]	4,8	3,6
Height [m]	1,46	1,68



TJ 100
1200 N

CS-23 used as certification base

Manufacturing

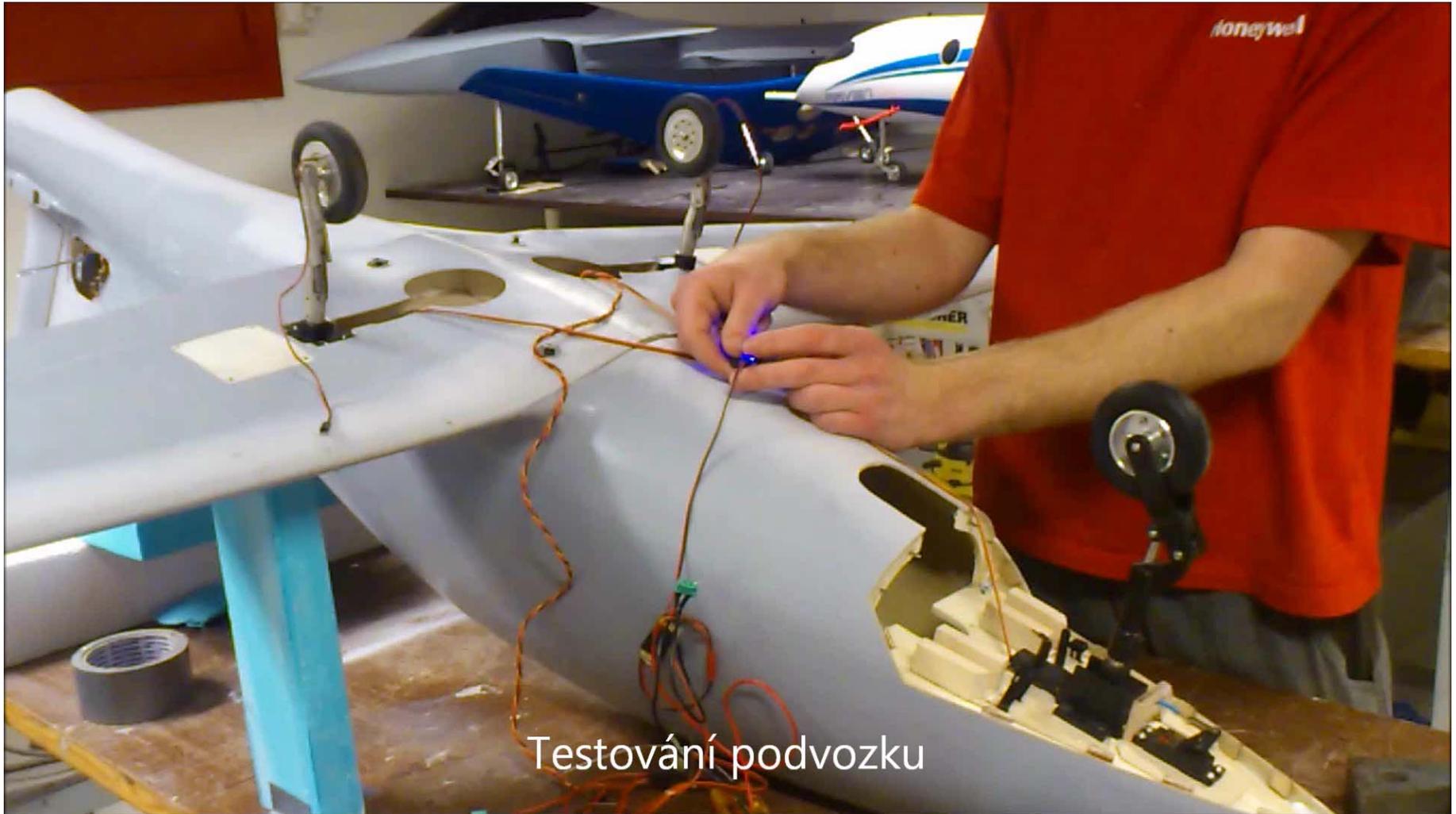


Manufacturing



Roll out





Testování podvozku

Questions?





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