

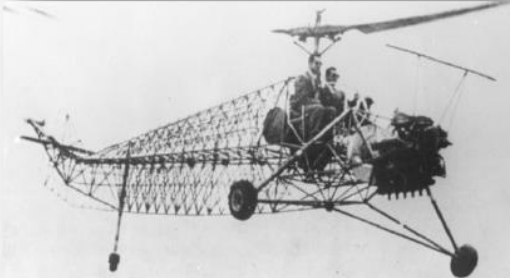
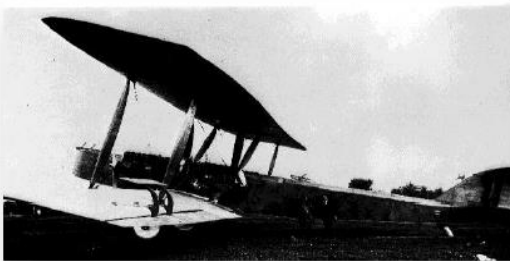
The Beginning

1

Piaggio Aerospace is one of the oldest aircraft manufacturer still in activity today



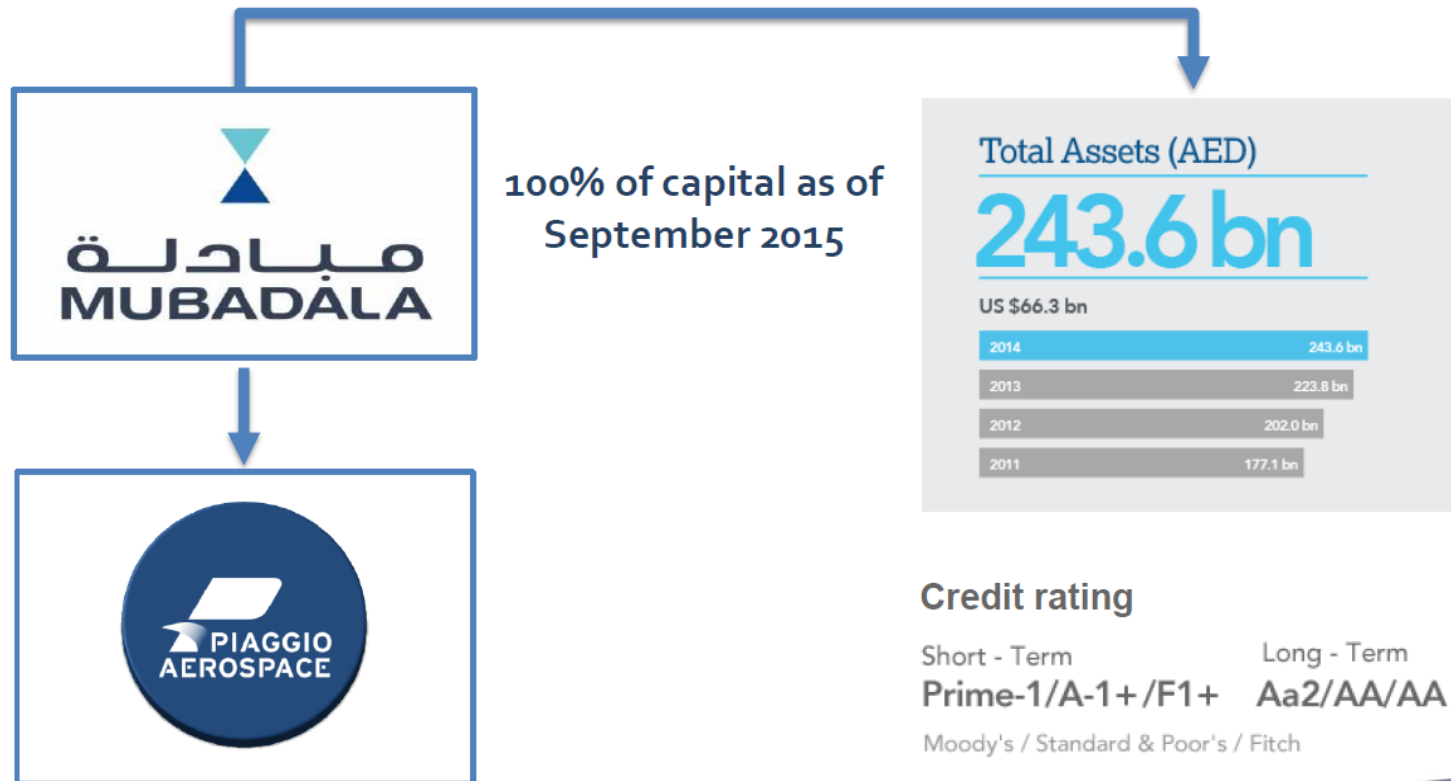
- Founded in 1884 as a ship interiors and furnishing manufacturer
- Aviation activities started in 1915
- More than 50 aircraft types designed and manufactured since then
- Piaggio was also a pioneer in design and experimentation of rotorcraft, well before Sikorsky's first flights



Today

2

Shareholding structure



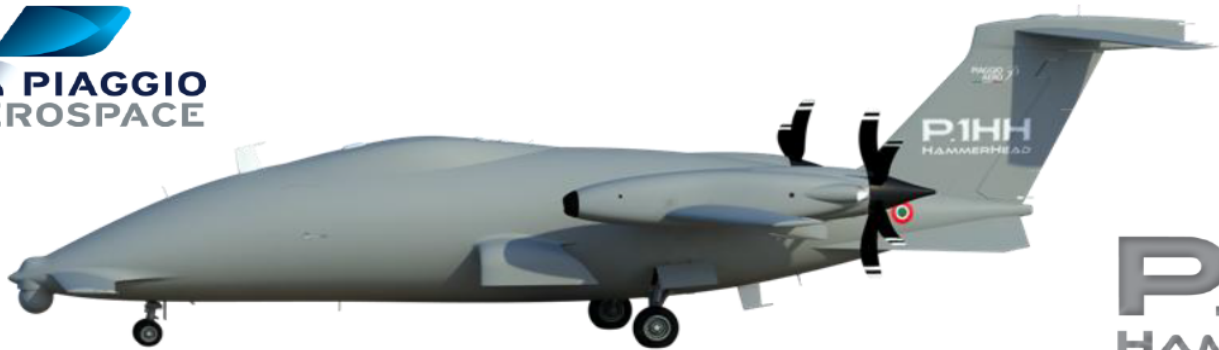
Piaggio P180

3



- Three lifting surfaces , twin pusher turboprop business multutility aircraft
- Combining lavish 'Made in Italy' style, meticulous attention to detail and groundbreaking aviation tech, Avanti EVO combines superior climb performance, class-leading fuel economy, and a cabin custom-made to the most exacting standards
- Avanti EVO is the most sophisticated aircraft ever designed and built in its category.

P1HH Piaggio Hammer Head



P.1HH
HAMMERHEAD

- Piaggio Aerospace P.1HH HammerHead is an unmanned aircraft system consisting of a remotely piloted aerial vehicle (UAV), a ground control station (GCS) and integrated navigation and mission systems.
- Positioned at the very top end of remotely piloted MALE aircraft, it is ATOL capable (Automatic Take Off and Landing), able to reach altitudes of 13,700 meters maintaining 16 hours of flight endurance.
- With datalink connections to the UAV delivered through a line of sight communication system (LoS) and via satellite beyond line of sight (BLOS), the P.1HH Hammerhead ground control station enables the aircraft's navigation and mission systems to be remotely controlled at all times in all places.

Piaggio MPA

5



MPA
MULTIROLE PATROL AIRCRAFT

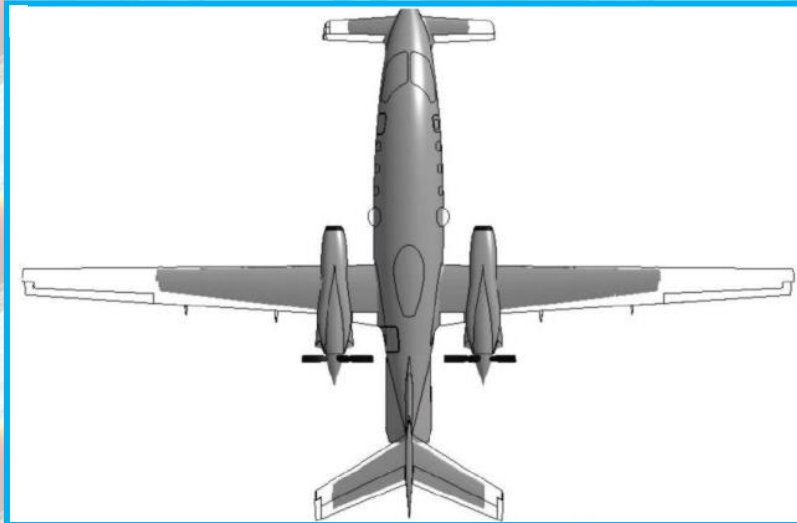
- The Piaggio Aerospace MPA is a manned Multirole Patrol Aircraft, designed as an evolution and development of the P.180 Avanti aircraft for Special Mission applications.
- The aircraft is intended for aerial surveillance missions as well as ground, coastal and marine patrols.
- Piaggio Aerospace has been developing its MPA Multirole Patrol Aircraft in partnership with ADASI - Abu Dhabi Autonomous System Investments, part of the Tawazun group.

In partnership with



شركة أبوظبي للاستثمار في الأنظمة الذاتية
Abu Dhabi Autonomous Systems Investments

Wings with high Aspect Ratio



Gust Loads are evaluated with a different approach.

«Rules» are dictated by Regulations according to Certification Basis.

Certification Basis

- P180 : Civil FAR 23 → JAR 23 → CS 23
- MPA : Military JSSG
- P1HH : UAV Stanag + «Riserie Nazionali»

CS 23.341 Gust load factors (See AMC 23.341 (b))

(a) Each aeroplane must be designed to withstand loads on each lifting surface resulting from gusts specified in CS 23.333(c).

(b) The gust load for a canard or tandem wing configuration must be computed using a rational analysis, or may be computed in accordance with sub-paragraph (c) provided that the resulting net loads are shown to be conservative with respect to the gust criteria of CS 23.333(c).

CS 25.341 Gust and turbulence loads (See AMC 25.341)

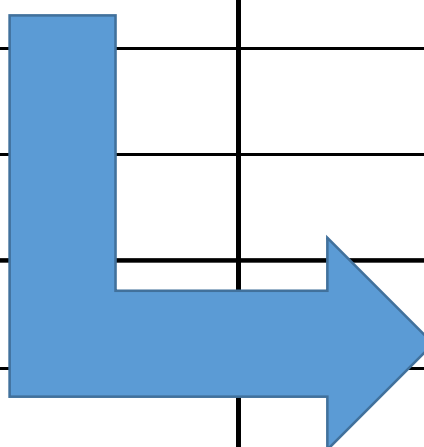
(a) *Discrete Gust Design Criteria.* The aeroplane is assumed to be subjected to symmetrical vertical and lateral gusts in level flight. Limit gust loads must be determined in accordance with the following provisions:

(1) Loads on each part of the structure must be determined by dynamic analysis. The analysis must take into account unsteady aerodynamic characteristics and all significant structural degrees of freedom including rigid body motions.

Summary

8

			STRUCTURE		
			Rigid	Elastic	
			Linear	Linear	Not Linear
Aerodynamic	Steady	Linear			
		Piecewise Linear, linearized			
		Not Linear			
	Unsteady	Linear			
		Not Linear			



Aerogust

9

Preparing the European
aviation industry for future
challenges



- Reduced reliance on wind tunnel testing
- Reduced conservatism by improving accuracy and robustness
- Faster exploration of the design space through updating Reduced Order Models
- More accurate wind turbine load predictions

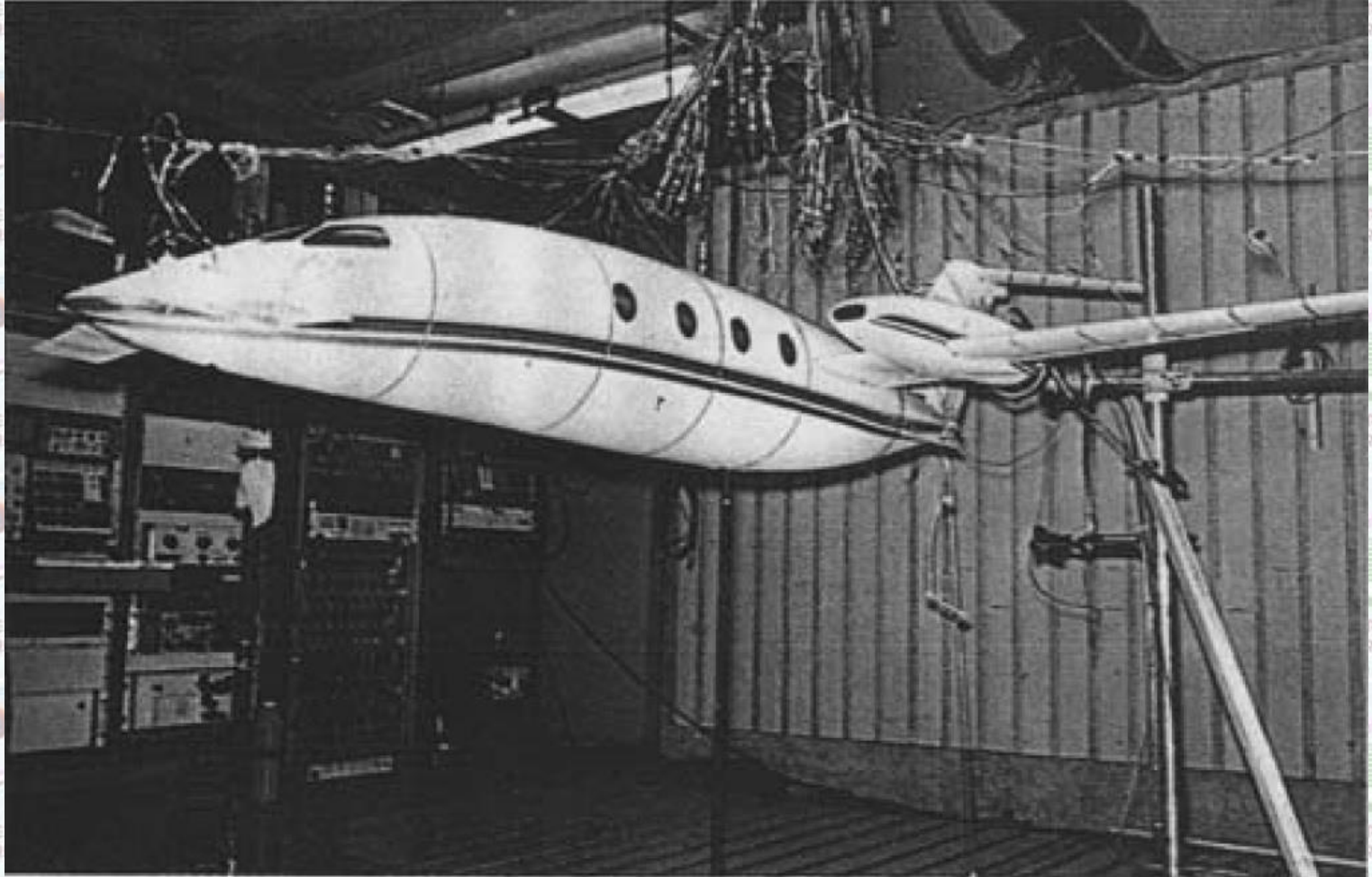
<https://youtu.be/xfwyI33kdUc>



AeroGust



WT model P180 for flutter study



WT model P180 for flutter study

