



Pegasus Mk III Gyroplane

Gyro plane **(A Simple Definition)**

Most simply stated, a gyroplane is an airplane with a wing that rotates (a rotorwing aircraft). A gyroplane, like a fixed wing aircraft, has a propeller powered by an engine that provides forward movement and a wing to provide the primary lift.

The rotating wing of a gyroplane provides lift, not only as the airplane is moved forward through the air by the propeller, but also as the airplane vertically descends through the air. Because of this feature, the gyroplane can land in perfect safety with, or without, its engine running.

Some gyroplanes have the ability, while on the ground, to transfer power from the engine to the rotary wing and as a result can store enough “lift energy” in the rotating wing to take off vertically (without ground roll).

A gyroplane’s rotary wing is unpowered in flight and therefore the rotary wing provides no reaction torque to the aircraft and as a result the gyroplane is very stable and easily operated, and has an added degree of safety.

A Short List of Pegasus Mk. III Uses

General and Commercial

- Pipeline patrol and inspection
- Electric power transmission line patrol and inspection
- Forest management, patrol and inspection
- Light cargo delivery, point-to-point
- Range and ranch management
- Aerial photography
- Traffic watch and news gathering
- Private or commercial commuter, point-to-point
- Executive transportation
- Executive aviation and personal/recreational
- Flight Training *

Government Agency and Military

- Law enforcement, patrol and ground assistance by local police, sheriff, highway patrol, national guard and boarder patrol
- Forest service land management, emergency assistance and patrol
- Fish and wildlife management
- Military reconnaissance, transportation, patrol, ground support, observation, light attack and counter insurgency
- Fire fighting/patrol/observation and paramedic

*** *If initial pilot rating is accomplished using the Pegasus Mk. III then only 13 additional hours are needed to receive a rating in airplane and only enough hours to prove proficiency are required to receive a helicopter rating.***



The Pegasus Mk. III Gyro plane

The Pegasus Mk. III is the result of years of engineering and development. These years of effort and investment produced and tested five separate prototype designs and involved over 2,500 hours of test flights in the development of the sixth and final prototype which has been Type Certified by the U.S. Department of Transportation Federal Aviation Agency.

Most people outside the aviation industry and many people inside the aviation industry, lack a clear understanding of what an FAA Type Certification is and means. The Type Certification states that the Federal Aviation Agency certifies that the development of this particular aircraft has followed all of the procedures and met all of the requirements as set forth in the Federal Aviation Regulations and that the resulting certified aircraft can be reproduced by the owner of that certificate or his assigns, under conditions which meet FAA quality assurance procedures and such end product aircraft will carry the Type Certification as originally granted.

The data regarding operations and performance, of the certified aircraft, as a result are not speculations, but proven and reproducible facts certified following years of exhaustive testing and review by the Department of Transportation, Federal Aviation Administration.

The performance data created as a result of certification testing shows the following:

Seating:	3
Taking off:	Vertical
Landing:	Vertical
Speed (max):	125 mph
Speed (mm):	15 mph
Speed (cruise):	110 mph
Range:	385 miles
Climb:	870 ft/mm to 1,500 ft/mm
Ceiling:	13,000 ft
Rotor diameter:	37 ft
Operation cost:	\$50/hr

Flight characteristics: In flight the Pegasus Mk. III handles much the same as a fixed wing aircraft. It can be trimmed for "hands-off" operation. Because the Mk. III always flies in autorotation, height-velocity curve restrictions are virtually non-existent.



A Little History

The gyroplane played a serious role in early aviation. Developed by Juan de La Cierva, and improved upon by Harold Pitcairn, it was performing commercial tasks such as mail transport and delivery between central post offices in the United States in the late 1920's and early 1930's. Actual point-to-point service was accomplished by using post office building roofs for takeoffs and landings. In the late 1930's, the U.S. Government pressed Harold Pitcairn to allow Igor Sikorsky to use his improved rotorhead design in order to develop the helicopter. At that time, the U.S. Military felt that a hovering aircraft would be important in the coming war (WW II).

Because of Pitcairn's rotorhead, the helicopter was successful in capturing the imagination of the military who pressed for its development and use at the expense of the gyroplane. The thinking of the time was that the advantages of hovering, along with vertical take off and landing capability would, in time, overcome the helicopter's disadvantages of lower speeds, less range, unstable flight characteristics, greater maintenance requirements and difficulty of operation.

As the years went by and the helicopter, as the result of several wars and ongoing military pressure and spending, became more refined and sophisticated, its military use expanded and diversified. The original problems, however, have never been sufficiently overcome to allow its practical, economic use on an expanded scale outside the military and certain limited areas in which hovering capability is absolutely essential and cost is not a consideration.

The fact is that the helicopter has never overcome its original basic shortcomings and as a result remains an expensive and relatively limited aircraft. It is also a fact that the market need has expanded dramatically in areas requiring an aircraft which can take off and land vertically, need not hover, has good range, reasonable cruising speeds while being capable of slow flight, is inherently safe to fly, will not be plagued by unscheduled maintenance and is inexpensive to operate. Gyroplane technology and the Pegasus MK. III meet these market needs.

As happens so many times, discarded technology is combining with modern materials and methods to fill modern needs.