

# Airbus A380 Preighter Aircraft – An Overview

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**Abstract** — The term "Preighter" emerged during the unprecedented disruptions brought about by the COVID-19 pandemic, referring to passenger aircraft that were temporarily adapted for cargo purposes. Among the aircraft utilized in this innovative role was the Airbus A380, recognized as the world's largest passenger airliner. This report examines the A380 Preighter phenomenon, detailing their definition, usage by carriers such as Emirates and Hi-Fly, the modifications and cargo capacity achieved, the reasons for their deployment, their operational characteristics, future possibilities, and a comparative analysis of their advantages and disadvantages relative to dedicated cargo planes. The investigation suggests that although the A380 significantly enhanced cargo capacity during a pivotal period, its fundamental design as a passenger aircraft imposed operational and financial limitations that indicate its function as a Preighter was largely a temporary solution.

**Keywords** — Passenger Transport; Temporary Operational Modification; Cargo Highlights.

## 1. Introduction

### 1.1 The "Preighter" Aircraft

The term "Preighter," which combines "passenger" and "freighter," represents an aircraft originally intended for passenger transport but now being used for cargo freight by placing goods within the passenger area. This method gained popularity in 2020 as commercial airlines confronted a significant decline in passenger travel due to the COVID-19 pandemic. The origin of this term, attributed to Lufthansa's CEO Carsten Spohr, highlights the creative operational strategies embraced by the airline industry to tackle these extraordinary challenges. The establishment of this specific vocabulary accentuates the unique nature of this interim usage of aircraft, setting it apart from the standard roles of passenger and freighter planes.

It is essential to distinguish a Preighter from other types of aircraft that carry both passengers and cargo. A combi aircraft, for instance, is intentionally designed with features such as large, swinging doors and a reinforced floor to support bulky or heavy freight and usually includes designated, sometimes separate, areas for passengers and cargo. In contrast to Preighters, combi aircraft are created for a more enduring dual purpose. Furthermore, Preighters represent a temporary modification in operations, unlike passenger-to-freighter (P2F) conversions, which entail substantial and enduring changes to transform a passenger aircraft into a dedicated cargo vehicle. The transient nature of Preighter operations reflects the urgent demand for cargo capacity during the pandemic, without the long-term commitment and investment required for persistent conversions.

### 1.2 The Airbus A380 as a Temporary Cargo Solution

The research confirms that the Airbus A380, the largest commercial passenger airplane globally, was indeed utilized for temporary cargo operations during a period of significant air travel disruption. Significantly, both Hi-Fly and Emirates employed the A380 in this capacity. The decision to use such a large aircraft, typically associated with high-capacity passenger transport, for cargo underscores the exceptional demand for air freight and the capacity shortages faced during the pandemic. The deployment of the A380 in this role highlights the extent to which the airline industry had to adjust to maintain vital supply chains.

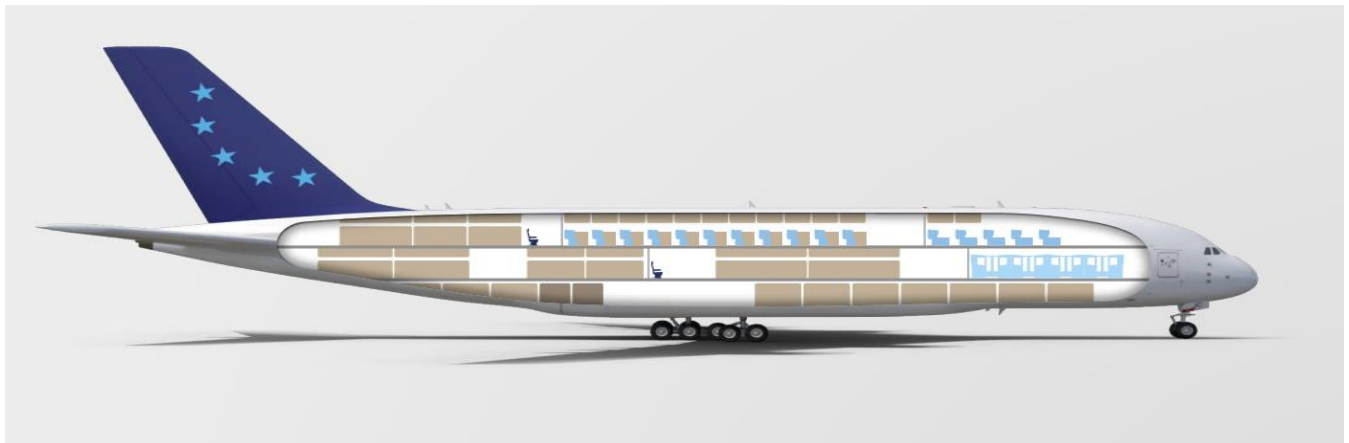
It is essential to emphasize that Airbus had previously contemplated producing a dedicated freighter version of the A380, referred to as the A380F, which was intended to carry a considerable payload of around 150 metric tons over long distances. This freighter variant attracted initial interest and secured a few orders. However, because of development challenges encountered with the passenger variant of the A380 and changing market circumstances, all orders for the freighter version were eventually cancelled, preventing the project from advancing to production. The reality that a specialized cargo version was once considered, even though it was ultimately scrapped, suggests an early recognition of the A380's capabilities for freight transportation, albeit the temporary Preighter solution emerged differently.

### 1.3 Airlines and Cargo Operators utilizing A380 Preighters

Emirates, known as the largest operator of the Airbus A380 worldwide, extensively utilized its fleet in a Preighter configuration via its SkyCargo division. Over

time, Emirates operated more than 3,100 cargo-exclusive flights using passenger aircraft, predominantly Boeing 777-300ERs, transporting over 11,000 tonnes of freight, with a significant portion comprising personal protective equipment. In addition to flying Boeing 777 Freighters, Emirates also employed select A380 aircraft as "mini-freighters," optimizing the belly hold capacity to carry around 50 tonnes of cargo per flight. The airline also explored further enhancements to A380 cargo capacity through tactics such as loading cargo onto passenger seats in the cabin. Emirates' proactive and extensive utilization of the A380 as a Preighter demonstrates its flexibility and responsiveness to the pressing need for air cargo capacity during the pandemic.

Hi-Fly, a charter airline from Portugal, also used its sole Airbus A380 as a temporary freighter, modifying it to transport light cargo within the passenger cabin. Starting in May 2020, Hi-Fly commenced cargo operations, mainly moving medical supplies from China. Hi-Fly's A380 was notable for being the first of its kind to be adapted into a Preighter, with the removal of economy class seats enabling it to carry up to 68 tons of cargo within a capacity of 340 cubic meters. Hi-Fly's early foray into A380 Preighter operations underscores the inventive strategies adopted by even smaller airlines to bolster global cargo capacity during the crisis.



**Fig.1: Preighter Aircraft**

## 2. Conclusion

The application of Airbus A380 aircraft as Preighters during the COVID-19 pandemic represents an exceptional modification by the aviation industry in response to unprecedented challenges. Airlines such as Emirates and Hi-Fly proficiently employed these large passenger jets to transport vital cargo, demonstrating the potential of even the world's largest airliner to boost global freight capacity during a crisis.

While the significant volume of the A380 offered a considerable advantage in enhancing cargo capacity, its original design as a passenger aircraft presented inherent limitations. These limitations consisted of restrictions on floor weight capacity, the absence of specialized cargo doors and loading systems, and elevated operational costs compared to dedicated freighters. Consequently, the economic viability of A380 Preighter operations largely relied on the unusually high cargo yields experienced during the pandemic.

With the revival of passenger demand and the stabilization of cargo markets, the extensive use of A380s

as Preighters has lessened. The possibility of establishing a dedicated A380 freighter program or extensive passenger-to-freighter conversions is limited due to a combination of economic and technical challenges.

To summarize, the A380 Preighter initiative served as a temporary yet crucial solution during a period of significant disruption in air travel. It showcased the industry's capacity for innovation and adaptability while also highlighting the inherent differences and limitations in converting passenger planes for exclusive cargo functions. The primary role of the Airbus A380 remains the transport of passengers, and its future will likely continue to be focused on this main function, particularly on high-demand, long-haul routes.

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