

# **Redelivery Management of Assets, Airlines and Lessors**

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# An Introduction to Aircraft Redelivery Management

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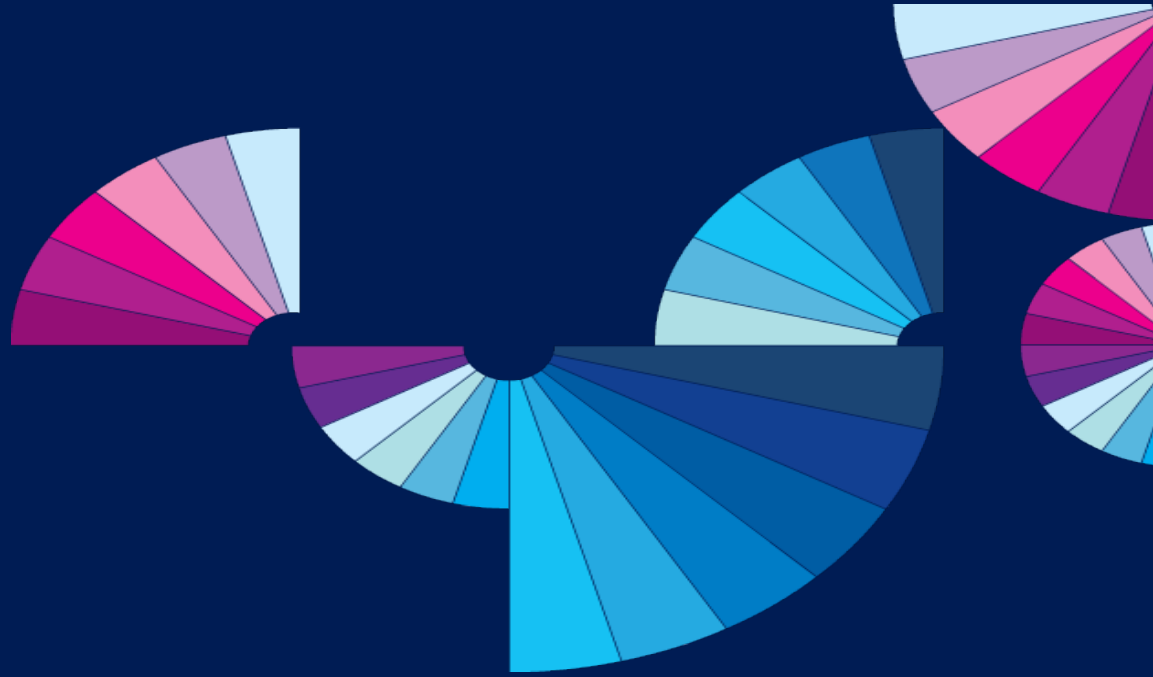
Chief Technical Officer

## The Aircraft Redelivery Beast

- A necessary evil of operating leasing
- 35% of airlines adjudged to have bad or very bad experiences
  - A drain on resources
  - Barrier to doing business
  - A non-value added endeavour
  - Divisive
  - Costly
- Situation improving.... but a long way to go
- The Coalface of the aircraft leasing industry

## Agenda

- What is a Redelivery and why is it required?
- Typical Redelivery Conditions
- Typical Redelivery Process
- Common Issues
- Risk Mitigation Strategies



## 1. What is a Redelivery and why is it required?

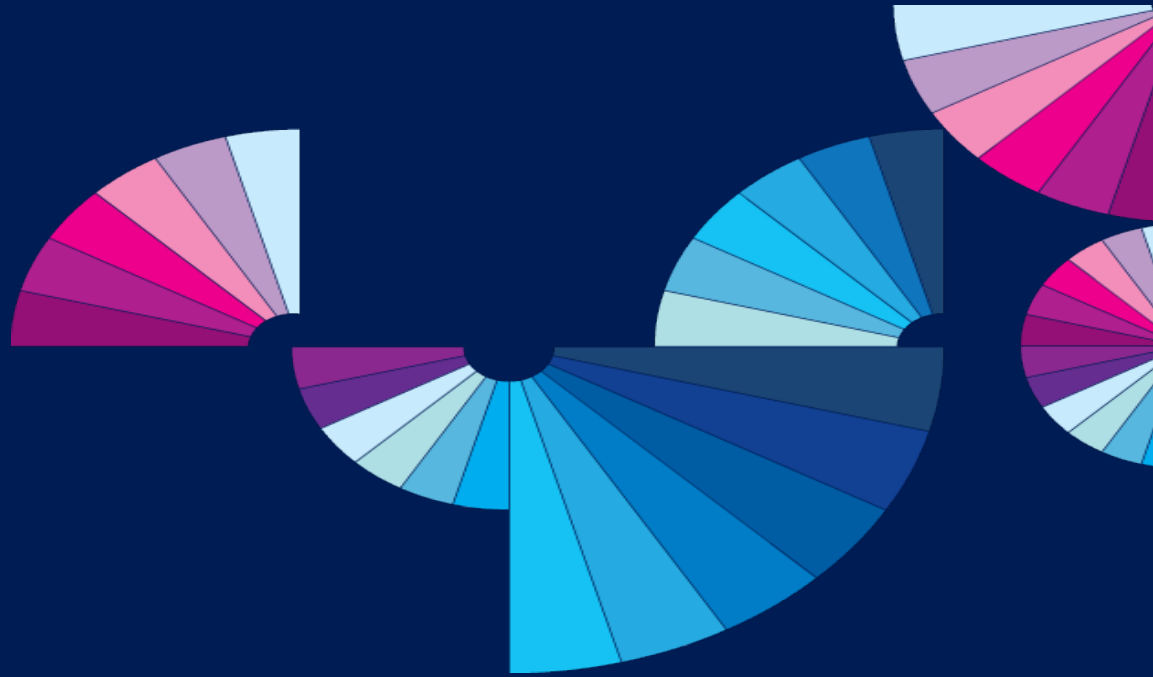
## What is a Redelivery?

*A Redelivery is where a lessee is required to return the aircraft at the expiry of the lease to its lessor. The conditions under which the aircraft must be returned are outlined in the Redelivery Conditions.*

### Why is it required?

- Next Operator Integration
- Value Retention
- Ease of Marketing Aircraft for lease/sale





## 2. Typical Redelivery Conditions

## Typical Redelivery Conditions



- Maintenance Checks
  - Airframe
    - The Aircraft will be fresh from a block C Check or equivalent check (including all lesser checks) in accordance with the MPD, with all items cleared for the equivalent of one C Check interval (at least 7,500 Flight Hours, 5,000 Cycles and 24 months as applicable).
  - Engines
    - Each Engine will have no less than 4,500 Flight Hours and sufficient Cycles on-condition life remaining to the next anticipated Engine Performance Restoration
    - No Engine Life Limited Part shall have less than 3,000 Cycles scheduled life remaining.
  - APU
    - The APU shall be serviceable and have not more than 3,000 APU operating hours since last APU Overhaul.



## Typical Redelivery Conditions



- Maintenance Checks
  - Landing Gear
    - The Landing Gear shall have no less than 24 months and 5,000 Cycles life remaining to next scheduled Landing Gear Overhaul. Each individual tyre, wheel and brake will have no less than half (50%) of its useful life remaining.
  - Components
    - Airframe hard time and life limited components shall have not less than 7,500 Flight Hours, 5,000 Cycles or 24 months (or 100% life, if less), as applicable, of life remaining in accordance with the MPD.
    - No Part will have total Flight Hours, total Cycles and total calendar time since new greater than one hundred ten per cent (110%) of that of the Airframe and, with respect to all Parts as a group, the Parts will have an average total time since new no greater than that of the Airframe.

## Typical Redelivery Conditions



- Maintenance Checks
  - Paint
    - The Aircraft, including fuselage, empennage, wings, nacelles and pylons shall be freshly stripped and painted in such external livery as advised by Lessor.
  - Airworthiness Directives
    - Lessee shall have accomplished on a terminating action basis all outstanding ADs and mandatory orders requiring compliance (i) prior to the Redelivery Date; and (ii) within 24 months and equivalent Flight Hours and Cycles (based on the Assumed Ratio and Assumed Utilisation) after the Redelivery Date.
  - Repairs
    - All repairs to the Aircraft, Engines and Parts will have been accomplished and certified to a permanent standard, with no repeat inspection requirements (unless there is no terminating repair available from the Manufacturer), in accordance with Manufacturer's published manuals, or Manufacturer's approved written instruction for the Aircraft.

## Typical Redelivery Conditions

- Records and Certification compliance
  - Redelivery 'Bible'
  - FAR 121 Compliance / EU-Ops
    - The Aircraft shall be in a condition suitable for issuance of an [FAA / EASA] certificate of airworthiness in the applicable category and shall meet the regulatory requirements for immediate entry into service with a [FAR 121 / EU Ops 1] operator for the commercial transport of passengers.



## Typical Redelivery Conditions



- Records and Certification compliance
  - Configuration
    - The Aircraft shall be in the same configuration as at Delivery or as otherwise acceptable to Lessor.
  - Weight and Thrust
    - Same as delivery or other may be specified
  - Export C of A
    - The Aircraft shall have a currently valid Export Certificate of Airworthiness issued by the Aviation Authority.

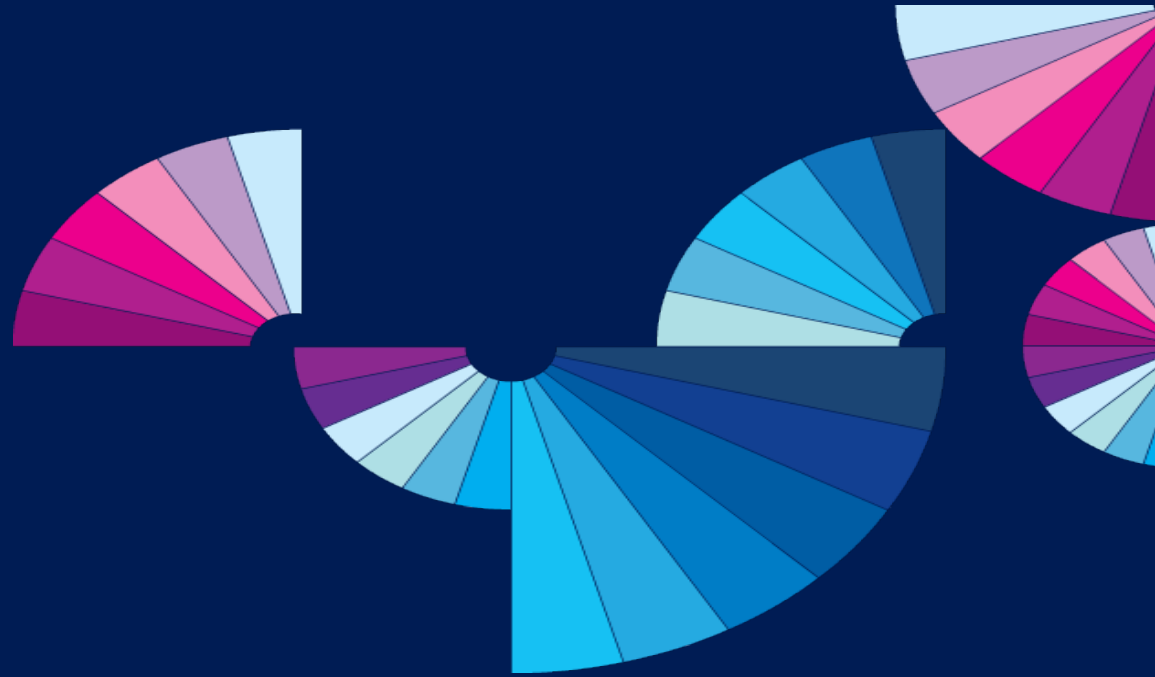
## Typical Redelivery Conditions

- Final Inspection
  - System and Function test
    - Ground checks and system checks, engine runs
  - Demonstration Flight
    - a demonstration flight of at least 2 hours duration (following Manufacturer's acceptance procedures) at Lessee's cost
  - Borescope Inspection of Engines and APU
    - Takes place following demonstration flight



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## 3. Typical Process

## Typical Process



### 1. Redelivery Planning – T-12 months

- a) Lessor / Lessee meeting
- b) Reviewing redelivery conditions
- c) Reviewing records
- d) Lessee - Planning and engagement of redelivery service providers (MRO, Records, Paint)
- e) Engagement of next lessee
- f) Commencement of records assembly

## Typical Process



### 2. Redelivery Execution T-45 days

- a) Commencement of maintenance checks – airframe, engine, landing gear, APU, components
- b) Audit of records to meet redelivery conditions – Open Items List
- c) Audit of the airframe physical condition
- d) Paint

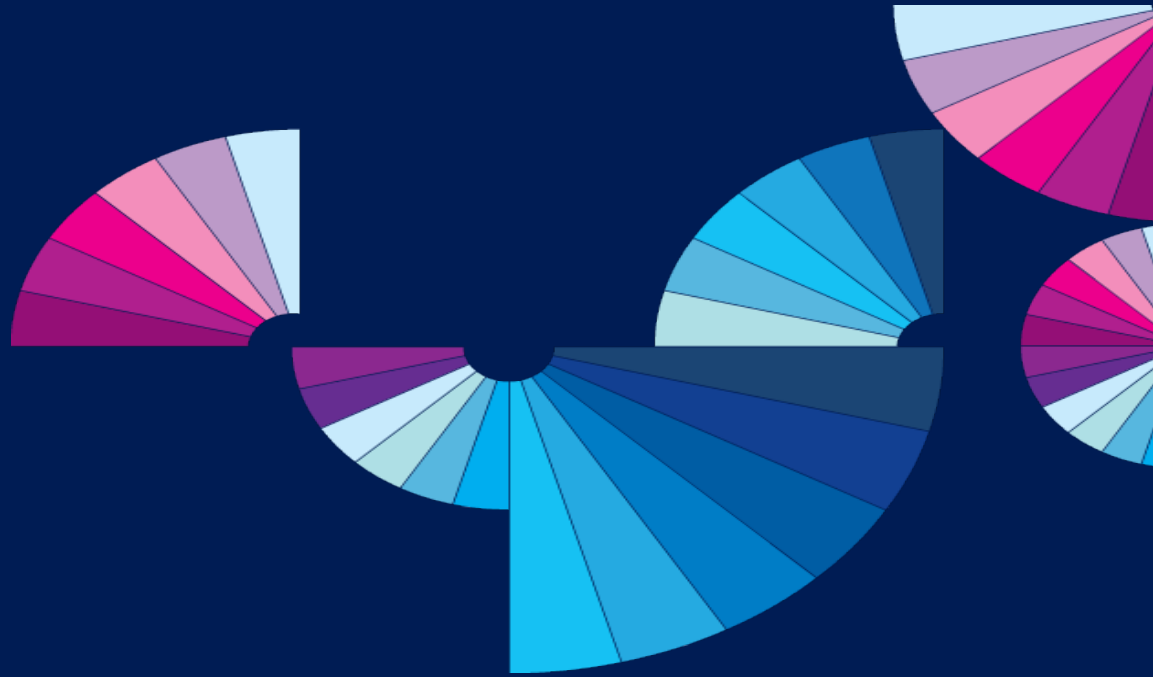


## Typical Process



### 3. Final Steps (final week)

- a) Update and close of open items on maintenance and records
- b) Final review by lessor
- c) Review by Aviation Authority
- d) Demonstration Flight, MPA Runs and Functions/Systems checks
- e) Borescope Inspections
- f) Sign off by Aviation Authority and Lessor – issuance of export certification of airworthiness and technical acceptance certificate



### 3. Common Issues

## Common High Level Issues

- Poor communication between between various stakeholders
- Poor planning and preparation
- Lack of understanding / misconception of process
- Lack of experience
- Complexity of redelivery conditions – not fit for purpose and language barrier
- Issues around records, maintenance check execution



## Recurrent Issues – Aircraft

- MRO delays
- Borescopes
- Modifications and AD compliance
- Repairs
- Component changes
- Emphasis by airline on in-service aircraft
- Cabin reconfiguration
- Cabin cosmetic
- Lessor requests



## Recurrent Issues – Records

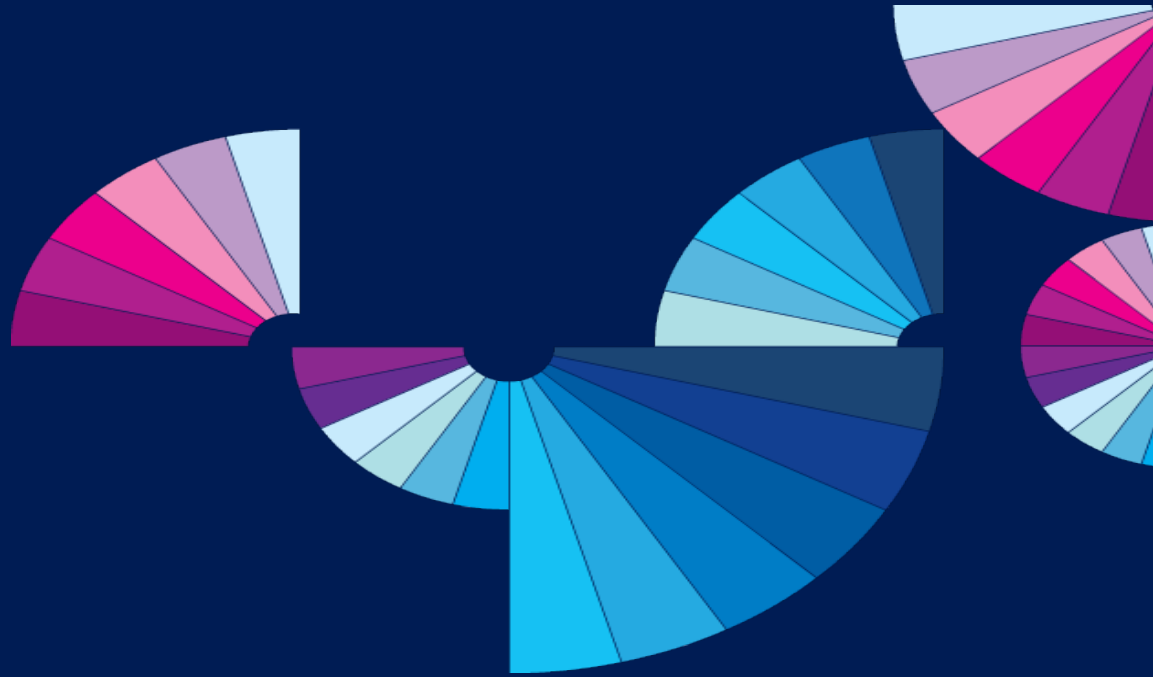
- Weight and thrust
- Structural repairs
- Certification
- Back to birth trace
- Components
- MPD alignment
- English language
- Misplaced records



## Effects of Common Issues



- Increased cost for both lessee and lessor
  - Rent
  - Increased resources
  - Rectification cost
  - Scheduling
- Strains relations and causes friction between stakeholders
- Impacts on current and next lessees schedule for operations



## 4. Risk Mitigation Strategies

## **Risk Mitigation Strategies**

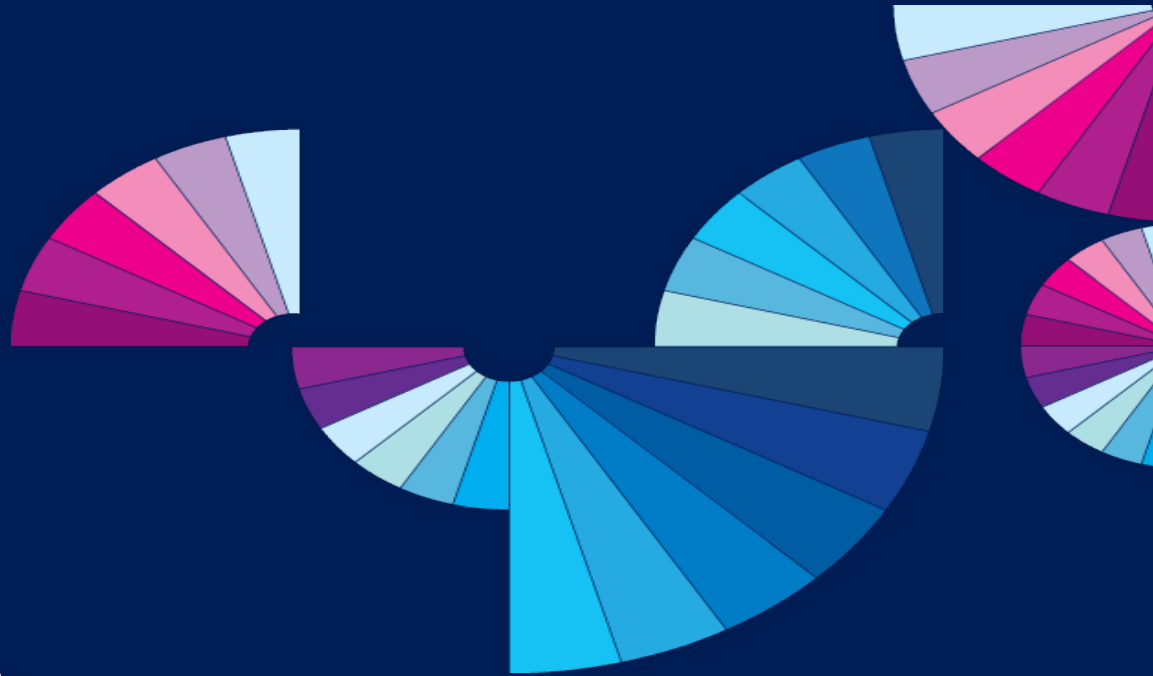
- **Redelivery as part of Business**
  - Dedicated Redelivery Team with accountable managers
  - Treat as a project, rather than a process
  - Continuous Asset Management Proactive Approach
  - Engagement of experts to assist, develop and implement

**Planning and Experience is Key to Success**



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**Thank you for your attention**

**Questions?**