

KLM Engineering & Maintenance

EASA safety week
CAMO/AMO session

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Radj Jagbandhan

Royal Dutch Airlines



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Introduction Radj Jagbandhan

Background:

- 30 year in aviation
- 25 year within KLM

Experience in:

- Line and base maintenance
- Component Services
- Change Management
- Projects/Programs
- Parking/Storage
- Operations

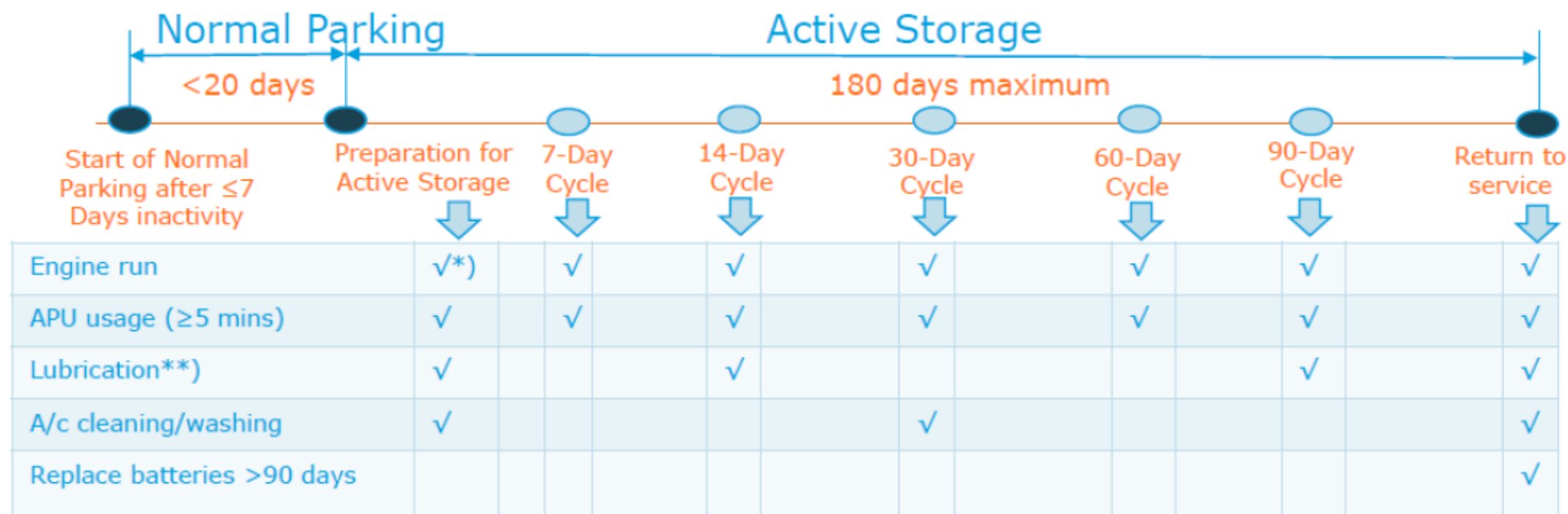
Current position:

- Director Line Maintenance International



Parking Program Timeline 737

Timeline 737NG Parking Program

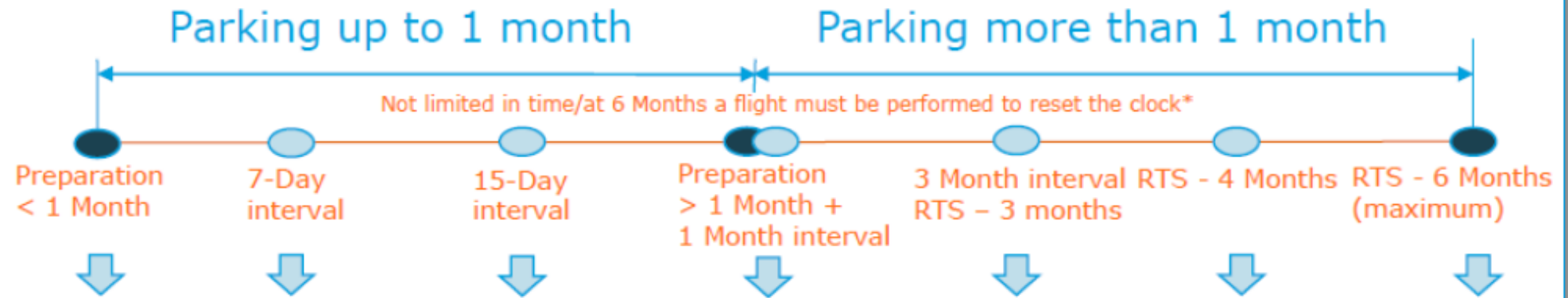


Drain water from fuel tanks	Perform each 48 hours from Start of Normal Parking.
Engine Covers	Not required but only when Engine Run & Lip Skin GVI/Cleaning is performed every 7d AND fans are strapped to prohibit wind milling
Inlet Cowl Lip skin	Every 7 days cleaning and GVI (for signs of corrosion)
*) Engine run	30 mins during Prep for Actv Storage, 15 mins during other Cycles
***) Lubrication	Can be: Landing Gear, Wheels, Flap Drive Syst, Hydr comp bearings (>45 days)

Parking Program Timeline A330

Timeline A330 Parking Program

With deviations from AMM



Engine run (15')	✓					✓		✓		✓		✓
APU usage	✓			✓		✓		✓		✓		✓
Nose Wheel Steering and MLG brake test.								✓				
<u>OPTION 1</u> : Perform RTS/overdue AMP tasks prior to flight.								✓				
<u>OPTION 2 (3M><4M)</u> : RTS OPTION 1 + RUD trim OPC/THR lever check at 1 Month interval + One-time flight control servo/THSA lubrication + THSA oil level check at RTS.										✓		
<u>OPTION 3 (4M><6M)</u> : RTS OPTION 2 + LDG Normal Extension and Retraction and free-fall-extension test (aircraft on jacks)**, Replace all wheels and send to overhaul shop** OR perform on-wing wheel inspection/bearing lubrication with wheels removed**.												✓
**allowed to perform separately any time between 4M - 6M parking period.												

*after the flight, it is optional to start new parking/storage period. Switching to storage < 6 Months (no need for RTS and flight) also possible.

Preparation phase



OAM/OEM

- Deviation approval from OAM/OEM time consuming
- Correct materials (covers, tapes,)

Logistics

- Availability parking positions
- Towing & wing walkers
- Ground equipment
- Airport infrastructure
- Alternate parking fields in EU and US

Manpower

- More than 200 aircrafts
- Clearing of incoming defects and Aircraft Deferred Defects

Communication

- Internal & external
- Webinars (IATA, media)

Safety

- Management of Change assessment
- Bounding of ground earth points at remote parking position
- Steel plates (point pressure of the tire)

Fuel

- Fuel bowsers for contaminated fuel on standby

Security

- Security camera's for remote area's
- Additional lights in remote area's

Regulator

- Compliance
- Maintenance Program

Bringing into parking

1. Maintenance Program

- Stop the clock?

2. Manpower

- Number of staff i.r.t COVID-19 restrictions and executing of maintenance
- Dedicated teams (ownership)

3. Execute of maintenance

- Fuel treatment chemicals (was not allowed to use biobor in the EU)
- Alternate method to measure fuel contamination by using fuel samples
 - Logistics
 - Capacity of laboratory
- Weather conditions
- Steel plates to prevent damage on runway due to point load
- Turning of main and nose wheels >200 aircrafts
- Local restrictions and regulations
- Location/position to execute maintenance tasks

4. Logistics

- Towing
- Ground equipment
- Airport infrastructure

5. Safety

- Management of Change assessment (safety, security and occupational safety)

6. Alternate fields

- Ferry flights to parking airfield
- dedicated team

7. Security

- Camera's
- Lights

8. Communication

- Internal & external

In parking

- Dedicated team
- Local rules & regulations i.r.t environment
- Management of change assessment (safety, security & occupational safety)
- Compliance
- Communication
- Execute of maintenance
 - Idle run
 - Service task
 - Weather conditions
- Inspection for damage and building of birds nest



Return To Services

- Hangar slots
- Logistics
 - Towing
 - Ground equipment
 - Airport infrastructure
 - Procedures
- Execute of maintenance
 - AMM instructions & procedures
 - Dedicated teams
 - Safety
 - Pitot and static ports obstructions
 - Bird or insect nesting
- Ferry flights



THANK YOU AND HAPPY TO SEE YOU ON BOARD!



QUESTIONS?