



Workshop on Specific Approvals organized by ICAO WACAF

MMEL/MEL Module: 4. How to Use the MEL

Presentation by Airbus

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AIRBUS
EC_NotTechnical

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Dispatch Philosophy

Dispatch philosophy

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Flight Crew



Cockpit Effects:

- Dispatch messages or ECAM alert on ECAM
- Local effects (XX on ISIS, seat control, etc.)

Observations during walkaround



Cabin Crew



Cabin Effects:

- Inoperative lighting
- Missing emergency equipment
- Inoperative FAP
- Etc.



Maintenance Crew



Maintenance Effects detected during:

- Line Maintenance
- Planned maintenance



Detected failures must be reported in the Technical/Cabin Logbook

Dispatch Philosophy - Logbook

Technical Logbook must be filled in to:

- Report any detected failures.
- Require maintenance action (e.g. windshield cleaning, etc.)

Maintenance crew answers open logbook entries.

Any failure reported in the technical logbook having a safety impact may be deferred if permitted by MEL.



The technical Logbook is the reference to enter the MEL for dispatch assessment

Dispatch Philosophy – ECAM Failure Classification

The Airbus Aircraft monitor the condition of some systems and generates different types of cockpit effects:

	A320	A330	A350
Cautions	Listed and used for MEL application	Listed and used for MEL application	Not listed and not used for MEL application
Warnings	Listed and used for MEL application	Listed and used for MEL application	Not listed and used for MEL application
Advisory and Memo	Not Listed, not used for MEL application	Not Listed, not used for MEL application	Not listed and not used for MEL application
Maintenance Status	Listed and used for MEL application	Not listed, not used for MEL application	N/A
Dispatch messages	N/A	N/A	Listed and used for MEL application

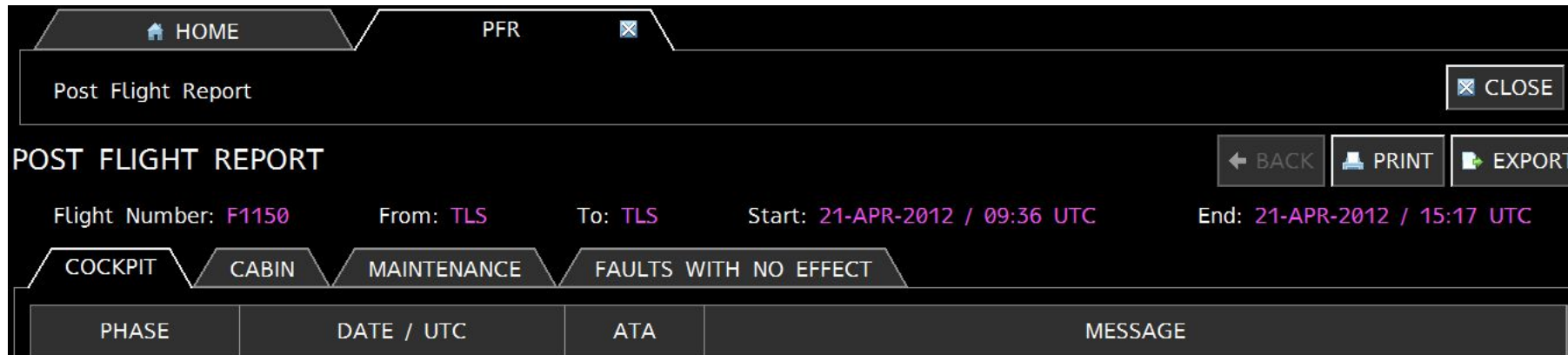


For failures monitored by the ECAM:
 A320/A330: Warning and Caution are used to enter the MEL
 A350: Only Dispatch Messages are used to enter the MEL.

Dispatch Philosophy – CMS Failure Classification

The Central Maintenance System (CFDS/CMS) records all the failure message and correlates/classifies the failure in the PFR:

- ❑ 3 categories on A320/A330: Class 1, Class 2 and Class 3
- ❑ 4 categories in the Post-Flight Report (PFR): Cockpit Effect, Cabin Effects and Faults with No Effects



The screenshot shows the 'Post Flight Report' (PFR) interface. At the top, there are tabs for 'HOME' and 'PFR'. Below the tabs, the title 'Post Flight Report' is displayed with a 'CLOSE' button. The main section is titled 'POST FLIGHT REPORT' and includes a 'BACK' button, a 'PRINT' button, and an 'EXPORT' button. The flight details are listed: Flight Number: F1150, From: TLS, To: TLS, Start: 21-APR-2012 / 09:36 UTC, and End: 21-APR-2012 / 15:17 UTC. Below the flight details, there are four tabs: 'COCKPIT', 'CABIN', 'MAINTENANCE', and 'FAULTS WITH NO EFFECT'. The 'COCKPIT' tab is currently selected. Below the tabs, there is a table with four columns: 'PHASE', 'DATE / UTC', 'ATA', and 'MESSAGE'.

PHASE	DATE / UTC	ATA	MESSAGE
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The PFR is used for troubleshooting purposes
 The PFR is not the reference to apply the MEL.
 The MEL applies only on technical logbook entries.

Dispatch Philosophy – CMS Failure Classification - A350

CMS Message	COCKPIT	CABIN	MAINTENANCE	FAULTS WITH NO EFFECT
Operational Consequence	Yes	Maybe	No	
Effect	Yes for flight crew - Dispatch Message - Warning or caution - Message or flag on PFD, ND or SD - Other Indication in the flight deck or in the cabin	Yes for cabin crew - Indication in the cabin	Yes for maintenance crew	No effect
Dispatch Consequence	Yes: Refer to MMEL via the dispatch message GO/GO IF/NO GO	Maybe covered in MEL	May be covered in MMEL - No fix time quoted for corrections	No impact (not MMEL related)
Indication to Maintenance	Post Flight Report in CMS COCKPIT CABIN MAINTENANCE FAULTS WITH NO EFFECT			

Dispatch Philosophy – CMS Failure Classification - A330

CMS Message	Class 1	Class 2	Class 3
Operational Consequence	Yes	No	No
Effect	Yes to Flight Crew Automatically displayed - Warning or caution - Message on ECAM display unit - Flag on PFD, ND or SD - Indication in the flight deck or in the cabin	Yes to Flight Crew Available on ECAM <u>STATUS</u> SD page	No effect: message Only to Maintenance
Dispatch Consequence	Yes: Refer to MMEL GO/GO IF/NO GO	No GO without condition Repairs must be made Within 1000 FH for LR	No MMEL not applicable - No fix time quoted for corrections
Indication to Maintenance	AUTOMATIC PRINTOUT AT THE END OF EACH FLIGHT : Post Flight Report CFDS (Single Aisle) CMS (Long Range)		Yes, on request through CFDS/CMS CLASS 3 report

Dispatch Philosophy – CMS Failure Classification - A320

CMS Message	Class 1	Class 2	Class 3
Operational Consequence	Yes	No	No
Effect	Yes to Flight Crew Automatically displayed - Warning or caution - Message on ECAM display unit - Flag on PFD, ND or SD - Indication in the flight deck or in the cabin	Yes to Flight Crew Available on ECAM <u>STATUS</u> SD page	No effect: message Only to Maintenance
Dispatch Consequence	Yes: Refer to MMEL GO/GO IF/NO GO	Yes: Refer to MMEL GO without condition Repairs must be made Within 10 days	No MMEL not applicable - No fix time quoted for corrections
Indication to Maintenance	AUTOMATIC PRINTOUT AT THE END OF EACH FLIGHT : Post Flight Report CFDS (Single Aisle) CMS (Long Range)		Yes, on request through CFDS/CMS CLASS 3 report

Dispatch Function Concept

Dispatch Function Concept

Introduction

DISPATCH page

Dispatch Function Concept

The A350 Dispatch Function:

- 1) Reduces the number of ECAM alerts during a given flight



Only failures/events with an impact on the flight are immediately displayed to the flight crew

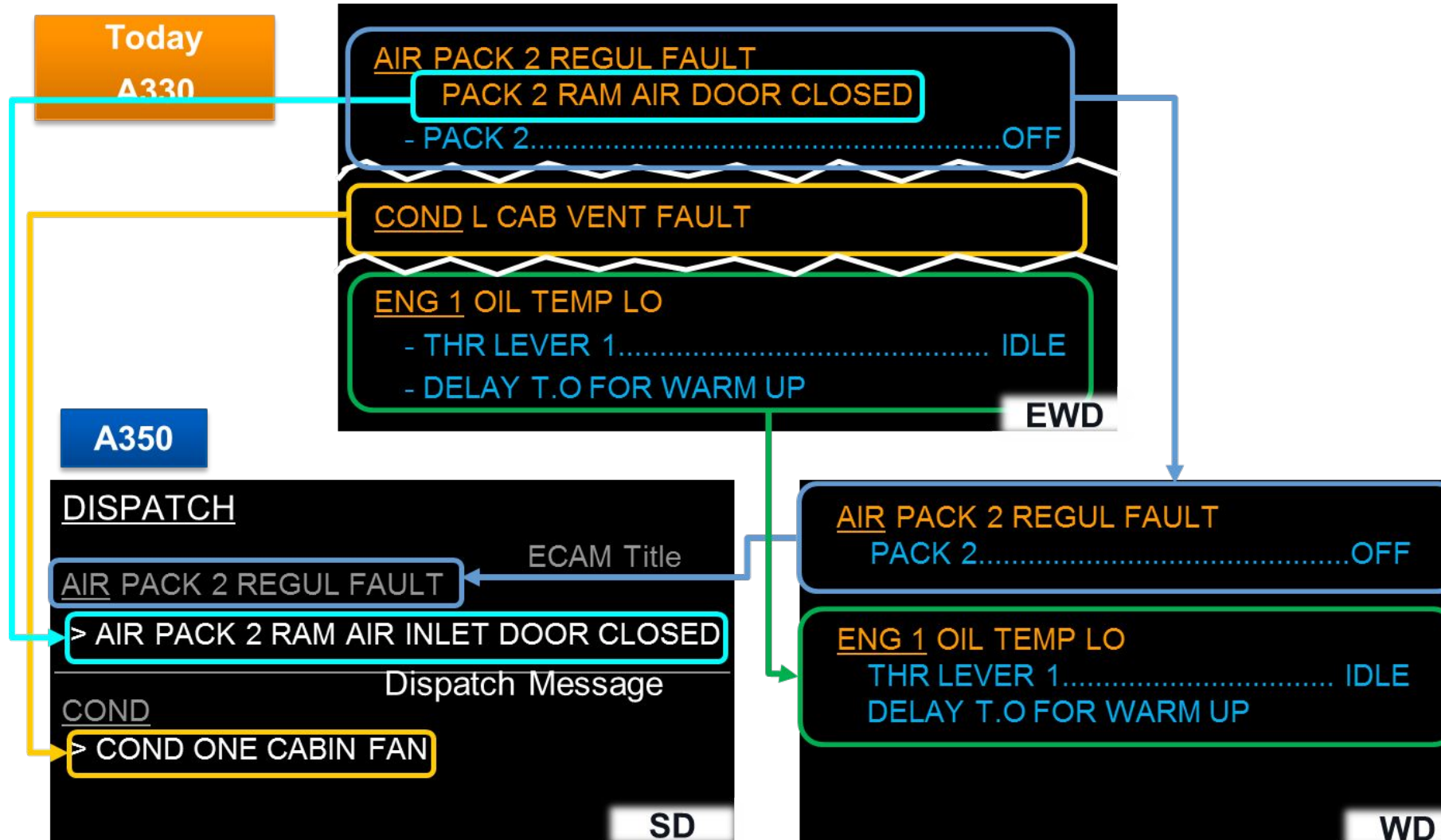
- 2) Differentiates:

- The events impacting only the flight
- The events impacting both the flight and the dispatch
- The events impacting only the dispatch.



Failures with no impact on the on-going flight (dispatch purpose only) are not displayed immediately to the flight crew

Dispatch Function Concept



Dispatch Function Concept

In the case of failure/event, the ECAM displays:

- An ECAM alert + a Dispatch Message when the failure affects the on-going flight and the dispatch



Dispatch Function Concept

In the case of failure, the ECAM displays:

- A Dispatch Message only when the failure has no impact on the on-going flight

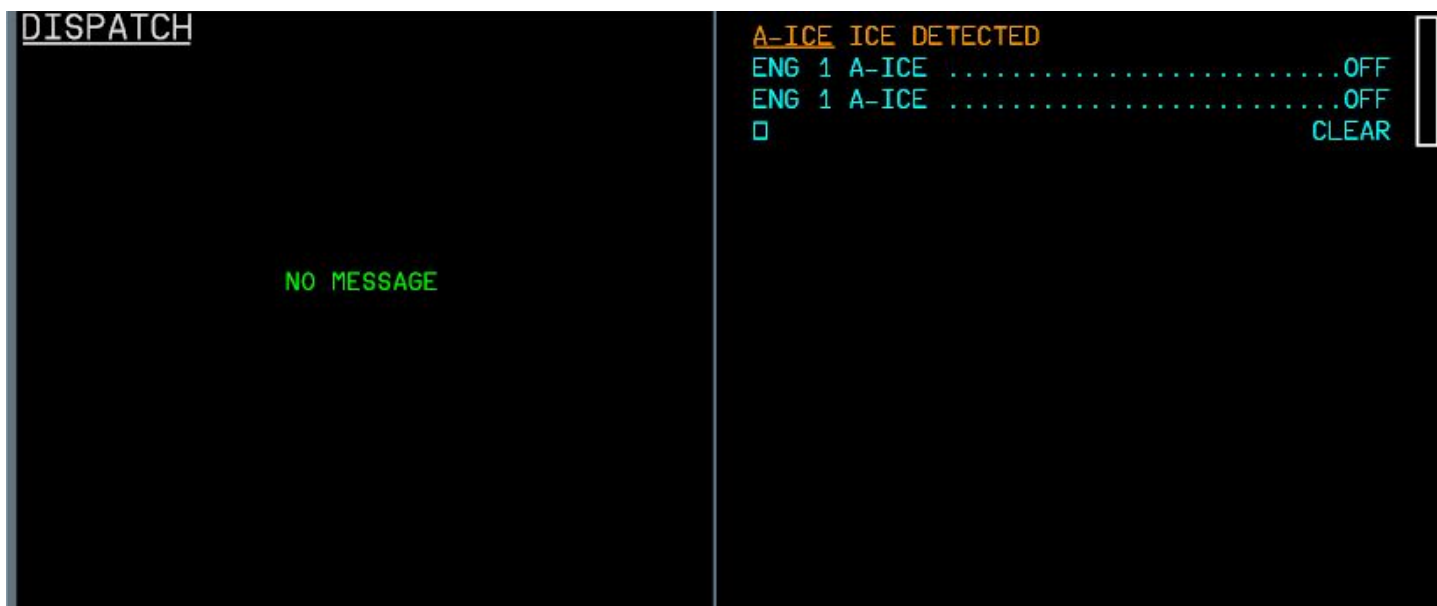


Note: The DISPATCH PAGE UPDATE generic alert is only displayed on-ground to inform the crew that a new message has been displayed on the page.

Dispatch Function Concept

In the case of failure, the ECAM displays:

- An ECAM alert only when the event has only an impact on the flight :



Dispatch Function Concept

There are three kind of events that can trigger an ECAM alert without a Dispatch Message:

- i. Configuration alerts – No failure is detected, the alert disappears when the correct configuration is set by the crew
 - AIR PACK 1 OFF
 - I.Q RWY TOO SHORT
- ii. Alerts not directly linked with a system/function failure. Maintenance action may be due once on ground but the MEL is not relevant.
 - OVERSPEED
 - SMOKE L AVIONICS SMOKE
- iii. Secondary alerts – Dispatch Message would be triggered only associated with the primary failure.
 - F/CTL ALTN LAW (PROT LOST)
 - AIR ABNORM BLEED CONFIG



The MEL is not relevant for events indicated by an ECAM alert with no associated Dispatch Message

Dispatch Function Concept

The A350 Dispatch Function:

Provides the adequate level of information for dispatch assessment and MEL application

AIR PACK 1(2) REGUL FAULT	
AIRCRAFT STATUS	CONDITION OF DISPATCH
If associated with the PACK 1(2) IN BY PASS MODE subtitle	Refer to Item 21-52-01D Air Conditioning Pack
If associated with the PACK 1(2) RAM DOOR CLOSED subtitle	Refer to Item 21-53-04 Air Conditioning Ram Air Inlet/Outlet Flap (Door)
If Pack Controller is affected	Refer to Item 21-53-01 Pack Controller Channel
If Pack Temperature Control Valve is affected	Refer to Item 21-53-03 Pack Temperature Control Valve
In the other cases	Refer to Item 21-52-01A Air Conditioning Pack or Refer to Item 21-52-01C Air Conditioning Pack

AIR PACK 1(2) CTL 1(2)	
AIRCRAFT STATUS	CONDITION OF DISPATCH
The control channel 1(2) of the air conditioning pack 1(2) is failed.	Refer to Item 21-50-10 Pack Control Channel



AIR PACK 1(2) TEMP CTL VLV	
AIRCRAFT STATUS	CONDITION OF DISPATCH
The temperature control valve of the air conditioning pack 1(2) is failed.	Refer to Item 21-50-06 Pack Temperature Control Valve



Limited need for troubleshooting for MEL application.
One Dispatch Message => One MEL item

Dispatch Function Concept

The DISPATCH page in the cockpit gathers all the Dispatch Messages



• Dispatch Messages :

- Are indicated with a “>”
- Ordered in chronological order

Note: When there is one, associated ECAM alert is displayed on the 1st line in grey for information.

For more information, refer to FCOM / Aircraft Systems / 31-Control and Display System / ECAM / System Description / SD / DISPATCH page.



All the Dispatch Messages must be reported in the aircraft technical logbook

Dispatch Workflow

Dispatch Workflow

Flight Crew Workflow

Maintenance Workflow

MEL applicability during taxi

Dispatch Workflow – Flight Crew

Same workflow compared to previous Airbus Aircraft Standard Operative Procedures (SOPs).

Dispatch Messages considered in FCOM SOPs:

- Preliminary Cockpit Preparation
- Parking

There is no SOP to consult the DISPATCH page during the flight

- MEL application not mandatory during the flight.
- On-going flight in the case of failure is managed through ECAM alerts and associated procedures.
- Depending on Airline's policy, DISPATCH page can be consulted in flight for anticipation of the next dispatch.

Dispatch Workflow – Flight Crew



Check the DISPATCH page for active DMs

Preliminary
Cockpit
Preparation

Push RCL pb for active ECAM alerts

DISPATCH MESSAGES

A350

DISPCH pb

PRESS

Press the DISPCH pb to consult all active dispatch messages.

LOGBOOK CHECK

LOGBOOK

CHECK

- Check the deferred items list

- Crosscheck with active dispatch messages.

MEL/CDL ITEMS CHECK

MEL/CDL ITEMS (as appropriate)

CHECK DISPATCH CONDITIONS

A320/A330

AIRCRAFT ACCEPTANCE

*RCL pb

PRESS 3 s

This action recalls all the warnings that the flight crew cleared or cancelled during the last flight.

*LOGBOOK AND MEL/CDL ITEMS

CHECK

- Check the deferred items list..



At the beginning of the flight crosscheck logbook and DISPATCH page/EWD, and report any new Dispatch Message/ECAM alert for assessment.

Dispatch Workflow – Flight Crew

Fill in logbook with DISPATCH page

LOGBOOK		A350
DISPCH pb		PRESS
<i>Press the DISPCH pb to recall all active dispatch messages.</i>		
LOGBOOK		COMPLETE
<i>Complete the logbook according to the active dispatch messages.</i>		

Parking

LOGBOOK		A320/A330
STATUS page		CHECK
<i>Press the STS pb (ECAM control panel).</i>		
LOGBOOK		COMPLETE
<i>Complete the logbook according to the STATUS page.</i>		



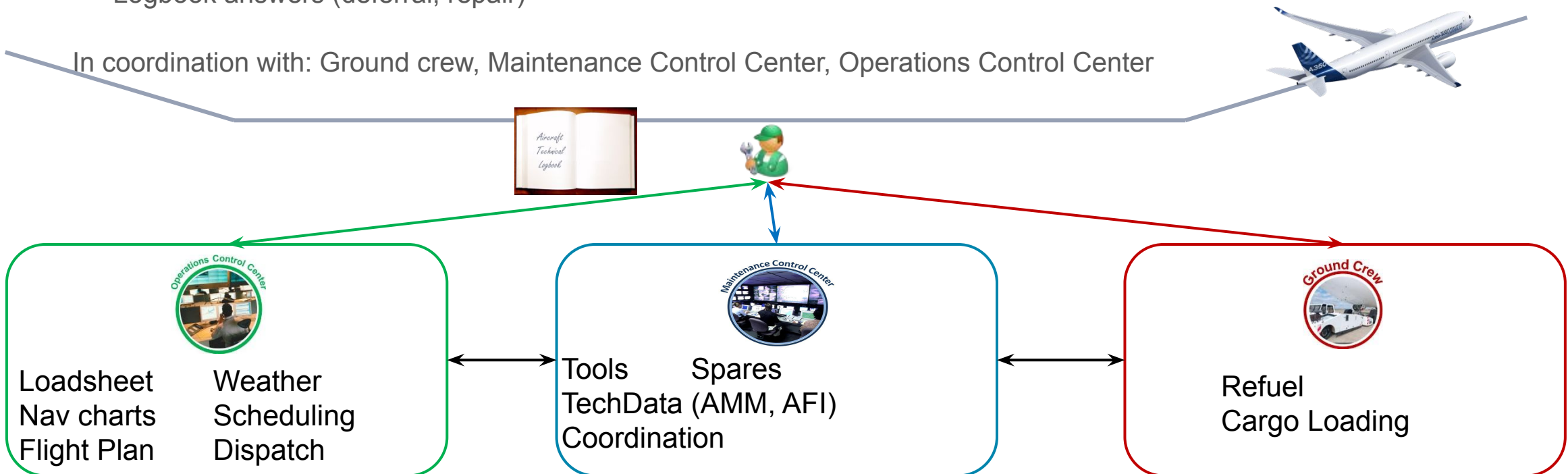
At the end of the flight, make sure that all new DMs/ECAM alerts are reported in the logbook for assessment

Dispatch Workflow – Maintenance Crew

Line Maintenance involved in Dispatch activities:

- Dispatch Assessment (MEL analysis, reset)
- Logbook answers (deferral, repair)

In coordination with: Ground crew, Maintenance Control Center, Operations Control Center

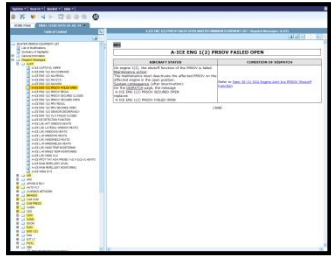


Dispatch Workflow – Maintenance Crew

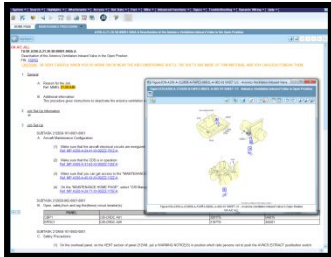


Logbook
Analysis

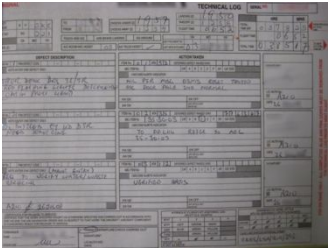
Dispatch
Assessment



Maintenance
Action (when
relevant)



Logbook
Answer



Maintenance
Release



Dispatch Workflow – Maintenance Crew

To ease dispatch assessment, the maintenance applications on-board provide hyperlinks:

- To the MEL in AirN@v Dispatch
- To the Aircraft Fault Isolation (AFI) for troubleshooting.

HOME

PFR

CDS CAPT OUTER...

Effect Details

CLOSE

EFFECT DETAILS

BACK

PRINT

EXPORT

Flight Number: **F1150**
From: **TLS**
To: **TLS**
Start: **21-APR-2012 / 09:36 UTC**
End: **21-APR-2012 / 15:17 UTC**

Effect(s)

PHASE	DATE / UTC	ATA	EFFECT MESSAGE	MEL	FAULT CODE
8 (Cruise)	21-APR-2012 / 10:16 UTC	31-60	CDS CAPT OUTER DU FAULT > CDS CAPT OUTER DU	MEL	3160H151

Maintenance Message(s)

PHASE	DATE / UTC	ATA	SOURCE	MAINTENANCE MESSAGE	INTMT	ACMS	FAULT CODE
8 (Cruise)	21-APR-2012 / 10:26 UTC	31-60	CDS	DU-OUTER, CAPT(1WK11)	NO	4095	3160F3JF

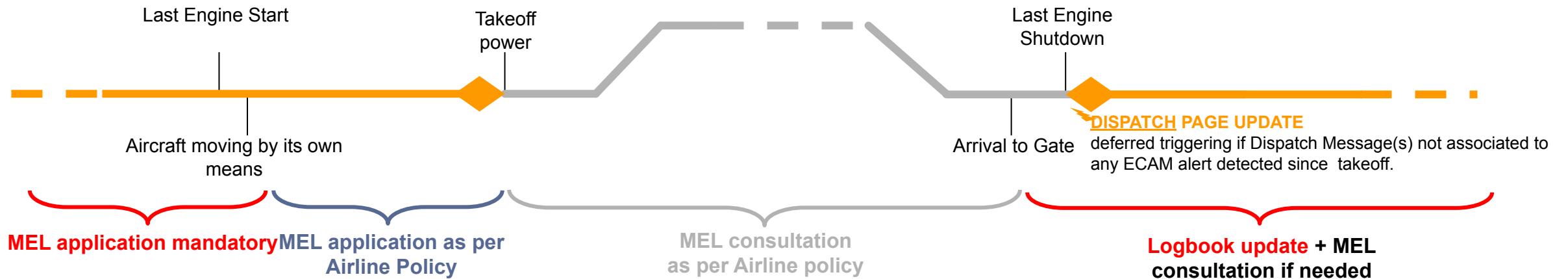
MORE

MEL Applicability during taxi

Per regulation, the MEL must be considered until the aircraft is moving by its own means for the purpose of takeoff.

The management of any failure that occurs during the taxi and before takeoff is subject to an airline policy (ISI article 00.00.00249).

The provisions of the MEL are applicable until the aircraft commences the flight. Any decision to continue a flight following a failure or unserviceability which becomes apparent after the commencement of a flight must be subject to pilot judgment and good airmanship. The Commander may continue to make reference to and use the MEL as appropriate.



Application of MEL during taxi is an airline policy
For more information, refer to ISI 00.00.00249



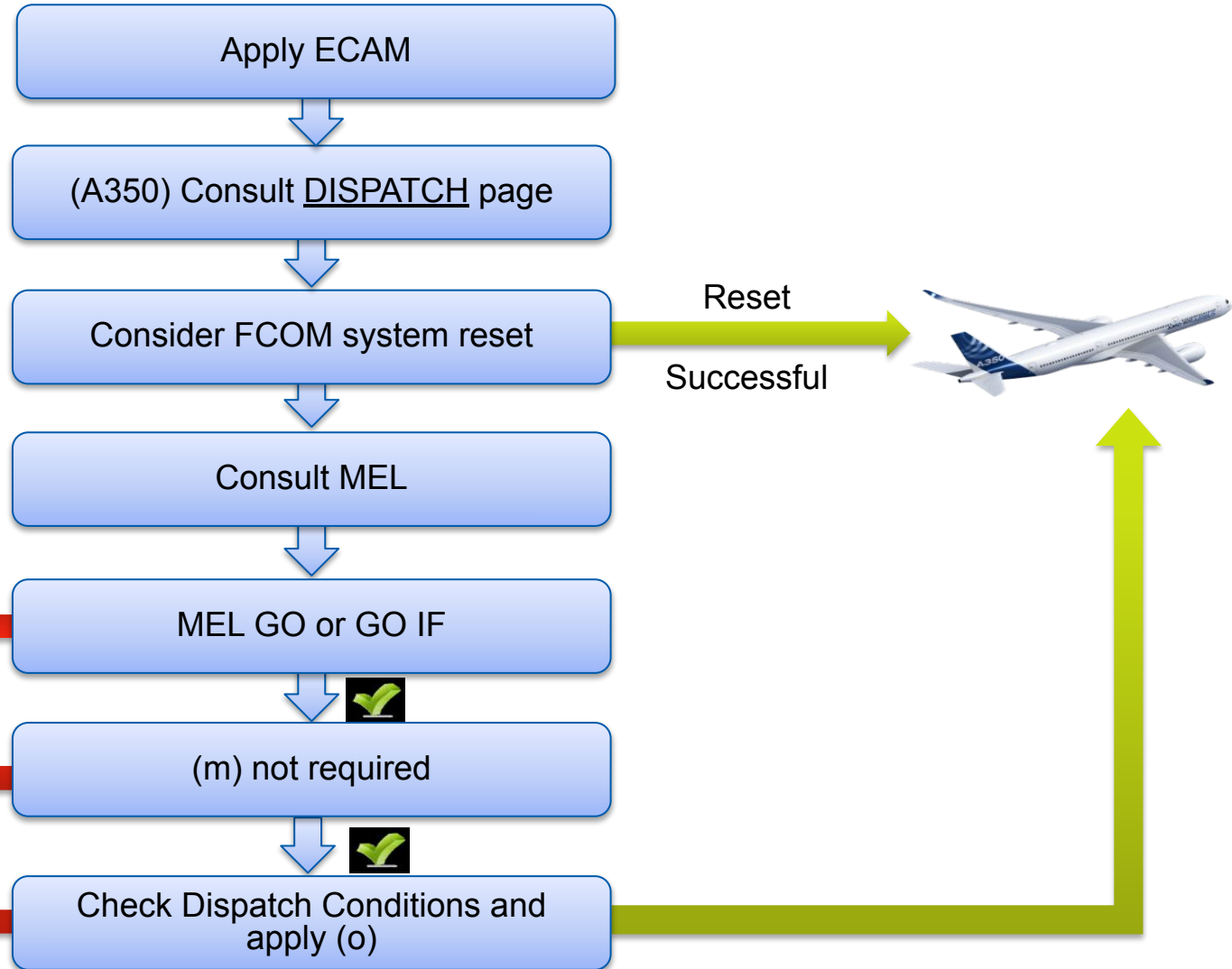
MEL Applicability during taxi

For Operators that do consider MEL during taxi, if a failure occurs on ground before takeoff:

“**TIP:** For operators that do not consider MEL during taxi, if a failure occurs on ground before takeoff, return to the gates in case of ECAM:

- LAND ASAP, or
 - Thrust Lever IDLE
- Pilot assessment based on Airline policy and guidances

Return to Gate for maintenance



MEL Applicability during taxi - Example

During taxi, failure of FMC-B

DISPATCH AUTO FLT FMC-B FAULT >AUTO FLT FMC-B	AUTO FLT FMC-B FAULT FMS SWTG NORM ☐ CLEAR DISPCH STS
--	--

MEL Applicability during taxi - Example

During taxi, failure of FMC-B

1- As per Management of ECAM

→ Consider FCOM System Reset

Flight Crew Operating Manual
FCOM AIB-DRAFT
Issue: 01 AUG 2014

Path : FCOM / PRO / ABN / ABN-RESET / ... / [RESET] SY

ALL MANUALS
Flight Crew Operating Manual
General Information
Aircraft Systems
Procedures
Abnormal and Emergency Pro
[RESET] SYSTEM RESET
[RESET] System Rese
[RESET] SYSTEM

AUTO FLT

System malfunction or ECAM Alert / Dispatch Message	Syst
AUTO FLT AFS CTL PNL FAULT	
AUTO FLT AFS CTL PNL + CAPT(F/O) BKUP CTL FAULT	
CDS CAPT(F/O) EFIS CTL PNL FAULT	
CDS CAPT + F/O EFIS CTL PNLS FAULT	
CDS CAPT(F/O) EFIS CTL PNL + BKUP CTL FAULT	
AUTO FLT AFS CTL PNL	
AUTO FLT AFS CTL PNL + CAPT BKUP CTL	
CDS CAPT(F/O) EFIS CTL PNL	
CDS CAPT + F/O EFIS CTL PNLS	
CDS CAPT(F/O) EFIS CTL PNL + BKUP CTL	
AUTO FLT FMC-A(B)(C) FAULT	Refer to AUTO FLT FMC-A(B)(C) Reset
AUTO FLT FMC-A(B)(C)	
AUTO FLT FMS 1(2) FAULT	
AUTO FLT FMS 1+2 FAULT	
AUTO FLT FMC-(A+C)(A+B)	Refer to AUTO FLT FMS 1(2)(1+2) Reset
AUTO FLT FMC-(A+B)(B+C)	
AUTO FLT FMC-(A+B+C)	
FMS in Independent Mode	Refer to AUTO FLT FMS in Independent Mode

AUTO FLT FMC-A(B)(C) RESET

WARNING

1. The flight crew can attempt a system reset when:
 - The ECAM procedure requests to reset a system, or
 - The reset is permitted in the system reset table.
2. Only perform one reset at a time, unless indicated differently in the applicable reset procedure of the table.

For system reset table consultation, Refer to [\[RESET\] System Reset Table](#).

Note: The flight crew should reset only one FMC at a time.

LOCATION

The FMC-A(C)(C) reset button is on the overhead panel, on the RESET panel, at location:
- FMC-A(C) [D1]([E1]) (left panel):

“TIP: Even if successful, a reset must be reported to maintenance. A fault is always the sign of an impending problem that needs to be monitored by maintenance

MEL Applicability during taxi - Example

During taxi, failure of FMC-B

2- Reset not successful, consult MEL

AUTO FLT FMC-A(B)(C)	
AIRCRAFT STATUS	CONDITION OF DISPATCH
One FMC is failed. Both FMS are still available.	Refer to Item 22-70-01A Flight Management Computer

22-70-01

Flight Management Computer

22-70-01A One inoperative

Repair Interval	Nbr Installed	Nbr Required
C	3	2

☐ One may be inoperative.

Dispatch conditions fulfilled,
dispatch is permitted.
Continue operation – No return to
gate necessary

22-70-01A	Flight Management Computer (one inoperative)
FLIGHT PREPARATION/LIMITATIONS	
RNP AR strictly below 0.3 are not permitted.	
// END	



Wrap-up

Dispatch assessment:

- based on **Logbook entry**
- Based on **Failure monitoring** by the Aircraft
- Require coordination between Flight crew and maintenance

Dispatch function:

- Novelty on A350
- Filter information:
 - ECAM alert are dedicated to the flight
 - New category Dispatch message dedicate to The dispatch

Thank you

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