[Airbus Amber]

Workshop on Specific Approvals organized by ICAO WACAF

MMEL/MEL Module: 2. MMEL Structure and Concepts

Presentation by Airbus

Olivier FERRAN, Airbus MMEL Expert

Dakar, Senegal, 30 June-05 July 2025

AIRBUS

Agenda

MMEL vs DDG vs MEL

Airbus MMEL/DDG Structure

MMEL Entries

MMEL items

MMEL Operational Procedures

Maintenance procedure

Additional concepts

Two-Sections MMEL (A220)

MMEL vs MEL vs DDG

	MMEL (FAA/TCCA)	MMEL (Airbus EASA)	A220 DDG (EASA/TCCA)	DDG (Competitor)
How to use Or Introduction		X	X	X
MMEL entry or EICAS Messages or Cross-ref List		X	X	X
MMEL items	X	X	X	X
(O) Procedures		X	X	X
Ref of (M) or Simplified (M)		X	X	X
CDL				X

Agenda

MMEL vs DDG vs MEL

Airbus MMEL/DDG Structure

MMEL Entries

MMEL items

MMEL Operational Procedures

Maintenance procedure

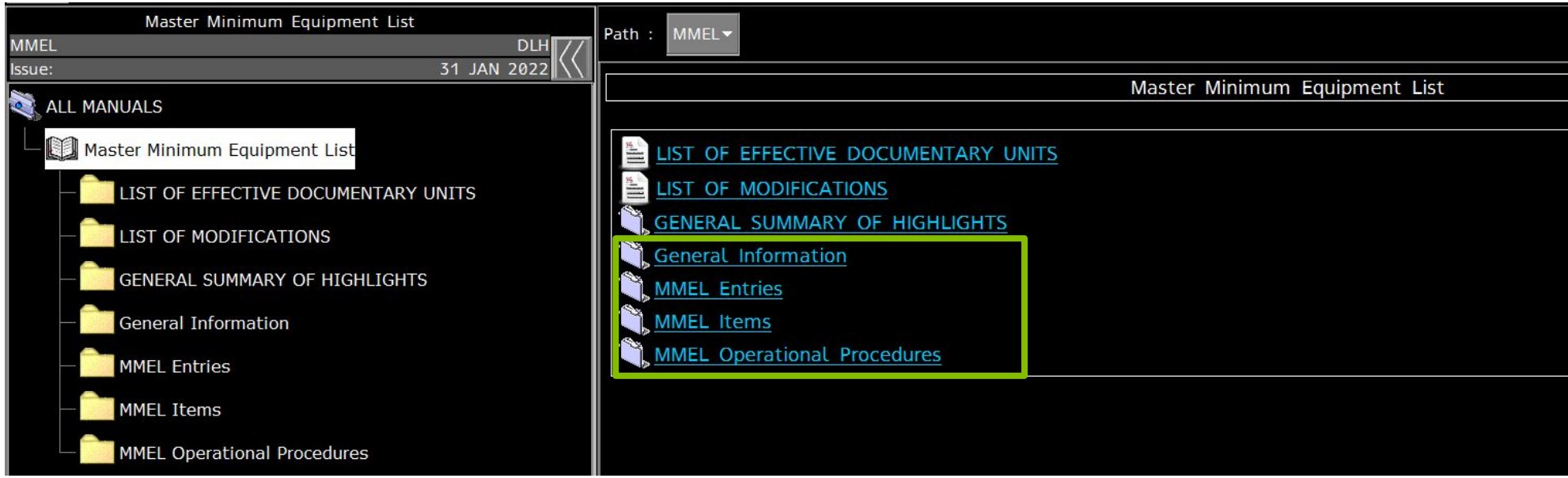
Additional concepts

Two-Sections MMEL (A220)

Airbus MMEL/DDG Structure: A3X0

MMEL has 4 main sections:

- How to Use (A320/A330) / General Information (A350)
- MMEL Entries: ECAM alerts (A320/A330) or Dispatch Messages + Crew Observations (A350)
- MMEL Items
- MMEL Operational Procedures



MMEL maintenance procedures are available via AirnavX application

AIRBUS

Airbus Airbus MMEL/DDG Structure: A220

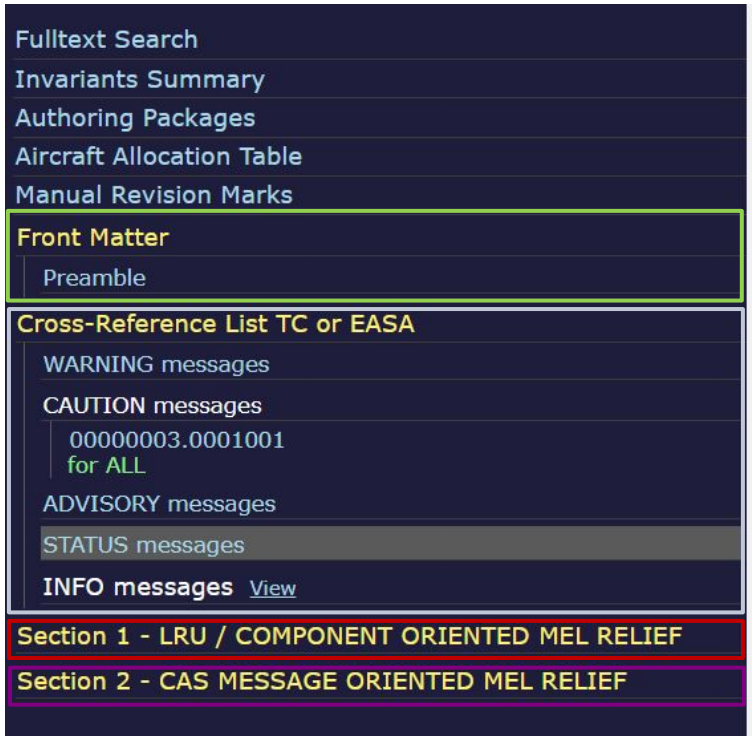
MMEL has 4 main sections:

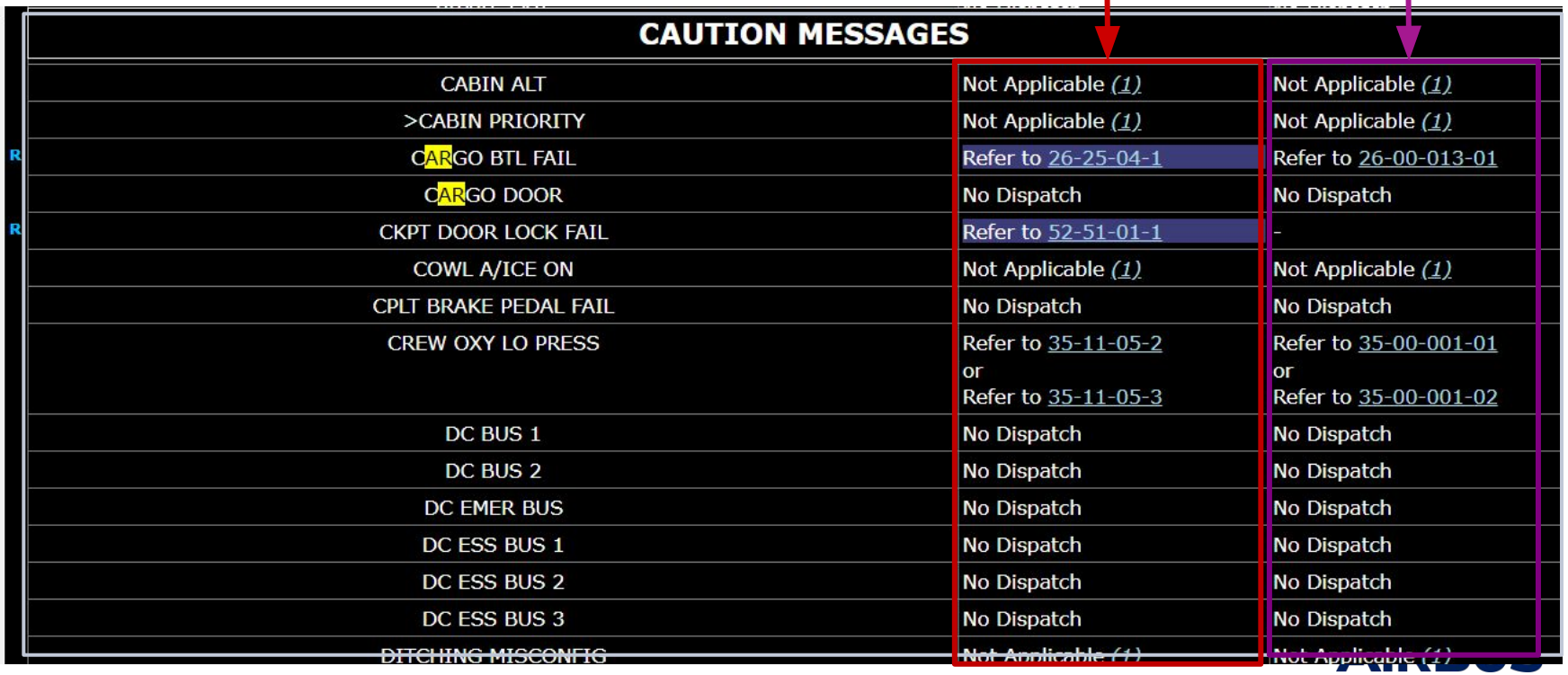
- ❑ Definitions / Acronyms / Preamble
- ❑ Cross-reference List
- ❑ Section 1: LRU / Component Oriented MEL relief
- ❑ Section 2: CAS Messages Oriented MEL relief

"2-sections MMEL" Concept

Section 1 Access

Section 2 Access





CAUTION MESSAGES		
CABIN ALT	Not Applicable *(1)*	Not Applicable *(1)*
>CABIN PRIORITY	Not Applicable *(1)*	Not Applicable *(1)*
CARGO BTL FAIL	Refer to 26-25-04-1	Refer to 26-00-013-01
CARGO DOOR	No Dispatch	No Dispatch
CKPT DOOR LOCK FAIL	Refer to 52-51-01-1	-
COWL A/ICE ON	Not Applicable *(1)*	Not Applicable *(1)*
CPLT BRAKE PEDAL FAIL	No Dispatch	No Dispatch
CREW OXY LO PRESS	Refer to 35-11-05-2 or Refer to 35-11-05-3	Refer to 35-00-001-01 or Refer to 35-00-001-02
DC BUS 1	No Dispatch	No Dispatch
DC BUS 2	No Dispatch	No Dispatch
DC EMER BUS	No Dispatch	No Dispatch
DC ESS BUS 1	No Dispatch	No Dispatch
DC ESS BUS 2	No Dispatch	No Dispatch
DC ESS BUS 3	No Dispatch	No Dispatch
DITCHING MISCONFIG	Not Applicable *(1)*	Not Applicable *(1)*

Agenda

Airbus MMEL Structure

MMEL Entries

MMEL items

MMEL Operational Procedures

Maintenance procedure

Airbus MMEL/DDG Entries: A3X0

- Main entry point of the MEL to find the applicable MEL item
- Provides the applicable MEL item or Dispatch Conditions, or NOGO status

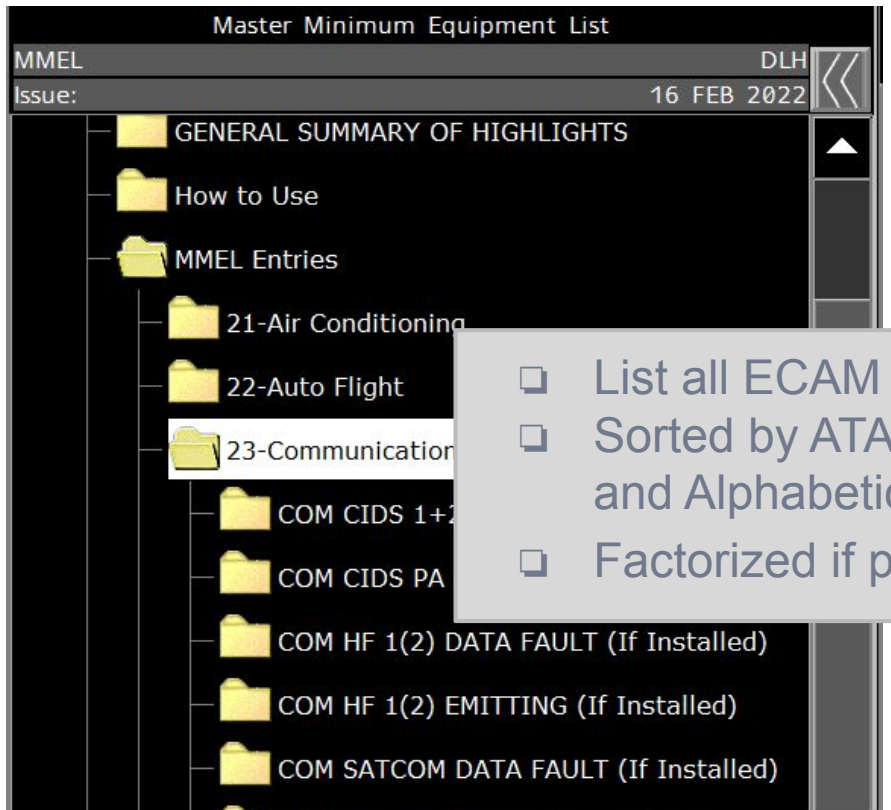
A320

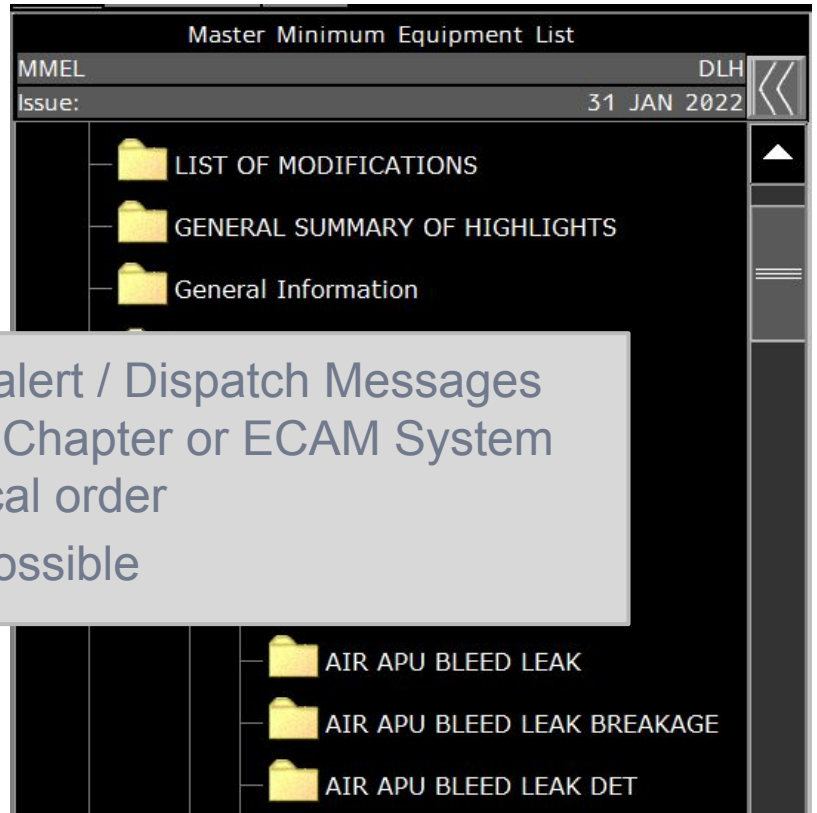
ECAM Alerts

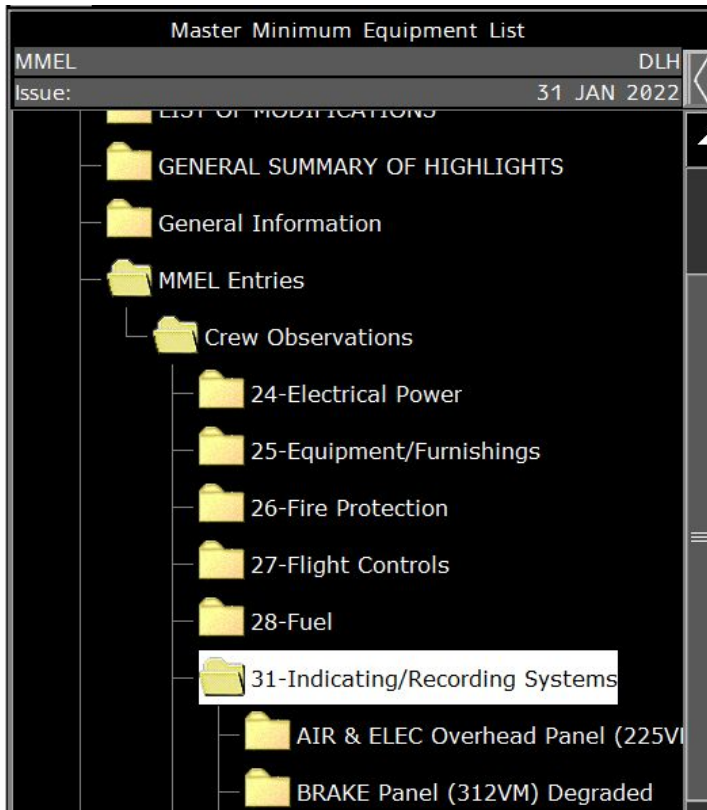
A350

Dispatch Messages

Crew Observations



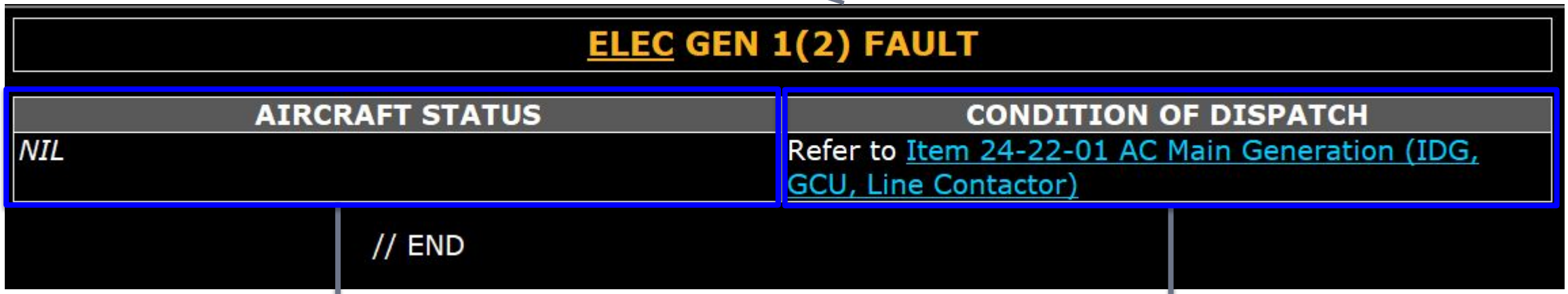




- List all ECAM alert / Dispatch Messages
- Sorted by ATA Chapter or ECAM System and Alphabetical order
- Factorized if possible

Airbus MMEL/DDG Entries: A3X0

Title: ECAM like and factorized for ECAM alerts and Dispatch messages



Dispatch assessment: Possible brief information on the failure case to find the applicable MMEL condition

Condition of Dispatch:

- ❏ NO DISPATCH

or

- ❏ Refer to Item condition (one or several)

or

- ❏ Not related to MEL

Airbus MMEL/DDG Entries: A3X0 - Aircraft Status

“NIL”When no additional information is needed: Aircraft Status lists “NIL”

➔ Mainly the case for single Condition of dispatch

“Short A/C assessment” to help choose between failure modes for the same ECAM Entries

➔ For multiple Condition of dispatch

AIR HOT AIR SYS 1(2) FAULT	
AIRCRAFT STATUS	**CONDITION OF DISPATCH**
NIL	Refer to Item 21-63-03 Hot Air Valve

PRERECORDED ANNOUNCEMENTS NOT AVAILABLE	
AIRCRAFT STATUS	**CONDITION OF DISPATCH**
The prerecorded announcements are not available. The PRAM function in the IFE or the I-PRAM function on the FAP is inoperative.	Refer to Item 44-16-01 Prerecorded Announcement and Music Reproducer
The boarding music is not available.	Not related to MEL

- Actual / False alert:
  - **“Actual”** means that the system is actually failed
  - **“False”** means that only the monitoring function is failed, but the system is operative

ELEC IDG 1(2) DISCONNECTED	
AIRCRAFT STATUS	**CONDITION OF DISPATCH**
Actual alert	Refer to Item 24-22-01 AC Main Generation (IDG, GCU, Line Contactor)
False alert	Refer to Item 24-09-01 ELEC IDG DISCONNECTED Alert

Airbus MMEL/DDG Entries: A3X0- Aircraft Status

- When multiple aircraft status:

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

➔ Troubleshooting by maintenance may be required when several aircraft status and no FDE to easily discriminate them

Airbus MMEL/DDG Entries: A3X0 - Aircraft Status

- Give a different status if the Dispatch Message has changed due to the application of the (m) procedure:

COND BULK CARGO SUPPLY(EXTRACT) ISOL VLV OPEN

AIRCRAFT STATUS	CONDITION OF DISPATCH
The extraction or supply isolation valve of the BULK cargo compartment is failed in the open position. Maintenance action: In order to recover the use of the BULK cargo compartment, the maintenance must deactivate the valve in the closed position. System consequence (after the deactivation): The BULK cargo compartment remains available with restrictions on live animal transportation. On the DISPATCH page, the message COND BULK CARGO SUPPLY(EXTRACT) ISOL VLV replaces COND BULK CARGO SUPPLY(EXTRACT) ISOL VLV OPEN	Refer to Item 21-28-02B BULK Cargo Compartment Isolation Valve
The extraction or supply isolation valve of the BULK cargo compartment is failed in the open position. The BULK cargo compartment remains empty.	Refer to Item Isolation Valv

COND BULK CARGO SUPPLY(EXTRACT) ISOL VLV

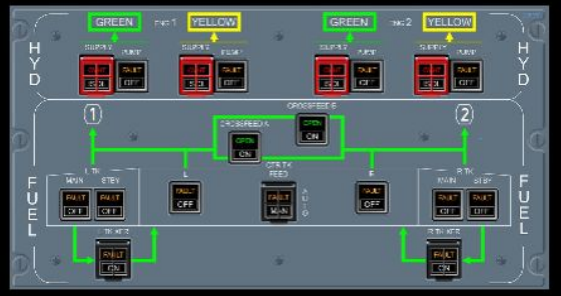
AIRCRAFT STATUS	CONDITION OF DISPA
The position monitoring of the supply(extract) isolation valve of the BULK cargo compartment is failed or the valve has been deactivated in the closed position further to the display of the COND BULK CARGO SUPPLY(EXTRACT) ISOL VLV OPEN message on the DISPATCH page.	Refer to Item 21-28-02B BULK Cargo Isolation Valve

➔ All information available to have the link between the initial TechLogbook entry the current aircraft status for dispatch

AIRBUS

Airbus MMEL/DDG Entries: A3X0 - Crew Observations (A350/A380 only)

LOWER RIGHT OVERHEAD PANEL (212VM) DEGRADED	
AIRCRAFT STATUS	**CONDITION OF DISPATCH**
Several lights and/or commands of the LOWER RIGHT overhead panel are inoperative. 	Refer to Item 31-02-05 LOWER RIGHT Overhead Panel (212VM)

FUEL & HYD OVERHEAD PANEL (235VM) DEGRADED	
AIRCRAFT STATUS	**CONDITION OF DISPATCH**
Several lights and/or commands of the FUEL & HYD overhead panel are inoperative. 	Refer to Item 31-02-02 FUEL & HYD Overhead Panel (235VM)

AIRBUS

Airbus MMEL/DDG Entries: A220

"2-Sections MMEL" concept:

- ❑ Section 1: LRU / Component Oriented MEL relief
- ❑ Section 2: CAS Messages Oriented MEL relief

➔ Standard Access: Require Maintenance

➔ Messag" oriented Access: No maintenance

Section 1 Access

Section 2 Access

CAUTION MESSAGES		
CABIN ALT	Not Applicable *(1)*	Not Applicable *(1)*
>CABIN PRIORITY	Not Applicable *(1)*	Not Applicable *(1)*
CARGO BTL FAIL	Refer to 26-25-04-1	Refer to 26-00-013-01
CARGO DOOR	No Dispatch	No Dispatch
CKPT DOOR LOCK FAIL	Refer to 52-51-01-1	-
COWL A/ICE ON	Not Applicable *(1)*	Not Applicable *(1)*
CPLT BRAKE PEDAL FAIL	No Dispatch	No Dispatch
	Refer to 35-11-05-2 or Refer to 35-11-05-3	Refer to 35-00-001-01 or Refer to 35-00-001-02
	No Dispatch	No Dispatch
	No Dispatch	No Dispatch
DC EMER BUS	No Dispatch	No Dispatch
DC ESS BUS 1	No Dispatch	No Dispatch
DC ESS BUS 2	No Dispatch	No Dispatch
DC ESS BUS 3	No Dispatch	No Dispatch
DITCHING MISCONFIG	Not Applicable *(1)*	Not Applicable *(1)*

- ❑ List all EICAS messages
- ❑ Sorted by ATA Chapter and Alphabetical order

Airbus MMEL/DDG Entries: Condition of Dispatch

➔ Give the status of the dispatch: NOGO or GO/GO-IF or N/A

efer to Item XX": Provide the **hyperlink** to
plicable MEL item or dispatch conditIon

O DISPATCH": Dispatch is not permitted

Not related to MEL/Not Applicable": MEL not
ppropriate document for dispatch in that case)

efer to Item XX": Provide the link to **several** MEL
m or dispatch condition
nd" all to be applied
r" choice to be made
Troubleshooting by maintenance required

ELEC APU GEN FAULT — GO/GO- IF

AIRCRAFT STATUS	CONDITION OF DISPATCH
NIL	Refer to Item 24-23-01 AC Auxiliary Generation (APU Generator, APU GCU or GAPCU Auxiliary Power Control function, Line Contactor)

ELEC AC BUS 1 FAULT — NOGO

AIRCRAFT STATUS	CONDITION OF DISPATCH
NIL	NO DISPATCH

ELEC BAT 1(2) OFF — N/A

AIRCRAFT STATUS	CONDITION OF DISPATCH
NIL	Not related to MEL

BRAKES RELEASED — GO/GO- IF

AIRCRAFT STATUS	CONDITION OF DISPATCH
NIL	Refer to Item 32-42-01 Main/Centerline Wheel Brake or Refer to Item 32-42-05 Tachometer

AIRBUS

Agenda

Airbus MMEL Structure

MMEL Entries

MMEL Items

MMEL Operational Procedures

Maintenance procedure

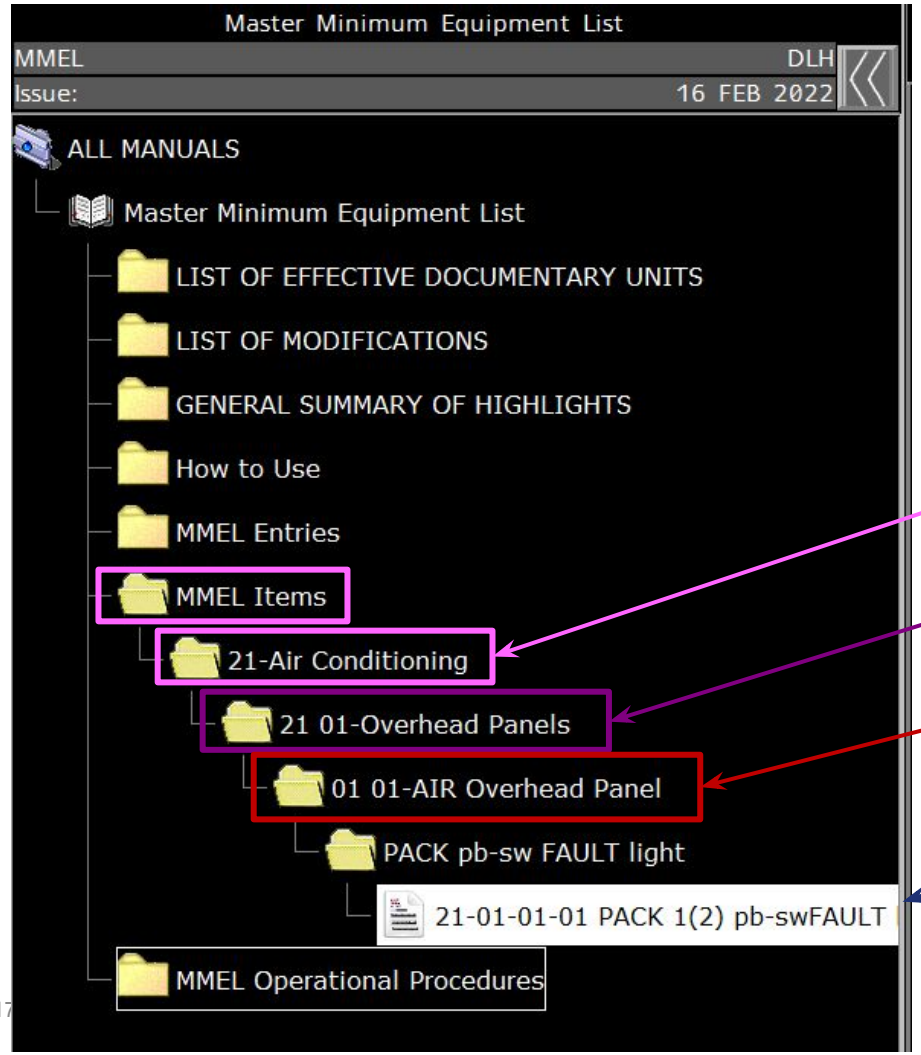
Additional concepts

Two-Sections MMEL (A220)

Airbus MMEL/DDG Items: A3X0 Structure

"MMEL Items" Chapter Organization

- **Renumbering:** Numbering Rules for Sub-Chapters and MMEL Items



Level 1 - ATA System MI-21

*Level 2 – ATA sub-system MI-21-**01 (Overhead Panels)***

*Level 3 – Sub-Chapter MI-21-01-**01***

MMEL Item

AIRBUS

Airbus MMEL/DDG Items: A3X0 Item Numbering

“MMEL Items” Chapter Organization

- **Renumbering:** Numbering Rules for Sub-Chapters and MMEL Items

- XX-01 to 04 : for items related to Cockpit Overhead Panels
- XX-05 : for items related to PFD indications
- XX-06 : for items related to ND indications
- XX-07 : for items related to SD pages indications
- XX-08 : for items related to EWD indications
- XX-09 : for items related to ECAM alerts or Dispatch Messages
- XX-10 to XX-95 : follow the ATA sub-system classification

Simplified MMEL access

Airbus MMEL/DDG Items: A3X0 Item Numbering

"MMEL Items" Chapter Organization

- **Renumbering:** Numbering Rules for Sub-Chapters and MMEL Items

- Ranks from 01 to 49 correspond to the MMEL items

- Ranks from 50 to 99 correspond to airline-created MEL Items (non-safety items, commercial items)

Airbus MMEL/DDG Items: A3X0 Structure

Direct link to associated MMEL item from MMEL entry

COND LWR LAV VENT FAULT	
AIRCRAFT STATUS	**CONDITION OF DISPATCH**
NIL	Refer to Item 21-21-07 Lower Deck Facilities Blowing/Extraction Fan

21-21-07	Lower Deck Facilities Extraction Fan

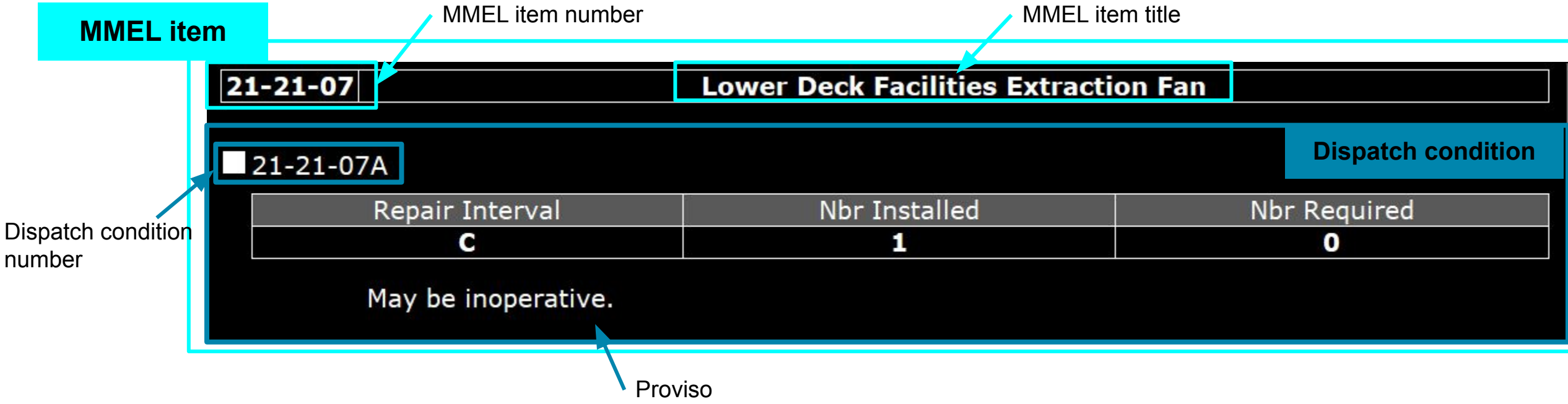
☐ 21-21-07A

Repair Interval	Nbr Installed	Nbr Required
C	1	0

May be inoperative.

AIRBUS

Airbus MMEL/DDG Items: A3X0 Item Structure



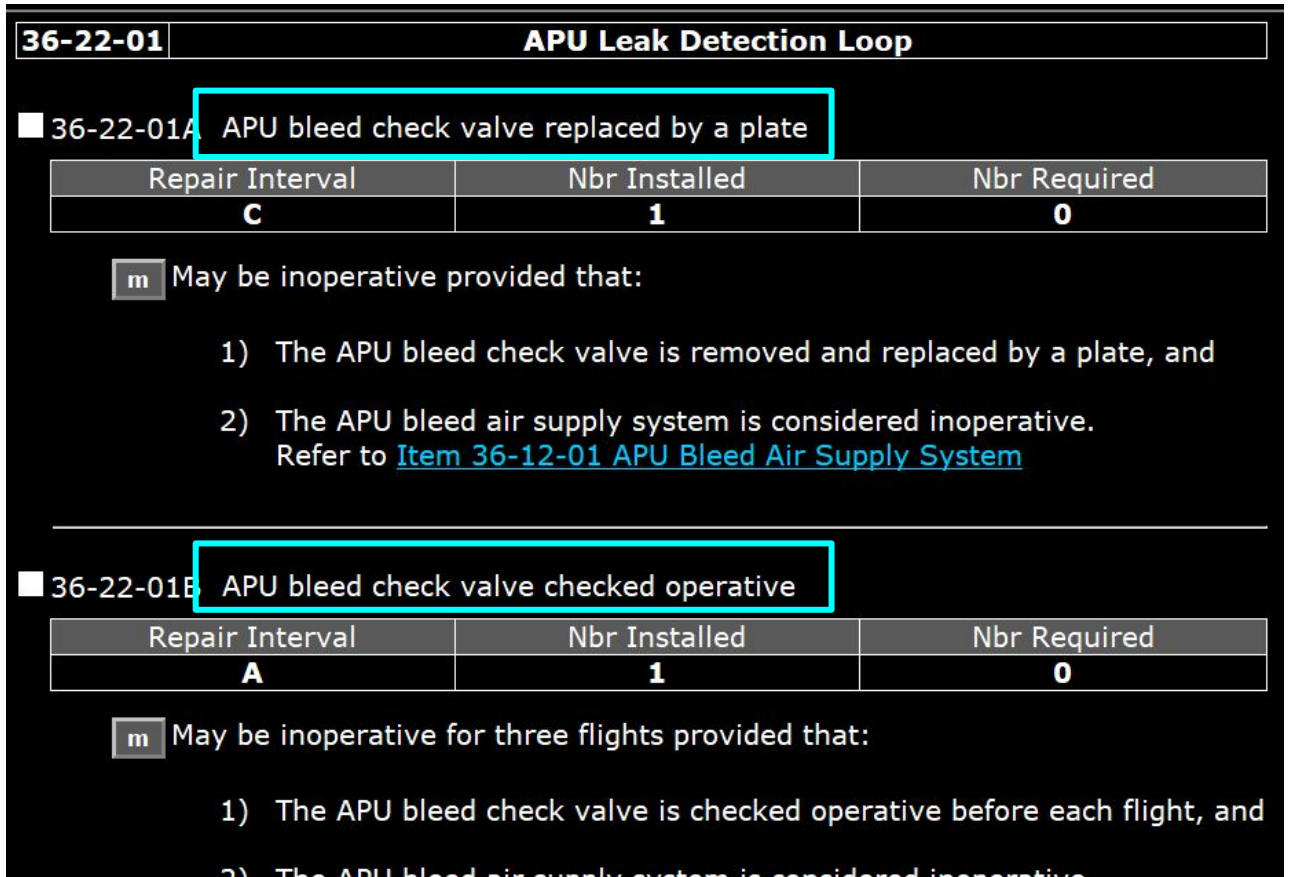
- Each MMEL item is identify by its Number + Title.
- Each MMELitem is composed of one or several Dispatch condition identified by an additional letter
  - ➔ Provides the conditions of the dispatch: Repair interval, Nb installed, Nb Required and Provisos, (o), (m), Placard

AIRBUS

Airbus MMEL/DDG Items: A3X0 Dispatch conditions

For MMEL items with several dispatch conditions, there is an optional Operational title:

- ➢Guides Line Maintenance to determine the correct dispatch condition
- ➢Helps Flight crew to accept the aircraft with the correct condition applied



36-22-01 **APU Leak Detection Loop**

36-22-01A APU bleed check valve replaced by a plate

Repair Interval	Nbr Installed	Nbr Required
C	1	0

m May be inoperative provided that:

1) The APU bleed check valve is removed and replaced by a plate, and

2) The APU bleed air supply system is considered inoperative.
Refer to Item 36-12-01 APU Bleed Air Supply System

36-22-01B APU bleed check valve checked operative

Repair Interval	Nbr Installed	Nbr Required
A	1	0

m May be inoperative for three flights provided that:

1) The APU bleed check valve is checked operative before each flight, and

AIRBUS

Airbus MMEL/DDG Items: A3X0 **MMEL Items**

Type of dispatch conditions:

"**GO**": Dispatch permitted with No specific condition. Just a time limit

"**NO GO**": Dispatch NOT permitted.
Listed for clarification purposes, as should not be listed
*"**Dash**" as **repair interval***
Same nbr installed and nbr required

"**GO-IF**": Dispatch permitted with a set of conditions (proviso), including (o),(m) and placard

21-21-07 **Lower Deck Facilities Extraction Fan**

GO

☐ 21-21-07A

Repair Interval	Nbr Installed	Nbr Required
C	1	0

May be inoperative.

21-55-01 **Emergency Ram Air Inlet**

NOGO

☐ 21-55-01A

Repair Interval	Nbr Installed	Nbr Required
-	1	1

Must be operative.

21-26-05 **Avionics Skin Air Inlet Valve**

GO- IF

***Note*: During ground operations, correct avionics ventilation should be provid**

☐ 21-26-05A Air Conditioning Inlet Valve open on ground

Repair Interval	Nbr Installed	Nbr Required
C	1	0

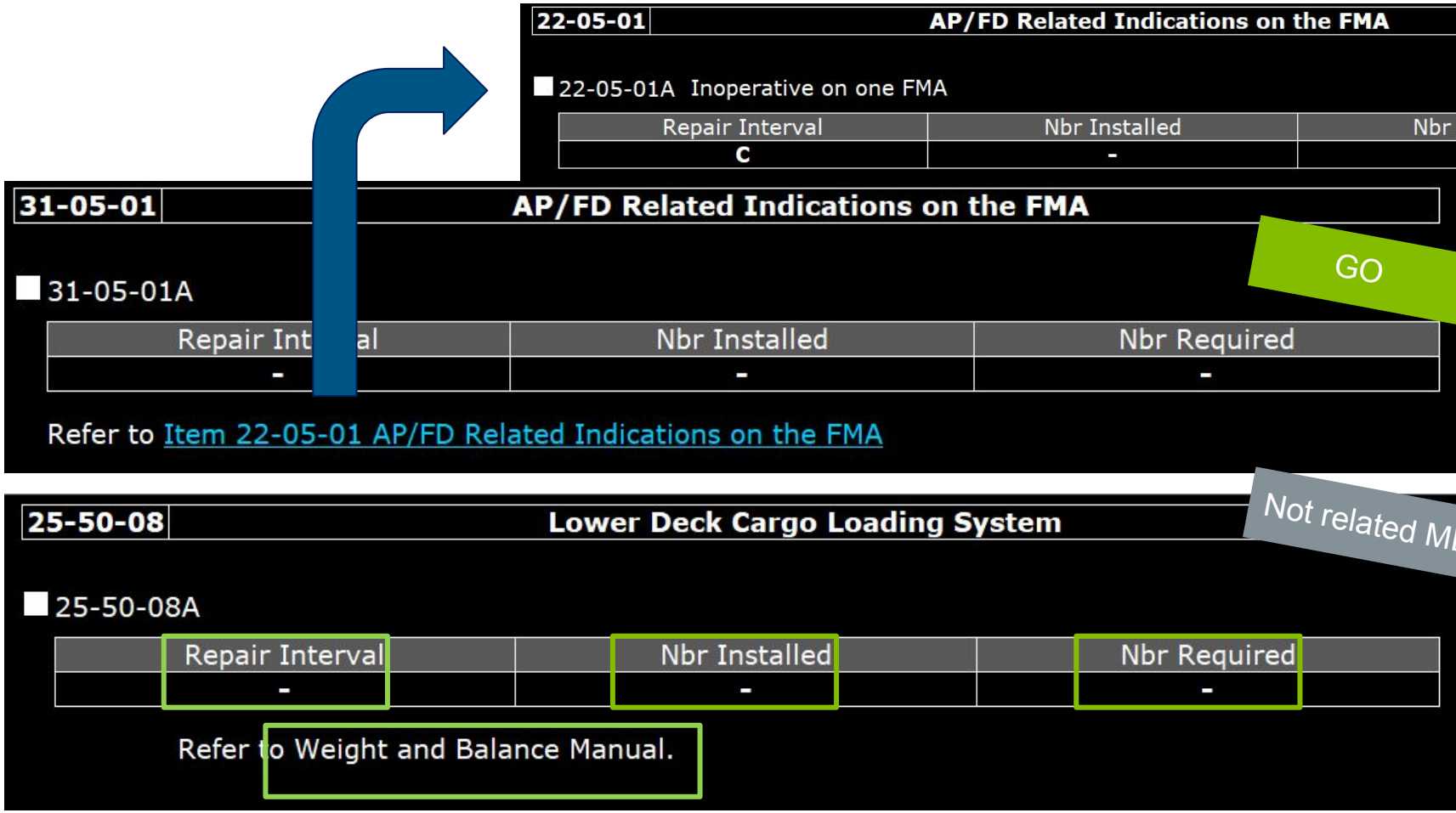
o m May be inoperative provided that:

Airbus MMEL/DDG Items: A3X0 **MMEL Items**

Type of dispatch conditions: Specific Cases

“**Dispatch redirection**”: link another item that covers the same failure in another ATA Chapter

“**Refer to WBM**”: Failure ‘**Not related to MEL**’ and covered in WBM.
Listed for clarification purposes, as should not be listed



AIRBUS

Airbus MMEL/DDG Items: A3X0 **MMEL Items**

Type of dispatch conditions: Message Oriented Items

"**ECAM alert**":
nbr installed = number of alerts listed (unfactorized)

73-09-13 — **ENG 1(2) LONG TERM DISPATCH Alert**

☐ 73-09-13A

Repair Interval	Nbr Installed	Nbr Required
A	**2**	**0**

One or both may be displayed on the EWD for 500 flight hours.

"**Dispatch message**":
Writing convention: "**N/A**" for nbr installed and nbr required

➔ Important to apply the proviso as no safety net with the nbr required for dispatch.

73-09-03 — **ENG 1(2) SHORT TERM MINOR FAULT Message**

☐ 73-09-03A

Repair Interval	Nbr Installed	Nbr Required
A	**N/A**	**N/A**

One may be displayed on the DISPATCH page for 300 flight hours or 20 consecutive calendar days, whichever occurs first.

Airbus MMEL/DDG Items: A3X0 **MMEL Items**

Type of dispatch conditions: Message Oriented Items

"**MAINTENANCE message on STATUS SD page**" **(A320 only)**: Writing convention: "**Dash**" for nbr installed and nbr required.

➔ Normally **go without conditions**

21-00-03	AFT CRG HEAT MAINTENANCE Message	
☐ 21-00-03A		
Repair Interval	Nbr Installed	Nbr Required
C	-	-

AFT CRG HEAT MAINTENANCE message may be displayed on the STATUS SD page.

// END

Management of "**MAINTENANCE message on STATUS SD page**" **(A320 only)** detailed in **Preamble**

➔ Exception exists

➔ Specific procedure for STATUS management to be defined in MEL

HANDLING OF MAINTENANCE MESSAGES ON THE STATUS SD page

At the beginning of each ATA chapter of the "MMEL Item" section, the related MAINTENANCE messages which may be displayed on the STATUS SD page are listed in the Sub-Chapter "00" with the associated dispatch status.

A MAINTENANCE message indicates the presence of a category of failure which can only be identified by interrogation of the CFDS.

Operator must implement procedures to manage the MAINTENANCE messages and associated CFDS messages, to handle fault recording and repair within the repair interval C (10 days).

All MAINTENANCE messages have a repair interval C except the following messages: DAR, DMU or ACMS, QAR and ICE DETECT ◁ which have a repair interval D.

Dispatch with MAINTENANCE messages displayed on the STATUS SD page is permitted without condition except for the following message:

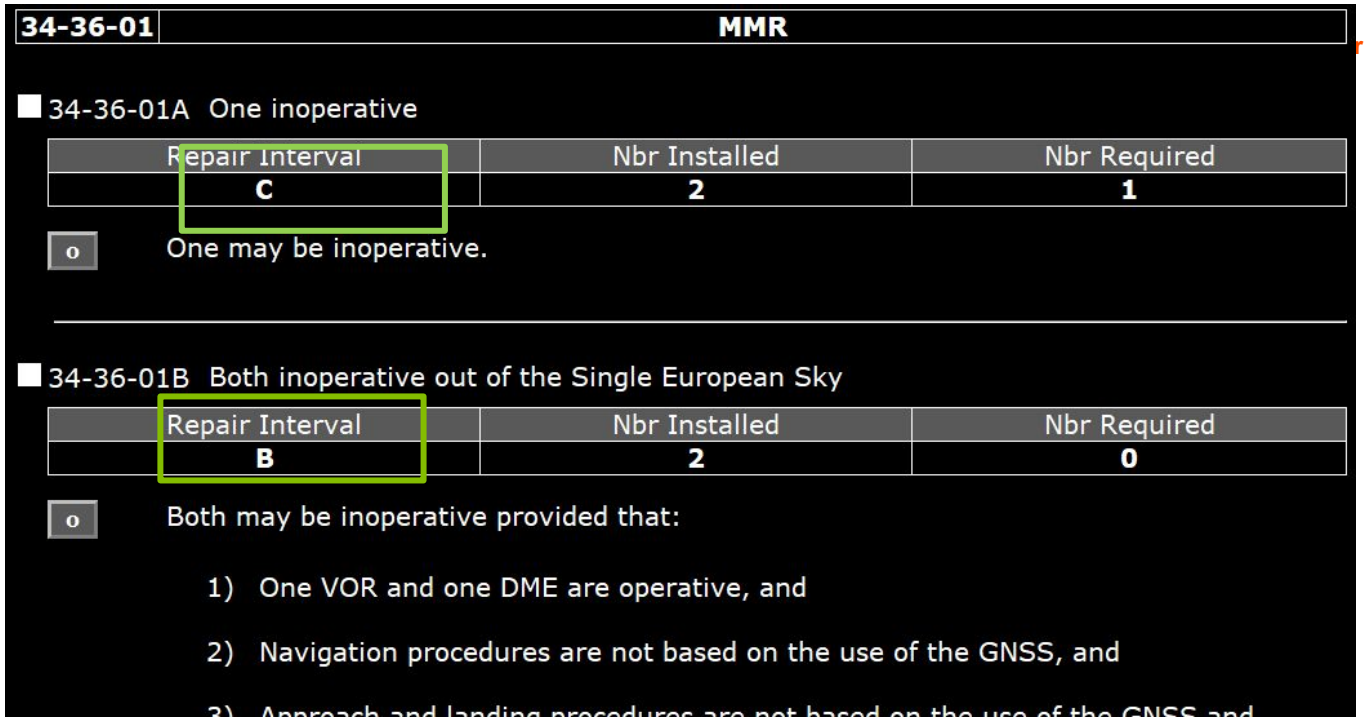
- AIR BLEED: Refer to Item 36-00-01 AIR BLEED MAINTENANCE Message.

It is left to Operator to define the role devoted to flight crew and/or maintenance personnel in these procedures.

Airbus MMEL/DDG Items: > Repair inteRvals

Repair interval:

"**Standard repair interval**": **B**, **C**, **D**
Defined in consecutive calendar days



34-36-01 | **MMR**

☐ 34-36-01A One inoperative

Repair Interval	Nbr Installed	Nbr Required
C	**2**	**1**

o One may be inoperative.

☐ 34-36-01B Both inoperative out of the Single European Sky

Repair Interval	Nbr Installed	Nbr Required
B	**2**	**0**

o Both may be inoperative provided that:

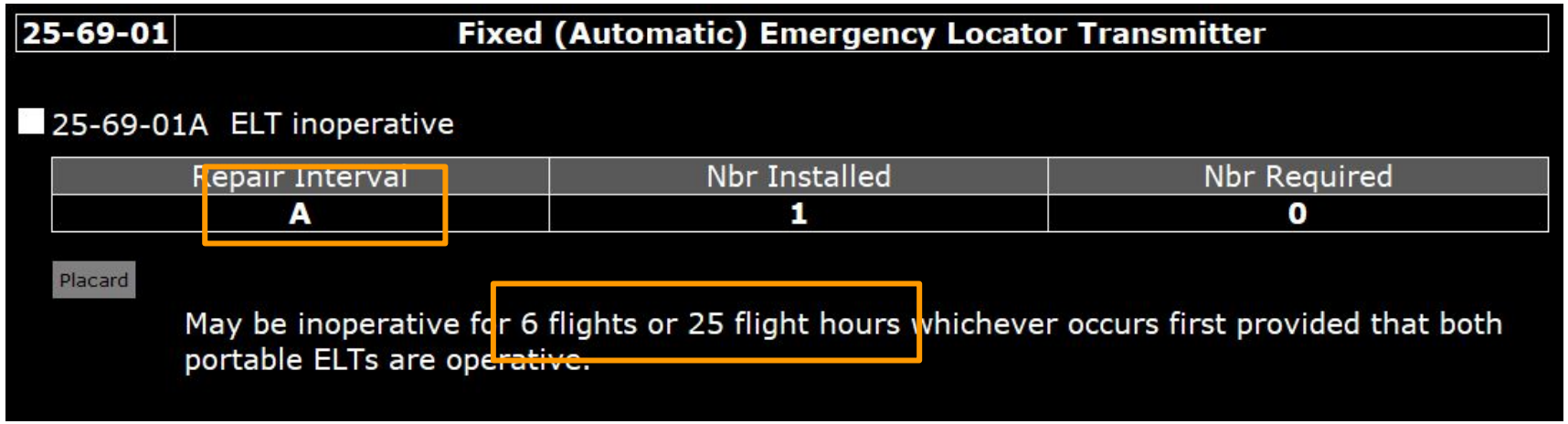
1) One VOR and one DME are operative, and

2) Navigation procedures are not based on the use of the GNSS, and

3) Approach and landing procedures are not based on the use of the GNSS and

"**A**": Defined in the proviso in :

- Consecutive Calendar Days,
- Flight days,
- Flight (Flight cycle),or
- Flight hours (FH)



25-69-01 | **Fixed (Automatic) Emergency Locator Transmitter**

☐ 25-69-01A ELT inoperative

Repair Interval	Nbr Installed	Nbr Required
A	**1**	**0**

Placard

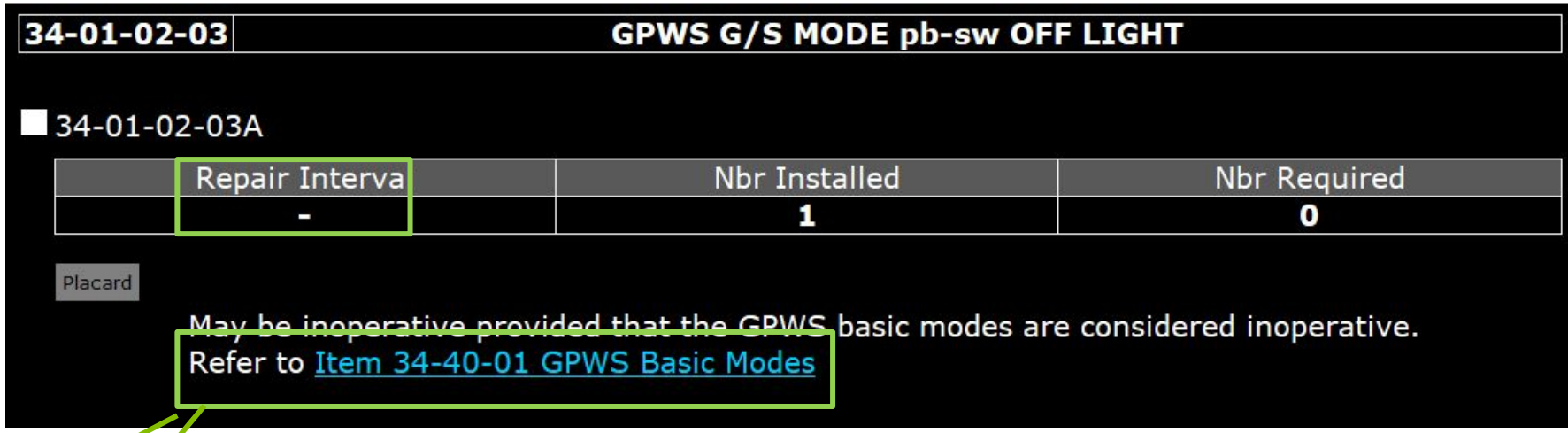
May be inoperative for 6 flights or 25 flight hours whichever occurs first provided that both portable ELTs are operative.

AIRBUS

Airbus MMEL/DDG Items: Repair intervals

Repair interval specific case

"**Dash**": Sometimes, when referring to another MEL item with multiple dispatch conditions and different repair interval.



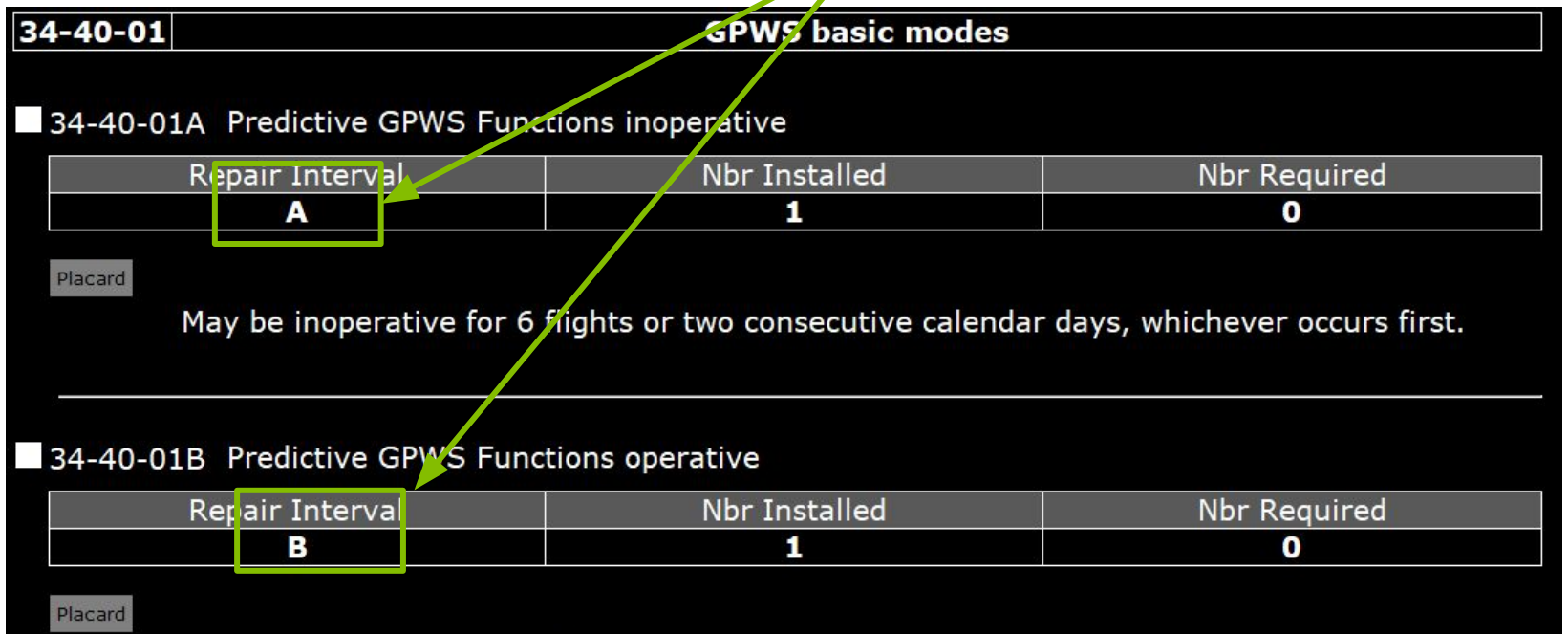
34-01-02-03	GPWS G/S MODE pb-sw OFF LIGHT

34-01-02-03A

	Repair Interva	Nbr Installed	Nbr Required
	-	1	0

Placard

May be inoperative provided that the GPWS basic modes are considered inoperative.
Refer to Item 34-40-01 GPWS Basic Modes



34-40-01	GPWS basic modes

34-40-01A Predictive GPWS Functions inoperative

	Repair Interval	Nbr Installed	Nbr Required
	A	1	0

Placard

May be inoperative for 6 flights or two consecutive calendar days, whichever occurs first.

34-40-01B Predictive GPWS Functions operative

	Repair Interval	Nbr Installed	Nbr Required
	B	1	0

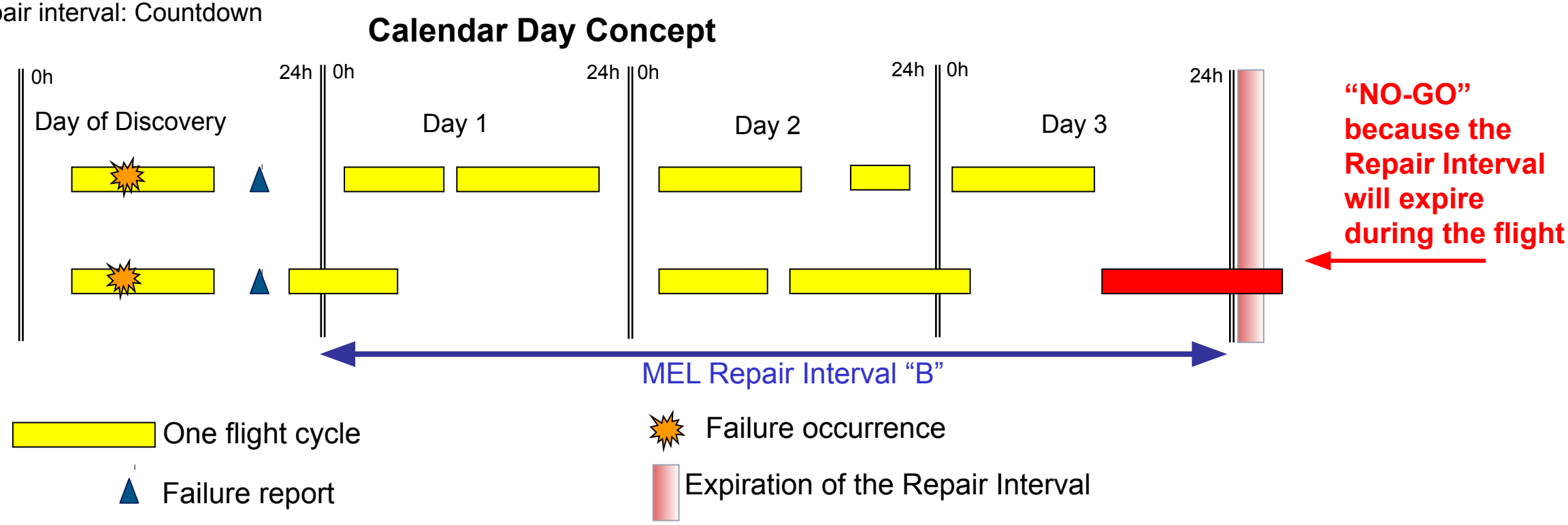
Placard

"**TIP:** When referring to another item, it is always the shortest repair interval that prevails.

AIRBUS

Airbus MMEL/DDG Items: Repair interval countdown

Repair interval: Countdown



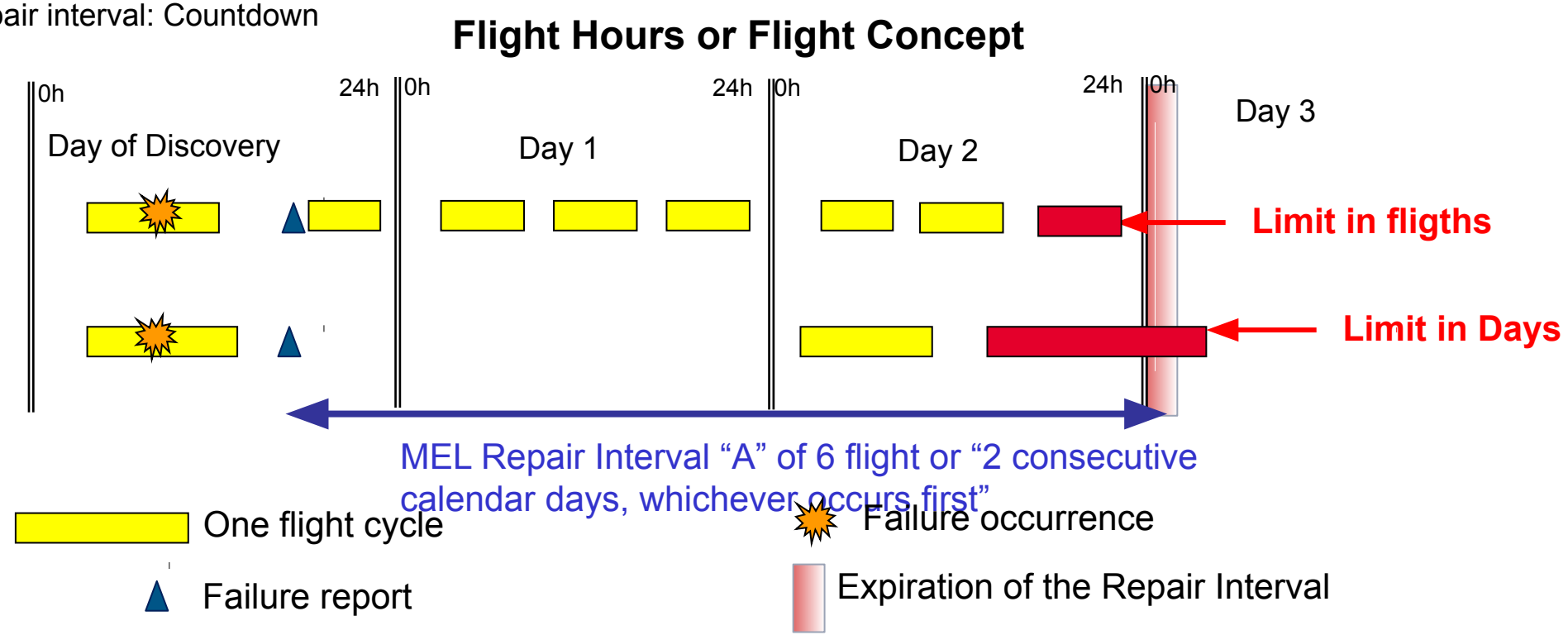
"Countdown starts excluding the day of discovery

CS-MMEL.105(d): '**Day of discovery**': the calendar day when a malfunction was **recorded** in the aircraft **maintenance record/log book**.

AIRBUS

Airbus MMEL/DDG Items: Repair interval countdown

Repair interval: Countdown



"**Countdown starts at the next flight**

CS-MMEL.130(a)(2): Where a time period is specified other than in calendar days or flight days, it **shall start** at the point when the **defect is deferred** in accordance with the operator's approved MEL.

"**TIP: "Flight Hours"** in the MMEL corresponds to the "**Block to block**' time and not to the "**lift-off to landing**" time like for maintenance.

AIRBUS

Airbus MMEL/DDG Items: **A3X0 - Placards**

"**Placard**": Request for a visual sign put in place for the dispatch

When there is no instruction, it should be put in the flight deck on the control or indication associated to the system per airline placarding policy

30-11-01	Wing Anti-Ice Control Valve

☐ 30-11-01A Inoperative in the closed position

Repair Interval	Nbr Installed	Nbr Required
C	4	0

Placard

m One or more may be inoperative in the closed position provided that:

1) ETOPS beyond 180 min is not conducted, and

2) The aircraft is not operated in known or forecast icing conditions.

"**Placard**": For specific items, the placard is defined in the proviso

25-20-06	Underseat Baggage Restraining Bar

☐ 25-20-06A

Repair Interval	Nbr Installed	Nbr Required
D	-	0

Placard

o One or more may be inoperative provided that:

1) Baggage is not stowed under the associated seat, and

2) The associated seat is placarded "DO NOT STOW BAGGAGE UNDER THIS SEAT".

"**TIP:** when placarded, associated control should not be used by the crew, even if requested by an abnormal procedure, except if specifically permitted in MO
Ex: MO 36-11-01A for AIR ENG 1+2 BLEED FAULT

Airbus MMEL/DDG Items: A3X0 - **Placards**

"**TIP:** when placarded, associated **cockpit control should not be used** by the crew, even if requested by an abnormal procedure, **except if specifically permitted in (o) procedure**

36-11-01 **Engine Bleed Air Supply System**

☐ 36-11-01A Non ETOPS

Repair Interval	Nbr Installed	Nbr Required
C	2	1

Placard

o m One may be inoperative provided that:

1) ETOPS is not conducted, and
2) The associated ENG BLEED pb-sw is set to OFF, and
3) The X bleed valve is set to OPEN, and
4) The APU and APU bleed air supply system are operative, and
5) The integrity of the associated HP valve seal is checked before the first MMEL dispatch.

Note: In the case of depressurization at altitudes higher than 37 400 ft (11 400 m) oxygen masks may drop down during the descent.

Ex: MO 36-11-01A for AIR ENG 1+2 BLEED FAULT

IN FLIGHT

In the event of the failure of the opposite engine bleed air supply system,

or

In the event of the failure of the opposite engine:

Apply the associated ECAM procedure, then

Apply the AIR ENG 1+2 BLEED FAULT ECAM procedure.

Refer to FCOM/AIR ENG 1+2 BLEED FAULT

CAUTION	*Reset ENG BLEED pb-sw as requested by ECAM procedure even if the ENG BLEED pb-sw is placarded inoperative as per MMEL 36-11-01.*

AIRBUS

Airbus MMEL/DDG Items: **Special Operations**

ETOPS limitations directly in the MMEL item:

- “ETOPS is not conducted,
- “ETOPS beyond XXX is not conducted”
- “For ETOPS”

Overwater/Extended overwater: directly in the MMEL item

36-11-01	Engine Bleed Air Supply System

☐ 36-11-01A Non ETOPS

Repair Interval	Nbr Installed	Nbr Required
C	2	1

Placard

o m One may be inoperative provided that:

1) ETOPS is not conducted, and

2) The associated ENG BLEED pb-sw is set to OFF, and

3) The X bleed valve is set to OPEN, and

A3X0 >Other special operations limitations (PBN, RVS CAT2/CAT3, FANS,..) given **in the (o) procedure B “Flight Preparation/LImitations”**

22-70-01A 22-70-01B	Flight Management System (FMS)

FLIGHT PREPARATION/LIMITATIONS

For aircraft with the RNP AR capability, RNP AR operations are not permitted.
Maximum landing capability is CAT 3 SINGLE.

If the NAV BACK-UP function is inoperative:

RNAV 10 operations are not permitted.

RNP 4 operations are not permitted.

ote continental area are not permitted.

A220 > List all special operations as provisos:

8)	VNAV Mode Push Button	C	1	0

May be inoperative provided:

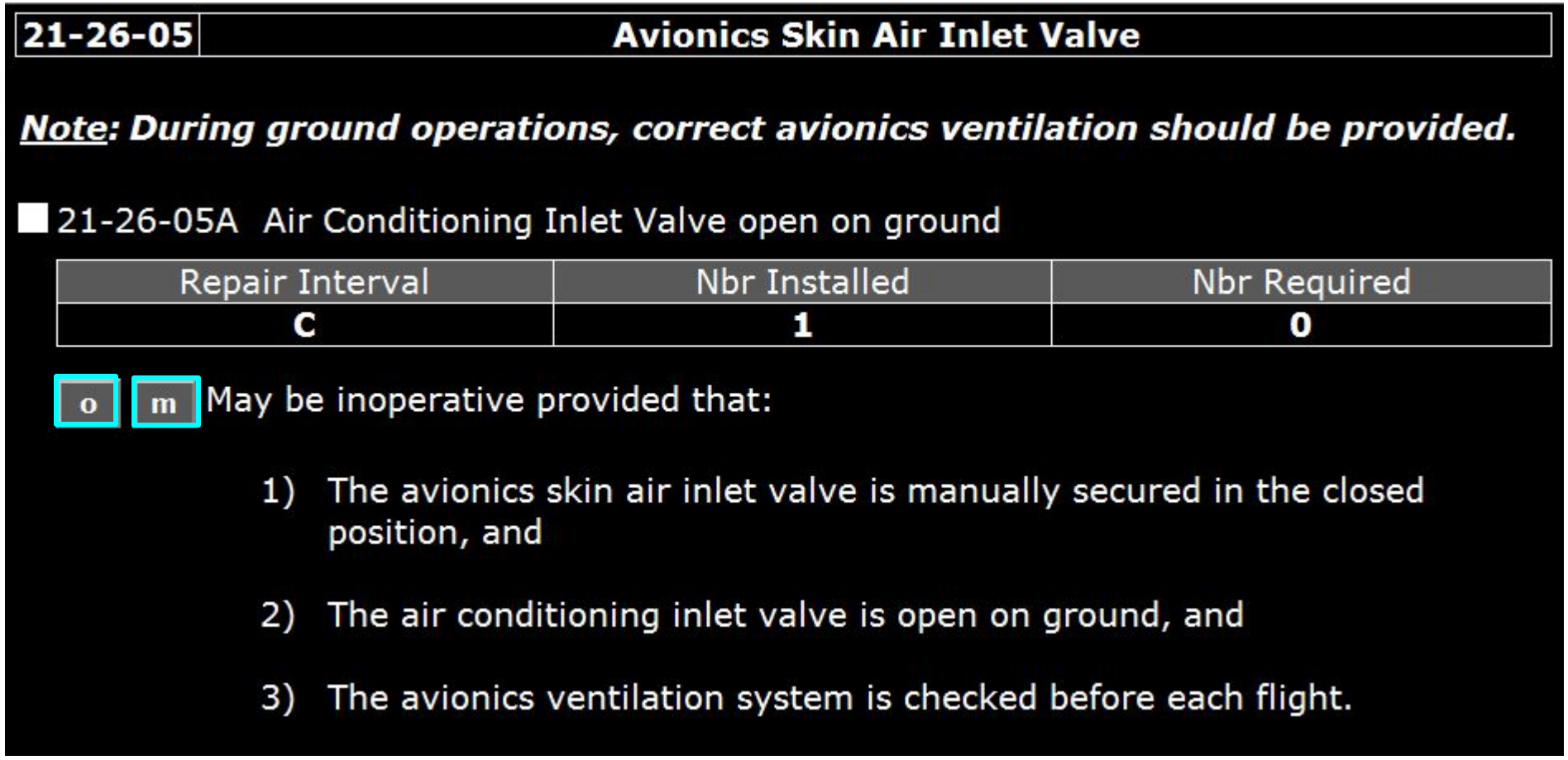
(a) Procedures do not require its use, and

(b) RNP AR Operations are not conducted

AIRBUS

Airbus MMEL/DDG Items: **A3X0 Links**

- o Symbol provides link to a **single** flight crew procedure to be applied **before each flight**
- m Symbol provides link and reference to a **single** maintenance procedure (available through AirnavX) to be **applied once**, **except specified otherwise**



21-26-05 **Avionics Skin Air Inlet Valve**

***Note*: During ground operations, correct avionics ventilation should be provided.**

☐ 21-26-05A Air Conditioning Inlet Valve open on ground

Repair Interval	Nbr Installed	Nbr Required
C	**1**	**0**

o m May be inoperative provided that:

1) The avionics skin air inlet valve is manually secured in the closed position, and

2) The air conditioning inlet valve is open on ground, and

3) The avionics ventilation system is checked before each flight.

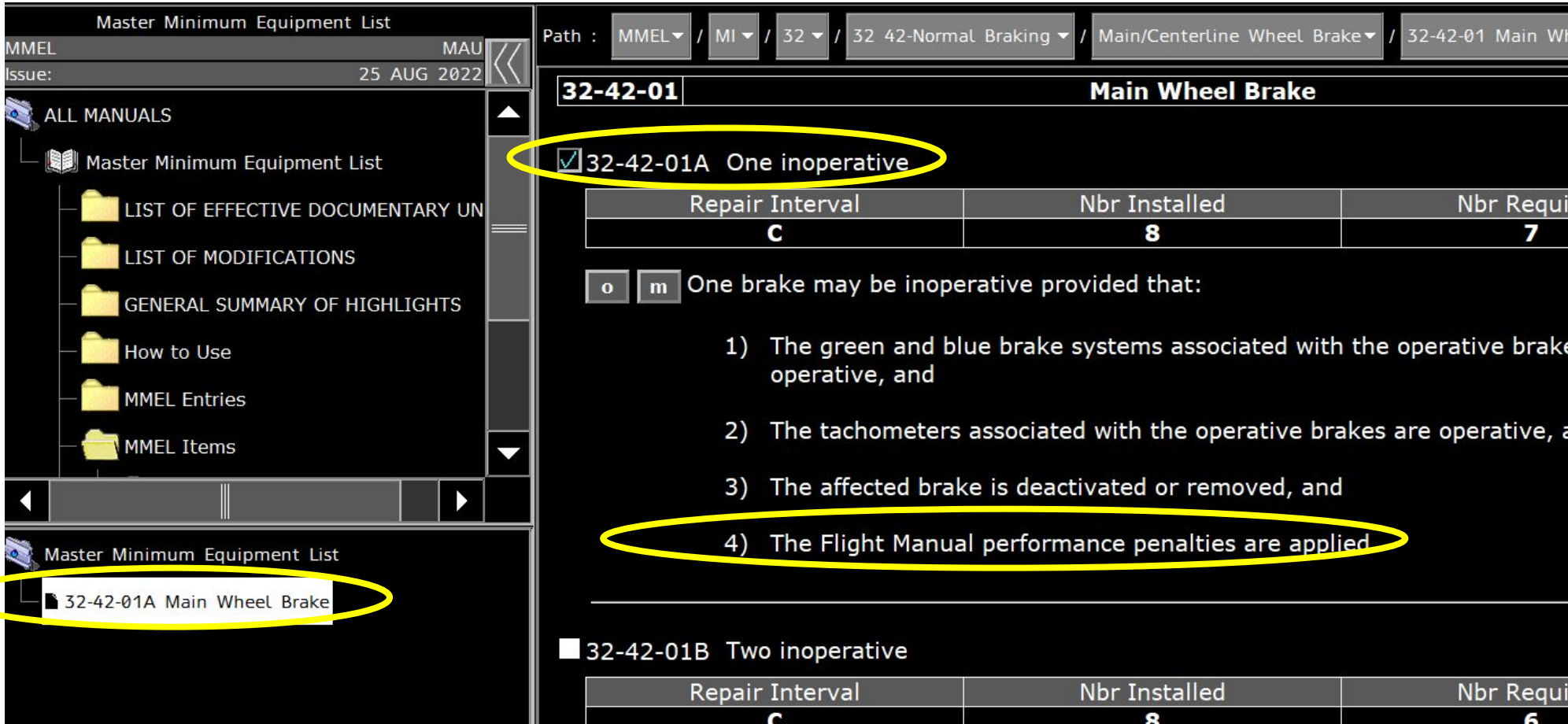
AIRBUS

Airbus MMEL/DDG Items: **A3X0 Links**

Link between MMEL and Performance Applications:

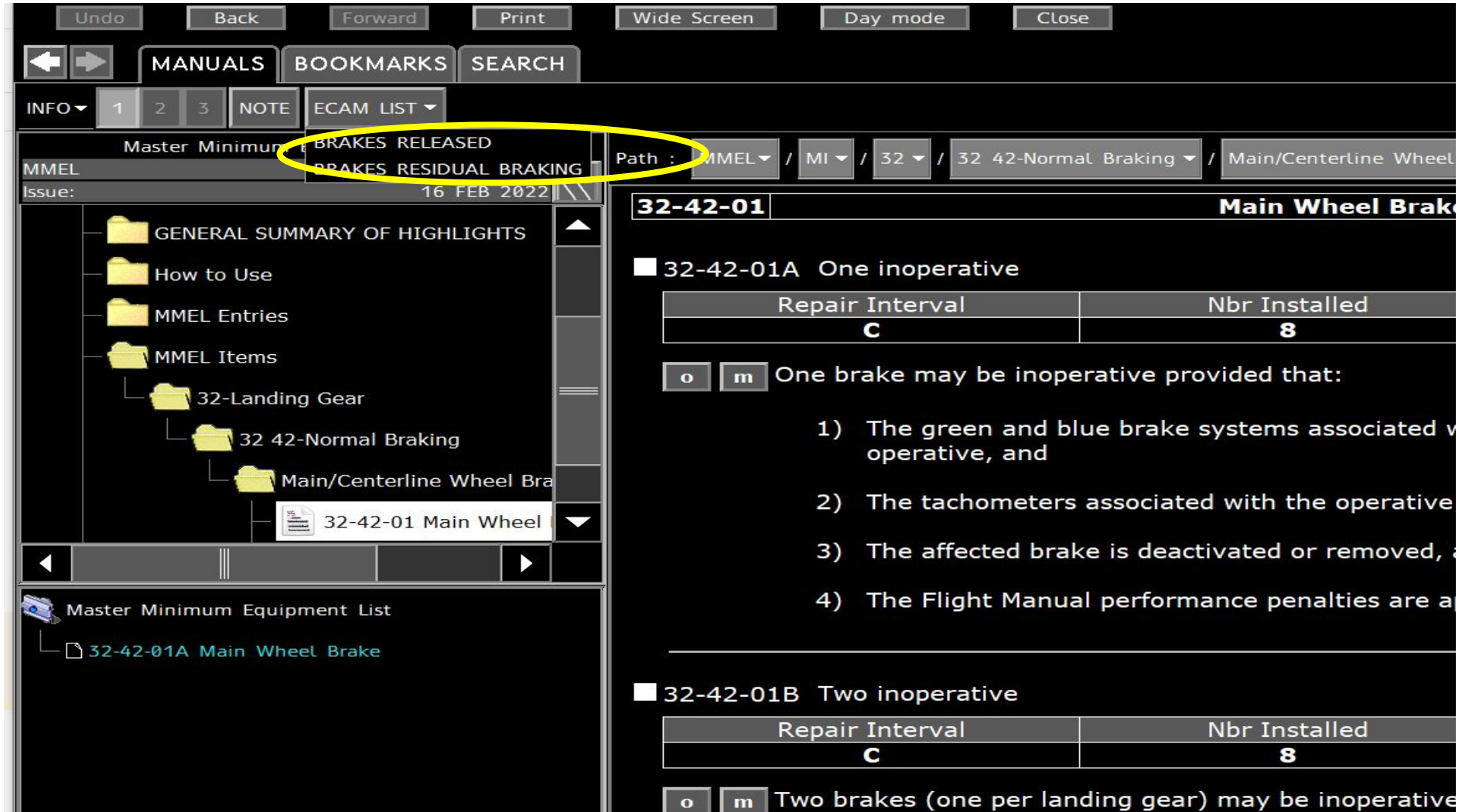
Some MMEL items may have an effect on aircraft performance: Brakes, Spoilers, Engine anti-ice valve stuck open... …

"**TIP:** Ensure all MEL item are ticked during the flight preparation (not only those with performance penalties) so that Inflight performance in case of additional failures.



Airbus MMEL/DDG Items: **A3X0 Links**

Easy Navigation: **ECAM LIST** button to find ECAM alert / Dispatch Message(s) related to an MMEL Item



AIRBUS

Agenda

Airbus MMEL Structure

MMEL Entries

MMEL items

MMEL Operational Procedures

Maintenance procedure

Additional concepts

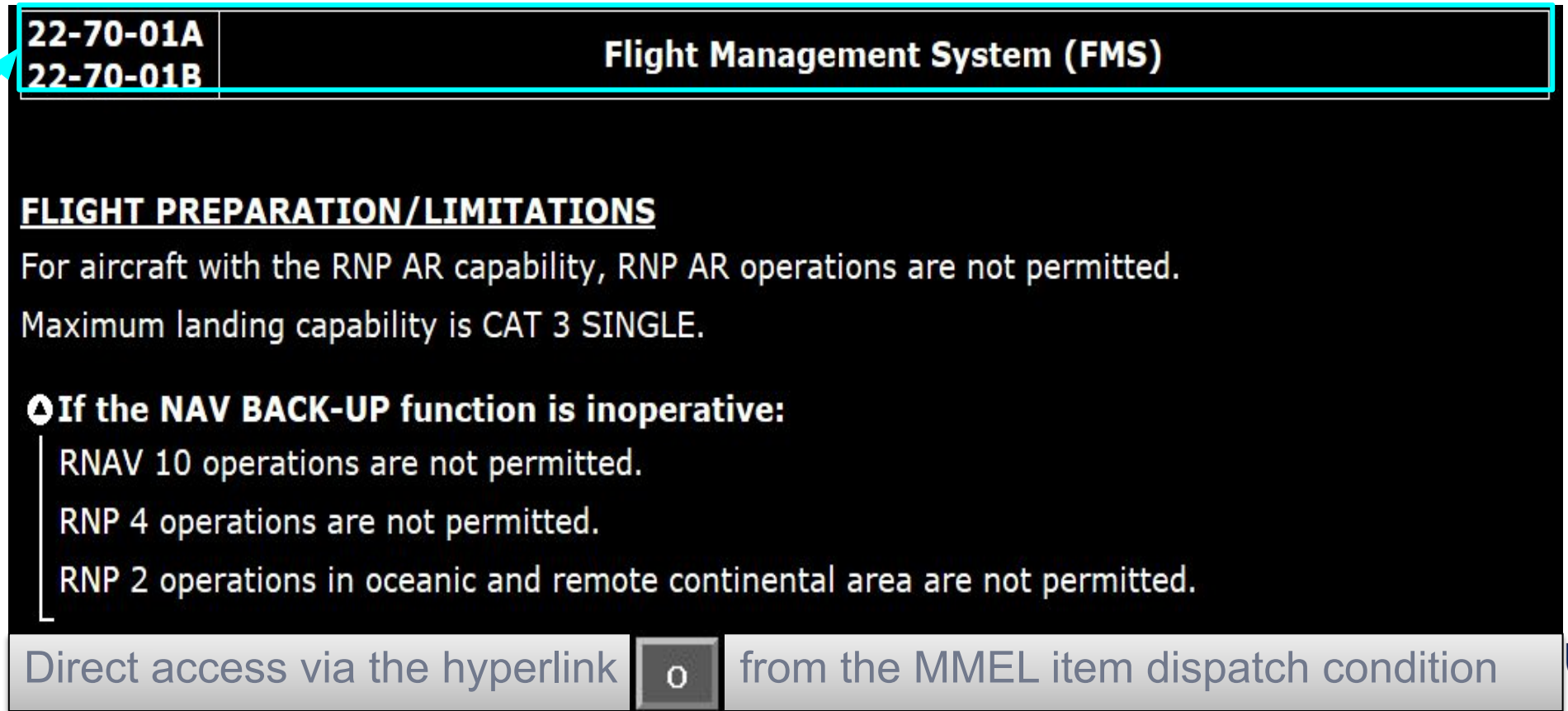
Two-sections MMEL (A220)

Airbus MMEL/DDG **Operational Procedures**

MMEL Items may be associated with **operational procedures**

- Listed by system with simplified ATA Breakdown (same as MMEL Items)
- Reference of the operational procedure in line with the associated MMEL Item dispatch condition

List of all applicable dispatch conditions



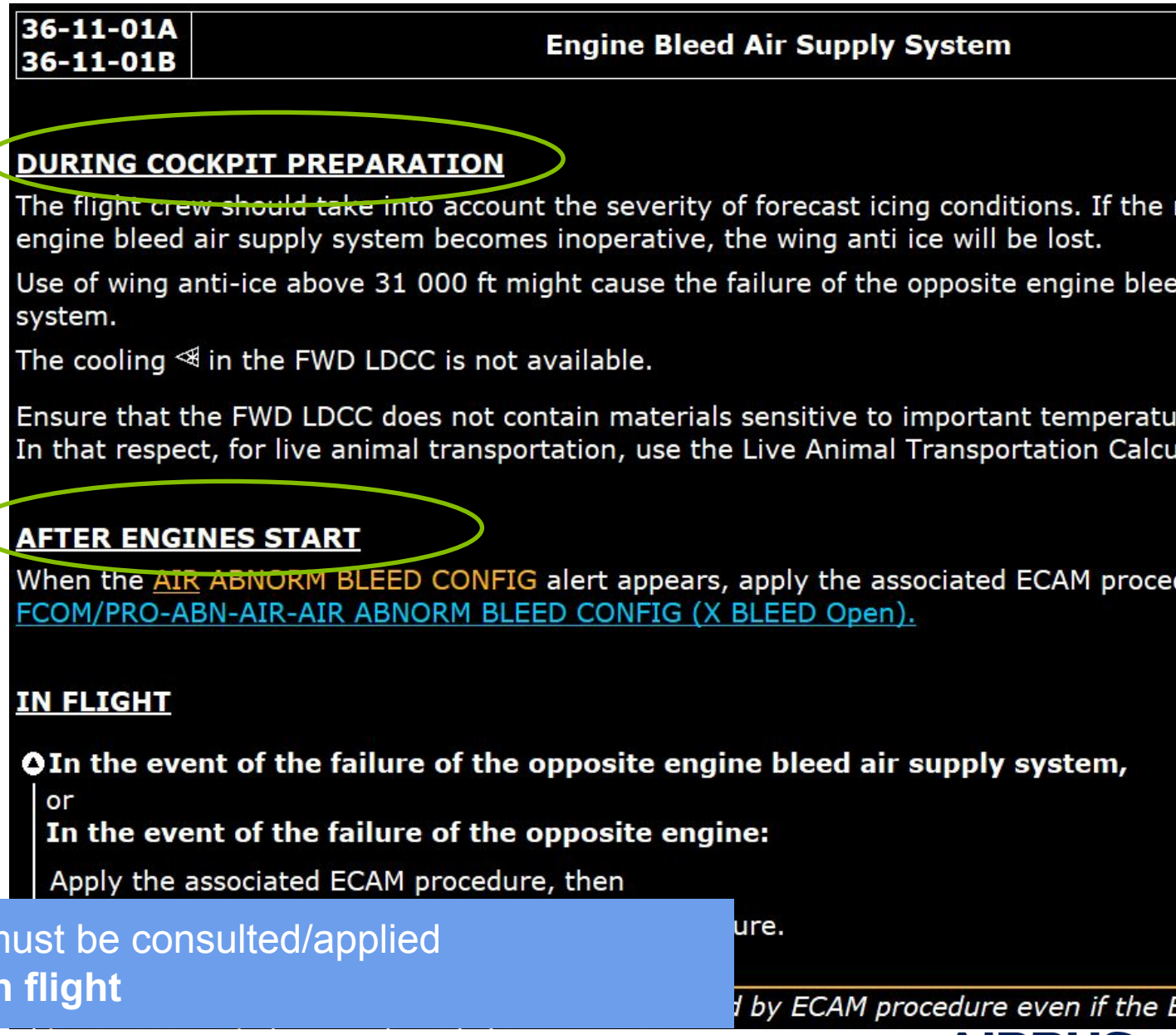
Direct access via the hyperlink from the MMEL item dispatch condition

MMEL Operational Procedures

- Organised by “flight phase” similar to SOP
- Provide Limitations
  - Operational limitation: RVSM, PBN..
  - Fuel penalties, Impact on Load sheet: ZFW, ZFWCG, cargo loading
- Provide operational check required for dispatch
- Provide alternate procedure as deviation to SOP to cope with MEL case
- Request to disregard ECAM related to deactivation procedure

“**TIP1:** ECAM alert directly linked to the MMEl item are not covered in the MMEL operational procedure
The flight crew should disregard them.

“**TIP2:** Other performance penalties are automatically computed by the perfo tool when the MEL item is ticked in the EFB



36-11-01A
36-11-01B

Engine Bleed Air Supply System

DURING COCKPIT PREPARATION

The flight crew should take into account the severity of forecast icing conditions. If the
engine bleed air supply system becomes inoperative, the wing anti ice will be lost.

Use of wing anti-ice above 31 000 ft might cause the failure of the opposite engine blee
system.

The cooling in the FWD LDCC is not available.

Ensure that the FWD LDCC does not contain materials sensitive to important temperatu
In that respect, for live animal transportation, use the Live Animal Transportation Calcu

AFTER ENGINES START

When the AIR ABNORM BLEED CONFIG alert appears, apply the associated ECAM proce
FCOM/PRO-ABN-AIR-AIR ABNORM BLEED CONFIG (X BLEED Open).

IN FLIGHT

In the event of the failure of the opposite engine bleed air supply system,
or
In the event of the failure of the opposite engine:
Apply the associated ECAM procedure, then

ure.

by ECAM procedure even if the E

➢ The MMEL Ops procedures must be consulted/applied by the flight crew **before each flight**

Agenda

Airbus MMEL Structure

MMEL Entries

MMEL items

MMEL Operational Procedures

Maintenance procedure

Additional concepts

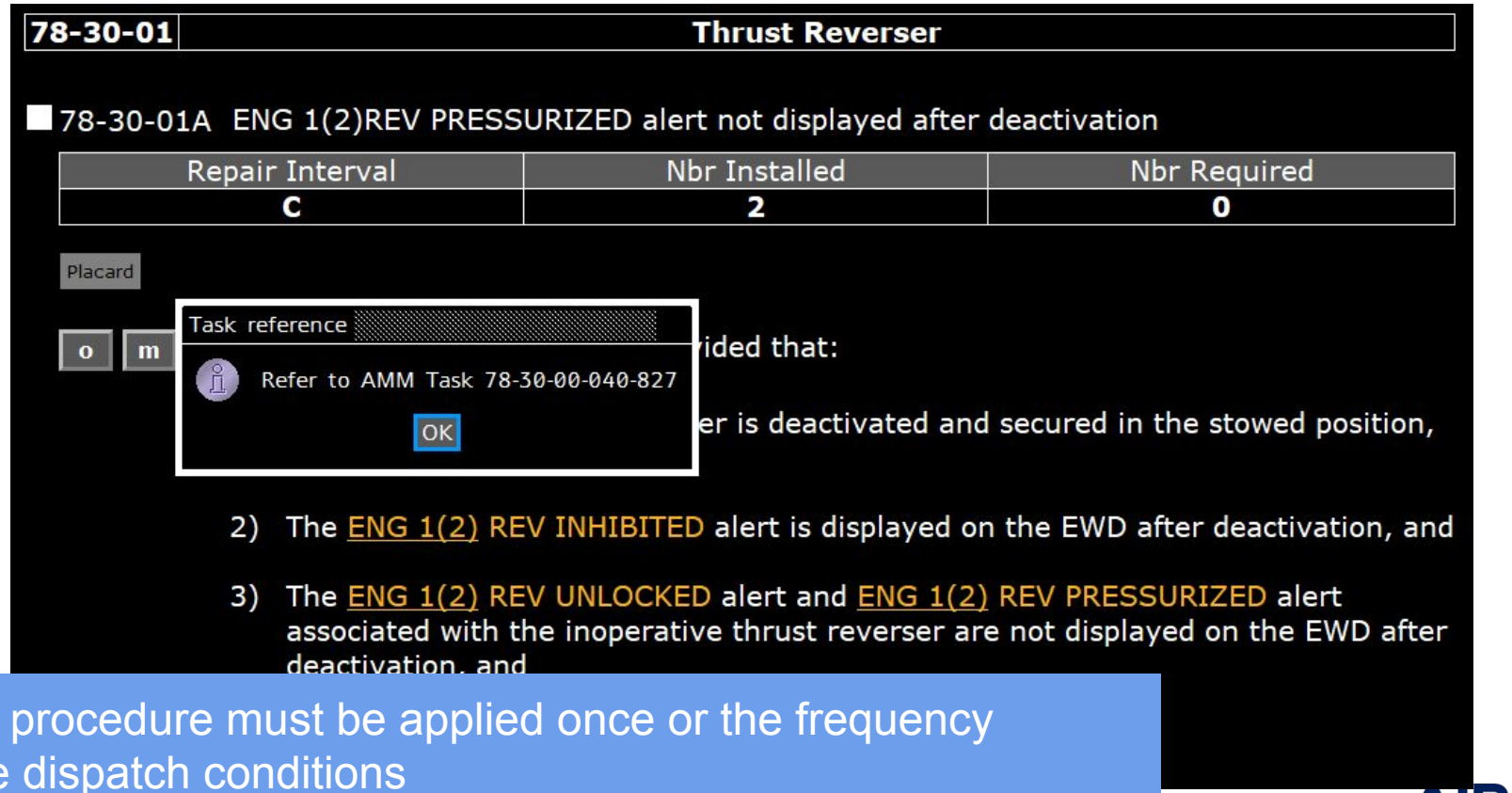
Two-Sections MMEL (A220)

MMEL Structure: Link with Maintenance Procedures

Maintenance procedures are available in the **AMM** through AirN@vMaintenance or Line Maintenance

- When an MMEL item requires an m , the maintenance procedure must be performed.
- Maintenance task reference available for consultation at the level of the MMEL item

"**TIP:** If only "**Refer to AMM task***" is displayed with reference, it means that several AMM tasks are applicable. The maintenance personnel should consult the Maintenance documentation.
**Refer to Maintenance Procedure* on A350



➢ Maintenance procedure must be applied once or the frequency defined in the dispatch conditions

MMEL Structure: Link with Maintenance Procedures

➢ Maintenance procedure must be applied once or the frequency defined in the dispatch conditions

21-52-01

21-52-01A One inoperat

Repair Interval
C

Placard

o m One may be inop

1) ETOPS be

2) The flight

24-09-03 **ELEC IDG 1(2) OIL SYS FAULT Alert**

24-09-03A False alert

Repair Interval	Nbr Installed	Nbr Required
C	2	1

m One may be displayed on the EWD provided that the following two conditions are checked before the first MMEL dispatch and then every day (For ETOPS, the check must be made before each flight):

1) The associated IDG oil circuit is checked operative, and

2) The sight glass of the affected IDG shows a correct oil level.

3) The pack controller associated with the non-affected air conditioning pack is checked operative on both channels, and

4) The affected PACK pb-sw is set to OFF, and

5) The associated pack flow control valve is checked closed on the BLEED SD page or CAB PRESS SD page, and

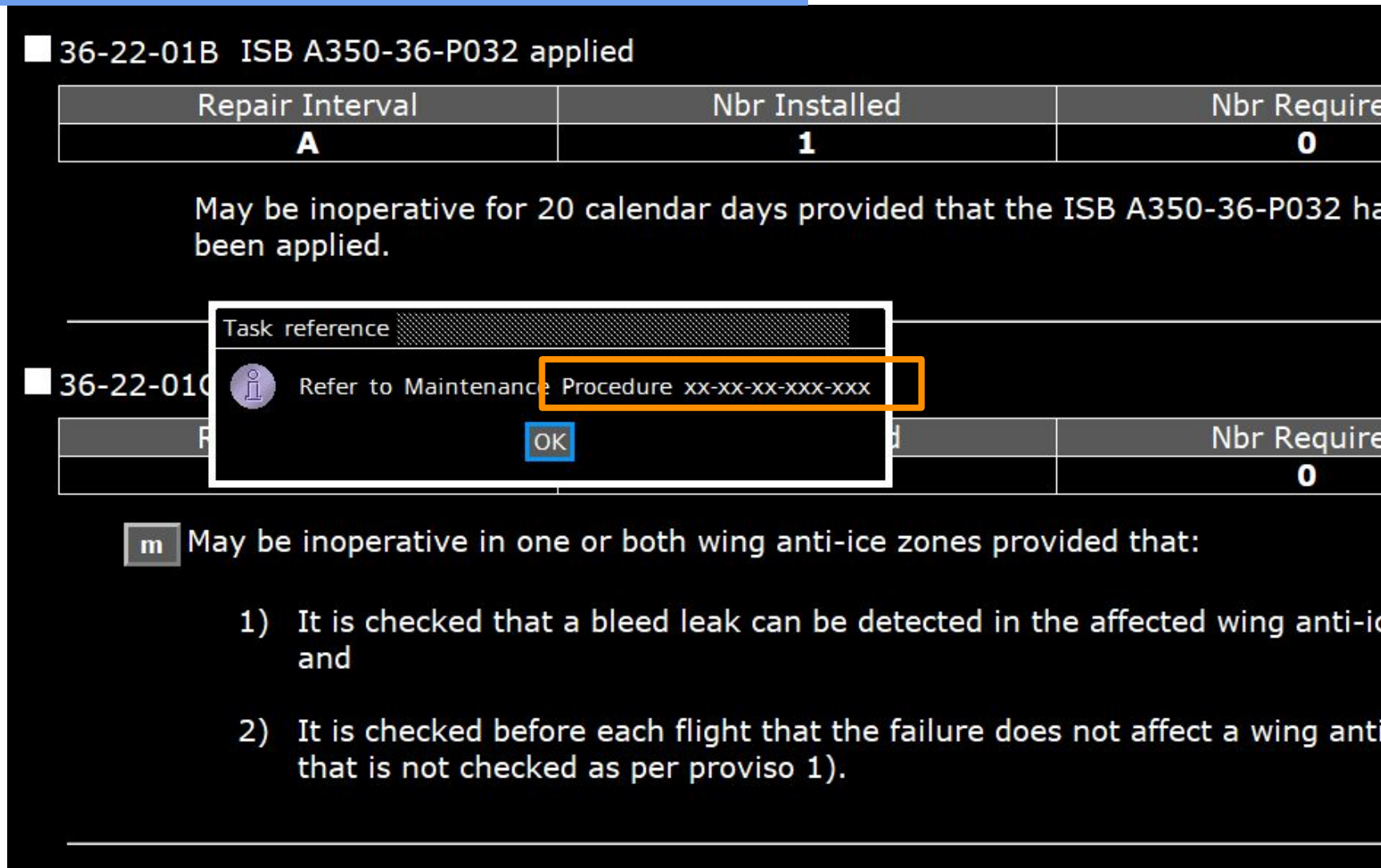
6) The integrity of the associated HP valve seal is checked before each flight.

AIRBUS

MMEL Structure: Link with Maintenance Procedures

➢ Maintenance procedure must be applied once or the frequency defined in the dispatch conditions

“TIP”: Refer to AMM task XXXXXXXX*” is displayed when the reference was not available at publication.
Contact Airbus to have an advance copy of the applicable AMM task.
Otherwise, dispatch **not permitted.**



MMEL Structure - Preamble & How to Use

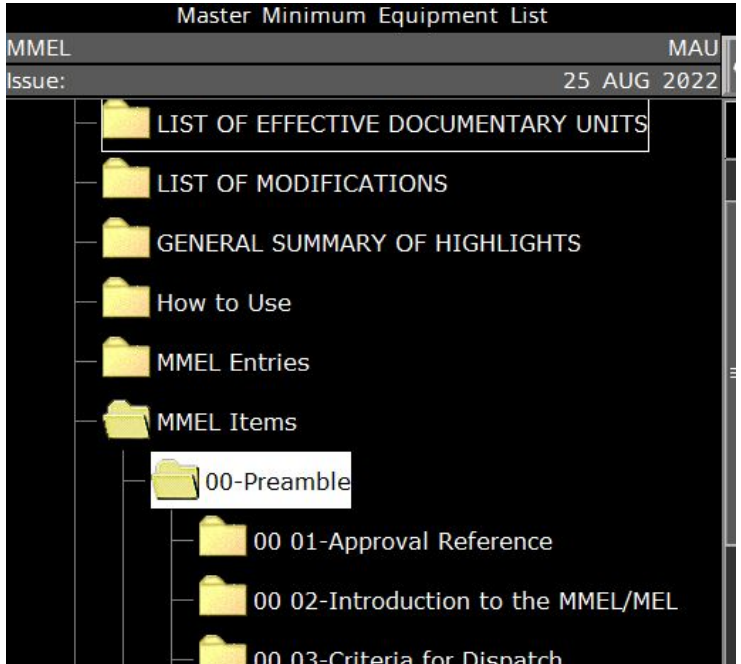
To go further

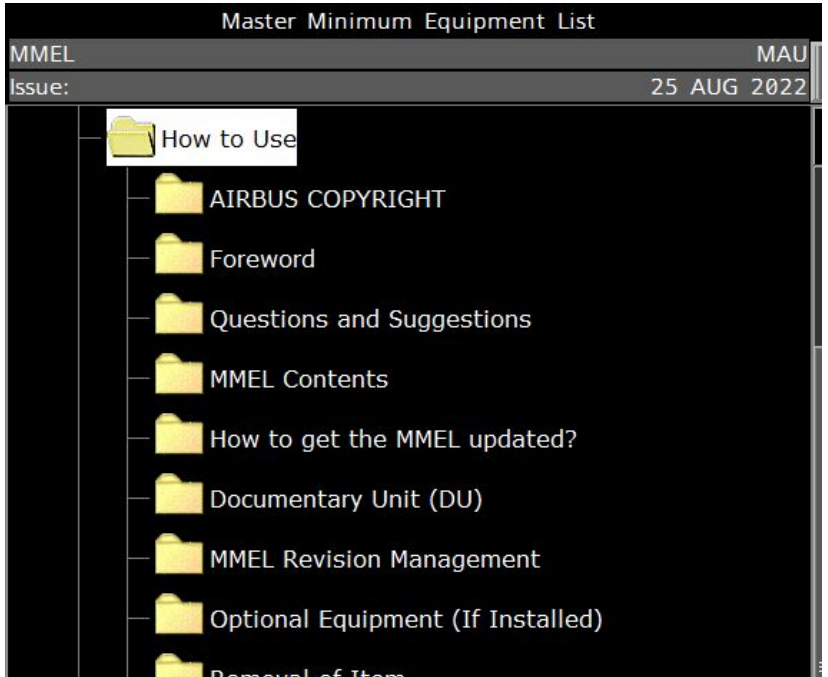
PREAMBLE
Approved general information about MMEL

- Approval reference
- Introduction to MMEL/MEL
- Criteria for Dispatch
- Maintenance Action
- Repair Interval
- Repair Interval Extension
- Definitions
- MMEL item depending on local regulations

HOW TO USE
General information on how to use the MMEL, in particular: MMEL Entries, MMEL items and MMEL operational procedure sections

- How to use MMEL Entries Section
- How to use MMEL Items Section
- How to use MMEL Operational procedure





AIRBUS

Agenda

Airbus MMEL Structure

MMEL Entries

MMEL items

MMEL Operational Procedures

Maintenance procedure

Additional concepts

Two-Sections MMEL (A220)

MMEL Additional Concepts - Some definitions

"**Inoperative"=** the item does not satisfactorily fulfill its function:

- Either the item does not work, or
- It does not ensure all functions, or
- It does not work within design operating limits/tolerance

"**Considered inoperative"=** the item must be treated as inoperative

➔ The associated MEL item must fully applied, including (o) and (m) procedures.

➔ There is a "refer to" the associated MEL item in the proviso to ease the application

34-01-02-03	GPWS G/S MODE pb-sw OFF LIGHT

☐ 34-01-02-03A

Repair Interval	Nbr Installed	Nbr Required
-	1	0

Placard

May be inoperative provided that the GPWS basic modes are considered inoperative.
Refer to Item 34-40-01 GPWS Basic Modes

"**Not used"=** the item should not be used in normal operations. All operational aspect of associated MEL item must applied, including the (o) and placard, but not the (m)

➔ The item may be used in emergency situation

☐ 26-01-02-01B Five or more bulbs or LEDs inoperative

Repair Interval	Nbr Installed	Nbr Required
C	8	0

o Five or more bulbs or LED s may be inoperative provided that:

1) ETOPS beyond 180 min is not conducted, and

2) The APU is not used.

"**Refer to"=** Must be applied.

➔ Apply associated MEL item, Operational or Maintenance procedure, Other manual

AIRBUS

MMEL Additional Concepts - Some definitions

"**Is operative"=** the item should not be logged in the logbook.
On A350, in some complex cases, the (o) procedure may request, to check, on the DISPATCH page, the absence of dispatch messages associated with the system operative.

➔ No specific check required

"**TIP:** When Item X requires that Item Y is operative, item Y will not repeat a proviso to request that Item X is operative.

"**Is checked operative"=** the item must be checked and confirmed operative by a (o) or an (m) procedure.

"**Multiple unserviceable"=** the MEL cannot take into account all combination of unserviceabilities.

➔ No maximum number of MEL items like in CDL

➔ Commander responsible to assess the impact on safety of the flight and crew workload

Agenda

Airbus MMEL Structure

MMEL Entries

MMEL items

MMEL Operational Procedures

Maintenance procedure

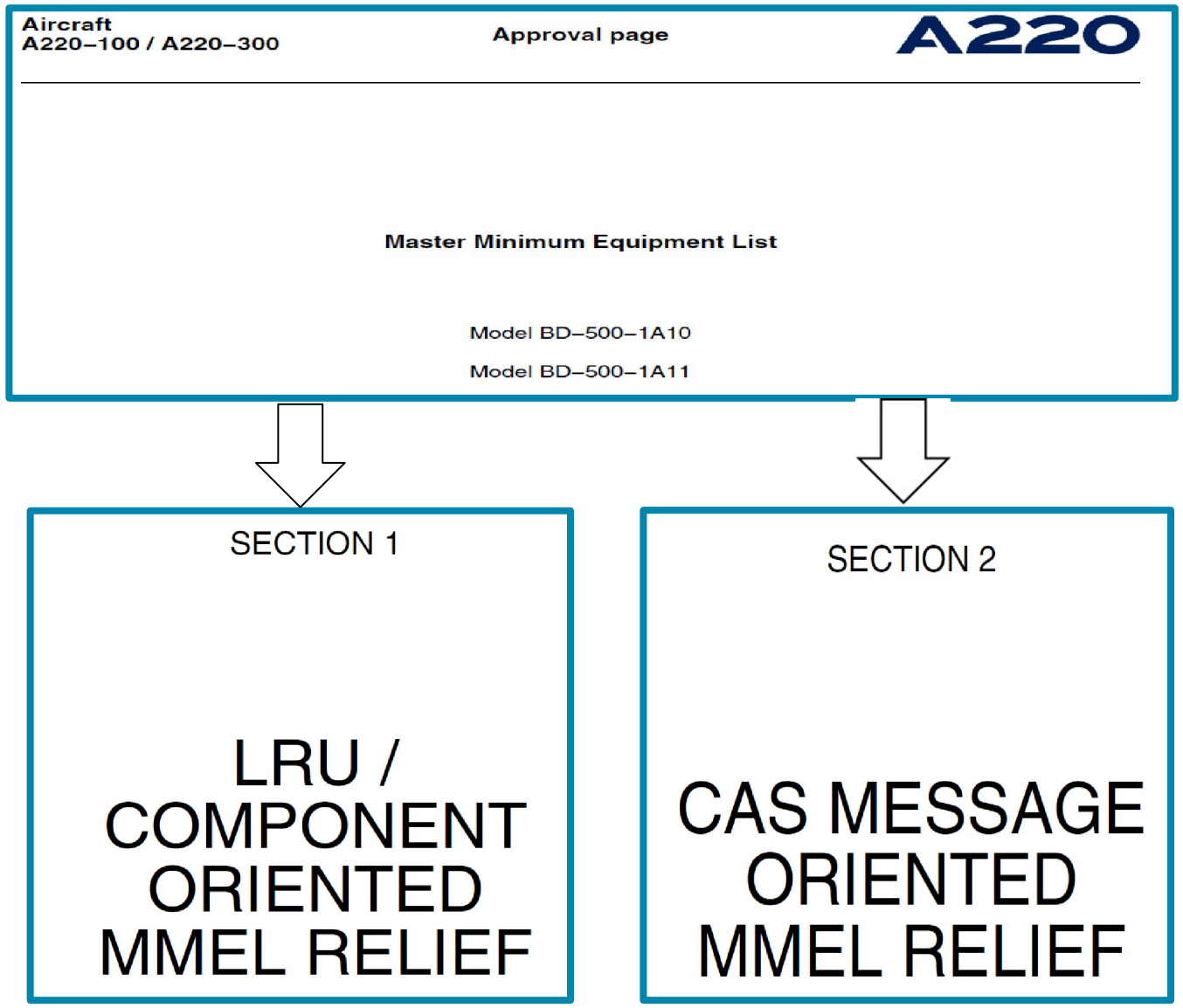
Additional concepts

Two-section MMEL (A220)

A220 TCCA/EASA MMEL

MMEL Structure:

1. Definitions
2. Acronyms
3. Preamble
4. Section 1
5. Section 2



MMEL “LRU ORIENTED”

- **1.** Failure Message (CAS) displayed on flight crew displays
- **2.** Flight Crew consults CAS MMEL Cross Reference List for possible failures
- **3.** The mechanic is required to troubleshoot for failed component (MMEL Item).
- **4.** Flight Crew uses the MMEL to dispatch the aircraft

Classic MMEL practices address a failed system / component that requires troubleshooting

- AUTO FLIGHT FAULT

Failed LRU might be:

1. AT 2 (dispatch permitted)
2. FCP A (no dispatch)
3. FCP B (no dispatch)

2)	AT 2	C	1	0	(O) May be inoperative and autothrottle used provided: (a) Autothrottle function 1 (AT 1) is operative, (b) Channel A of Flight Control Panel (FCP) is operative, (c) Data concentrator unit Modular Cabinet (DMC) 1A and 1B are operative, and (d) Operations do not require dual autothrottle systems.

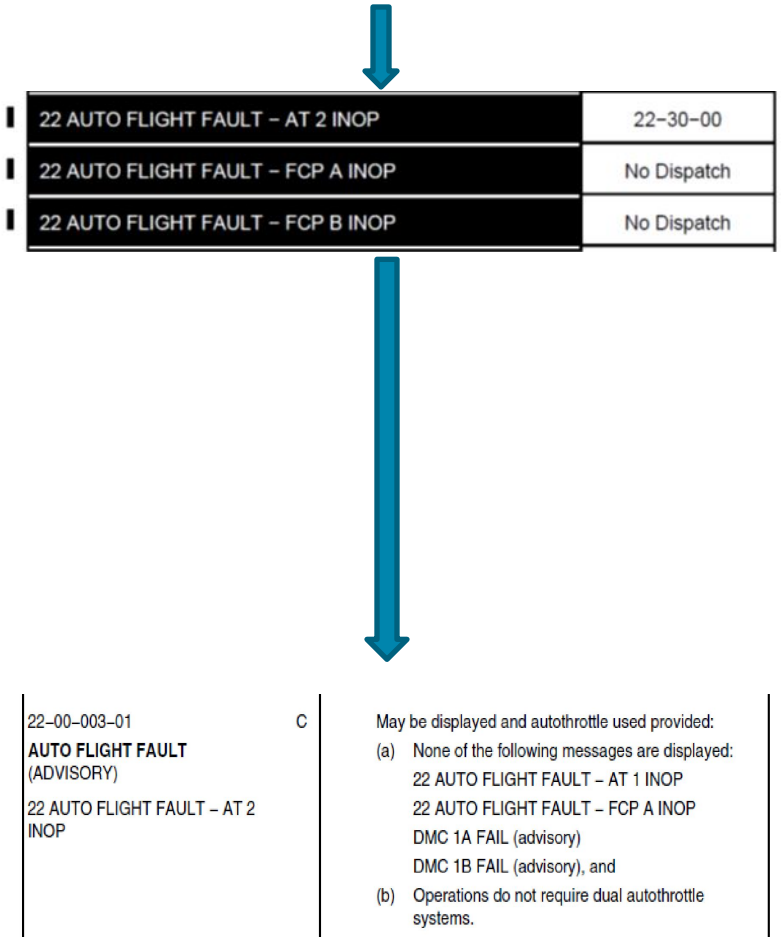
AIRBUS

MMEL “MESSAGE ORIENTED”

- **1.** Failure Message (CAS) displayed on flight crew displays
- **2.** Flight Crew consults CAS MMEL Cross Reference List for dispatch conditions
- The mech[illegible] required to troubleshoot for failed comp[illegible] (MMEL Item)
- **3.** Flight Crew uses the MMEL to dispatch the aircraft

Modern MMEL practices address a dedicated dispatch message to improve DR

- AUTO FLIGHT FAULT



See DDG

MMEL SECTION 1 vs SECTION 2

Aircraft CS100 – CS300 ATA – 25 **CSERIES**

System & Sequence N°	Item	1.	2. Number Installed	3. Number Required For Dispatch	4. Remarks or Exceptions
25 – EQUIPMENT/FURNISHINGS					
00–01	Overhead Control Panel				
1)	ELT "TEST" Light	C	1	0	(M) May be inoperative provided ELT test function is verified to be operative.
2)	PBA Switch Light (light function only) EVAC CMD "ON"	C	1	0	(O) May be inoperative provided evacuation (EVAC) horn is verified to be operative.
02–02	Observer Seat (Including Associated Equipment)	D	1	0	May be inoperative provided affected seat is not occupied and correctly stowed. NOTE: Observer's seat associated equipment includes safety belt, shoulder harness, audio control panel, oxygen system, microphone, headset, lights, etc.
11–01	Pilot Seats				
1)	Vertical Power Adjustments	D	2	0	One or both may be inoperative.
2)	Manual Vertical Adjustments	B	2	0	One or both may be inoperative provided: (a) Associated power adjustment of affected crew member seat is operative, and (b) Egress is not impaired.
3)	Recline Adjustments	B	2	0	(M) May be inoperative provided backrest is secured in a position acceptable to affected crewmember.
4)	Inboard Armrests	C	2	0	(M)(O) May be inoperative provided: (a) Affected armrest is secured in upright position or removed, and (b) Seat is acceptable to affected crewmember. (Cont'd)

Dispatch requires troubleshooting to Identify applicable MMEL item

INFO MESSAGE	MMEL RELIEF SECTION 1 ATA NUMBER	MMEL RELIEF SECTION 2 ITEM NUMBER
21 PACK FAULT – R PACK DISCH PRESS SNSR INOP	-	21–00–085–01 or 21–00–085–02 or 21–00–085–03 or 21–00–129–01
21 PACK FAULT – R PACK TEMP SNSR REDUND LOSS	-	21–00–079–01
21 PACK FAULT – R RAM AIR REG VLV INOP	21–53–18	-
21 PRESSURIZATION FAULT – BACKUP ALT LIM INOP	21–30–04	21–00–093–01
21 PRESSURIZATION FAULT – CPCS AUTO MODE REDUND LOSS	-	21–00–097–01
21 PRESSURIZATION FAULT – MANUAL MODE INOP	21–31–01	21–00–095–03
21 PRESSURIZATION FAULT – OFV FINGER FAIL IN	21–31–28	-
21 PRESSURIZATION FAULT – OFV FINGER FAIL OUT	21–31–28	-

Input to MMEL = Cross Ref List that list ALL CAS Messages (included at the beginning of DDG)

CSERIES Section 2 – CAS messages Aircraft CS100 – CS300

CAS Message Indication	1.	2. Remarks and Exceptions
23–00–023–01 **AVIONIC FAULT** (ADVISORY) 23 AVIONIC FAULT – RIU 1B AURAL INOP	C	May be displayed provided none of the following messages are displayed: 23 AVIONIC FAULT – RIU CH 1B INOP 23 AVIONIC FAULT – RIU CH 2B INOP 31 AVIONIC FAULT – RIU 2B AURAL INOP
23–00–025–01 **AVIONIC FAULT** (ADVISORY) 23 AVIONIC FAULT – RIU 2B AURAL INOP	C	May be displayed provided none of the following messages are displayed: 23 AVIONIC FAULT – RIU 1B AURAL INOP 23 AVIONIC FAULT – RIU CH 1B INOP 23 AVIONIC FAULT – RIU CH 2B INOP
23–00–027–01 **L CTP TUNING FAIL** (CAUTION)	C	(O) May be displayed provided: (a) None of the following messages are displayed: R CTP TUNING FAIL (caution) 23 AVIONIC FAULT – RIU CH 1A INOP 23 AVIONIC FAULT – RIU CH 2A INOP 23 AVIONIC FAULT – RIU CH 2B INOP DMC 1A FAIL (advisory) DMC 2A FAIL (advisory) (b) Reversionary tuning is confirmed operative on right Control Tuning Panel (CTP), (c) Radio Tuning System Application (RTSA) is verified operative, and (d) VHF NAV 2 is verified operative.
23–00–029–01 **R CTP TUNING FAIL** (CAUTION)	C	(O) May be displayed provided: (a) None of the following messages are displayed: L CTP TUNING FAIL (caution) 23 AVIONIC FAULT – RIU CH 1A INOP 23 AVIONIC FAULT – RIU CH 1B INOP 23 AVIONIC FAULT – RIU CH 2A INOP DMC 1A FAIL (advisory) DMC 2A FAIL (advisory) (b) Reversionary tuning is confirmed operative on left Control Tuning Panel (CTP), (c) Radio Tuning System Application (RTSA) is verified operative, and (d) VHF NAV 1 is verified operative.

Dispatch might require only O

AIRBUS

Dispatch Deviation Guide

System & Sequence N°	Item	1.	2. Number Installed	3. Number Required For Dispatch	4. Remarks or Exceptions
23 – COMMUNICATIONS					
51–01 Push–to–Talk (PTT) Switches					
1) Sidestick		C	2	1	(O) One may be inoperative open provided: (a) Associated side has at least one PTT switch that is operative, and (b) Affected switch is verified failed open (non–transmitting).
2) Flightcrew Audio Control Panel		C	2	1	(O) One may be inoperative provided: (a) Associated side has at least one PTT switch operative, and (b) Affected switch is verified failed open (non–transmitting).
3) Cursor Control Panel (CCP)		C	4	0	(O) One or more may be inoperative provided: (a) Associated side has at least one PTT switch that is operative, and (b) Affected switch is verified failed open (non–transmitting).

1. PLACARD (P)

A. Put a PUSH–TO–TALK SWITCH INOPERATIVE placard on the sidestick and/or the crew control panel and/or the cursor control panel.

2. MAINTENANCE (M)

A. Not required.

3. OPERATIONS (O)

A. For an inoperative sidestick Push–to–Talk (PTT) switch, do the steps that follow:

(1) Use the microphone, without pressing other switches, to make sure that the inoperative switch did not fail in the transmit mode.

(2) Press another switch on the associated side to make sure that transmission is operational.

Dispatch Deviation Guide (DDG) (A220)

AIRBUS

Wrap-up

MMEL has 4 main sections:

- **How to use**: with guidelines the use of the MEL
- **MMEL Entries (ME)**: Provide a dispatch assessment based on ECAM alert/Dispatch Message and Crew observation, with a link to applicable item
- **MMEL Item (MI)**: Provide the conditions of dispatch with proviso, time limitation, placard, link to (o) and (m), ETOPs limitations
- **MMEL Operational procedure (MO)**: Provide crew procedures, operational limitations and crew penalties

MMEL provide link with **Maintenance procedure** and **Performance application**

Thank you

AIRBUS