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Airbus
A318/A319/A320/A321; A330/A340

ATA 00
Documentation

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Training Manual

Lufthansa Technical Training

Lufthansa Technical Training

Dept HAM US
Lufthansa Base Hamburg
Weg beim Jäger 193
22335 Hamburg
Germany

Tel: +49 (0)40 5070 2520
Fax: +49 (0)40 5070 4746
E-Mail: Customer-Service@LTT.DLH.DE

www.Lufthansa-Technical-Training.com

Revision Identification:

- The date given in the column "Revision" on the face of this cover is binding for the complete Training Manual.
- Dates and author's ID, which may be given at the base of the individual pages, are for information about the latest revision of that page(s) only.
- The LTT production process ensures that the Training Manual contains a complete set of all necessary pages in the latest finalized revision.

ATA 00 DOCUMENTATION

CHAPTER BREAKDOWN

Each chapter is assigned its number and title by ATA Spec. 2200 and is identified by the first element in the standard numbering system.

AIRCRAFT GENERAL

- 05 – Time Limits/Maintenance Checks
- 06 – Dimensions and Areas
- 07 – Lifting and Shoring
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- 75 – Air
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INTRODUCTION

GENERAL DESCRIPTION

General

The maintenance documents for the Airbus Aircraft supply help for all maintenance activities. You use many different documents to do scheduled and unscheduled maintenance. The documents are available for maintenance either in a digital format (AirN@v) or PDF files, microfilm or in a paper format according to the A/C-Type and/or the facilities available.

Maintenance of Equipment off the Aircraft

Information required for the maintenance of equipment off the A/C (shop maintenance) is contained in:

- the CMMV (**C**omponent **M**aintenance **M**anual **V**endor)
- or CMMM (**C**omponent **M**anufacturer **M**aintenance **M**anual).

Inspections and Aircraft Structure

The AMM also contains information about inspections and maintenance of aircraft structure. However, repair of structure is contained in:

- the SRM (**S**tructural **R**epair **M**anual)
- or NSRM (**N**acelle **S**tructural **R**epair **M**anual).

Trouble Shooting

Information required for trouble shooting is contained in the TSM (**T**rouble **S**hooting **M**anual).

Scheduled Maintenance

These are examples of scheduled maintenance work, such as through stop checks, aircraft turn around, daily checks or planned checks. The AMM contains the necessary data to cover scheduled maintenance procedures prescribed by:

- the MRBR (**M**aintenance **R**eview **B**oard **R**eport),

Unscheduled Maintenance

Different examples comprises an unscheduled maintenance work, such as Flight faults, Ground faults, Service problems or Structural damage.

Documents for unscheduled maintenance are:

- the deactivation/reactivation procedures relative to MMEL (**M**aster **M**inimum **E**quipment **L**ist)

Other documents used for unscheduled maintenance are as mentioned before:

- TSM (**T**rouble **S**hooting **M**anual)
- and SRM (**S**tructural **R**epair **M**anual).

If any or all of the AMM is translated, the official version shall be the original English language version produced by AIRBUS.

AIRBUS Technical Publications use both metric and non−metric systems of measurement. The system used in the original reference documents is quoted first, followed by the conversion into the other system in brackets.

Supporting Data

These documents supply supporting data to do scheduled and unscheduled maintenance:

- IPC (**I**llustrated **P**arts **C**atalog).
- WDM (**W**iring **D**iagram **M**anual) which includes:
  - ASM (**A**ircraft **S**chematic **M**anual),
  - AWM (**A**ircraft **W**iring **M**anual)
  - AWL (**A**ircraft **W**iring **L**ist).

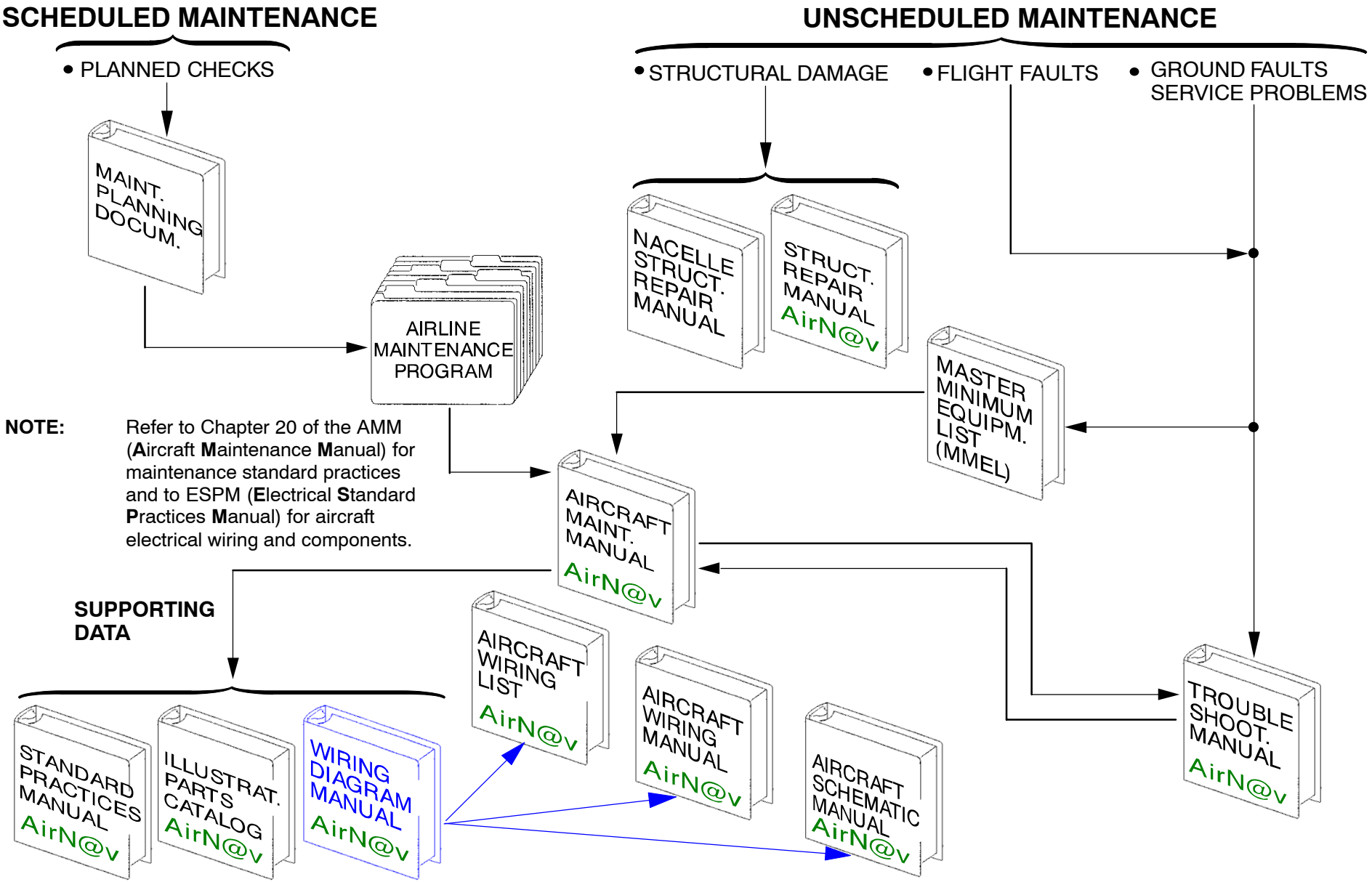


Figure 1 Maintenance Documents-Introduction

MANUALS CUSTOMIZATION INTRODUCTION

The Technical Documentation has customized and non−customized manuals. A customized manual contains only the information applicable to a particular airline or a group of operators, while a non−customized manual contains information applicable to all airlines: applicable to all Airbus products (generic), or for one aircraft type family (envelope).

As an example, the customized manuals are:

- The AMM (**A**ircraft **M**aintenance **M**anual),
- The TSM (**T**rouble **S**hooting **M**anual),
- The IPC (**I**llustrated **P**art **C**atalogue),
- The ASM (**A**ircraft **S**chematic **M**anual),
- The AWM (**A**ircraft **W**iring **M**anual),
- The AWL (**A**ircraft **W**iring **L**ist).

As an example envelope manuals are:

- NTM (**N**ondestructive **T**esting **M**anual)
- SRM (**S**tructural **R**epair **M**anual)
- CMM (**C**alibration **M**emory **M**odule)
- MPD (**M**aintenance **P**lanning **D**ocument)
- DFPRM **(D**uct and **F**uel **P**ipe **R**epair **M**anual)

As an example generic manuals are:

- ESPM (**E**lectrical **S**tandard **P**ractices **M**anual)
- CML (**C**onsumable **M**aterial **L**ist)
- SM (**S**tandard Art **M**anual)

  A datasheet for some components such as screws, bolts and so on.

As an example engineering manuals/documents are:

- AOT (**A**ll **O**perator **T**elex)
- FOT (**F**light **O**perator **T**elex)
- OIT (**O**nboard **I**nformation **T**erminal)
- SIL (**S**ervice **I**nformation **L**etter)
- TFU (**T**echnical **F**ollow **U**p)
- OEB (**O**perator **E**ngineering **B**ulletin)
- SB (**S**ervice **B**ulletin)
- VSB (**V**endor **S**ervice **B**ulletin)
- MOD (**MOD**ification)
- MP (**M**odification **P**roposal)
- AD (**A**uthority **D**irective)
- CN (**C**onsigne de **N**avigabilite)

Main Manuals for Line Maintenance

The main maintenance manuals are: the AMM, TSM, IPC, PIPC, ASM, AWM, AWL, and ESPM.

All these manuals are available on board through AirN@v Maintenance.

The often−used manuals for Line maintenance are also:

- The MEL (**M**inimum **E**quipment **L**ist) available on board through the FOCT (**F**light **O**peration **C**onsultation **T**ool),
- The SRM (**S**tructural **R**epair **M**anual) available through AirN@v Repair,
- the CML (**C**onsumable **M**aterial **L**ist) available through AirN@v Associated Data, and
- the CMM (**C**omponent **M**aintenance **M**anual) available through AirN@v Workshop.

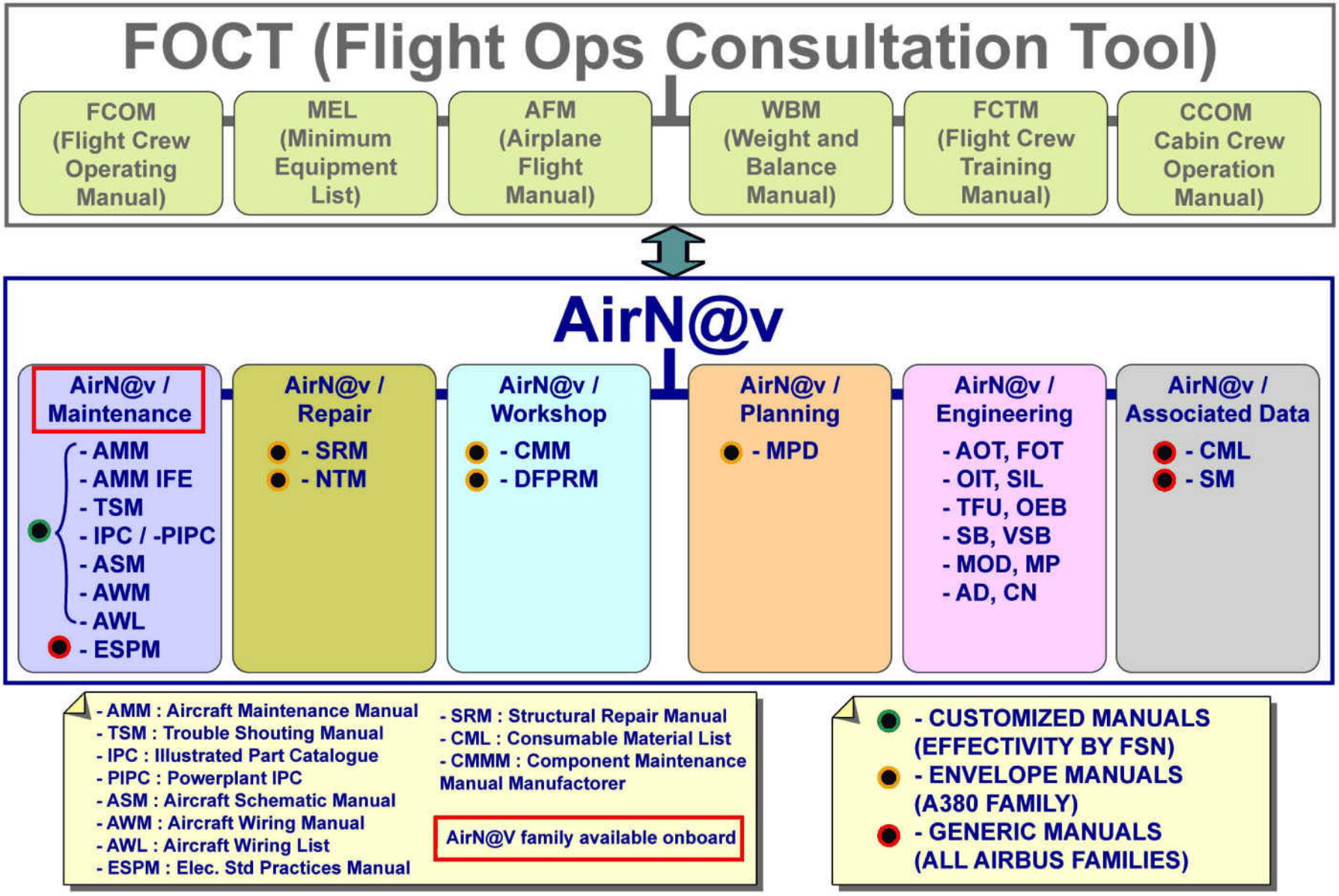


Figure 2 Manuals Customization & Main Manuals

ATTENTION: The following mentioned manuals are in accordance with ATA Specification No. 2200 (except A310/A306 which is in accordance with ATA Specification 100).

Aircraft Maintenance Manual (AMM)

The data contained in the AMM will be established in general compliance with ATA (**A**ir **T**ransport **A**ssociation) Specification 2200 (iSpec2200), Information Standards for Aviation Maintenance.

The AMM contains information required to service, repair, replace, adjust, inspect and check equipment and systems on the aircraft. These tasks are normally performed on the ramp or in the maintenance hangar.

The practices and procedures data are related to these functions:

- Maintenance Procedures
- Maintenance Practice (MP)
- Servicing (S)
- Deactivation/Reactivation (D/R)
- Removal/Installation (R/I)
- Adjustment/Test (A/T)
- Inspection/Check (I/C)
- Cleaning/Painting (C/P)
- Approved Repairs (AR)

Maintenance Planning Document (MPD)

It is the manufacturer's responsibility to identify scheduled maintenance tasks that form part of the instructions for continued airworthiness of the aircraft.

The main objective of MPD (**M**aintenance **P**lanning **D**ocument) is to provide maintenance planning information necessary for each operator to develop a customized scheduled maintenance program.

The MPD defines the tasks for each type of scheduled maintenance check. Most airlines use the MPD to make a set of task cards that the technician uses during the checks.

Each individual airline has final responsibility to decide with his national authority what to do and when to do it.

It should be noted that only the Airworthiness Authorities can mandate the performance of maintenance tasks at specified intervals.

Trouble Shooting Manual (TSM)

The TSM is provided by AIRBUS to enable the systematic identification, isolation and correction of aircraft warnings and malfunctions reported in flight and on the ground.

Thus the function of the TSM is to give aircraft maintenance personnel sufficient data to isolate failures and/or malfunctions that occur in the aircraft systems as quickly and as accurately as possible. It is limited to the replacement of **LRU**s (**L**ine **R**eplaceable **U**nits) and/or wiring repairs only to correct these failures.

Regular or scheduled maintenance is not included as part of fault isolation.

This manual is in accordance with ATA Specification No. 2200 (Except A310/A300–600).

Minimum Equipment List (MEL)

By authorization of the MEL, the authority permits to dispatch an aircraft with certain items or components inoperative. An acceptable level of safety must be provided by an appropriate operation. This could be achieved by a transfer of the function to another operating component, or by reference to other instruments or components providing the required information

The applicable Operational and Maintenance procedures should be obtained from the aircraft manufacturer. These procedures may be included in the MMEL document, or they may be in a separate document produced by the manufacturer e.g. a Dispatch Deviations Guide, Aircraft Deactivation Procedures Manual.

Illustrated Parts Catalog (IPC)

The IPC is a companion to the Maintenance Manual and includes all parts for which maintenance practice has been provided. AIRBUS expressly disclaims any and all responsibility for data added, deleted and/or revised by airline/operator initiated modifications to this document. Part numbers shown in this document, arrangement and breakdown sequence of items are compatible with the ATA specification 2200.

Items from the PIPC (**P**ower Plant **IPC**) are included related to AMM Tasks. For all engine types a separate PIPC is available except for IAE V2500.

Wiring Diagram Manual (WDM)

The WDM (**W**iring **D**iagram **M**anual) is subdivided into three manuals:

- ASM (**A**ircraft **S**chematic **M**anual)
- AWM (**A**ircraft **W**iring **M**anual)
- AWL (**A**ircraft **W**iring **L**ist)

The purpose of this manual is to permit a full understanding of electrical and electronic system, operation, troubleshooting and maintenance.

The Standard Practices of this part are transferred to:

- The new ESPM manual for WDM 20−00−00 to 20−69−99,
- The AMM 70−71−XX for the WDM engine part (20−70−XX)

ELECTRICAL STANDARD PRACTICES MANUAL (ESPM)

The ESPM (**E**lectrical **S**tandard **P**ractices **M**anual) gives descriptive data and procedures for the electrical installations on all aircraft of the AIRBUS family. The standard practices information in this manual tells the operator how to do maintenance and repairs on the standard electrical items.

This information is broken down in 2 mains chapters:

Chapter 00 (common part) with:

- General, How to use (00−INTRO)
- Indexes

Chapter 20 (several depending the responsible) with:

- Safety Practices (20−10−00)
- Tools (20−25−XX)
- Subjects related to standard rules and recommendations (20−3X−XX):
- Subjects related to standard electrical items and connecting parts with their description (P/N identification and characteristics) and their related processes (connection procedure or connection table) (20−4X−XX):

NOTE: Several Chapter 20 exist, depending on the vendor who is responsible of the system (ECE, Honeywell,...) but whatever the vendor, their chapter 20 follows this layout.

NOTE: The power plant related Electrical Standard Practices data is published in the AMM 70−71−XX.

ATA ISPEC 2200

The ATA ispec 2200 is a global aviation industry standard for the content, structure, and electronic exchange of aircraft engineering, maintenance, and flight operation information.

The ATA iSpec 2200 includes the ATA Spec 100 and the ATA Spec 2100. The ATA Spec 100 structures the documentation by numbering aircraft systems. That means that all documentation has a breakdown as follows:

- ATA 05–12 Aircraft General,
- ATA 20–50 Airframe,
- ATA 51–57 Structure,
- ATA70–80 Power Plant.

The ATA Spec 2100 defines the electronic formatting standards for example:

- The SGML (text standard),
- The CGM (graphic standard),
- The VRML (3D animation standard).

The A380 technical documentation is developed for the AirN@v application.

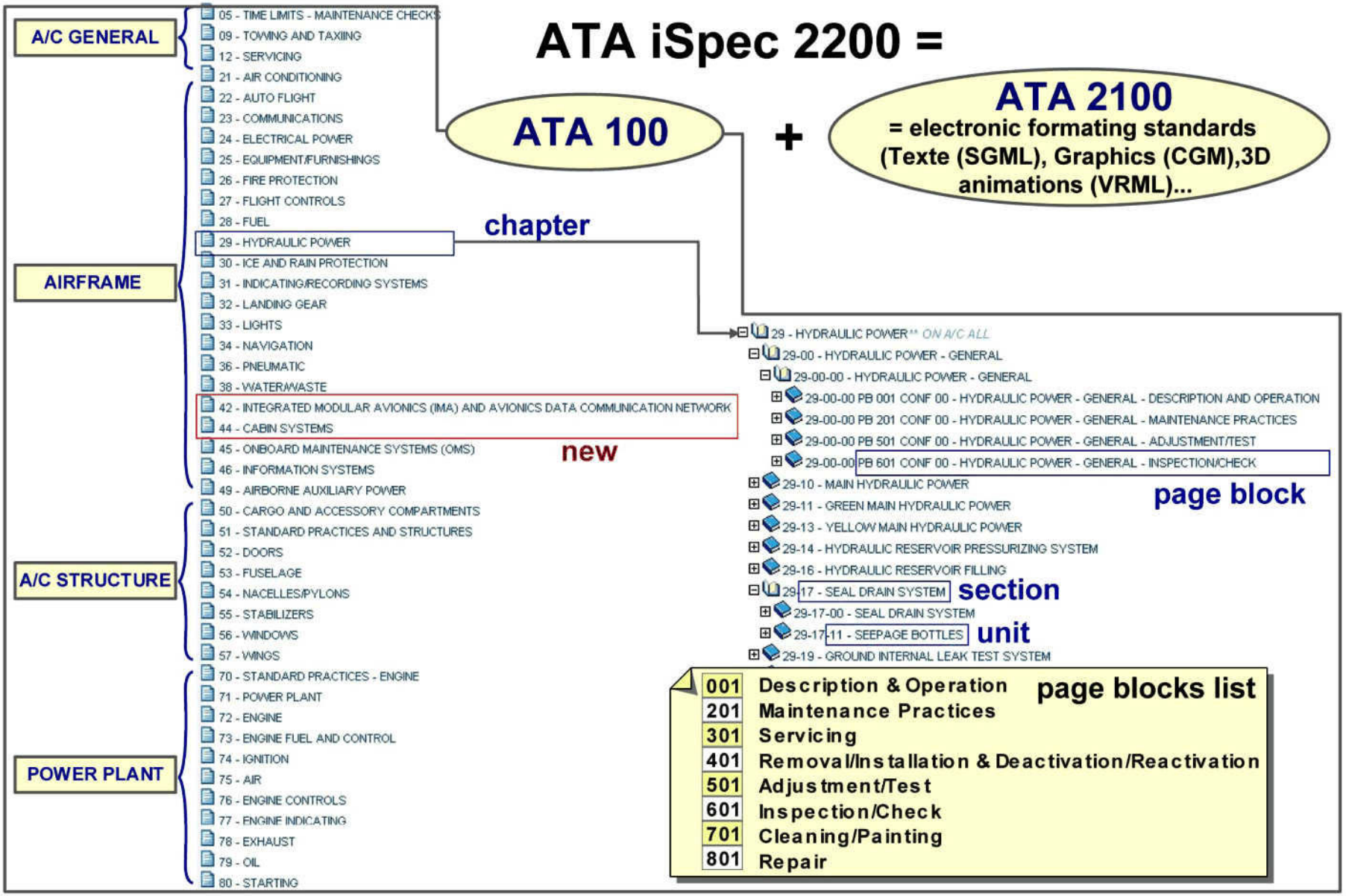


Figure 3 ATA ISPEC 2200

TYPICAL USE OF AIRBUS DOCUMENTATION

Scheduled Maintenance

The deferred work packages, selected SBs (**S**ervice **B**ulletins) and the tasks called by MPD are scheduled.

Un-scheduled Maintenance

That is the crew entry report on the TECHNICAL LOGBOOK that makes the maintenance action/reply mandatory.

The FAULT symptom is made typically of the ECAM warning associated with the BITE fault message, and it is normally printed on the PFR (**P**ost **F**light **R**eport) too. (A310/A300−600 without Central Maintenance System/PFR)

The maintenance team can use:

- the MMEL (**M**aster **M**inimum **E**quipment **L**ist) or the CDL (**C**onfiguration **D**eviation **L**ist),

  consulting a particular permitted de−activation on the A/C system or A/C part. The AMM contains full de−activation task and associated procedures,
- the TFU (**T**echnical **F**ollow **U**p),

  giving the result of the technical investigation about a particular warning or event, and its recommendation may include a ”MAINTENANCE ADVICE” for LINE or SHOP maintenance,
- the SIL (**S**ervice **I**nformation **L**etter) 00−028/038/041,

  covering the messages/BITE deviations and for which the statement ”NO MAINTENANCE ACTION, if ...” may exist.

The technical services team can assist the maintenance team, by retrieving information from:

- the applicable FOT (**F**light **O**perations **T**elex), OEB (**O**peration **E**ngineering **B**ulletin), AOT (**A**ll **O**perator **T**elex) or OIT (**O**perator **I**nformation **T**erminal),
- any other document, consulting EDCI (**E**ngineering **D**ocumentation **C**ombined **I**ndex),
- any other document, consulting AOLS (**A**irbus **O**n**L**ine **S**ervice).

When troubleshooting is unavoidable, the maintenance team is using the following manuals:

- TSM (**T**rouble **S**hooting **M**anual),
- ASM (**A**ircraft **S**chematic **M**anual),
- AMM (**A**ircraft **M**aintenance **M**anual),
- IPC (**I**llustrated **P**arts **C**atalog),
- AWM (**A**ircraft **W**iring **M**anual),
- AWL and (**A**ircraft **W**iring **L**ist)
- ESPM (**E**lectrical **S**tandard **P**ractices **M**anual).

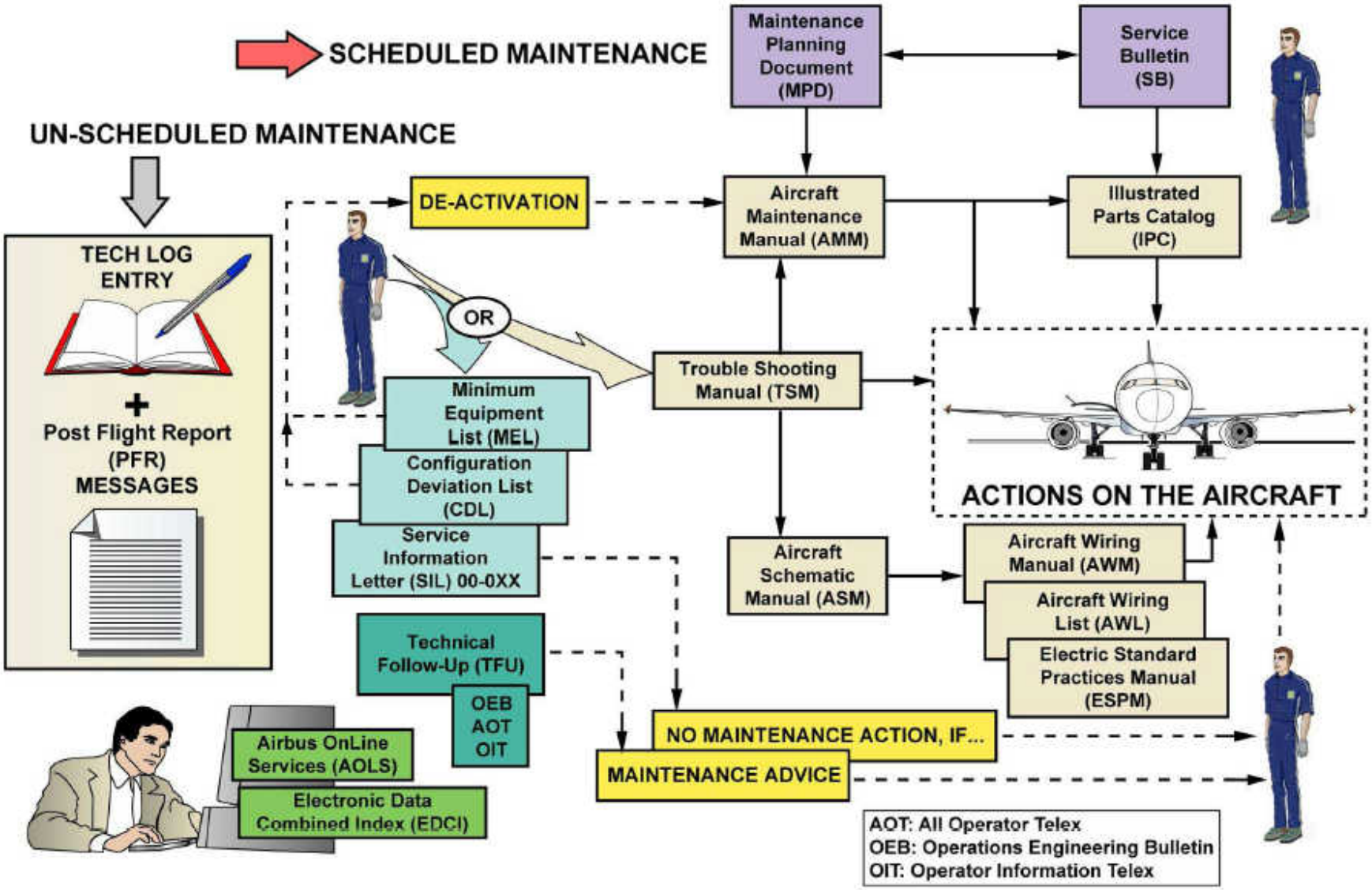


Figure 4 Typical Use of Airbus Documentation

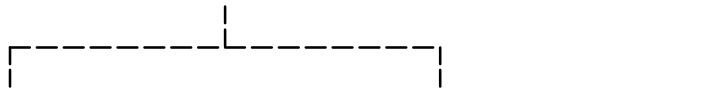
AIRCRAFT MAINTENANCE MANUAL

AMM INTRODUCTION

CHAPTER BREAKDOWN POLICY

Each chapter/system is divided into sections/subsystems (combinations of functional/physical groups).

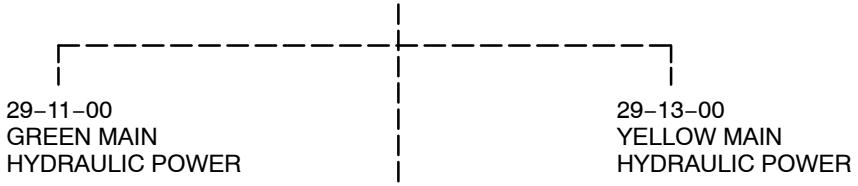
Example : 29–00–00 HYDRAULIC POWER



29–10–00 MAIN HYDRAULIC POWER 29–20–00 AUXILIARY HYDRAULIC POWER

Each section/subsystem is further divided into sub–section/sub–subsystems (Installations/Circuits).

Example : 29–10–00 MAIN HYDRAULIC POWER



Each sub–section/sub–subsystem is further divided into subjects.

Example : 29–11–00 GREEN MAIN HYDRAULIC POWER

29–11–17	PRESSURE SWITCH 4001JG
29–11–32	RELIEF VALVE 5021JM1
29–11–33	PRIORITY VALVE 5121JM
29–11–34	HSMU 1JG

AMM FEATURES

The information contained in the AMM has been divided into two main categories:

- D/O (**D**escription/**O**peration) and
- MP (**M**aintenance **P**rocedure).

Description and Operation (D/O) (Pages 1 to 99)

The description and operation portion provides an explanation of systems for function, operation, control and component location. Sufficient information is provided for the maintenance personnel to understand the system construction and function.

Maintenance Practices (MP) (Pages 201 to 299)

These topics are used for procedures which provide general Maintenance Practice Procedures such as:

- Aircraft jacking
- Aircraft leveling
- Application of electrical, pneumatic, hydraulic power
- Opening/closing of engine cowling, MLG doors, etc...
- Installation of complex safety devices
- Etc...

Servicing (S) (Pages 301 to 399)

- Procedures covering replenishment (hydraulic fluid, fuel, etc.) are listed in chapters 12–13–XX. The last two digits indicate the ATA reference at subject system.
- At subject/component level (XX–XX–XX), procedures covering e.g. filters, magnetic plug, lamp replacement, etc.

Removal/Installation and Deactivation/Reactivation (Pages 401 to 499)

- Removal/Installation (R/I)

  At subject/component level (XX–XX–XX), this topic provides all data necessary for removing, installing or replacing a component. These procedures are composed of two independent tasks, one for the removal and one for the installation.

  – For removal task:

    Because the installation task normally follows the removal task, the close–up procedure is considered to be not applicable. Where there is a time separation between removal and installation tasks, it is anticipated that the operator will use common sense to determine the applicable close–up procedures to be adopted.

  – For installation task:

    The job set–up is only a reminder of the main operations to be carried out such as opening of the circuit breakers, installation of the warning notices and access platform(s), etc. The sentence ”Aircraft Maintenance Configuration” reminds the operators that they must ensure that the aircraft configuration resulting from the job set up of the removal must be verified before they initiate the installation procedure.

    NOTE: All equipment removed, or zones behind access panels removed to get access during a maintenance operation, must also be examined before re–installation.

    This requirement is not specially quoted in each procedure as it is a part of standard maintenance practices.

  When a component and directly related parts require in situ adjustment or check/test which do not involve complex, time–consuming operations, the work involved is included in the Installation task.

  Cross–reference to the Page Block 501 (Adjustment/Test) is restricted to a minimum.

- Deactivation/Reactivation (D/R)

  The deactivation procedures describe the procedures to be performed to allow flight operations with a system or a part of system failed according the MMEL (**M**aster **M**inimum **E**quipment **L**ist) and CDL (**C**onfiguration **D**eviation **L**ist) requirements.

  These procedures are given at Chapter/Section level (XX–XX–00).

  – Deactivation:

    These procedures are also listed in the Deactivation/Reactivation Index at the beginning of the AMM.

  – Reactivation:

    The reactivation procedures describe the maintenance operations to be required to restore the system to normal operation after removal or deactivation of the faulty component or system. A reactivation procedure may be preceded by a trouble–shooting procedure, in this case a cross–reference to the TSM is given.

Adjustment/Test (A/T) (Pages 501 to 599)

A. Operational Test:

This test is required to ascertain only that a system or unit is operational. This test normally does not require special equipment or facilities other than that installed on the aircraft and is comparable to the test performed by the flight crews.

B. Functional Test:

This test is required to ascertain that a system or unit is functioning in all aspects in accordance with minimum acceptable system or unit design specifications. This test may require supplemental ground support equipment and is more specific and detailed than an operational test.

C. System Test:

This test contains all adjustment specifications and tolerances required to maintain system and/or unit performance at maximum efficiency and design specifications.

Inspection/Check (I/C) (Pages 601 to 699)

Inspection/Check topics are divided into two parts:

- I/C without component removal, like:
  - visual I/C (cracks, damage, oxidation, paint, etc.)
  - measurements displacement, travel, overall clearances, leak measurements, etc.
  - I/C further to the removal of components from the aircraft.
- I/C with component removal, like:
  - original manufacturers dimensions
  - maximum and minimum clearances and in−service wear limits (are given in table form).

There are three types of inspections:

- DI (**D**etailed **I**nspection):

  An intensive examination of a specific item, installation or assembly to detect damage, failure or irregularity. Available lighting is normally supplemented with a direct source of good lighting at an intensity deemed appropriate. Inspection aids such as mirrors, magnifying lenses etc. may be necessary. Surface cleaning and elaborate access procedures may be required.
- GVI (**G**eneral **V**isual **I**nspection):

  A visual examination of an interior or exterior area, installation or assembly to detect obvious damage, failure or irregularity. This level of inspection is made from within touching distance unless otherwise specified. A mirror may be necessary to ensure visual access to all surfaces in the inspection area. This level of inspection is made under normally available lighting conditions such as daylight, hangar lighting, flashlight or drop−light and may require removal or opening of access panels or doors. Stands, ladders or platforms may be required to gain proximity to the area being checked.
- SDI (**S**pecial **D**etailed **I**nspection)

  An intensive examination of a specific item, installation, or assembly to detect damage, failure or irregularity. The examination is likely to make extensive use of specialized Inspection Techniques and/or equipment. Intricate cleaning and substantial access or disassembly procedure may be required.

Cleaning/Painting (C/P) (Pages 701 to 799)

Cleaning/painting procedures which require special precautions (parts contaminated by hydraulic fluid, battery acid, etc.) are included in the relevant chapter.

Approved Repairs (AR) (Pages 801 to 899)

This topic provides approved repair procedures with the exception of those covered by the CMMM/CMMV or by the SRM/NSRM.

IMPORTANT:

The AMM does not include temporary repairs.

If temporary repairs are made, it is the responsibility of the operator to record the following:

- location of the damage
- nature of the damage
- nature of the repair
- service life limit of the temporary repair.

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AIRCRAFT STATUS FOR MAINTENANCE DESCRIPTION

Aircraft Status for Maintenance

The following items shall be considered as the basic aircraft configuration, before you start a maintenance task:

- Aircraft on the ground resting on landing gear (the ground safety locks and the wheel chocks are in position on the landing gear).
- Engines shut down, thrust reversers closed and locked.
- Hydraulic systems depressurized.
- Access to the cockpit and cabin is available.
- All circuits breakers are in closed position.
- All controls in NORM, AUTO or OFF position.
- Aircraft in clean configuration.
- Parking brake applied.
- Aircraft electrical network de−energized.

In case a specific aircraft configuration is required during a maintenance procedure, a specific paragraph ”Aircraft Configuration” is provided at task level.

For the ASM (**A**ircraft **S**chematic **M**anual) the same items are applying.

MANUAL STRUCTURE PRESENTATION

DESCRIPTION AND OPERATIONS

Description and Operation (D/O) Structure (Pages 1 to 99)

The information contained in the topic ”DESCRIPTION AND OPERATION” is covered at three levels:

- At chapter/system level (example XX−00−00),
- At section/subsystem level (XX−X0−00),
- At sub−section/sub−subsystem level (XX−XX−00).

General

Main functions are described for functional/physical groups and their relationship with other groups and systems.

Component Location

Details the major components within an installation/circuit with following information:

- Component electrical or mechanical FIN (**F**unctional **I**dentification **N**umber)s.
- Functional Designation (Component name).
- Instrument panel number which accommodates the controls/indicators, if applicable.
- The zone in which the component is located.
- Access Door numbers.
- ATA reference which contains the R/I procedure of the component.

System Description

The system description is detailed as follows:

- Power supply (if applicable)

  This paragraph provides essentially an illustration showing electrical circuit supply. e.g. Block diagram, simplified schematic.
- Interface (if applicable)

  A block diagram or a simplified schematic is provided to show the relationship between the system involved and the others systems.
- Component description

  Broad descriptive and operational information for major components of the functional/physical group.
- Operation

  Detailed operational information on the installation/circuit are provided. The associated schematic shows the FIN of each component and associated electrical connections. The aim is to facilitate fault isolation and to ease cross−reference to the AWM (**A**ircraft **W**iring **M**anual).
- Test (if applicable)

  This paragraph provides brief description of BITE or special test system.

Link to Onboard Maintenance System (A380 only)

Onboard the aircraft, there are interactive links between AirN@v and the OMS. The AMM procedures give these links for:

- Access to the PDCS (**P**ower **D**istribution **C**ontrol **S**ystem):

  This link is identified by the ”C/B” button in the AMM subtasks with function code 865 and gives a direct access to the related C/B list.
- Access to the CMS (**C**entral **M**aintenance **S**ystem) (System Report/Test function):

  This link is identified by the ”System Report/Test” button in the AMM tasks with function code 740 and gives a direct access to the related BITE test.
- Access to the DLCS (**D**ata **L**oading and **C**onfiguration **S**ystem) (Equipment Identification function):

  This link is identified by the ”IDENT” button in the AMM tasks with function code 616 and gives a direct access to the related equipment configuration check (software and hardware configuration).
- Access to the DLCS (Uploading function):

  This link is identified by the ”LOAD” button in the AMM tasks with function code 616 and gives a direct access to the uploading of software to the related equipment.

MAINTENANCE PROCEDURE (MP) STRUCTURE

A maintenance procedure is made up of one task and subtasks.

Each task is broken down in the following paragraphs:

- Reason for the Job

  The paragraph ”reason for the job” may refer to the following Airbus documents: MMEL, CDL or MPD task.

  NOTE: Additional FAA MMEL items (not covered by an Airbus MMEL item), specific for operators under FAA regulation are highlighted by (FAA only).

  This paragraph may be used to explain the reason for the task.

- Job Set−up Information

  NOTE: The Paragraph ”Job Set−up Information” is not customized. So all information listed in this paragraph are applicable for all aircraft listed in the task. However the text within the procedure is fully customized at subtask level.

- Job Set−up
- Procedure
- Close up (if applicable)

Tools and Ground Support Equipment

The Special Tools and Support Equipment required for the maintenance operations are identified either by their Part Numbers or by their main features. Total quantity of special tools for the tasks are also indicated.

Materials

All the materials which are prescribed for use during maintenance procedures are recorded in chapter 20−31−00 and 70−30−00 as follows:

- 20−31−00 − General use and APU,
- 70−30−00 − Use specific to the engines.

Referenced Information

Any additional information which is necessary to perform a maintenance procedure (Task) is listed in the paragraph ”Job Set−up Information” under the title ”Referenced Information”.

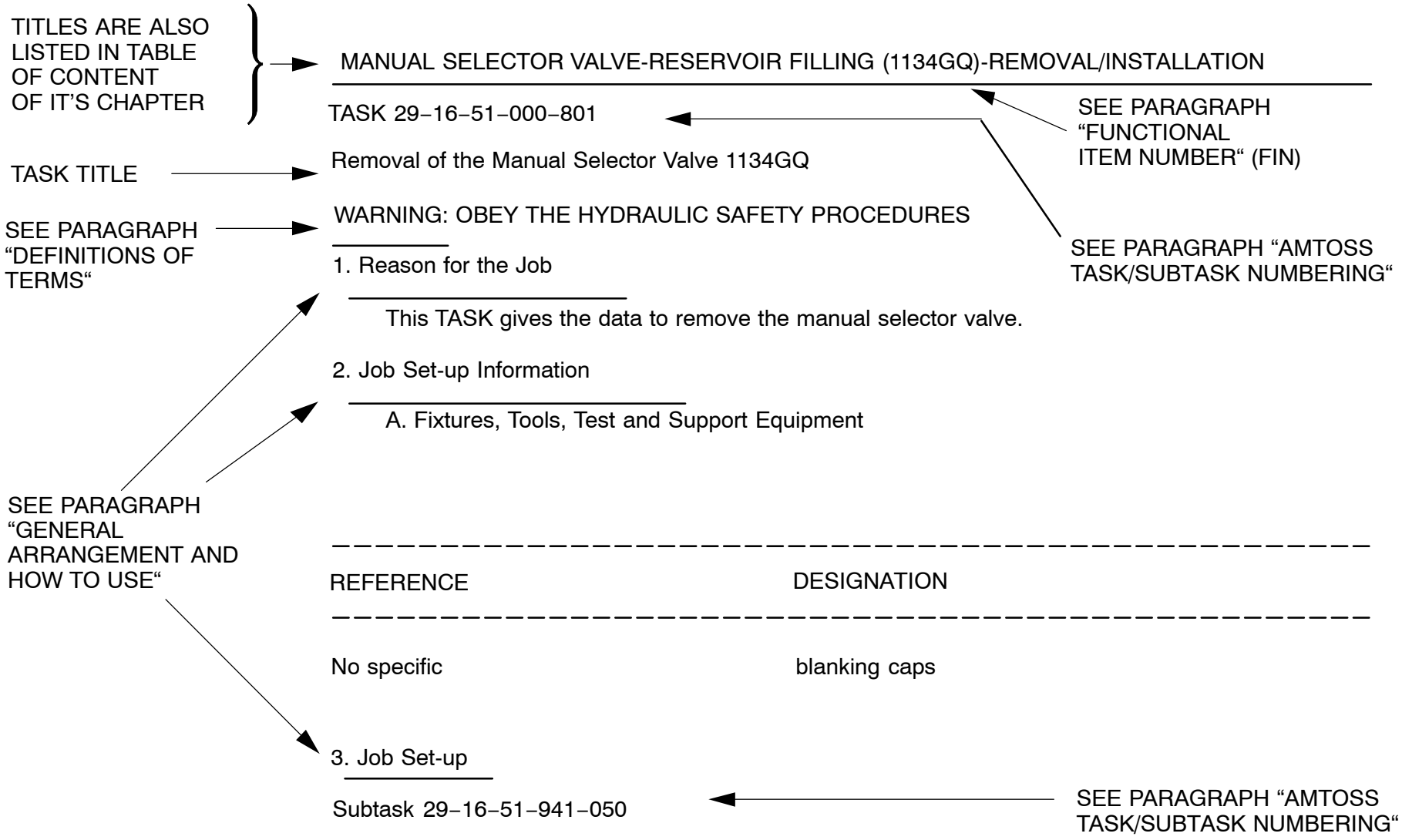
Within the AMM only cross−reference to tasks are made. References to other manuals are made by ATA −reference and manual abbreviation.

FUNCTIONAL ITEM NUMBER (FIN)

The description for the Equipment Identifier, so called FIN (Functional Item Number) is given in the ASM (**A**ircraft **S**chematic **M**anual) for all Airbus A/C (except A310/A300−600).

For the A310/A300−600 the FIN description can be found in the TSM (**T**rouble **S**hooting **M**anual).

The topic FIN will be described in the section FUNCTIONAL ITEM NUMBER in this training manual.



A. Pull the warning notice(s) in position to tell persons not to pressurize the hydraulic systems.

Figure 5 Maintenance Procedure Structure (1)

Effectivity

Although the AMM is a customized document containing information specific to the customer's aircraft, effectivity information is provided as the customer may operate different versions of the same aircraft.

Effectivity is provided in the effectivity block on the lower left side of each page. The block includes the customer name and the customer effectivity codes.

When a page or page block applies to all aircraft, the word ALL is found in the customer effectivity code field. If the information does not apply to all aircraft, the customer effectivity code of the relevant aircraft is given.

Differences in effectivity within the text of a page block are identified by lead–in statements at the beginning of paragraphs. If the information does not apply to all aircraft, the customer effectivity codes of the relevant aircraft are shown.

NOTE: The statement of A/C effectivity appearing in the effectivity block on the bottom of the page corresponds to the sum of the effectivities of the information included in this page. In the text, statements of effectivity are repeated every time they change.

Definition of WARNING, CAUTION, and NOTE

ATA 100 specifies Warnings, Cautions, and Notes as follows:

WARNING: CALLS ATTENTION TO THE USE OF MATERIALS, PROCESSES, METHODS, PROCEDURES, OR LIMITS THAT MUST BE FOLLOWED PRECISELY TO AVOID INJURY TO PERSONS.

CAUTION: CALLS ATTENTION TO METHODS AND PROCEDURES THAT MUST BE FOLLOWED TO AVOID DAMAGE TO EQUIPMENT.

NOTE: Calls attention to methods that make the job easier.

REVISION SERVICE

The revision service to this AMM is ensured on a regular basis. Before incorporating a revision, ensure that the previous revision has been incorporated and recorded in the "Record of Revision" page.

More details according the revision service are given under the section REVISION SERVICE in this training manual.

Shift of Pages

A revision code R is written in the margin at bottom of the page just above the operator code. This R means that the technical content of the page is identical to that of the previous revision but that the page number has been changed.

- Modification of the effectivity of a page.

  A revision code R is written in the margin of the page, facing the EFF line. This R means that the effectivity of the page has been modified.

- Modification of the effectivity in the text.

  A revision code R is written in the margin at the level of the effectivity line.

  – Example:

    R **ON A/C 001–007,

    R Post SB 24–4002 For A/C 001–003,

  This R indicates that the effectivity of the following task or subtask has been modified.

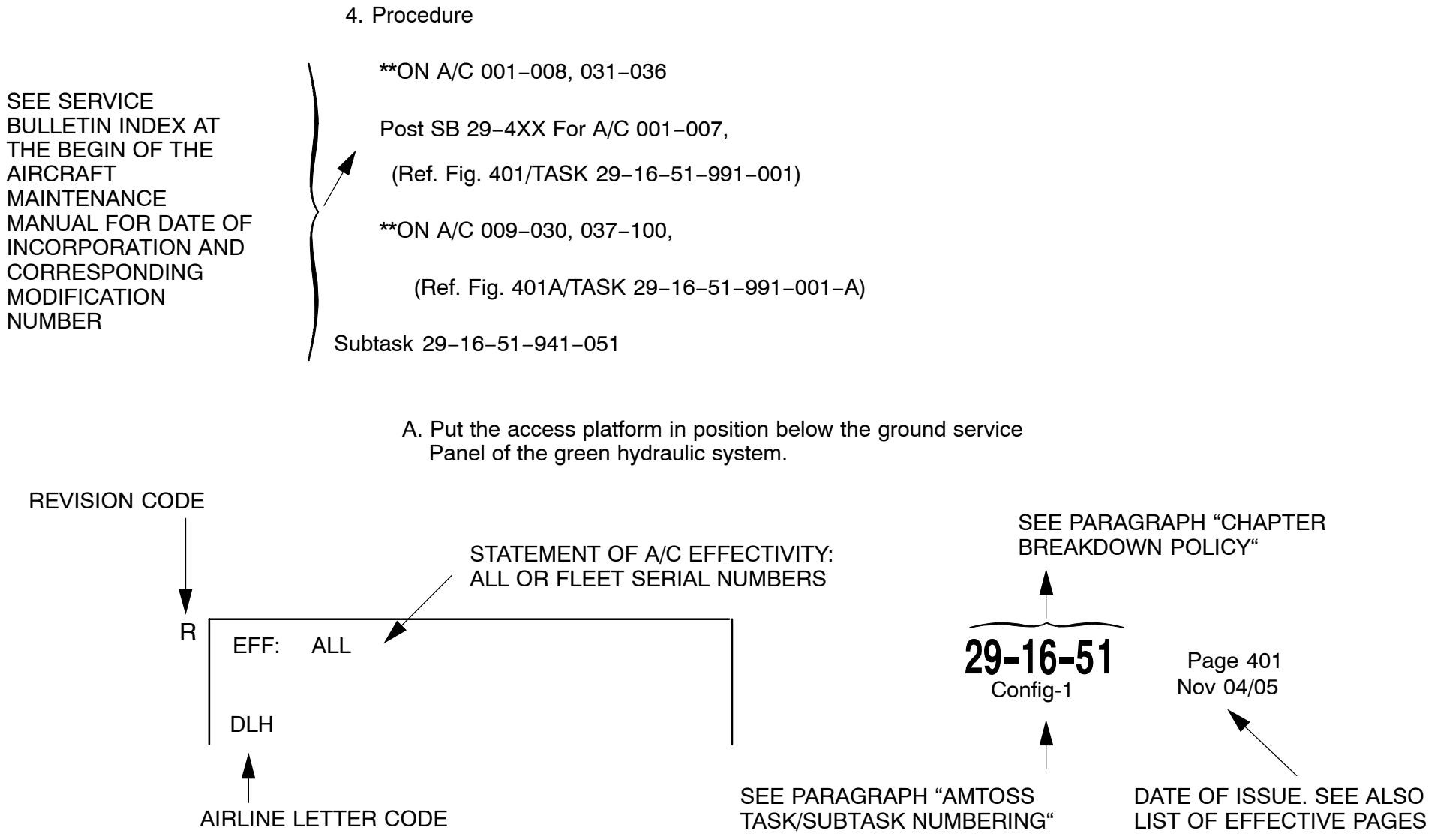


Figure 6 Maintenance Procedure Structure (2)

AMTOSS TASK/SUBTASK NUMBERING PRESENTATION

General

The functional arrangement of data and the numbering system form the basis for the assignment of maintenance Task/Subtask numbers to each maintenance operation (Task) described in the AMM is called AMTOSS (**A**ircraft **M**aintenance **T**ask **O**riented **S**upport **S**ystem).

Text breakdown

Maintenance Procedures

Maintenance procedures are broken down into Tasks and Subtasks. The TASK/subtask number contains five, six or seven elements.

Tasks and subtasks numbers are structured as follows:

Task/Subtask Element / TASK XX–XX–XX–XXX–XXX–XXX–XXX
1 2 3 4 5 6 7

ELEMENT	FUNCTION
1 to 3	ATA six digit number
4	The three digit numeric function code is used to indicate the particular maintenance function involved. (For the TSM this is always 810)
5	The three digit numeral enables a unique identification number to be allocated for all Tasks/Subtasks which are similarly numbered throughout the preceding elements. To provide numerical separation between Task and Subtask, Task idents begin at 801 and rise, in sequence, to 999 (maximum) within the procedure or the P. Block (TSM). Sub–tasks idents begin at 50 and rise in sequence to 800 (maximum) within the procedure. Illustrations and tables are considered as tasks.
6	The three digit alphanumeric indicator comprises of: –First digit alpha to indicate a different configuration due to different criteria configuration (modification, service bulletin(s), etc.). –Second and third digit numerals to indicate alternative methods/techniques of maintenance.
7	A three digit alphanumeric indicator is to be assigned by an airline to highlight unique airline data.

AMTOSS Function Code

The first two digits of the numbering system fourth element are in accordance with the ATA Specification, although in some instances there is variation by using a third digit for further breakdown of the basic function.

In the following examples some codes and their definitions are shown:

- 400 (Installation)
- 410 (Install/Close items removed/opened for access)
- 610 (Servicing)
- 810 (Fault isolation)

Referenced Procedures

Tasks in the AMM frequently refer to additional tasks or procedures:

1. Tasks found in the AMM are identified by the AMTOSS task numbers, excluding the sequence number and the configuration letter.
2. Procedures found in other manuals are identified by the manual abbreviation and the Chapter–Section–Subject number.
3. A list of referenced procedures is given in the Reference Information table at the start of the task.

The relationship of task numbers to page blocks is in general as follows:

FUNCTION CODES	PAGE BLOCKS
010, 081, 410, 481, 550 series, 580 series, 860 series, 910 series	201
600 series	301
000, 040, 400, 440, 920	401
080, 480, 700 series, 820	501
200 series	601
100, 170, 370	701
300, 330, 340, 350, 380	801

78 – 31 – 00 – 710 – 801 – A 01 – XXX
1 2 3 4 5 6 7

1 Element 1 is the Chapter number.

2 Element 2 is the Section number.

3 Element 3 is the Subject number.

4 The three digit numeric function code is used to indicate the particular maintenance function involved.

5 The three–digit numeral enables a unique identification number to be allocated for all Tasks/ Sub–tasks which are similarly numbered throughout the preceding elements.
To provide numerical separation between Task and Sub–task,
Task idents begin at 001 and rise, in sequence, to 049 (maximum) within the procedure.
Sub–tasks idents begin at 50 and rise, in sequence, to 800 (maximum) within the procedure.
Illustrations and tables are considered as tasks.

6 The three–digit alphanumeric indicator comprises of:
– First digit alpha to indicate a different configuration due to different criteria configuration (modification, service bulletin(s), etc..)
– Second and third digit numerals to indicate alternative methods/techniques of maintenance.

7 A three–digit alphanumeric indicator is to be assigned by an airline to highlight unique airline data. This will not be included in the TASK/SUB–TASK number unless specifically requested by the airline in accord with COC policy.

Figure 7 AMTOSS (Example)

AMTOSS Fault Isolation Code

The fault isolation procedures can generally be considered as corrective maintenance tasks. Therefore, AMTOSS has been applied to the TSM for the functional arrangement of the data. This also has the advantage of consistency with the AMM. Consequently, the fault isolation procedures are broken down into AMTOSS tasks and subtasks. However, only the Task numbers are printed in the TSM and the subtask numbers are omitted.

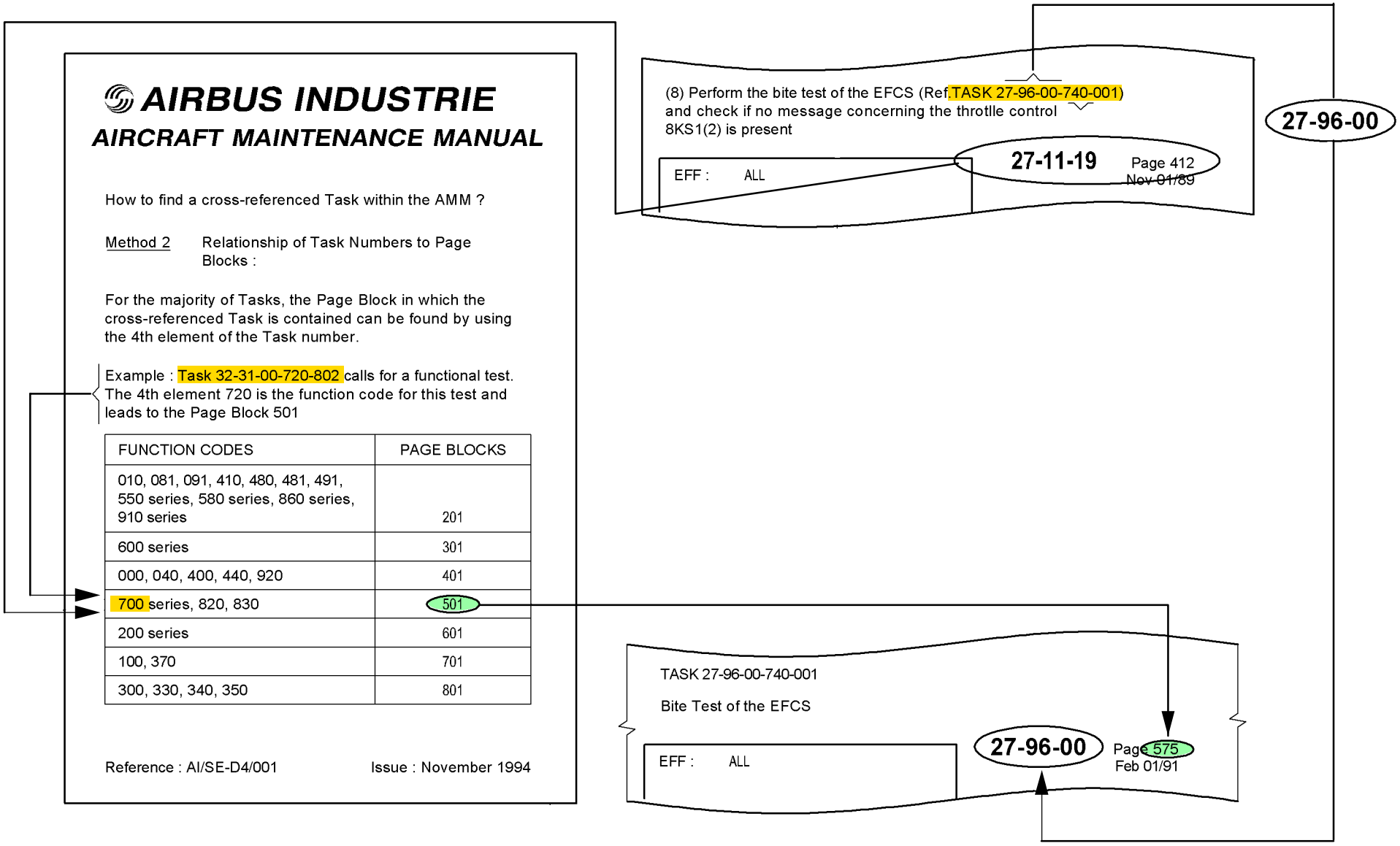


Figure 8 How to find a referenced Task with AMTOSS Function Code

TROUBLE SHOOTING MANUAL

TSM ORGANIZATION AND CONTENT INTRODUCTION

GENERAL

Trouble Shooting Manual Objective

The TSM (**T**rouble **S**hooting **M**anual) is provided by AIRBUS to enable the systematic identification, isolation and correction of aircraft warnings and malfunctions reported in flight and on the ground.

STANDARD CHAPTERS

General

Each of the standard chapters contains the following information:

- Fault Symptoms (corresponding to each Fault Isolation Procedure)
- Fault Isolation Procedures (with links to Highlights and Fault Symptoms)
- Task Supporting Data

Fault Symptoms

The fault symptoms corresponding to the Fault Isolation procedures are provided under electronic link.

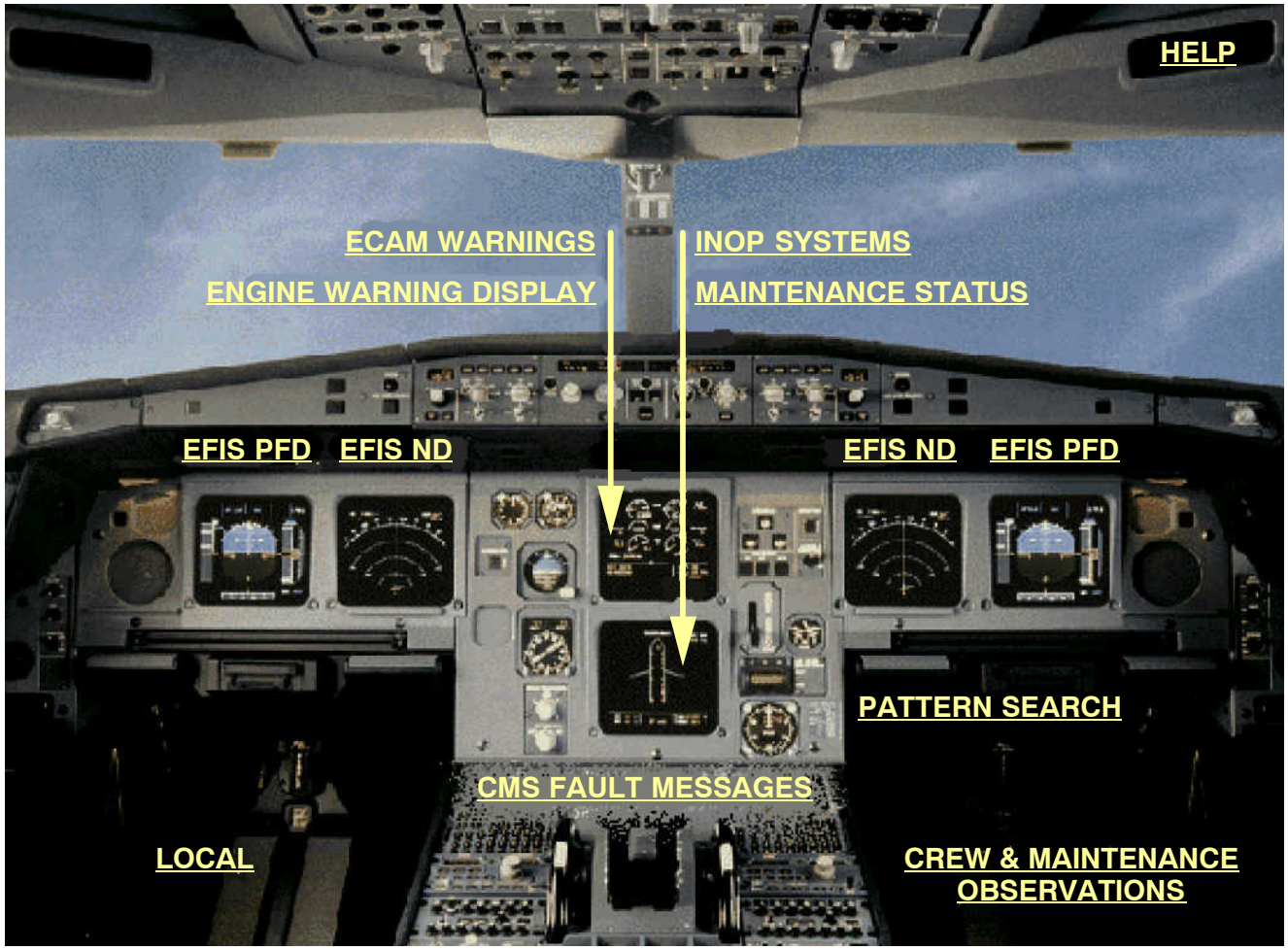
A Fault Symptom is the association of a Warning/Malfunction and/or CMS (**C**entral **M**aintenance **S**ystem) fault message and is mainly reported in:

- the Post Flight Report for fault that occured in flight (correlation done by the CMS and available at the end of the flight)
- the GROUND report for fault that occurred on ground (correlation done by the CMS)
- the logbook by flight and ground reporting (no CMS correlation).

The Fault Symptoms pages are divided into the following five separate sections:

- ECAM,
- EFIS,
- for the A380: MFD (**M**ulti **F**unction **D**isplay)
- LOCAL,
- Crew and Maintenance Observation
- CMS.

FIRST ENTRY POINT TYPE SELECTION BY AIR N@V



EXAMPLE A330

Figure 9 AirN@v Entry Points by Fault Symptoms

TSM ORGANIZATION AND CONTENT PRESENTATION

The warning/malfunction is divided in accordance with the priority classification of warnings and malfunctions as follows:

- ECAM
  - ECAM (**E**lectronic **C**entralized **A**ircraft **M**onitoring) Warning messages
  - EWD (**E**ngine **W**arning **D**isplay)
  - Inoperative system
  - Maintenance status
  - System Pages.
- EFIS
  - PFD (**P**rimary **F**light **D**isplay)
  - ND (**N**avigation **D**isplay)
- CREW AND MAINTENANCE OBSERVATION

  The crew and maintenance observations (malfunctions) cover non−monitored aircraft systems.
- CMS

  The CMS messages, for example: class 3 messages.

  The CMS fault message gives the message, source, identifiers, ATA reference and message class.
  - List of Fault Identifiers

    Identifiers are coded for each CMS fault message. The codes for the identifiers are decoded in this list, see following example:
    - 01 = AFS, DMC3, EFCS1, FWS
    - 02 = ACMS
    - 03 = SFCC−F2
    - 04 = AFS, CMS, DMC2, DMC3, EFCS1, FWS
    - 05 = ACMS

NOTE: (**A380 only)** Warnings/Malfunctions that start with codes 9098W and 9099W can be customized by the operator.

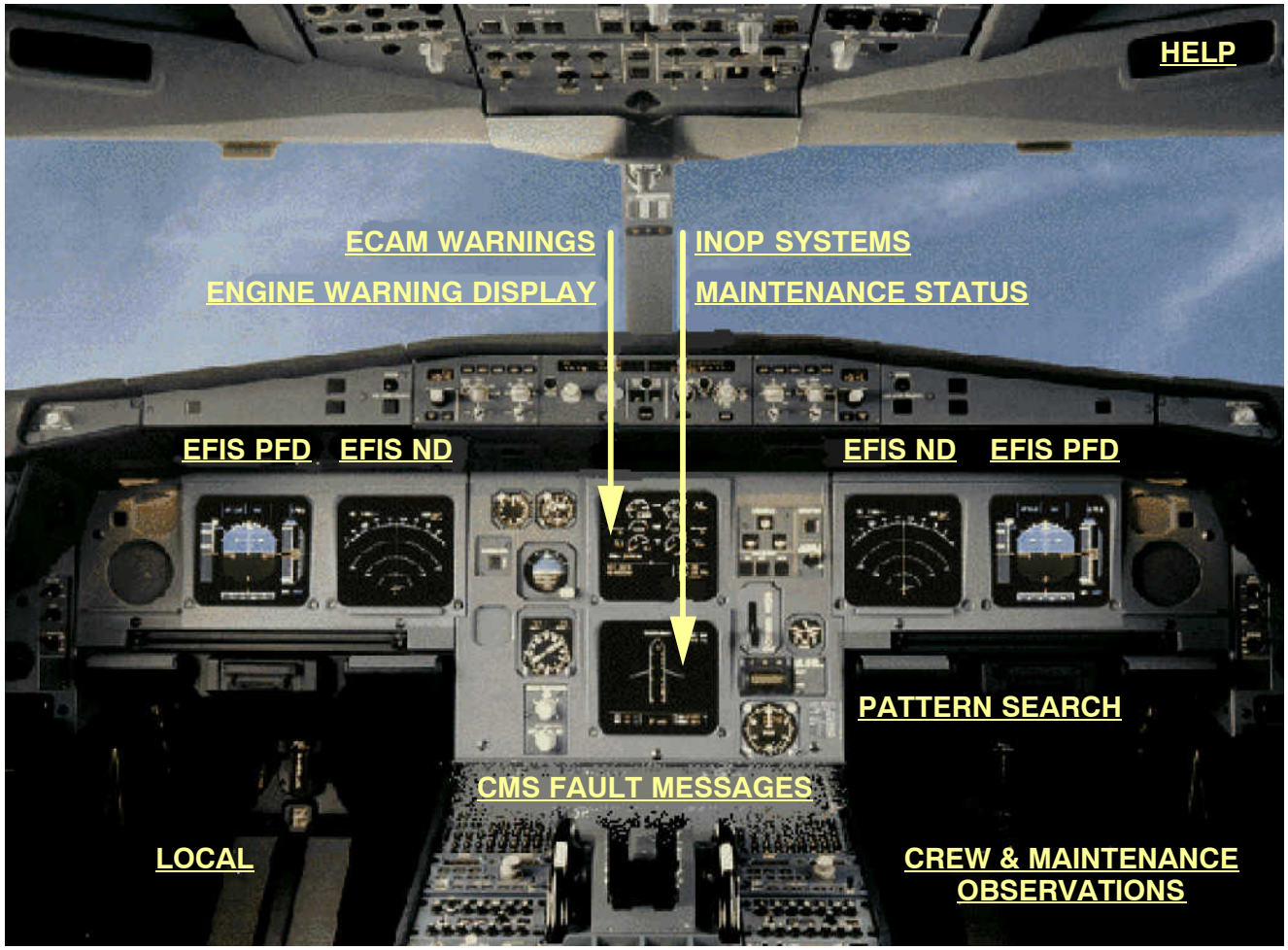
The operator can request the incorporation of a Warning/Malfunction and the related fault isolation procedure in the TSM via COC (**C**ustomer **O**riginated **C**hange).

- MFD (**M**ulti **F**unction **D**isplay) **A380 only**

  This section provides the warning/malfunctions that may be displayed on the MFD pages. These events include flags, advisories, indication (abnormal, fluctuation, missing information, etc..) and the name of the system page (i.e. FMS−A, ATCCOM, SUR, FCU BKUP)
- Local

  This section provides the warning/malfunctions that may be displayed on the control panels (VU, ICP, FAP, AIP, etc..) terminals (OMT, OIT) or specific equipment (RMP, clock,..). For each event, a location is allocated through the functional designation and identification.

FIRST ENTRY POINT TYPE SELECTION BY AIR N@V



EXAMPLE A330

Figure 10 AirN@v Entry Points by Fault Symptoms

Fault Isolation Procedures

The Fault Isolation Procedures contain the information required to isolate and correct each fault symptom (Ref. Fig. 15).

They are similar in structure to the AMM (**A**ircraft **M**aintenance **M**anual) maintenance procedures and are considered as maintenance tasks.

The breakdown of each procedure is as follows:

Fault identification (Procedure title)

1. Possible Causes

   This lists all the suspect items which are replaced or checked during the procedure.

   The list is given to enable the collection of all items required to correct the fault and not for ”shot−gun” trouble shooting. This form of trouble shooting is not recommended.

   The list does not give details of wiring to be checked. This is detailed in the procedure and only mentioned in the list (eg: aircraft wiring).

2. Job Set−up Information

   This lists any tools, equipment and procedures required to be carried out before commencing the fault isolation and is the same as the AMM job set−up.

3. Fault Confirmation

   A. Permanent fault

      The fault is confirmed on ground by performing the test required in the fault confirmation paragraph. Consequently, the procedure must be applied to troubleshoot the A/C.

   B. Intermittent fault

      The fault is not confirmed on ground by performing the test required in the fault confirmation paragraph. Faults are sometimes generated by electrical transients or similar events without the aircraft system being faulty. If the confirmation test results is ”TEST OK” or equivalent, no further action is required (unless specified in the fault isolation procedure).

      The aircraft may be dispatched. It is recalled that the TSM has been designed to isolate/troubleshoot hard faults. However depending on the airlines organization, the following can be applied ”to trap” intermittent faults:

      - if test OK (fault not confirmed) dispatch the aircraft, then perform a monitoring of the reported symptom on the following flights by checking:

        * the previous leg reports

        * the PFR/Previous PFRs (if available)

        * the log book of the previous flights.

        After 3 occurrences of the same phenomenon (even though the test is still OK), the other steps of the TSM procedure shall be followed and the LRU involved be removed.

        In this case, as for all LRUs removed from the aircraft, AIRBUS recommends to provide shop people or suppliers with data related to the removal: PFR, test result, trouble shooting data (if available).

      - if test NOT OK (fault confirmed), apply the trouble shooting procedure.

TASK 21–26–00–810–808

Monitoring Discrete Output to Extract Fan

1. Possible Causes

– FAN–EXTRACT, AVNCS VENT (7HQ)
– wiring between the pin C of the extract fan and the AEVC (2HQ)

2. Job Set–up Information

A. Referenced Information

REFERENCE	DESIGNATION
AMM 21–26–00–710–803	Operational Test of the Avionics–Equipment Ventilation System
AMM 21–26–51–000–804	Removal of the Extract Fan (7HQ)
AMM 21–26–51–400–804	Installation of the Extract Fan (7HQ)
ASM 21–26/01	

3. Fault Confirmation

A. Job Set–Up
Get Access
Open access door 821

B. Test

(1) Do the test of the avionics equipment ventilation (Ref. AMM TASK 21–26–00–710–803).

4. Fault Isolation

A. If the test gives the maintenance message EXTRACT FAN (7HQ)/AEVC (2HQ):

(1) Do a check to make sure that there is ground at the pin C of the extract fan.

(2) If there is ground, do a check of the wiring between the pin C of the extract fan and the AEVC (2HQ) (Ref. ASM 21–26/01).

(3) If there is no ground, replace the FAN–EXTRACT, AVNCS VENT (7HQ) (Ref. AMM TASK 21–26–51–000–804) and (Ref. AMM TASK 21–26–51–400–804).

B. Do the test given in Para. 3.B..

5. Close–up

A. Close Access

EFF : ALL

XXX

** ON A/C ALL

TASK 21–63–00–810–805

TRIM–AIR PRESSURE REGULATING VALVE FAULT

1. POSSIBLE CAUSES

– VALVE–PRESSURE REGULATING (14HK)
– WIRING

2. JOB SET–UP INFORMATION

A. REFERENCED INFORMATION

REFERENCE	DESIGNATION
AMM 21–63–00–710–004	OPERATIONAL TEST OF THE COCKPIT AND TEMPERATURE CONTROL WITH CFDS/MCDU
AMM 21–63–52–000–001	REMOVAL OF THE PRESSURE REGULATING VALVE 14HK
AMM 21–63–52–400–001	INSTALLATION OF THE PRESSURE REGULATING VALVE 14HK
ASM 21–63/01	
ASM 21–63/03	

3. FAULT CONFIRMATION

A. DO THE OERATIONAL TEST OF THE COCKPIT AND CABIN TEMPERATURE-CONTROL SYSTEM WITH CFDS/MCDU AMM TASK 21–63–00–710–004.

NOTE: IF A FAULT IS DETECTED; THE ZC GIVES A FAULT CODE FOR SHOP MAINTENANCE IN ADDITION TO THE RELATED CFDS MESSAGE(S). FOR DETAILED INFORMATION SEE THE APPLICABLE PAGE BLOCK 301.

4. FAULT ISOLATION

A. IF THE TEST GIVES THE MAINTENANCE MESSAGE TRIM AIR PRESS VALVE:

– REPLACE THE VALVE-PRESSURE REGULATING (14HK)(REFERRED TO AS VALVE (14HK)) AMM TASK 21–63–52–000–001 AND AMM TASK 21–63–52–400–001.

(1) IF THE FAULT CONTINUES:
- DO A CHECK AND REPAIR THE WIRING ASM 21–63/01 AND ASM 21–63/03 FROM:
- THE VALVE (14HK) TO THE ZC (8HK),
- THE VALVE (14HK) TO GROUND AND,
- THE VALVE (14HK) TO THE CB (3HK) VIA THE P/BSW (7HK).

B. DO THE TEST AS GIVEN IN THE PARA. 3.A.

5. CLOSE–UP

A. PUT THE AIRCRAFT BACK TO ITS INITIAL CONFIGURATION.

Figure 11 Fault Isolation Procedures (Examples)

4. Fault Isolation (Procedure)

   Before you get access for a wiring check, make sure that you obey the applicable warning(s):

   WARNING: PUT THE SAFETY DEVICES AND THE WARNING NOTICES IN POSITION BEFORE YOU START A TASK ON OR NEAR:

   –THE FLIGHT CONTROLS

   –THE FLIGHT CONTROL SURFACES

   –THE LANDING GEAR AND THE RELATED DOORS

   –COMPONENTS THAT MOVE.

   MOVEMENT OF COMPONENTS CAN KILL OR INJURE PERSONS.

   WARNING: YOU MUST MAKE THE THRUST REVERSER UNSERVICEABLE (DO THE DEACTIVATION PROCEDURE OF THE HYDRAULIC CONTROL UNIT) BEFORE YOU DO WORK ON OR AROUND THE THRUST REVERSER. IF YOU DO NOT DO THE DEACTIVATION PROCEDURE, THERE IS A RISK THAT THE THRUST REVERSER WILL OPERATE ACCIDENTALLY. THIS CAN CAUSE INJURY TO PERSONS AND/OR DAMAGE TO THE EQUIPMENT.

   WARNING: BEFORE YOU DO WORK IN A FUEL TANK, MAKE SURE THAT YOU OBEY ALL THE SAFETY PROCEDURES. THIS WILL PREVENT INJURY TO PERSONS AND/OR DAMAGE TO THE AIRCRAFT.

   SPECIFIC INSTRUCTIONS FOR THE WIRING CHECK ARE GIVEN WHERE NECESSARY. THESE INCLUDE VALUES (EG. RESISTANCE) AND CONNECTOR/PIN NUMBERS WHERE APPLICABLE.

   IF NO SPECIFIC INSTRUCTIONS ARE GIVEN FOR THE WIRING CHECK, THE CHECK MUST INCLUDE A CONTINUITY TEST (ESPM 20–52–21) AND A TEST FOR SHORT CIRCUIT (ESPM 20–52–22).

5. Close–up.

   If it is necessary to return the A/C to its initial configuration after fault confirmation or fault isolation, the applicable procedure is given.

Task Supporting Data

Task Supporting data are given to show the system layout and interconnections with other systems.

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EFFECTIVITY STATEMENTS

Effectivity in Text

In the case of effectivity differences within the text, a statement of effectivity indicates the effectivity of the following text.

- Example : ** ON A/C 001–003

Effectivities of Service Bulletins

Service Bulletins are incorporated automatically in the TSM if at least one aircraft is potentially applicable and quoted in the Service Bulletin.

- Example : ** ON A/C ALL

  Post SB 29–4XXX For A/C 001–005

The above statement indicates that the information is potentially valid for ALL A/C. For A/C 001–005 the information is only valid after accomplishment of the SB. For A/C 006 and up the information is valid as the modification/SB was embodied before delivery.

BREAKDOWN AND PAGE NUMBERING

Breakdown

The TSM is divided into chapters to provide a functional breakdown of systems in accordance with the ATA (**A**ir **T**ransport **A**ssociation) Specification 2200 (iSpec2200), Information Standards for Aviation Maintenance.

Each chapter is sub–divided into sections which are identified by a six digit number made up of three elements (Chapter-Section-Subject).

Text Breakdown (AMTOSS) and Configurations

The fault isolation procedures can generally be considered as corrective maintenance tasks. Therefore, AMTOSS (Aircraft Maintenance Task Oriented Support System) has been applied to the TSM for the functional arrangement of the data. This also has the advantage of consistency with the AMM (Aircraft Maintenance Manual). Consequently, the fault isolation procedures are broken down into AMTOSS tasks and subtasks. However, only the Task numbers are printed in the TSM and the subtask numbers are omitted. A brief description of the structure of Task numbers follows, for further information please refer to the AMM introduction.

REVISION SERVICE

The TSM is customized and subject to normal and temporary revisions.

More details according the Revision Service are described in the section REVISION SERVICE in this training manual.

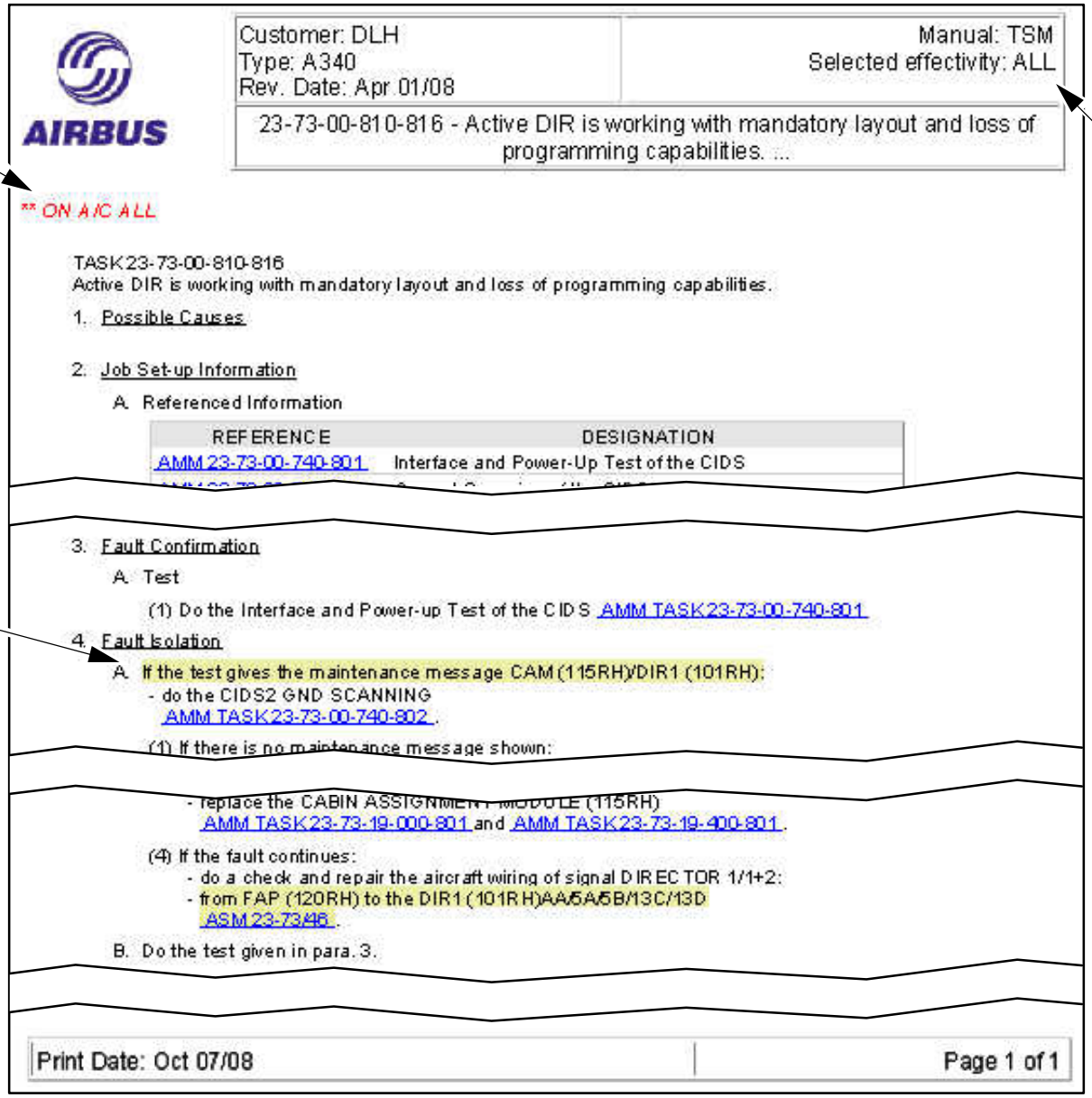


Figure 12 Revision Indication in TSM Document

PHILOSOPHY AND USE (CMS/CFDS)

AIRBUS AIRCRAFT MAINTENANCE CONCEPT

A320 Family, CFDS

The Maintenance concept is based on the use of CFDS (**C**entralized **F**ault **D**isplay System) and TSM. (Ref. Fig. 17)

NOTE: The aircraft is equipped with a high number of digital items of equipment. In most of the cases, computers may be recovered after an abnormal behavior or a detected fault, either by a software reset (reset of microprocessor) or by interrupting the power supply of its processing parts for a short time.

This is achieved with the normal cockpit controls (engagement levers, pushbutton switches) by selecting the related control off then on or by action on the corresponding circuit breaker.

A330/340 Family, CMS

The maintenance philosophy is based on the use of a CMS (**C**entral **M**aintenance **S**ystem).

A380 Cockpit Paperless Philosophy

One of the main innovations of the A380 is that the paper documentation has been replaced by an electronic library.

This library supplies the flight crew with the ability to easily find relevant operational information in the:

- FCOM (**F**light **C**rew **O**perating **M**anual),
- The FM (**F**light **M**anual),
- The MMEL (**M**aster **M**inimum **E**quipment **L**ist),
- And the CDL (**C**onfiguration **D**eviation **L**ist).

Moreover it gives the access to information related to the mission, the communication and the performances computation, aiming at reducing the flight crew workload. Through this electronic library, the electronic logbook is accessible by both flight and maintenance crewmembers. The E−library hosts also the AirN@v application, which gives the crew a direct access to most of electronic maintenance manuals.

Maintenance Philosophy

The objective of this system is to provide an economic, efficient and easy−to−use means of maintaining the aircraft systems. To do this the CMS/CFDS directly monitors and identifies faulty LRUs (**L**ine **R**eplaceable **U**nits) in the aircraft systems and displays items identified as faulty to the maintenance crew. This is essentially achieved by analysis of all cockpit events which are triggered by the monitoring of the aircraft systems.

ATTENTION: Refer to the associated ATA chapter for a description of the CMS (ATA 45) or of the CFDS (ATA 31) and how to use it.

The CMS/CFDS also takes into account a major objective of the line maintenance which is to avoid unjustified removals of equipment. For these reasons the CMS makes a detailed analysis to identify the responsible LRUs; this is also to confirm that the event was actually due to a hardware failure and not an intermittent fault.

To achieve its purpose, the CMS/CFDS has several major functions which supply:

- A maintenance PFR (**P**ost **F**light **R**eport) which is printed at the end of each flight. The PFR allows association of ECAM warnings and CMS/CFDS maintenance messages.
- Directly usable maintenance messages which identify faulty LRUs. The messages give an insight into the defective signal architecture and the extent of the fault (hardware failure recognition).
- User−friendly access to tests of the aircraft systems. The test objectives and results are logical and consistent for all systems.

TSM philosophy

The philosophy for the TSM is to provide coverage of all probable aircraft faults. This includes guidance for trouble shooting faults monitored and displayed by the aircraft systems. Faults not monitored by the aircraft systems are also covered. A description of monitored and non−monitored faults and the types of faults associated with them is given in following paragraph.

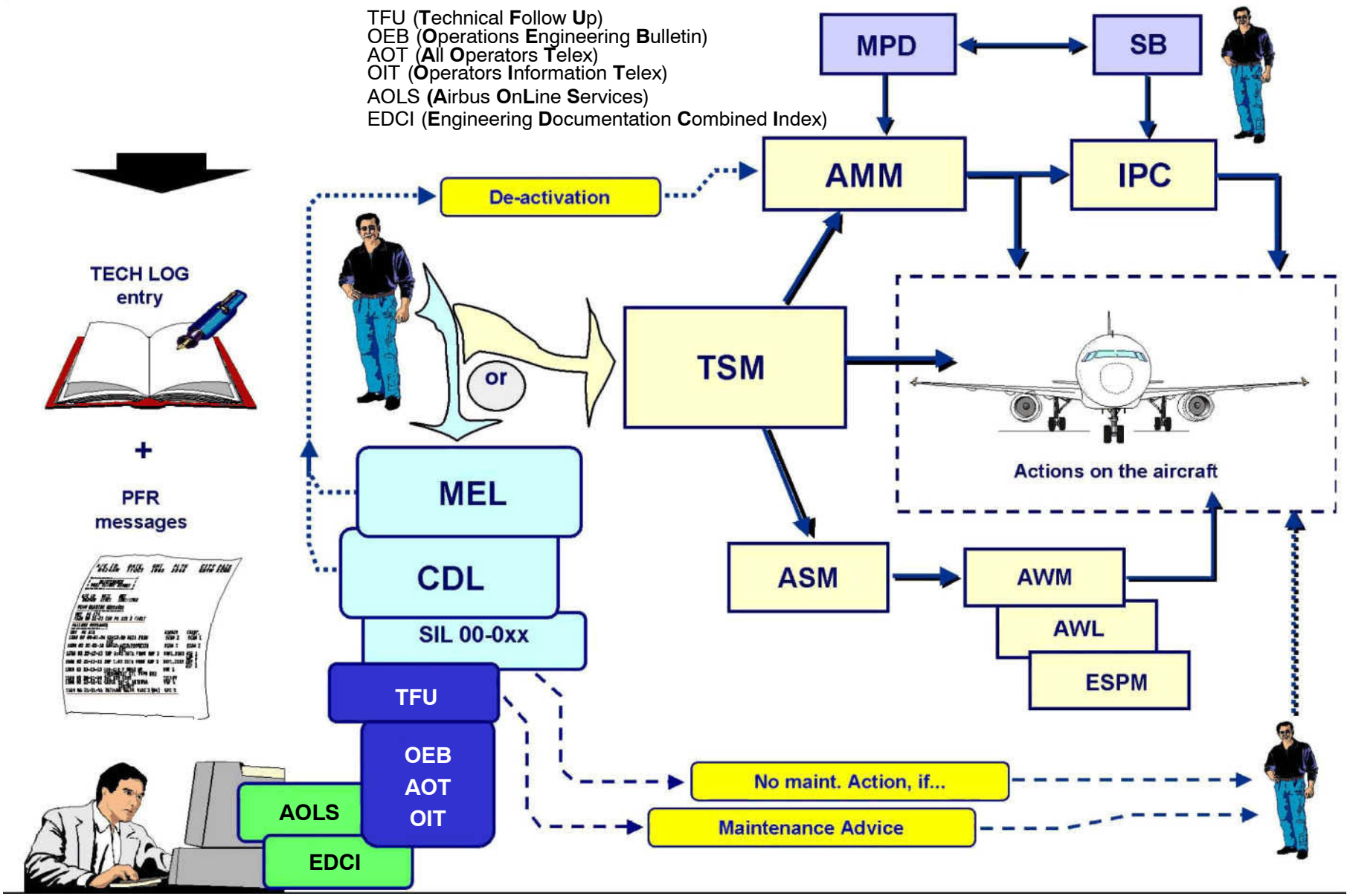


Figure 13 General Workflow for Troubleshooting

HOW TO USE THE TSM

TYPES OF FAULTS

In the TSM, there are two basic types of faults: monitored faults and non−monitored faults. Monitored faults are those which are monitored and displayed by the aircraft systems (mainly ECAM and CMS/CFDS)). Non−monitored faults are generally not displayed by the aircraft systems and can be of a general nature, such as ”Nose landing gear doors slow to move”.

A. Monitored Faults:

- ECAM warnings
- EFIS flags
- LOCAL warnings
- CMS/CFDS fault messages

B. Non−monitored Faults:

- Crew and/or maintenance observations.

TROUBLE SHOOTING FUNCTION

Trouble shooting is initiated by a flight crew or maintenance crew report of a fault. The fault can then be used as an entry point into the TSM: Fault Symptoms, Warnings/Malfunctions, or CMS/CFDS Fault Messages, depending on the type of fault. The troubleshooter is directed to the procedure to isolate the fault.

Three types of monitored faults (ECAM, EFIS and local) reported by the flight crew are usually associated with CMS/CFDS fault messages. The association of a warning or malfunction and CMS/CFDS fault message is given on the PFR. For these the first three or four digits of the ATA reference given on the PFR are used to enter directly into the appropriate fault symptoms.

CMS/CFDS fault messages are not normally reported by the flight crew and are used by maintenance crews. They can be displayed alone without an associated warning or malfunction, in which case they may be the entry point for maintenance−related trouble shooting. TSM entry is done via the appropriate trouble shooting function using the ATA reference, or the CMS/CFDS Fault Messages using the message text.

Crew or maintenance observations are usually a single fault without an associated CMS/CFDS fault message. TSM entry is via the trouble shooting function using the system ATA reference or using the fault text.

Examples of trouble shooting for these faults are given in the following trouble shooting explanations.

Trouble Shooting of Faults Reported on the PFR

The following general procedure describes trouble shooting of ECAM EWD (**E**ngine/**W**arning **D**isplay) warnings, ECAM STS (**S**ta**T**u**S**) Maintenance messages or CMS/CFDS fault messages given on the PFR.

1. Compare the warning with the CMS/CFDS fault message (if applicable) on the PFR to obtain the fault symptom and the ATA chapter reference.

   NOTE: Time differences of 1−3 minutes may occur due to fault filtering and/or CMS/CFDS fault queue and interrupt status.

2. Use the trouble shooting function to retrieve the Fault Symptoms, correlate the CMS/CFDS fault message and retrieve the associated fault isolation procedure.

   NOTE: For further fault isolation use the CMS/CFDS fault message identifiers (IDENT block) and/or source (SOURCE block).

Trouble Shooting of Faults not Reported on the PFR

The following general procedure describes trouble shooting of ECAM STS Inop System messages, ECAM SD (**S**ystem **D**isplay), local warnings and crew or maintenance observations.

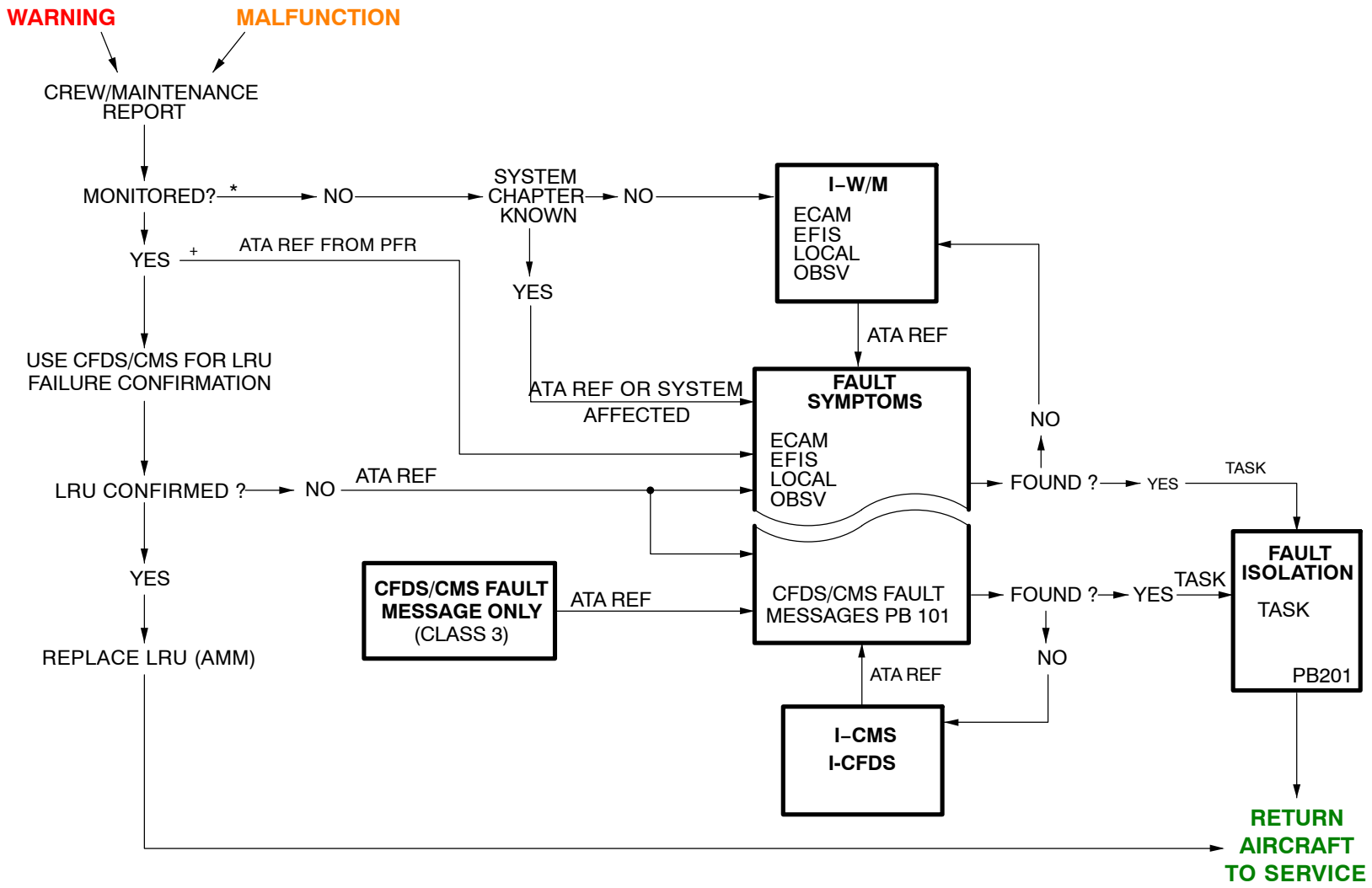
1. Using the trouble shooting function, retrieve the Warnings/Malfunctions, using the text of the fault and the ATA reference.
2. Correlate the CMS/CFDS fault message (if applicable) and retrieve the associated fault isolation procedure.

NOTE: For further fault isolation use the CMS/CFDS fault message identifiers (IDENT block) and/or source (SOURCE column).

Trouble Shooting of CMS Fault Messages

The following general procedure describes trouble shooting of CMS/CFDS Fault Messages including class 3 messages. Class 3 Fault Messages are shown on the class 3 report or the system report/test class 3 faults pages.

1. Note the CMS/CFDS fault message ATA chapter reference.
2. Using the trouble shooting function, retrieve the CMS/CFDS message and the associated fault isolation procedure.



* TSM ENTRY FOR MONITORED FAULTS NOT SHOWN ON THE PFR CAN FOLLOW THIS ROUTE ALSO.

\+ TSM ENTRY FOR MONITORED FAULTS NOT SHOWN ON THE PFR CAN FOLLOW THIS ROUTE IF THE SYSTEM (ATA REF) IS KNOWN.

Figure 14 Trouble Shooting Flow

FAULT ISOLATION PROCEDURES

Possible Causes

This lists all the suspect items in the fault isolation procedure to allow assembly of all items required to fix the fault. It is not provided for ”shotgun” trouble shooting.

Fault Confirmation

1. Permanent fault

   The fault is confirmed on the ground by performing the test given in the fault confirmation paragraph. Consequently, the procedure must be applied to troubleshoot the A/C.

2. Intermittent fault

   The fault is not confirmed on the ground by performing the test given in the fault confirmation paragraph. Faults are sometimes generated by electrical transients or similar events without the aircraft system being faulty. If the confirmation test result is ”TEST OK” or equivalent, no further action is required (unless specified in the fault isolation test procedure), and the aircraft may be dispatched.

It is recalled that the TSM has been designed to isolate/troubleshoot hard faults. However depending on the airlines organization, the following can be applied ”to trap” intermittent faults:

- if the test result is ”TEST OK” (fault not confirmed), dispatch the aircraft then monitor the reported symptom on the following flights by checking:
  - the previous leg reports
  - the PFR/Previous PFRs (if available)
  - the log book of the previous flights

After three occurrences of the same phenomenon (even though the test is still OK), the other steps of the TSM procedure must be followed and the LRU involved must be removed. In this case, as for all LRUs removed from the aircraft, AIRBUS recommends providing shop people or suppliers with data related to the removal: PFR, test result, trouble shooting data (if available).

- if test NOT OK (fault confirmed), apply the trouble shooting procedure.

Fault Isolation Procedure

1. Do not replace (swap) LRUs as a trouble shooting step unless the TSM tells you to do so.

   NOTE: After carrying out the fault isolation in accordance with the TSM, to prevent a NO GO situation in the dispatch of the aircraft when no spare is available, swapping of LRUs is permissible in accordance with operator policy.

   CAUTION: IF YOU SWAP LRUS:
   - MAKE ONE SWAP AT A TIME
   - DO NOT SUPPLY SUSPECT LRU WITH ELECTRICAL POWER WHEN INSTALLED IN ITS NEW POSITION
   - FREQUENT DISCONNECTIONS AND CONNECTIONS WILL INCREASE THE RISK OF DAMAGE TO PLUGS AND RECEPTACLES.

2. The TSM does not give the action to be taken if a suspect unit removed from the aircraft during trouble shooting is found to be serviceable rather than failed. This is due to differing replacement policies of airlines on such units (re−install, or send to the workshop). If such a situation occurs, airline internal replacement policy shall be applied.
3. Continuity and isolation checks of LRUs and wiring performed on the equipment rack ARINC 600 connectors, should only be done with the use of a breakout box and test cables or equivalent.
4. After a fault isolation procedure action has been completed, a check must be done to make sure that the reported fault has been corrected.
5. When an AMM LRU replacement procedure is referenced in the TSM, the AMM procedure usually specifies a test. This AMM test is to make sure that the replacement unit is installed correctly. It does not always confirm the correction of the fault symptom. In such a case the TSM refers to the appropriate operational or system test procedure.
6. Warnings about static sensitive devices may have to be used to prevent damage to sensitive devices.
7. On the ground, a tripped circuit breaker must not be engaged without trouble shooting of the associated system.

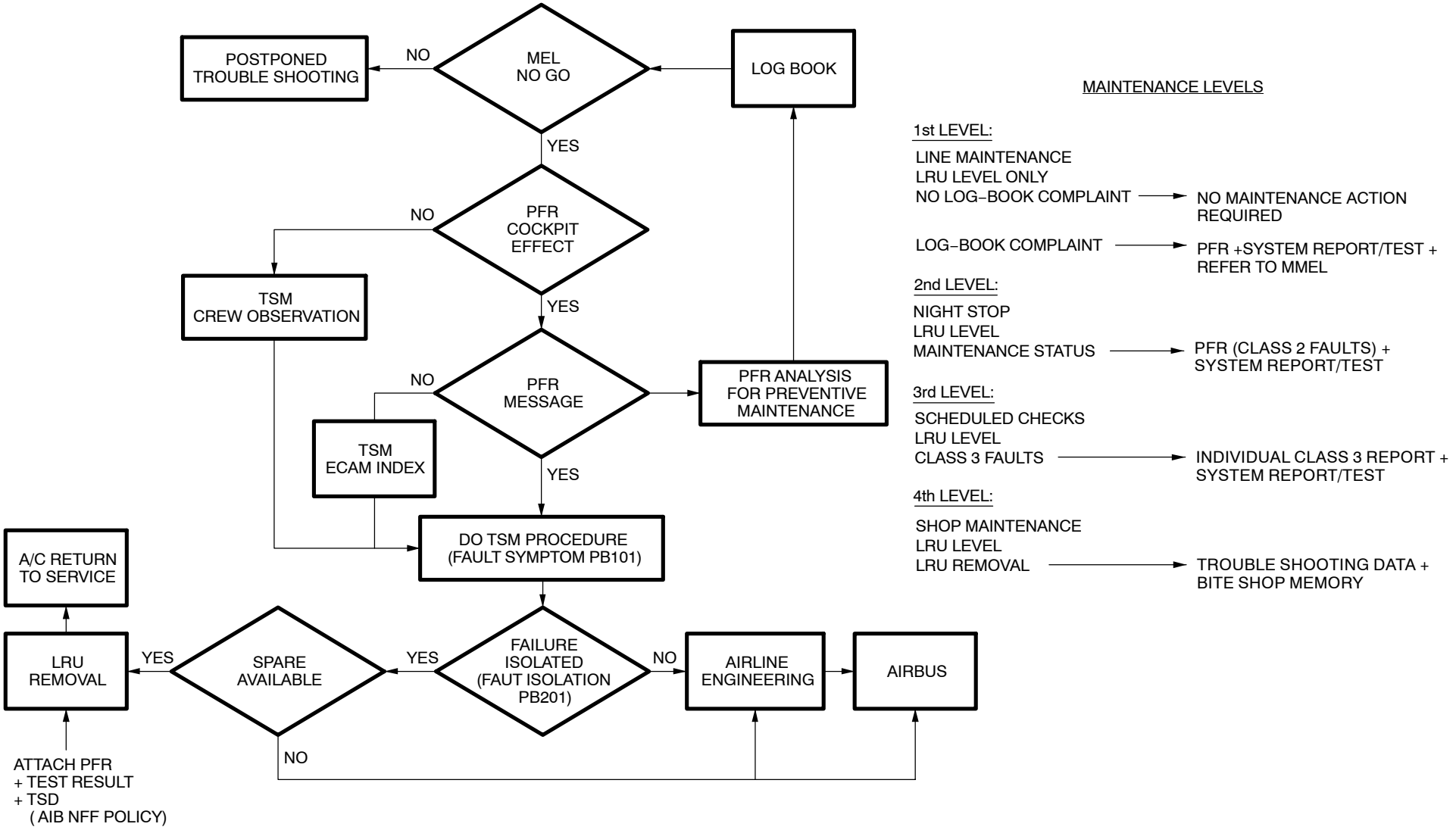


Figure 15 Trouble Shooting Summary

(MASTER) MINIMUM EQUIPMENT LIST

MASTER MINIMUM EQUIPMENT LIST INTRODUCTION

GENERAL

The MMEL is a document which is being published by the aircraft manufacturer (Airbus) whereas the MEL is customized by the operator.

The MMEL (**M**aster **M**inimum **E**quipment **L**ist) is approved by Joint Aviation Authorities at its newest revision and is issued at the basis for the preparation and authorization of individual operator's MEL (**M**inimum **E**quipment **L**ist) for aircraft of the associated type, as certificated by and operated under jurisdiction of JAA Member States Competent Authorities.

Background

The approved MMEL lists the minimum equipment and/or systems with which the aircraft may be operated or dispatched.

The MMEL provides the necessary information to operators for definition of their MEL.

The MMEL does not contain the procedures for operating the aircraft under non–standard configurations. However, the MMEL does provide maintenance (M) and operation (O) symbols in the Remarks or Exceptions column to indicate the type of procedures required.

NOTE: The recommend (O) procedure(s) presented herein do not address airline–specific operating requirements. Incorporation of these procedures into the operator's MEL must take applicable operating requirements into consideration.

Structure and Content

The MMEL is divided in sections at first with:

- 00 GENERAL
- 00–00 Contents
- 00–0E ECAM Warnings/MMEL Entry (not A310/A300–600)
- 00–01 Letter of transmittal (if necessary)
- 00–02 Organization of the manual

Then followed by the revisions, such as Highlights (if available), LEP (**L**ist of **E**ffective **P**ages), List of normal revisions, approval sheet, List of temporary revisions, List of MOD/MP/SB affecting the manual and List of effective temporary revisions etc.

Furthermore the user can find a Cross reference table, a List of abbreviations and as a new revised part the section:

- 00E ECAM WARNINGS/MMEL ENTRY (not A310/A300–600)

followed by:

- Master Minimum Equipment List (DGAC–F approved for and on behalf of JAA) and the
- Operational Procedures

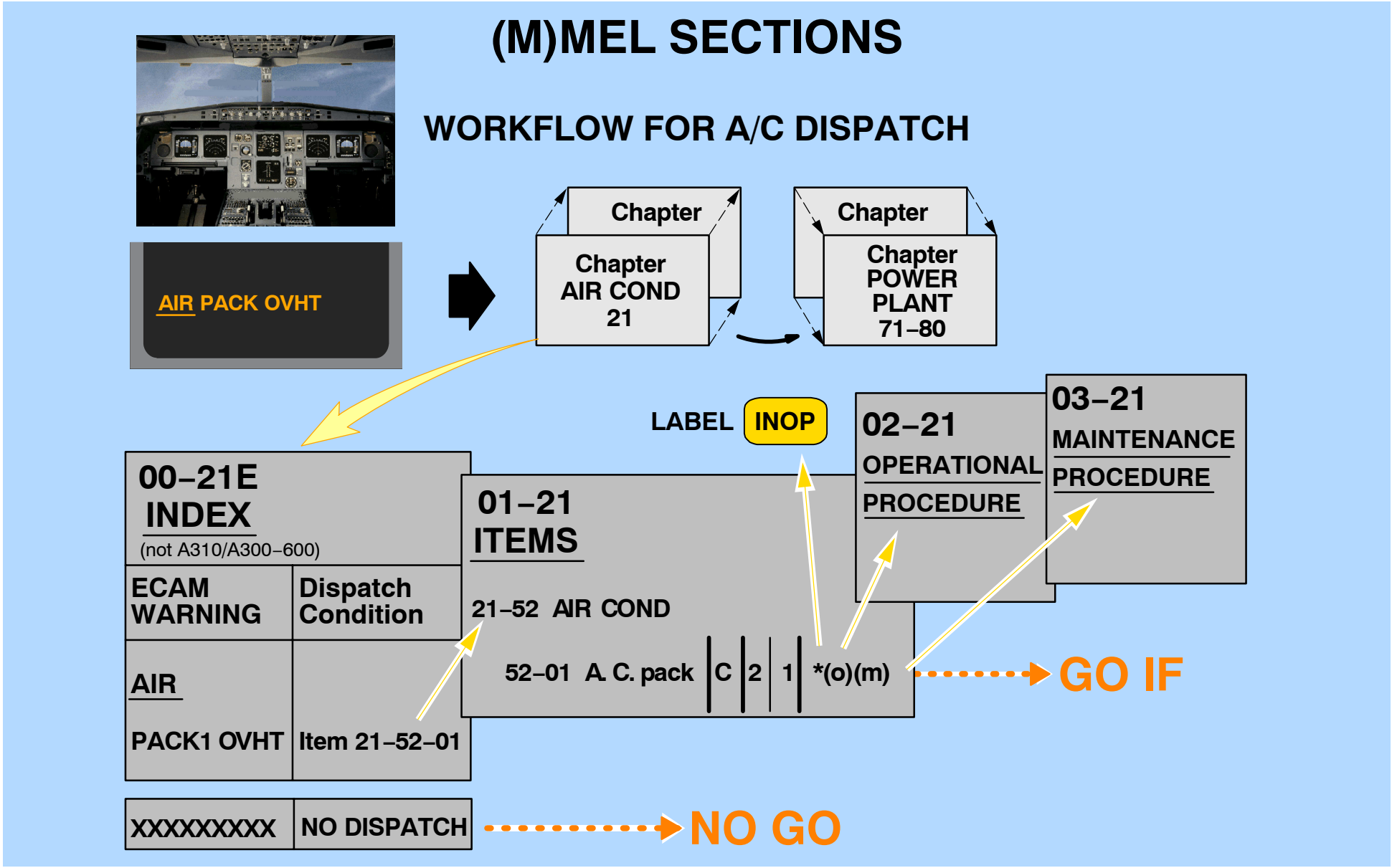


Figure 16 A/C Dispatch

MMEL SECTION 00–0E

MMEL ENTRY

The goal of this section is to help the crew in order to determine the MMEL ENTRY point when an ECAM caution/warning message is displayed.

The following pages give correspondence between ECAM caution/warning messages and MMEL item number if available.

CAUTION

1. This section is, normally, not intended to cover false cautions/warnings.

   However, if a caution/warning is determined to be false by troubleshooting, the crew should refer to the concerned caution/warning message item (if listed) in the associated ATA chapter of section 01.

2. In order to help the crew to determine the MMEL ENTRY point corresponding to a caution/warning message, the REMARK column contains the text:

   A. “Actual caution” or “Actual warning”.

      The associated MMEL item number is the MMEL ENTRY point which gives the dispatch conditions corresponding to an actual failure of the system/component monitored by the caution/warning.

   B. ”False caution” or ”False warning”.

      The associated MMEL item number is the MMEL ENTRY point which gives the dispatch conditions corresponding to the failure of the caution/warning, determined by troubleshooting. The system/component monitored by the caution/warning being still operative.

3. When the REMARK column contains neither of “Actual caution”, “Actual warning”, ”False caution”, ”False warning” texts, the MMEL ENTRY point corresponds to an actual caution/warning which indicates an actual failure of the system/component monitored by the caution/warning.

4. When either an actual, or a false caution/warning is activated, this section gives the MMEL ENTRY point to be considered.

   But the crew MUST CHECK THAT THE AIRCRAFT SYSTEMS/COMPONENTS ARE IN A CONDITION WHICH COMPLIES WITH THE DISPATCH CONDITIONS.

   IF NOT, AIRCRAFT DISPATCH IS NOT ALLOWED.

5. When a caution/warning message is associated with the wording:

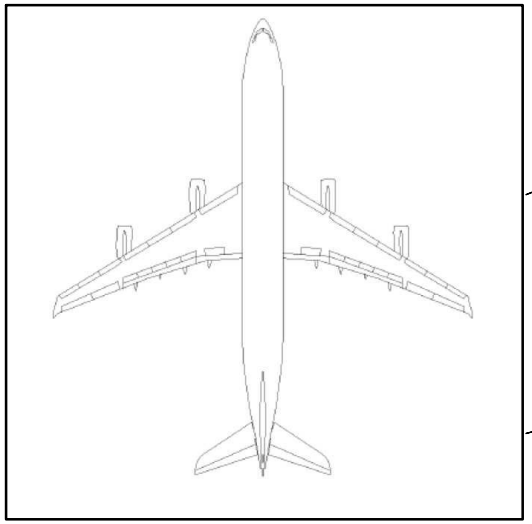
   ”Not applicable” in the DISPATCH CONDITION column, this means that the MMEL is not the appropriate document to be consulted.

   When such cautions/warnings have been activated, application of associated procedure, if any (Refer to FCOM Volume 3, ABNORMAL and EMERGENCY PROCEDURES chapter), and/or accomplishment of maintenance action, if required, would permit to fix the problem.

   (See next Graphic)

A340

MASTER MINIMUM EQUIPMENT LIST



AIRBUS

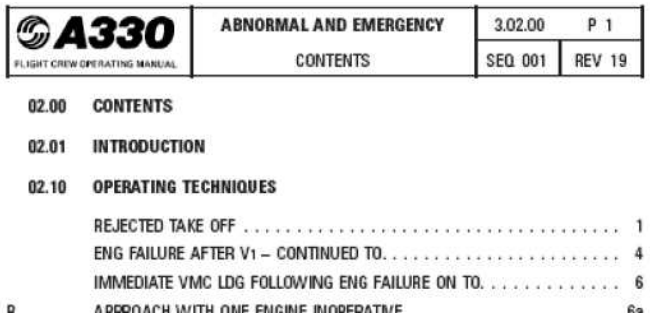
SECTION 00-0E

The goal of this section is to help the crew in order to determine the MMEL ENTRY point when an ECAM caution/warning message is displayed.

1. "Not applicable" in the DISPATCH CONDITION column, this means that the MMEL is not the appropriate document to be consulted.

2. If a caution/warning is determined to be false by troubleshooting, the crew should refer to the concerned caution/warning message item (if listed) in the associated ATA chapter of section 01.

3. The associated MMEL item number is the MMEL ENTRY point which gives the dispatch conditions corresponding to an actual failure of the system/component monitored by the caution/warning.



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02.00 CONTENTS

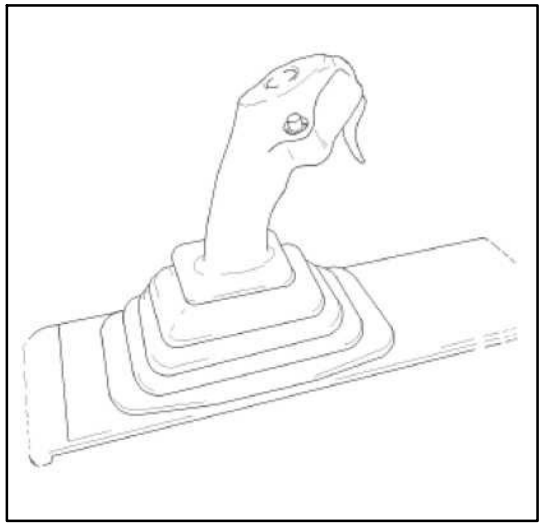
02.01 INTRODUCTION

02.10 OPERATING TECHNIQUES

REJECTED TAKE OFF 1
ENG FAILURE AFTER V1 – CONTINUED TO. 4
IMMEDIATE VMC LDG FOLLOWING ENG FAILURE ON TO. 6
APPROACH WITH ONE ENGINE INOPERATIVE 6a

A340

FLIGHT CREW OPERATING MANUAL



FLIGHT OPERATIONS

3

AIRBUS

ENVELOPE

Figure 17 Section 00–0E

PRESENTATION OF THE MMEL STRUCTURE

CONTENT

The content is divided in four parts:

- Section 00

  Contains general information on the manual, abbreviation list, revision information etc.

- Section 00E

  ECAM warnings/MMEL entry (not A310/A300−600).

- Section 01

  Contains the DGAC-F (**D**irection **G**enerale de l'**A**viation **C**ivile-**F**rance) approved for and on behalf of JAA list of equipment which may be inoperative for aircraft dispatch and/or clearly specified NO GO items if necessary. (See preamble in 01−00 for more details)

  – When a MMEL item calls for a crew procedure (o), it is described in section 02.

  – When a MMEL item calls for a maintenance procedure (m), it is described in the AMM (Deactivation/Reactivation) or in the MMP (**M**EL **M**aintenance **P**rocedure) which is in a hard copy format part of the MEL folder (DLH). The OM and the MEL can be available online (DLH). For A320 it is covered in section 03.

- Section 02

  Operational procedures (Flight Crew).

- Section 03 (A320)

  Maintenance procedures.

PAGINATION

1. **Section Title**

2. **MMEL Section number/ATA chapter**

   (Except for section 00)

3. **Page Number**

   When a new Page must be inserted between two existing pages, a suffix letter is added to the page number. (Ex.: 1A between 1 and 2)

4. **Revision number**

5. **Sequence number**

   Allows an easier management of the pages for Airbus.

6. **Subchapter title**

7. **Aircraft MSN**

   - 104 108 applicable for A/C MSN 104 and 108
   - 110–114 applicable for A/C MSN 110 to 114
   - ALL applicable to all A/C covered by the manual

   Correspondence between MSN and registration may be found in the cross reference table.

8. **An R in front of a line indicates that the line has been revised**

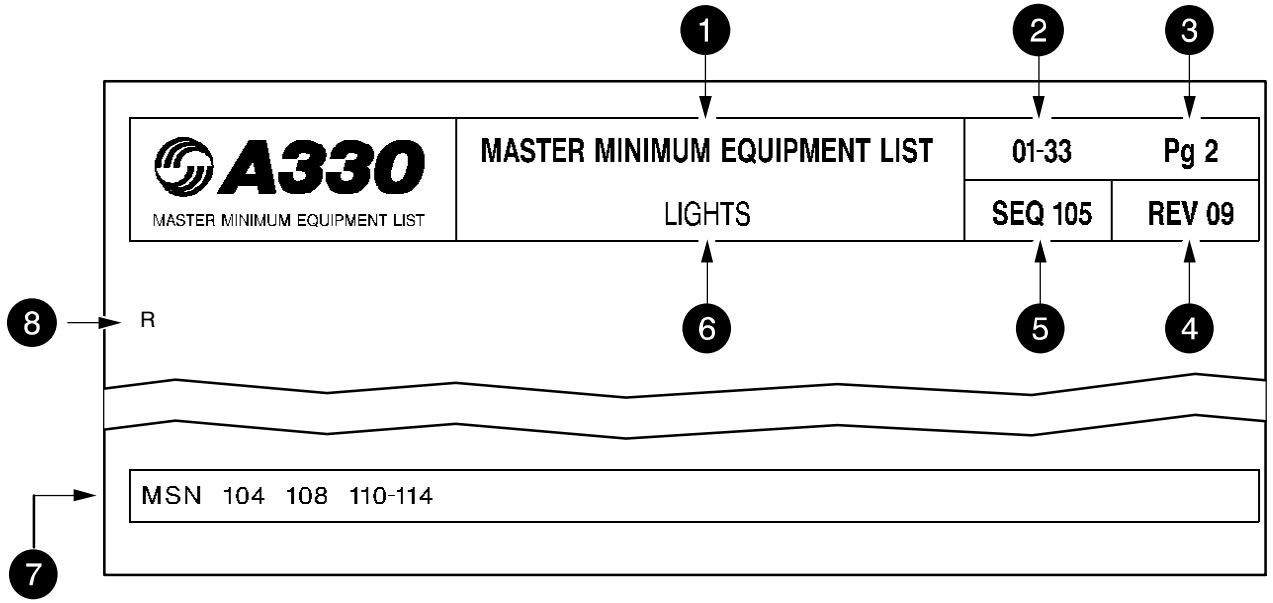


Figure 18 Pagination

DESCRIPTION OF THE MMEL CONTENT

1 Column 1: ”ITEM”

It lists the equipment, components, systems or functions, for which dispatch conditions apply. ”(If Installed)” in the ITEM column indicates that the listed item is not applicable to all models or configurations. This does not imply that the airplane may be operated, in accordance with the MMEL, with the item removed.

2 Column 2: ”RECTIFICATION INTERVAL“

It indicates, for a given item, the rectification interval category. The category of each item is determined according to the requirements specified below:

- Category A

  No standard interval is specified, however, items in this category shall be rectified in accordance with the conditions stated in the REMARKS OR EXCEPTIONS column 5 of the MMEL.

- Category B

  Items in this category shall be rectified within three (3) consecutive calendar days, excluding the day of discovery.

- Category C

  Items in this category shall be rectified within ten (10) consecutive calendar days, excluding the day of discovery.

- Category D

  Items in this category shall be rectified within one hundred and twenty (120) consecutive calendar days, excluding the day of discovery.

Subject to the approval of the Authority, the operator may use a procedure for the extension of the applicable Rectification Intervals B, C, and D, for the same duration as specified in the MEL, provided some items are fulfilled, such as specific duties and responsibilities for the controlling extensions, only a one time extension and Rectification is accomplished at the earliest opportunity.

3 Column 3: ”NUMBER INSTALLED“

It indicates, for a given item, the quantity of equipment, components, systems or functions, installed on the airplane.

This quantity reflects the airplane type certificated configuration and, therefore required for all flight conditions, unless otherwise indicated in column 4 in conjunction with exceptions or remarks listed in column 5, if necessary.

”Dash” symbol (variable quantity installed). No indication (blank) is associated with the wording ”As required by regulations” in column 5 (if any).

4 Column 4: ”NUMBER REQUIRED FOR DISPATCH” (Not in MEL)

It indicates, for a given item, the minimum quantity of equipment, components, systems or functions which must be operative for dispatch, under the conditions listed in column 5 (if any).

”Dash” symbol indicates that a variable quantity is required for dispatch.

No indication (blank indication) is associated with the wording ”As required by regulations” in column 5.

5 Column 5: ”REMARKS OR EXCEPTIONS”

* Asterisk requires inoperative equipment, component, system or function to be placarded in the cockpit to inform crewmembers of the equipment condition. Unless otherwise specified herein, placard wording and location will be determined by the operator.

(o) Symbol identifies a crew operational procedure.

(m) Symbol indicates a requirement for a specific maintenance procedure which must be accomplished when operating with the listed item inoperative

NOTE: When a period is defined, maintenance procedure must be applied before the first flight under the relevant MEL item and must be repeated at the defined interval.

Normally these procedures are accomplished by maintenance personnel; however, if approved by national authorities, other personnel may be qualified and authorized to perform certain functions. Procedures requiring specialized knowledge or skill, or requiring the use of tools or test equipment should be accomplished by maintenance personnel. The satisfactory accomplishment of all maintenance procedures, regardless who performs them, is the responsibility of the operator.

NOTE: Both symbols (o) and (m) used singularly or in combination, require the appropriate procedures to be established, published, and complied with, if flight is accomplished with one item inoperative.

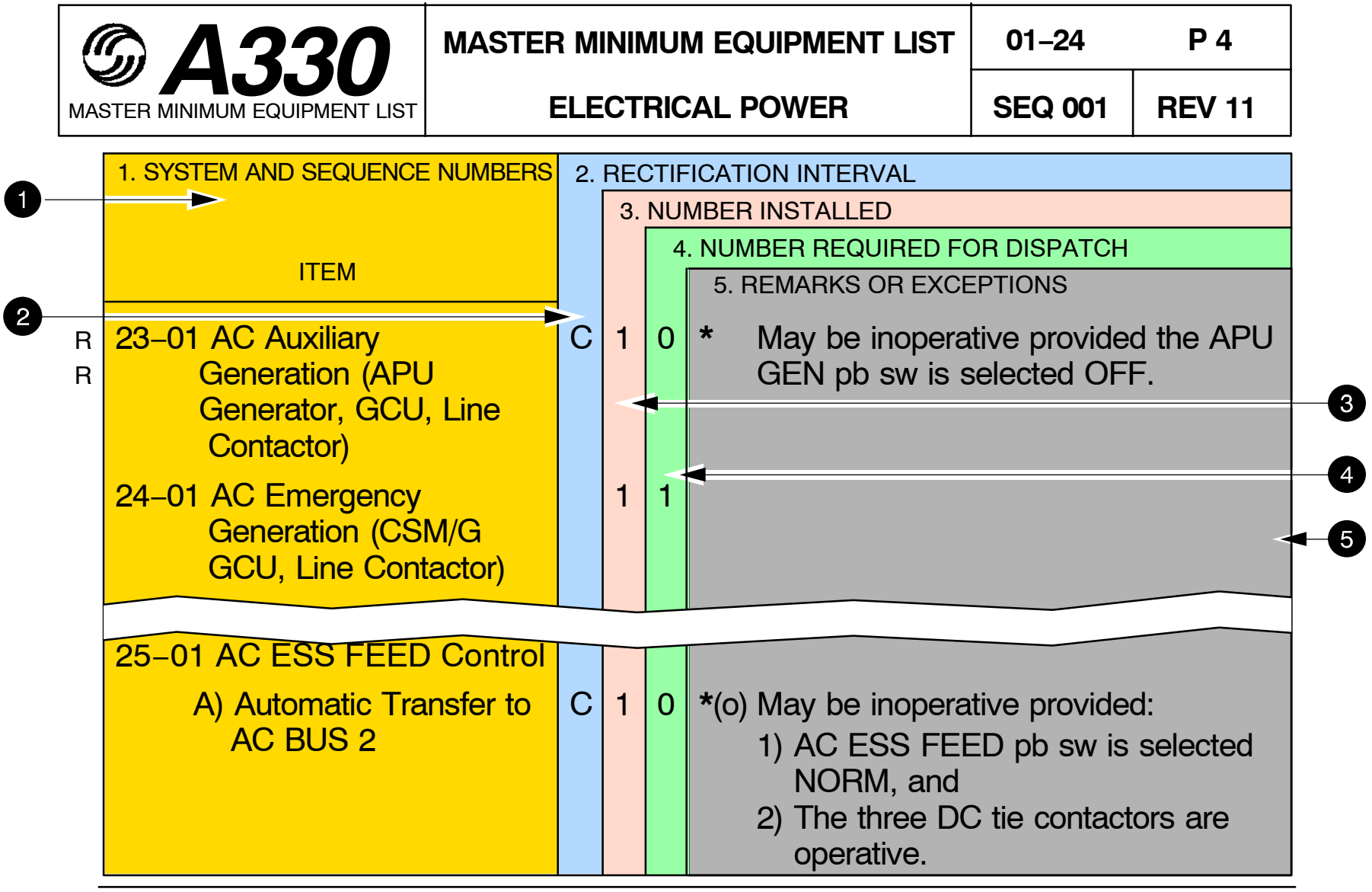


Figure 19 Column Description of MMEL

DESCRIPTION OF THE MEL (EXAMPLE DLH)

INTRODUCTION

By authorization of the MEL (**M**inimum **E**quipment **L**ist), the authority permits dispatch of the airplane for revenue and training flights with certain items or components inoperative provided an acceptable level of safety is maintained by appropriate operation, by a transfer of the function to another operating component, or by reference to other instruments or components providing the required information.

By authorization of the MEL, the authority (*) permits dispatch of the airplane for revenue and training flights with certain items cr components inoperative provided an acceptable level of safety is maintained by appropriate operation, by a transfer of the function to another operating component, or by reference to other instruments or components providing the required information.

NOTE: The provisions of the MEL are applicable until the airplane commences the flight. Failures occuring between ”Off Blocks ” and ”Brake Release ” shall be carefully assessed by the flight crew taking into account the MEL and all other relevant factors related to the intended flight.

For dispatch with secondary airframe or engine parts missing, refer to 0M-E chapter 8, CDL (**C**onfiguration **D**eviation **L**ist).

LBA (**L**uftfahrt **B**undes **A**mt) (or other national authority).

Contents of MEL

The MEL contains only those items of airworthiness significance which may be inoperative prior to dispatch, provided limitations and appropriate procedures are observed. Equipment obviously basic to airplane airworthiness such as wings, rudders, flaps, engines, landing gear, etc. is not listed and must be operative for all flights.

ATTENTION: ALL ITEMS WHICH ARE RELATED TO THE AIRWORTHINESS OF THE AIRPLANE AND NOT INCLUDED ON THE LIST ARE AUTOMATICALLY REQUIRED TO BE OPERATIVE.

Equipment obviously not required for safe operation of the airplane such as galley equipment, passenger convenience items, etc. is not listed.

CRITERIA FOR DISPATCH

The decision of the commander to have allowable inoperative items corrected prior to flight will take precedence over the provisions contained in the MEL. The commander may request requirements above the minimum listed, whenever in his judgement such added equipment is essential to the safety of a particular flight under the special conditions prevailing at the time, however, he shall never accept requirements below.

Before dispatching an A/C with multiple MEL items inoperative, it must be checked that any interface or interrelationship between inoperative items will not result in a degradation in the level of safety and/or an undue increase in crew workload.

In case of any doubt concerning the application of the MEL, the MEL Control Board shall be contacted. It consists of ”Aircraft Engineering and Fleet Projects” and the ”Fleet Management”.

Items marked by an asterisk (*) in column 3 may affect Cat I/Cat II/Cat III approach capabilities.

For a summary list entitled ”Airborne Equipment Required for Cat I/II/III Approach” refer to OM B Chapter 2.2. Supplementary Procedures or QRH.

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PRESENTATION OF A TYPICAL MEL PAGE

1 Column 1. Item

It lists the equipment, components, systems or functions, for which dispatch conditions apply. It is according to the ATA spec. with a reference number (e. g. 9.24–20 27–1)

Malfunctions encountered during a flight to a Non Maintenance Station shall be checked by the crew whether they fall into the rectification interval category ”A”, and whether the MEL identifies them as ”HANDICAP ITEM!” in the ”Item” column.

In the latter case the Handicap item Number (”Ref:...”) shall be entered into the field “MEL Reference” of the TLB REP box.

2 Column 2. Rectification Interval

Dispatch of the airplane is not allowed after expiration of the rectification interval defined below unless the rectification has been accomplished. (for exception see RECTIFICATION INTERVAL OVERRUN).

- Category A:

  No standard interval is specified, however, items in this category shall be rectified either before the next flight (”no go items”). Such periods start when recorded in the TLB after the last flight.
- Category B:

  Items in this category shall be rectified within three (3) consecutive calendar days, excluding the day of discovery.
- Category C:

  Items in this category shall be rectified within ten (10) consecutive calendar days, excluding the day of discovery.
- Category D:

  Items in this category shall be rectified within one hundred and twenty (120) consecutive calendar days, excluding the day of discovery.

3 3. Required for dispatch except as provided in column 4

Indicates, for a given item, the minimum quantity of equipment, components, systems or functions which must be operative for dispatch.

4 4. Remarks and/or exceptions

The reference ” Maintenance Procedure required ” is printed in the column ”4” in all cases where a specific maintenance procedure becomes necessary. Any requirement for repetition of such MMPs is expressed by an addition to this reference (e. g. ”Maintenance Procedure required prior to first flight of each day ”)

MAINTENANCE ACTION AFTER A/C DISPATCH

Whenever an A/C is released by maintenance for dispatch with equipment inoperative, the following is required:

- The TLB aboard the airplane shall contain a detailed description of the inoperative equipment including the rectification interval category from the MEL, the MEL reference (e. g. ”9–21–26–6”), the time of TLB ”sign off”, special advice to the flight crew, and, if necessary, information about corrective action taken.
- When they are accessible to the crew in flight, the control(s) and/or indicator(s) related to inoperative equipment shall be clearly placarded.
- If inadvertent operation could produce a hazard, such equipment shall be rendered inoperative (physically) as given in the appropriate MMP (**M**EL **M**aintenance **P**rocedure).

MMPs regarding the MEL are specified in the “MEL Maintenance Procedures” document located in this folder.

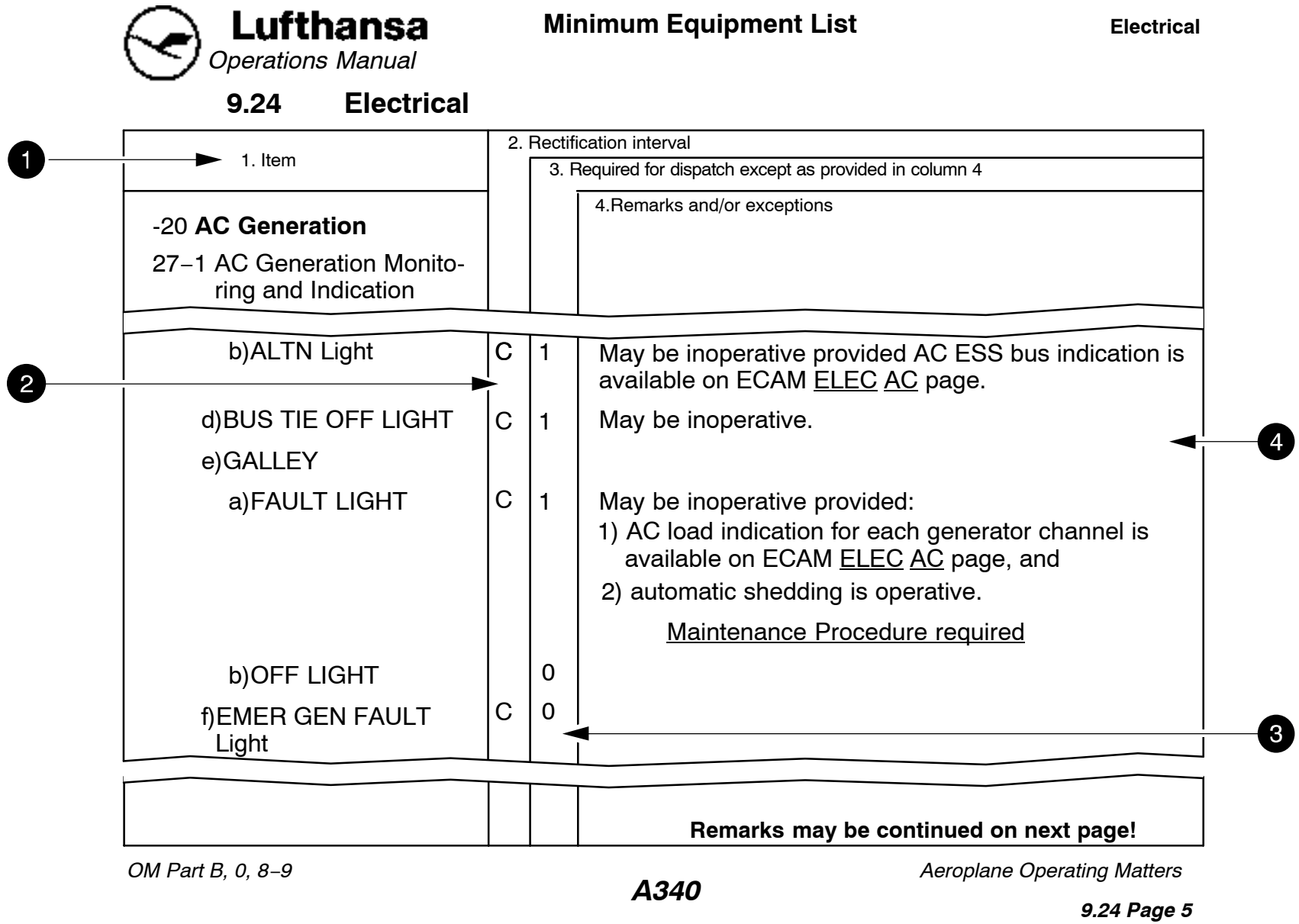


Figure 20 Column Description of MEL

WIRING DIAGRAM MANUAL

WIRING DIAGRAM MANUAL PRESENTATION

GENERAL

Contents

The WDM (**W**iring **D**iagram **M**anual) is subdivided into three manuals:

- ASM (**A**ircraft **S**chematic **M**anual))
- AWM (**A**ircraft **W**iring **M**anual)
- AWL (**A**ircraft **W**iring **L**ist)

These manuals have been prepared in accordance with ATA Specification No. 100. (For the A380 with ATA Spec. 2200)

Purpose of Manual

The purpose of this manual is to permit a full understanding of electrical and electronic system, operation, troubleshooting and maintenance.

Coverage of Manual

The manuals making up the WDM are made as follows:

ASM	AWM	AWL
- Introduction	- Introduction	- Introduction
- * Standard Practices (not A310/A306)	- * Standard Practices (not A310/A306)	- * Standard Practices (not A310/A306)
- Alphabetical Index (not A310/A306)	- Alphabetical Index (not A310/A306)	- Equipment List
- Numerical Index (not A310/A306)	- Numerical Index (not A310/A306)	- Hook-up List (not A310/A306)
- Diagrams	- Diagrams	- Extended Wire List
		- Engine Data
* The contents of this part are transferred to: • The new ESPM (Electrical Standard Practices Manual) for WDM 20–00–00 to 20–69–99 • The AMM 70–71–XX for the WDM engine part (20–70–XX)		

Access to the Manuals

The manuals can be accessed as follows: (Ref. next Figure)

- ASM or AWM: by function using the alphabetical index,
- AWL: by FIN using the EQUIPMENT LIST or the HOOK–UP–LIST,
- AWL: by wire number using the MASTER WIRE LIST.

NOTE: (A310/A300–600 only) In the engine chapter (chapter 92) the data managed per type of engine and the effectivity statement refers to the engine type and not to the aircraft.

How to use the Manual

The following pages contain a layout chart of the Manual and show the relationship between the schematics and the hook–up list, the method to be used for locating an equipment on a panel using a schematic and the method used for locating instrument integral lighting connections. All station numbers and length of wires are in CENTIMETERS.

Aircraft equipment identifiers are listed in the alphanumerical order in the Equipment list. Equipment linked to a NHA (**N**ext **H**igher **A**ssembly), such as the power plant, do not have the same type of identifier and are therefore listed in the AWL engine data part.

AIRCRAFT CONFIGURATION

The diagrams shall represent the aircraft in specific configurations as already described for the AMM (Engines shutdown, A/C on ground resting on landing gear, A/C in clean configuration, parking brake applied etc...)

If, for clarity, it is necessary to depict the equipment in any other configuration, a NOTE must state this specific configuration.

REVISION SERVICE

The WDM is customized and subject to normal and temporary revisions.

More details according the Revision Service are described in the section REVISION SERVICE in this training manual.

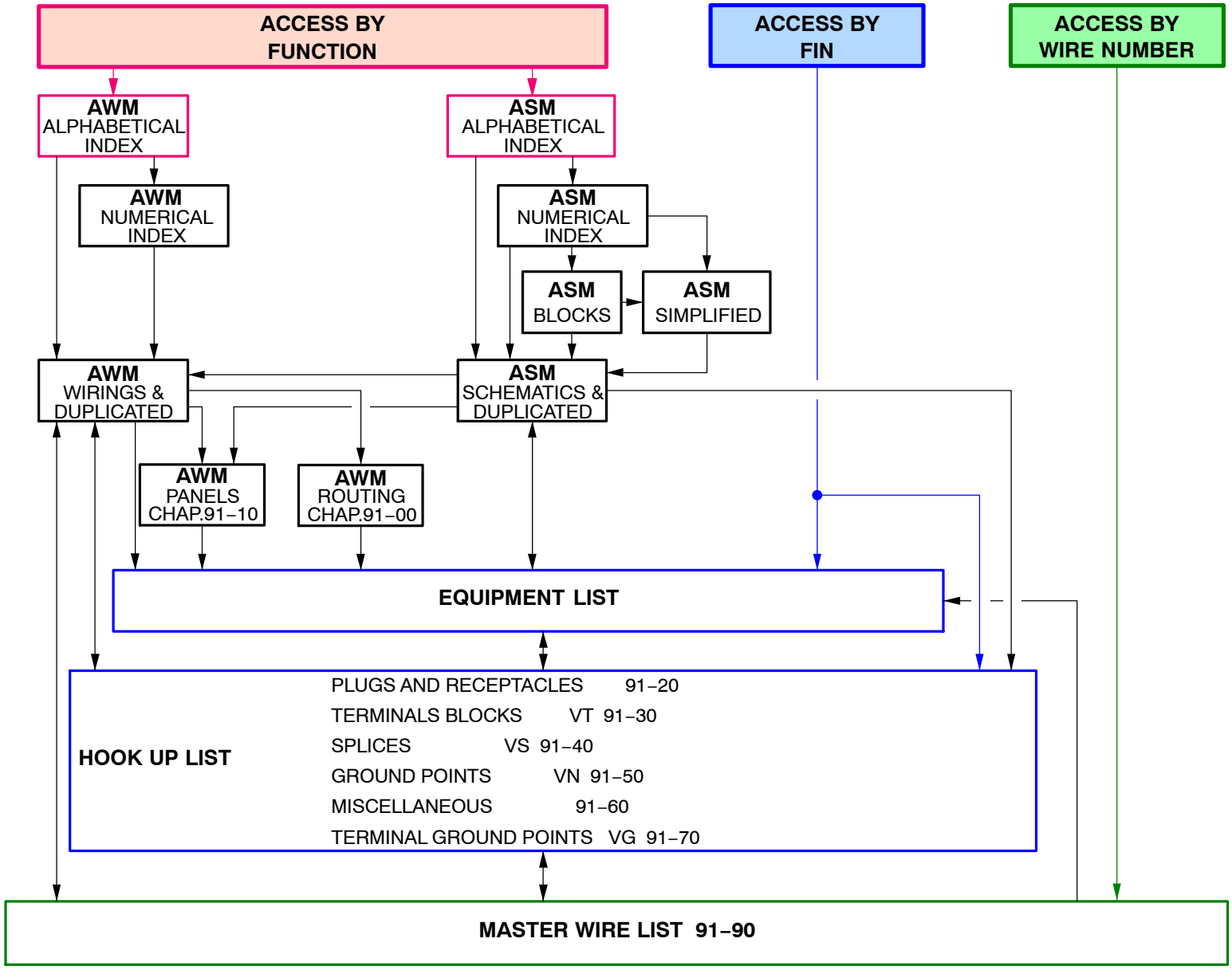


Figure 21 How to use the WDM

FUNCTIONAL ITEM NUMBER

FUNCTIONAL ITEM NUMBER PRESENTATION

EQUIPMENT IDENTIFICATION, FIN (FUNCTIONAL ITEM NUMBER)

The equipment on the aircraft is identified by a unique identifier designated FIN. The basic element of the FIN is a two letter code indicating to which system circuit the equipment belongs. To this code are added prefixes and/or suffixes which provide the unique identification for individual items of equipment.

A complete list of system/circuit letter codes and an explanation of the FIN breakdown can be found:

- For A310−200/300, A300−600

  in the TSM (**T**rouble **S**hooting **M**anual)
- For A330/340, A318, A319−21, A380

  in the introduction to the ASM (**A**ircraft **S**chematic **M**anual), AWM (**A**ircraft **W**iring **M**anual) and AWL (**A**ircraft **W**iring **L**ist).

Electrical Equipment

For electrical equipment (any component with an electrical connection) the FIN is of the form 14CA1 where:

- 14 = Fourteenth component in circuit CA
- CA = Circuit two letter code (Autothrust)
- 1 = Suffix − First of several similar systems (Autothrust System 1)

NOTE: Identical components which perform the same function in the same circuit are differentiated by a suffix number.

The general rule is that an even suffix identifies a component on the right hand side and an odd suffix identifies a component on the left hand side.

- Connectors

  Connections to components shall be identified by a suffix letter (or two for multiple connection parts) following the circuit identification.

  − Example: 14CA−A

    14: Component number

    CA: Circuit code

      A: Plug identification

  This will identify plug A on the 14th component in the circuit CA. If there are several connections, the other plugs shall be identified A, B, C, D, etc...

  − Example 1: 11CA−B

    11CA: Component identification

      B: Plug identification letter

  − Example 2: 14CA−AA

    14: Component number

    CA : Circuit code

    AA : Multiple connection identification

Mechanical Equipment (A320, A380)

For mechanical equipment the FIN is similar to the electrical FIN except that the second letter of the system/circuit identifier becomes an M (for example 1040GM).

Mechanical Equipment (A310/A300−600)

Mechanical equipment is identified by 6 numerals, the first two are the ATA Chapter/System prefix and the last four the equipment number.

A typical mechanical FIN is 271198, where 27 is for the ATA Chapter/System (Flight Controls in this case) and 1198 is the Equipment number.

Mechanical Equipment (A330/A340)

For mechanical equipment the FIN is similar to the electrical FIN.

The FIN sequence number serves to differenciate between mechanical and electrical equipment. The sequence number below 5000 are reserved for electrical FINs and the sequence numbers equal or above 5000 are reserved for mechanical FINs.

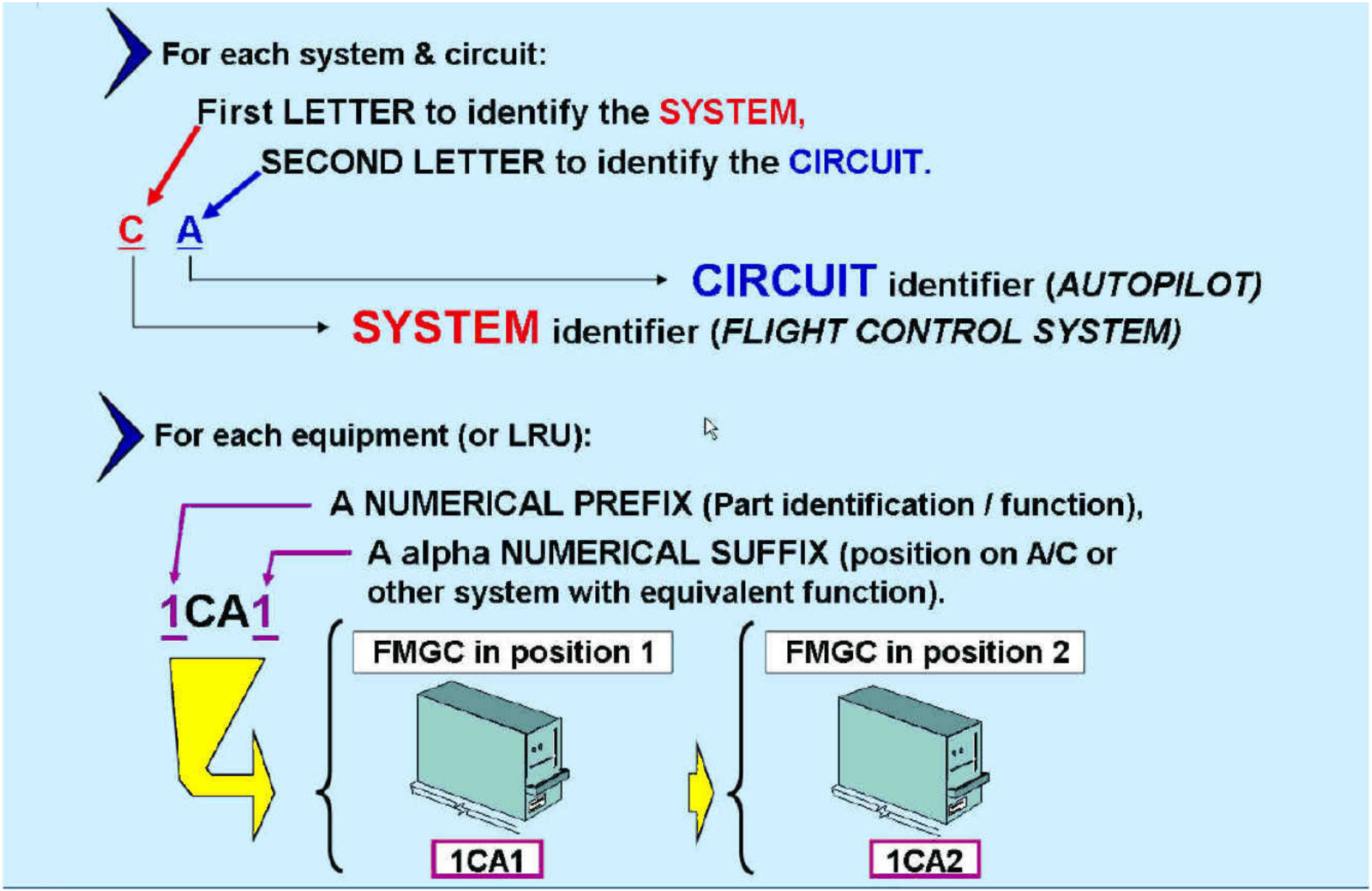
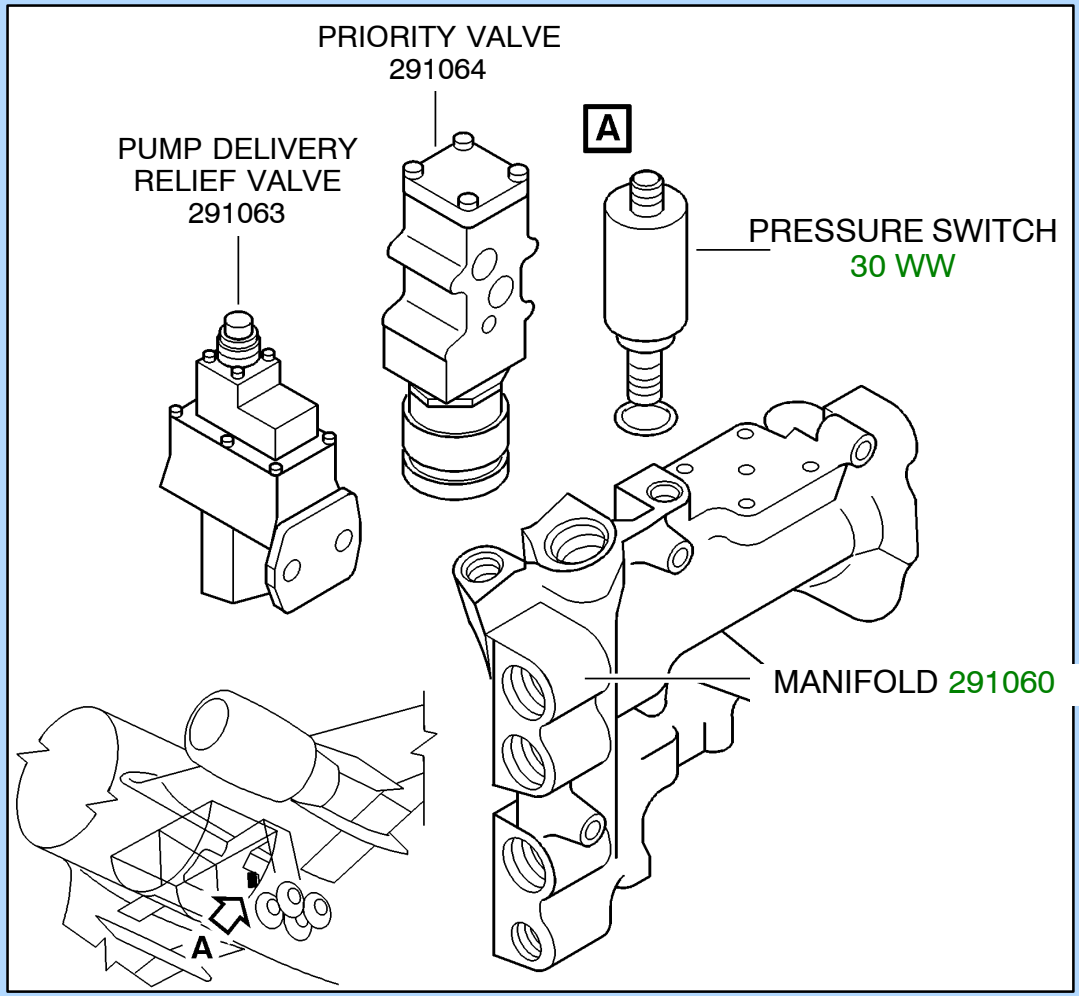


Figure 22 FIN-a unique Identification

A310/A300–600



MECHANICAL FIN

29 1060

- 1060 — Equipment Number
- 29 — ATA Chapter

ELECTRICAL FIN

30 W W

- W — Circuit (FWC Acquisition/Interface)
- W — System (Fire Prot. & Warning System)
- 30 — Equipment Number

Figure 23 FIN A310/A300–600

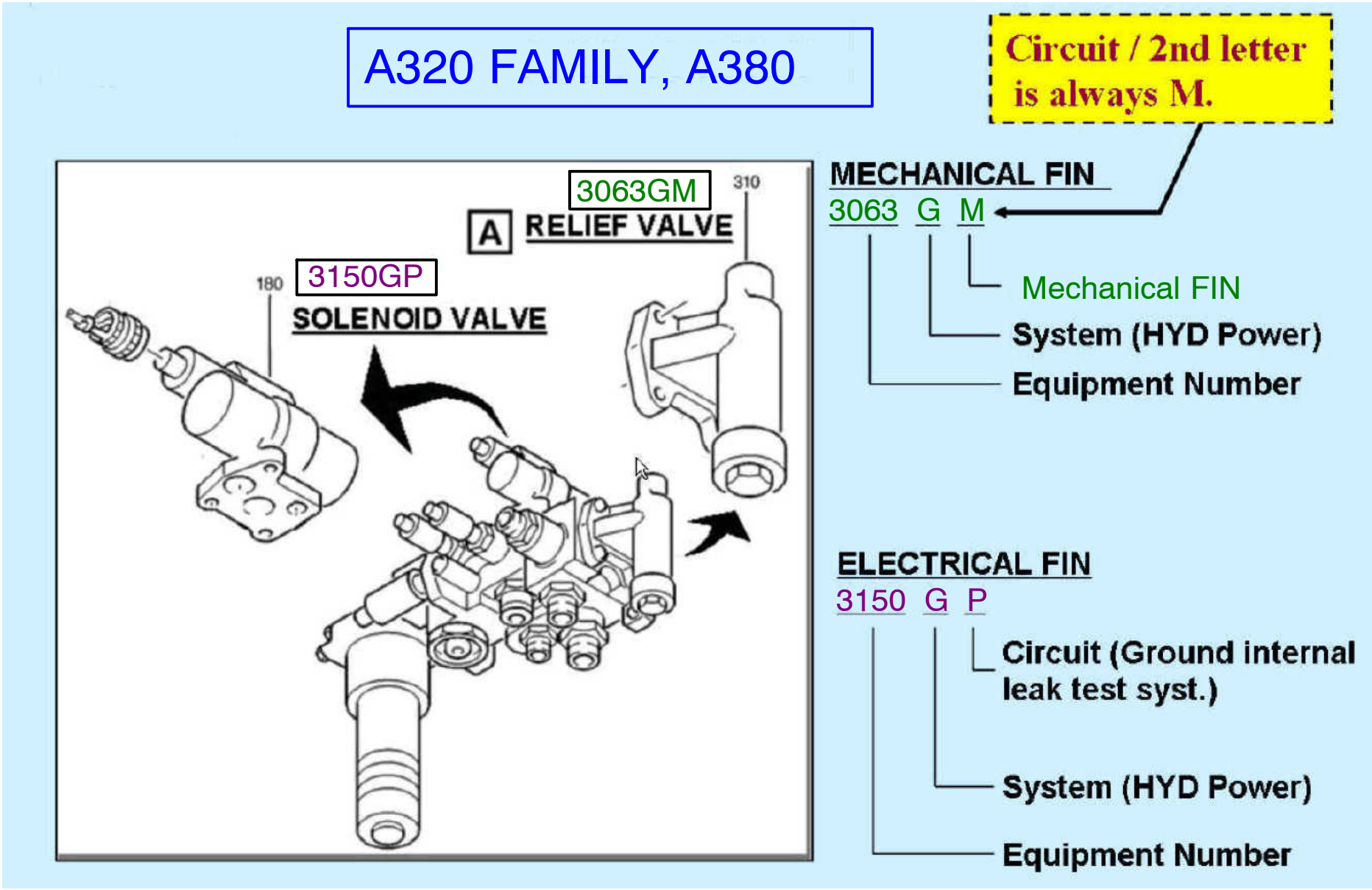
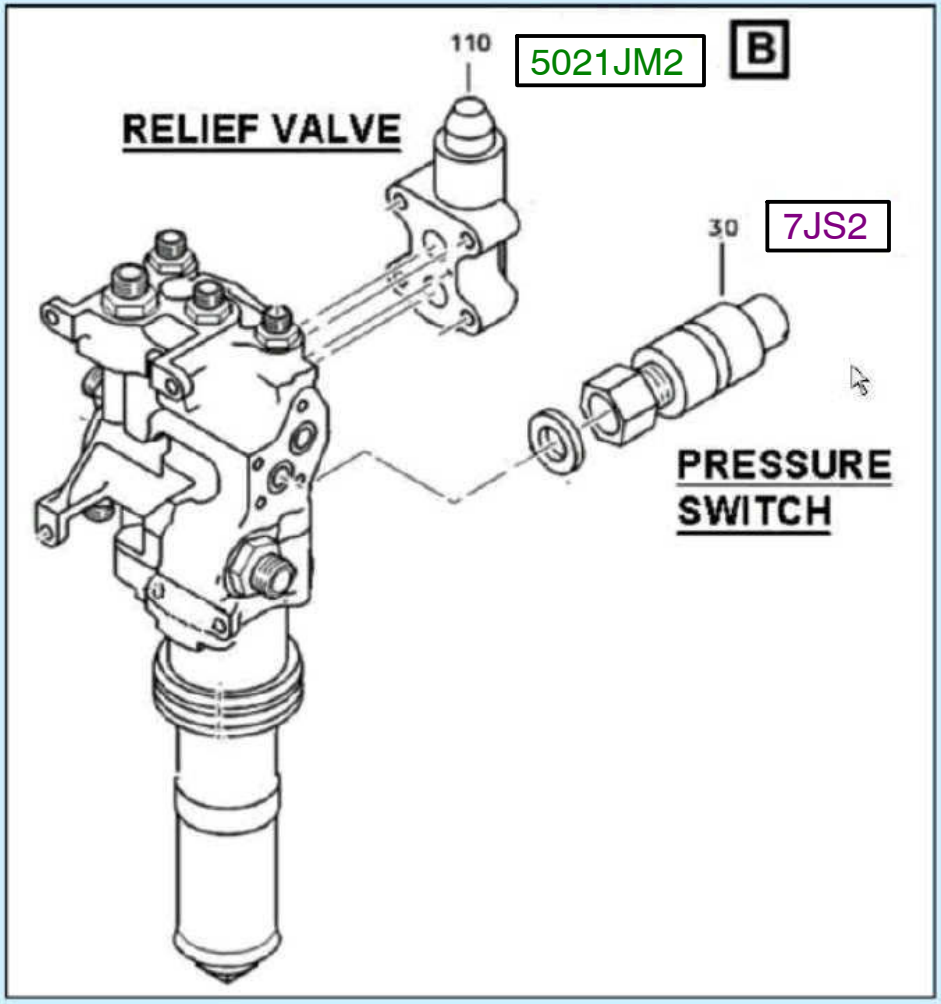


Figure 24 FIN Single Aisle Family

A340/A330/A380 FAMILY



MECHANICAL FIN

5021 J M 2

- 2 — Relief V. on Blue System
- M — Circuit (Main Hyd. Power)
- J — System (Hyd. Power)
- 5021 — Equipment Number

Mechanical FIN

For mechanical equipment, the FIN is similar to electrical FIN except that the second letter of the system/circuit identifier becomes an M (for example GM).

The FIN sequence number serves to differentiate between mechanical and electrical equipment.

Electrical FIN

The sequence number below 5000 are reserved for electrical FINs and the sequence numbers equal or above 5000 are reserved for mechanical FINs.

ELECTRICAL FIN

7 J S 2

- 2 — Press Sw on Blue System
- S — Circuit (Interface & Indicating)
- J — System (HYD Power)
- 7 — Equipment Number

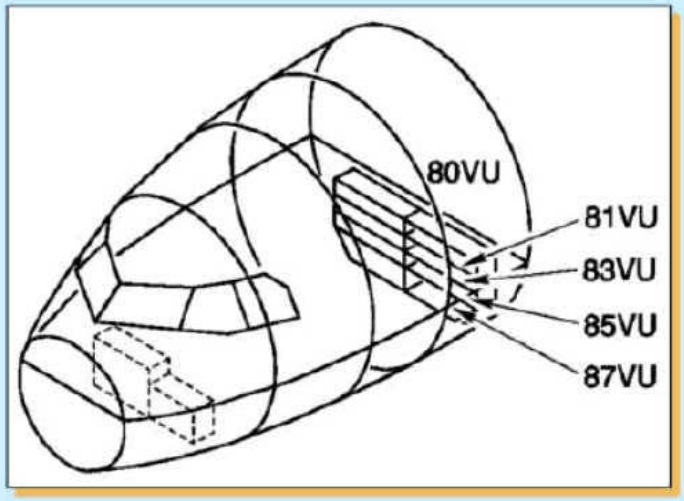
Figure 25 FIN Long Range Family

All components **not specifically related to a circuit** are identified by letter

V — second letter defines **type of component**

- VC - Electrical connector
- VD - Diode module
- VG - Ground terminal point
- VN - Ground point
- VP - Pressure seal/Feed thru
- VS - Splice
- VT - Terminal block
- VU - Panel/Rack
- VB - Wire Bundle (harness)

VU - Panels (not shown here) and VU - Racks



VC - Electrical Connectors

Figure 26 FIN-V... for Fictitious Circuits

The **Functional identification** of each FIN **relates to an ATA reference** (except for Fictitious - V components, not related to a particular system).

Example: **XE --> AC Emergency system --> 24-24-00**

FIN 20XE ⟹ RAT Extension Inhibition Condition Relay is found in:

- **AMM 24-24**-00 --- Description & Operation
- **AMM** - N/A - --- Removal/Installation (when applicable)
- **IPC 24-24**-08 --- Detailed figure
- **TSM 24-24**-00 --- Trouble shooting procedure
- **ASM 24-24** / 01 --- Schematic
- **AWM 24-24**-04 --- Diagram / Wiring connections
- **AWL / System Circuit XE** -- Equipment List

- **CMM 24-24**-15 --- Link with CMM (when applicable)

Figure 27 Relation of each FIN to an ATA Reference

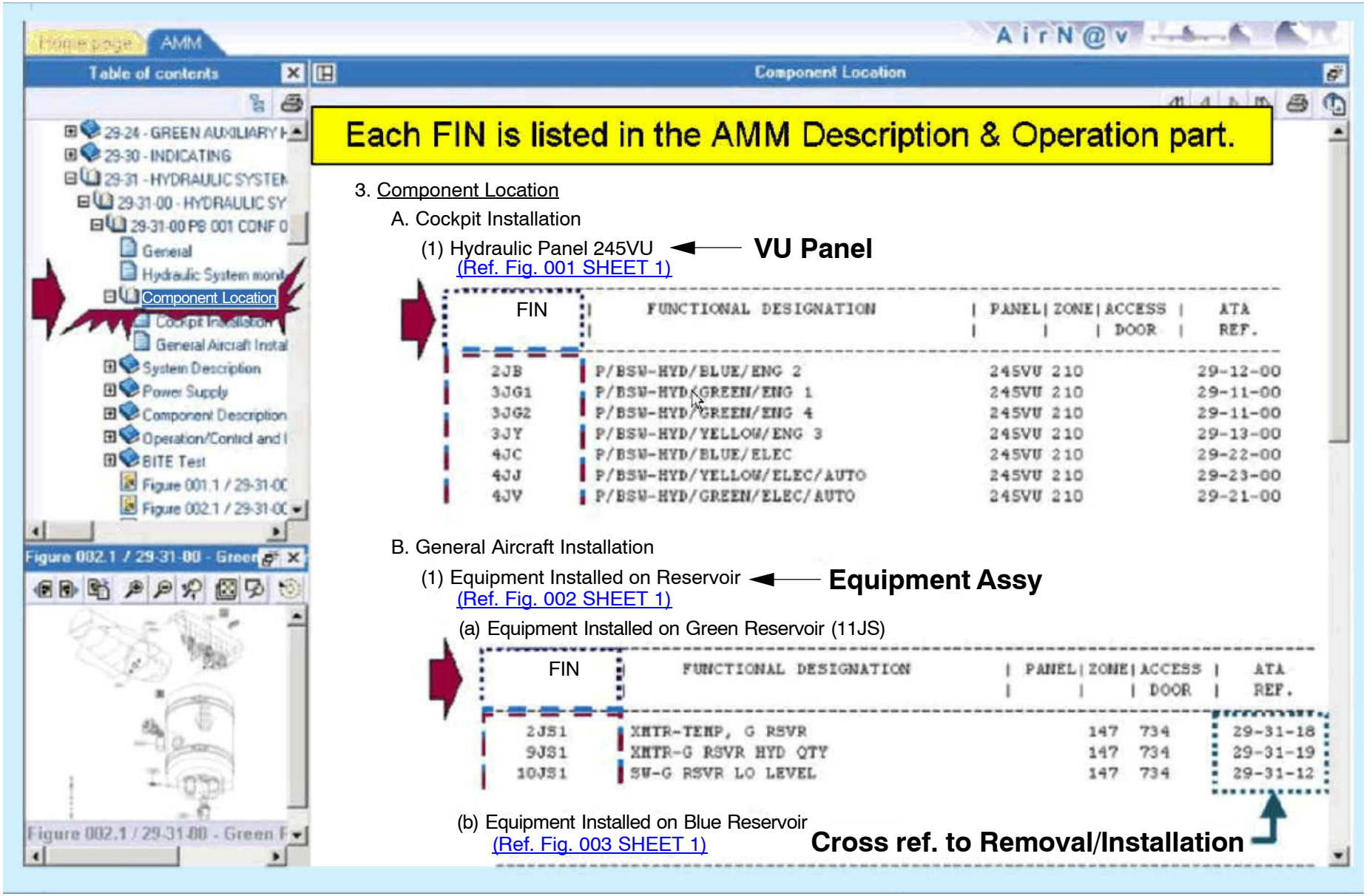


Figure 28 FIN in AMM

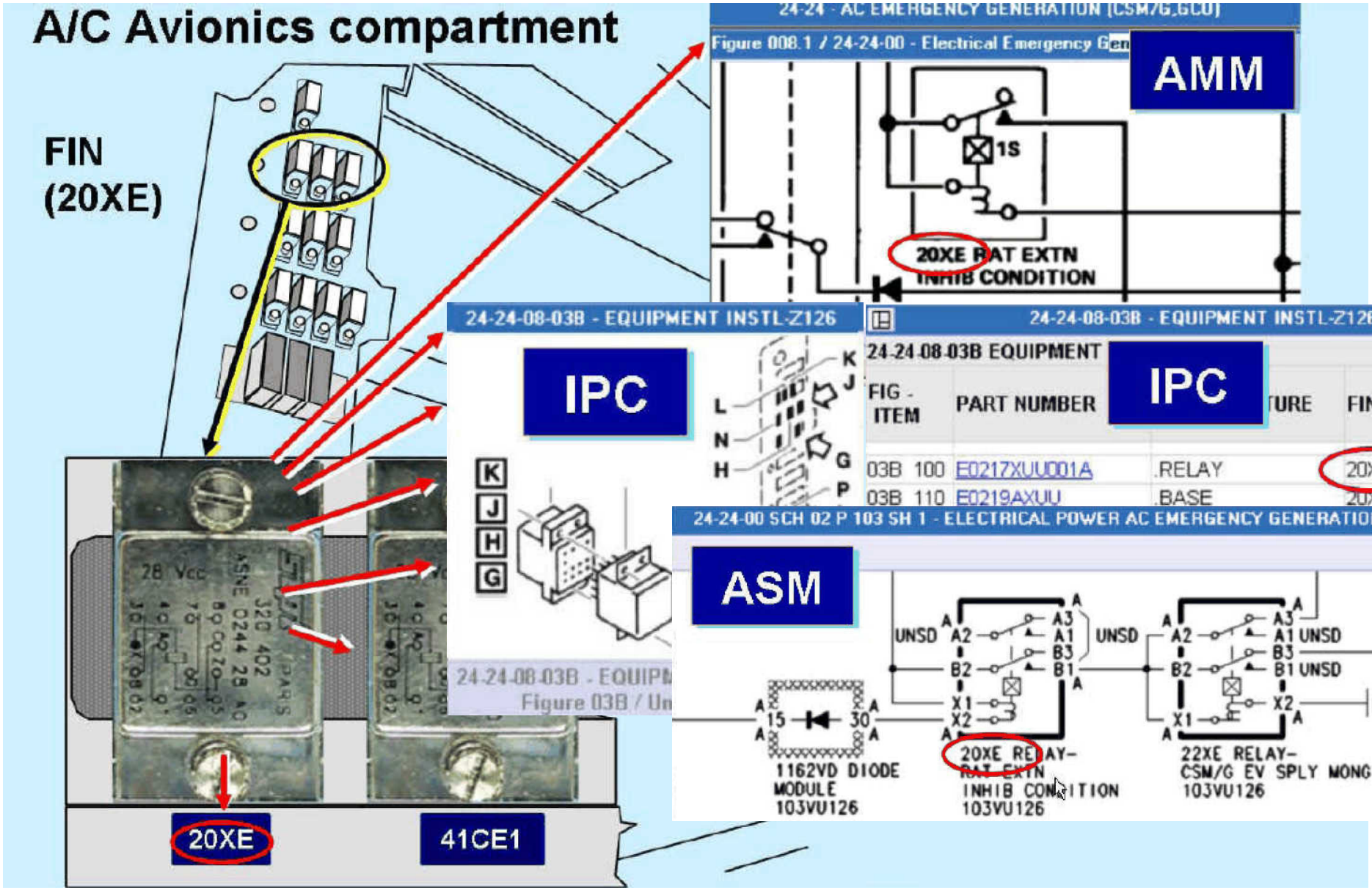


Figure 29 FIN in AMM, IPC and ASM

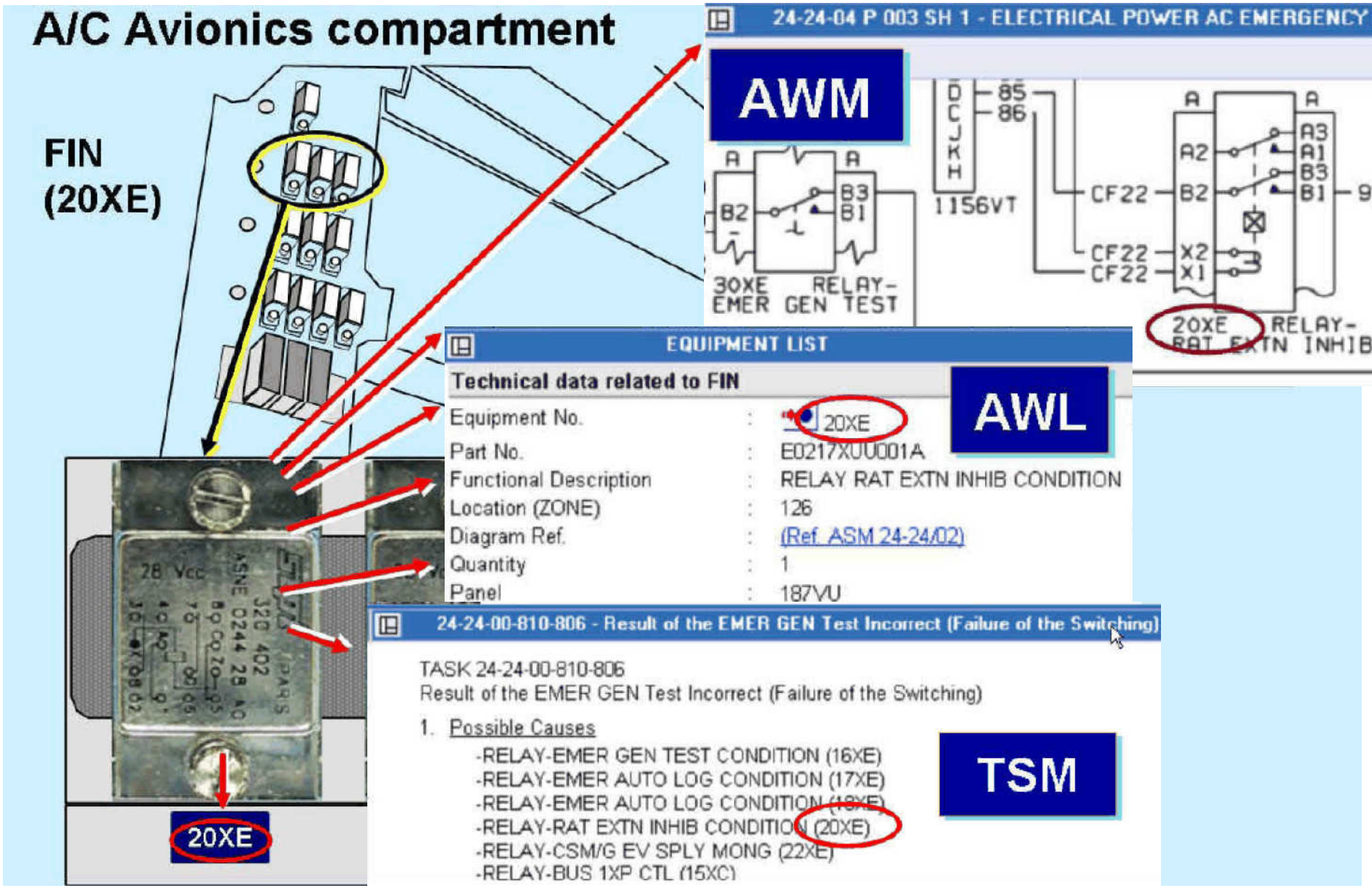


Figure 30 FIN in AWM, AWL and TSM

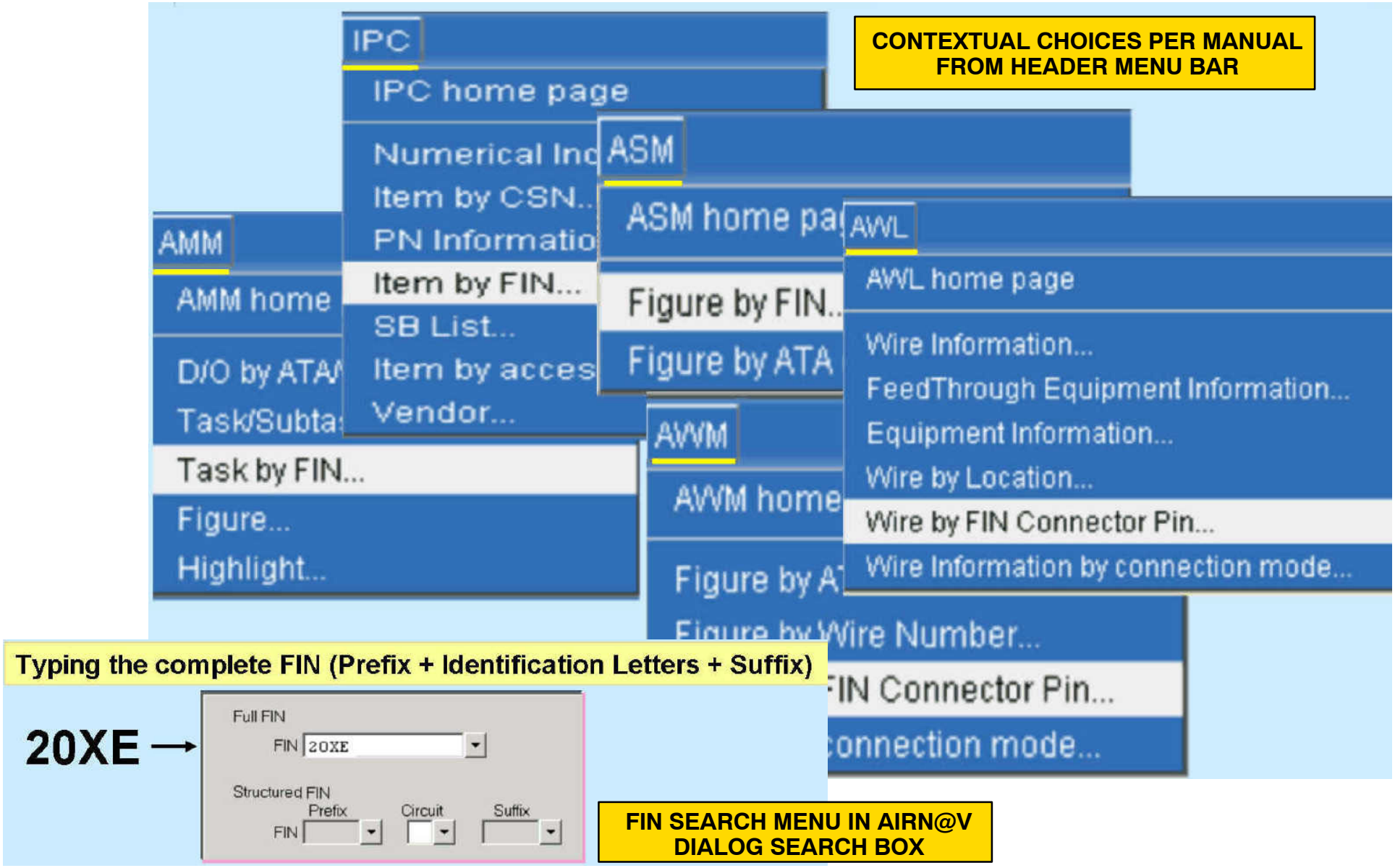


Figure 31 AirN@v Search Function (FIN)

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WIRING DIAGRAM MANUAL (WDM)

GENERAL

The Wiring Diagram Manual (WDM) is subdivided into three manuals:

- AIRCRAFT SCHEMATIC MANUAL (ASM)
- AIRCRAFT WIRING MANUAL (AWM)
- AIRCRAFT WIRING LIST (AWL)

These manuals have been prepared in accordance with ATA Specification No. 100.

The purpose of this manual is to permit a full understanding of electrical and electronic system, operation, troubleshooting and maintenance.

The Wiring Diagram Manual contains only the diagrams applicable to the particular customer or group of customers.

The customer code and the revision date will appear at the bottom of each page. The revision date is either that of the original issue, or when revised, that of the latest revision.

AIRCRAFT SCHEMATIC MANUAL PRESENTATION

GENERAL

Describes the content, the purpose and the coverage of the Manual. The following topics are covered in the ASM Introduction part for all Airbus A/C.

The ASM contains:

- Block diagrams which have a broad scope but little depth,
- simplified schematics which have schematically symbols but do not show sufficient detail to permit fault isolation,
- schematics which show all LRUs (**L**ine **R**eplaceable **U**nits), all A/C wiring within a sub-sub system and give sufficient depth for A/C fault isolation.

ELECTRICAL, ELECTRONIC SYSTEM AND CIRCUIT IDENTIFICATION

A complete list of system/circuit letter codes and an explanation of the FIN breakdown will be explained under Section FUNCTIONAL ITEM NUMBER in this training manual.

For maintenance purposes it is a part in the introduction (Manual Front Matter) of the ASM.

AIRCRAFT WIRING MANUAL PRESENTATION

GENERAL

The WM provides information on the point to point wiring of all electrical and electronic systems on the aircraft.

With the exception of fictitious circuits, connectors and terminals blocks are shown at least once with all connections.

A list of cross–reference, without terminal identification, to the various diagrams where the connector/terminal block is shown with wiring, is given to find all terminals for a connector/terminal block.

A connector/terminal block is always cross–referenced to its home wiring diagram.

In the introduction of the AWM, the same topics are covered as for the ASM, such as

- Aircraft Configuration,
- Electrical, Electronic System and Circuit Identification
- Wire Identification
- Types and Gauges
- etc...

There are only some differences between the WDM of the different Airbus types according ASM, AWM and AWL and their content in the introduction.

The differences of information between the Airbus Aircraft types is that some additional ATA chapters are used in the AWM::

- ATA 91 Routing Diagrams

  For A330/A340/A380 Aircraft the Panels, Zoning and Routing information are within this Chapter.

  Additional for the A380 the designation of Chapter ATA 91 is Main Wire Routing, Panels and Wiring List which includes:

  – Location and designation according the Main Wire Routes
  – Antenna Location on Aircraft
  – Hook Up List/Splices

  A310/A300–600 (ATA 91)

  Information according Wire Routing Installation, Terminal Blocks, Clamps, Circuit Breaker, Connector Installation, etc...) so called as “Charts“ is contained in the IPC (Illustrated Parts Catalog)

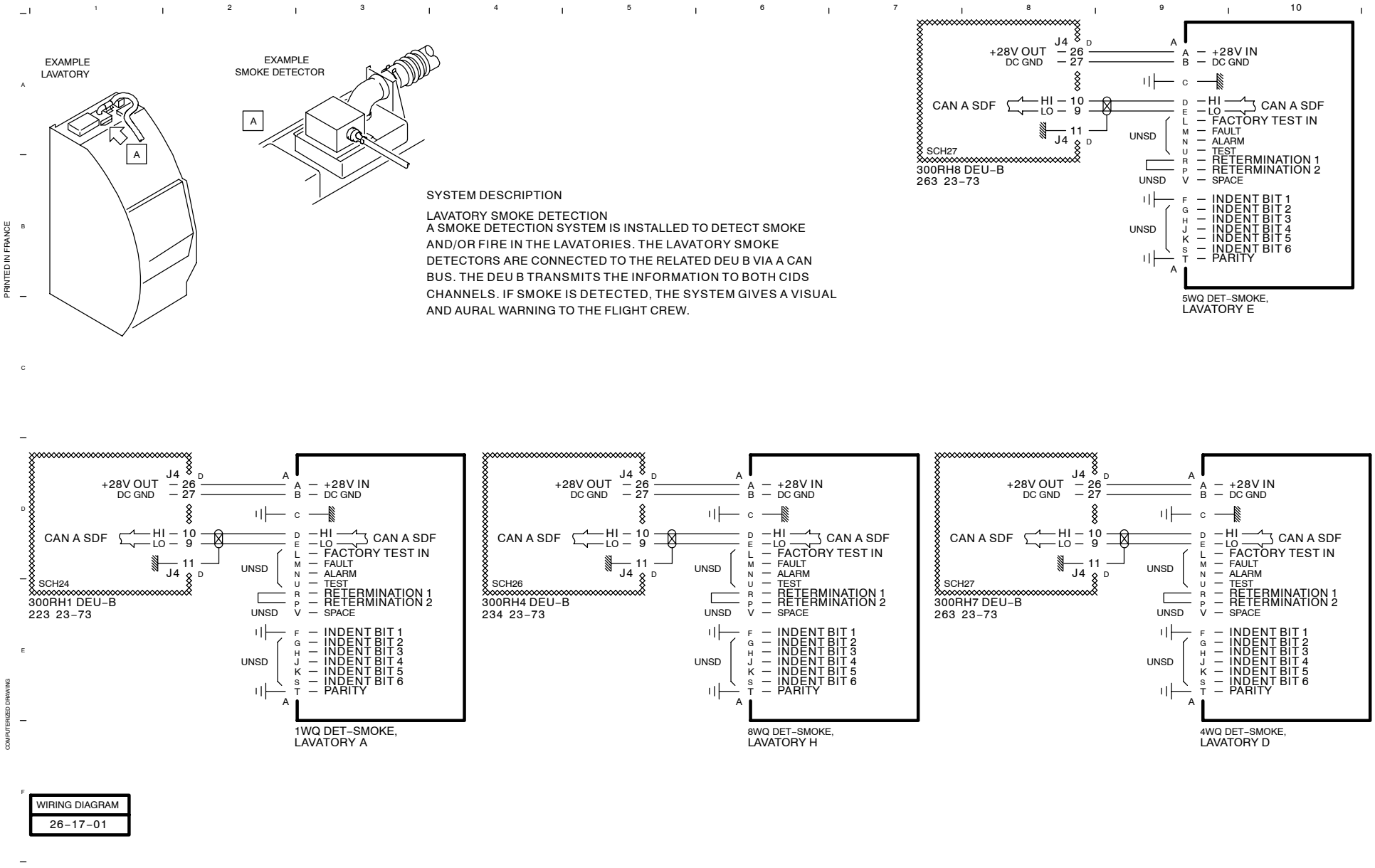


Figure 32 Aircraft Schematic Manual Example

AIRCRAFT WIRING MANUAL (CONTINUED)

For the A320 Family Panels, Zoning and Routing is in the following Chapters included:

- ATA 93 Panels,
- ATA 94 Zoning and Routing.

The main specific information for all Airbus Aircraft (except A310/A300– 600) according the AWM is within the ATA 91 (ATA 93 and 94), such as:

- a complete Panel List (All Flight Deck Control Panels, Miscellaneous Panels, Circuit Breaker Panels, etc...) and the associated locations with the help of detailed illustrations)
- Zoning and Routing
- A380 (ATA 91)

WIRE IDENTIFICATION (BY NUMBER CODES)

Wire idenfication is numerical plus a color identification when used, dependent on its circuit and independent of its location on the aircraft.

Each wire is identified by an 8 digit number composed as follows:

- Example: 2322–0121R
  - 2322: Circuit identification prefix corresponding to ATA 100 numbering (chapter, section).
  - 0121: Wire number in circuit (different for each segment)
  - R: Color (if used).

NOTE: The circuit wire number alone shall be shown on the wiring diagram. The ATA 100 correspondence for total identification shall be given in a general note.

Identification for specific Wires

In this part the user can find a description according the different types of wires and bundles and how to identify them.

- Ground wire identification
- Spare wire identification
- Wires added or modified in the aircraft by the customer
- Wires added or modified in the aircraft by product support
- Identification of shielding or shielded wires/cables
  - Shielding or shielded wires/cables added or modified in the aircraft by the customer.
- Bundles supplied by a vendor

Identification by Color Codes

Types and Gauges

For more details refer to the ESPM (**E**lectrical **S**tandard **P**ractices **M**anual) which is also described in the training manual under section ELECTRICAL STANDARD PRACTICES MANUAL.

Each wire is identified by an alphanumerical code comprising 2 alpha digits followed by 2 numerical digits.

- Example CF24

  where CF is for the Type

  and 24 is for the Gauge.

Also Sensitive Wires and the Wire Connection is described in the ASM.

Ground Point Identification

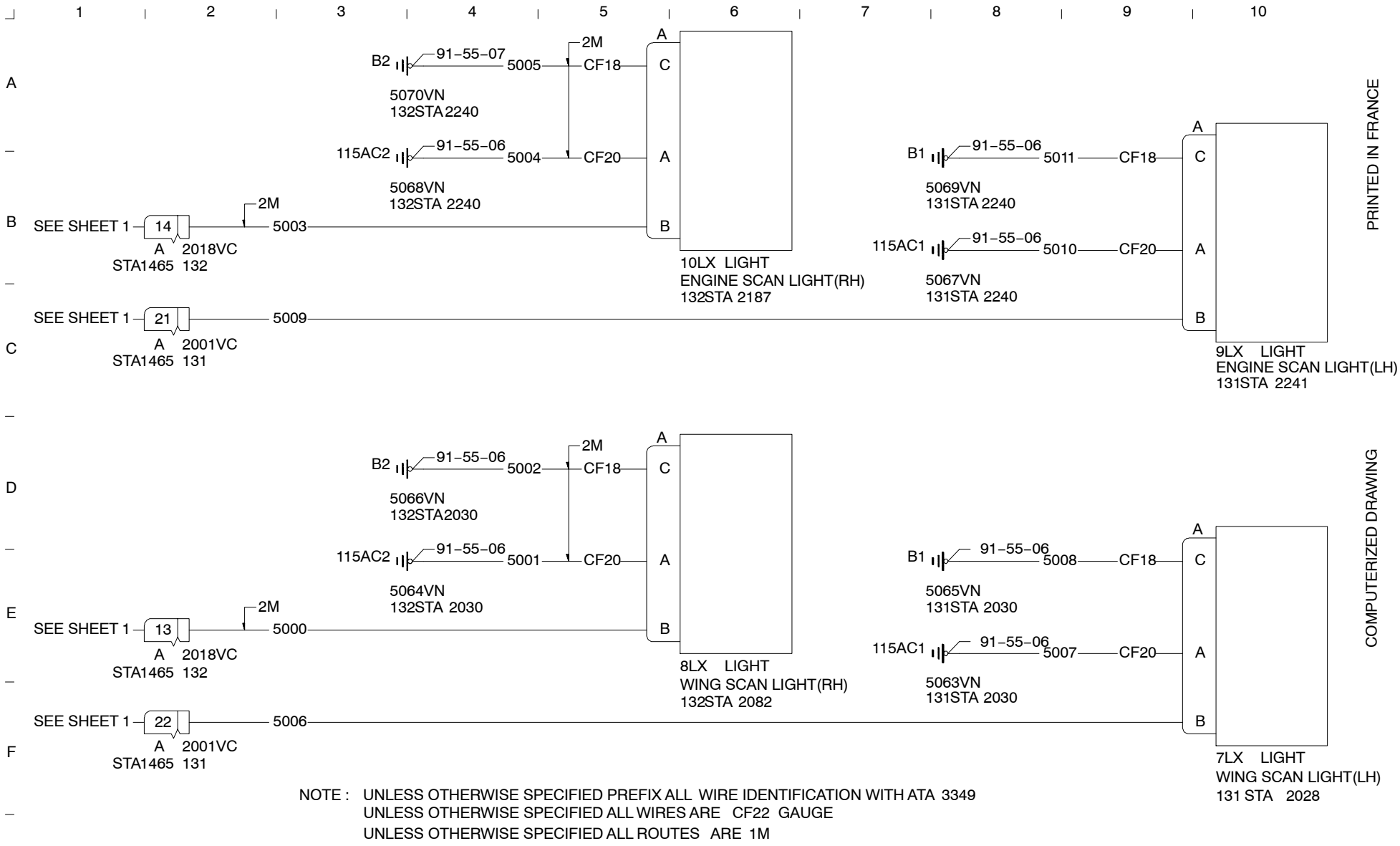
The identifications for DC and AC Ground are described under this item.

Routing Identification

Route identification consists of an alphabetical character, which denotes the type of route, prefixed by a sequence number.

Symbols

A complete list of used Symbols and their illustration in the ASM is given under this item. (General symbols, wiring and connections, resistors, capacitors, induction coils, relays, logic symbols, mechanic symbols, etc...)



NOTE : UNLESS OTHERWISE SPECIFIED PREFIX ALL WIRE IDENTIFICATION WITH ATA 3349
UNLESS OTHERWISE SPECIFIED ALL WIRES ARE CF22 GAUGE
UNLESS OTHERWISE SPECIFIED ALL ROUTES ARE 1M

Figure 33 AWM Example

AIRCRAFT WIRING LIST PRESENTATION

GENERAL

In the introduction of the AWL, at first, the same topics are covered as for the ASM and AWM, such as

- Aircraft Configuration,
- Electrical, Electronic System and Circuit Identification
- Wire Identification
- Types and Gauges
- etc...

For all Airbus types the users of the manual have access to the Equipment List for which the Functional Item Numbers are the basic search criteria and the Extended Wire List which includes detailed information about the used wires in the aircraft.

Equipment List

The Equipment List gives details according a FIN, references to the ASM and an conversion from FIN to the P/N (**P**art **N**umber).

Extended Wire List

The extended Wire List gives detailed information according the wires used in the A/C such as physical characteristics, where it is hooked up by which type of contact (P/N) and references to the AWM.

There are only some differences between the WDM of the different Airbus types according ASM, AWM and AWL and their content in the introduction.

Types of Lists

The lists supplied are as follows:

1. an equipment list
2. a hook–up list which includes:
   - plugs and receptacles ATA 91–20
   - terminal blocks ATA 91–30
   - splices ATA 91–40
   - ground points ATA 91–50
   - miscellaneous equipment ATA 91–60
   - ground terminal blocks ATA 91–70
3. a master wire list ATA 91–90
4. engine data lists in the form below:
   - equipment list
   - hook–up list
     - plugs and receptacles ATA 92–20
     - terminal blocks ATA 92–30
     - splices ATA 92–40
     - ground points ATA 92–50
     - miscellaneous equipment ATA 92–60
   - master wire list ATA 92–90

NOTE: As the engine data is produced per engine type, the effectivity is related to the engine type and not to the airline fleet.

** ON A/C 601-650, 652-670

Technical data related to FIN		
Equipment No.	:	1DA
Part No.	:	NSA931320-075A
Functional Description	:	C/B-PROBE HEAT/CAPT ALPHA SUPPLY
Location (ZONE)	:	212
Diagram Ref.	:	(Ref. ASM 30-31/01)
Quantity	:	00001
Panel	:	22VU

EQUIPMENT LIST

** ON A/C 608-650, 652-652

Technical data related to a wire		
Wire Identification		
No.	:	2111-0001
AWG	:	24
Length	:	00075 CM
Type (US / METRIC)	:	AK / CF
Diagram Ref.	:	(Ref. AWM 21-11-02)
Route	:	2M
From Termination A		
FIN	:	154VC A
Term No.	:	-W
Contact PN	:	EN3155-019F2018
To Termination B		
FIN	:	200HB
Term No.	:	2
Contact PN	:	NSA936501TA2205

EXTENDED WIRE LIST

Figure 34 Equipment- and Extended Wire List

ELECTRICAL STANDARD PRACTICES MANUAL

ESPM PRESENTATION

ELECTRICAL STANDARD PRACTICES MANUAL (ESPM)

The ESPM (**E**lectrical **S**tandard **P**ractices **M**anual) gives descriptive data and procedures for the electrical installations on all aircraft of the AIRBUS family. The standard practices information in this manual tells the operator how to do maintenance and repairs on the standard electrical items.

Chapter 00 (common part) with:

- General, How to use (00–INTRO)
- Indexes

Chapter 20 (several depending the responsible) with:

- Safety Practices (20–10–00)
- Tools (20–25–XX)
- Subjects related to standard rules and recommendations (20–3X–XX):
  - Specific areas (20–31–XX)
  - Identification/marking (20–32–XX)
  - Wire harnesses (20–33–XX)
- Subjects related to standard electrical items and connecting parts with their description (P/N identification and characteristics) and their related processes (connection procedure or connection table) (20–4X–XX):
  - Sleeves, End Caps and Ferrules (20–42–XX)
  - Splices and Pressure Seals (20–43–XX)
  - Connectors and Terminal Blocks (20–44–XX)
  - Miscellaneous Electrical Items (20–45–XX)
  - Circuit breaker, Relay and Relay Base (20–46–XX)
  - Terminals and Contacts (20–48–XX)
  - Subjects related to maintenance processes (20–5X–XX):
    - Standard Processes (20–51–XX)
    - Inspection/Check and Test (20–52–XX)
    - Repair Processes (20–53–XX)

    ATTENTION: The Repair Process of EFCS (**E**lectrical **F**light **C**ontrol **S**ystem) and Sensitive Cables is described in this section.
    - Protection during Maintenance Checks (20–54–XX)
    - Cleaning (20–55–XX)

NOTE: Several Chapter 20 exist, depending on the vendor who is responsible of the system (ECE, Honeywell,...) but whatever the vendor, their chapter 20 follows this layout.

NOTE: The power plant related Electrical Standard Practices data is published in the AMM 70–71–XX.

HOW TO USE

This part of the ESPM gives the user basic information on how to use the manual efficiently.

Manual Structure

Preliminary pages at the beginning of the ESPM

Includes all information concerning the Revision Process and Service which is part of the section REVISION SERVICE in this training manual.

- Table of Contents

  Each chapter in the ESPM begins with a Table of Contents. The Table of Contents shows each section in the chapter and the subject material within the section.

- Manual Breakdown

  Chapter breakdown is based on a 6−digit numbering system, as well as described in the section AIRCRAFT MAINTENANCE MANUAL in this training manual..

How to get access to the information?

The entry points below help you find the information you need:

- The TOC gives a list of the topics contained in the chapter and the title of a subject covered in each topic.
- The alphabetical index (CHAPTER 00 − INDEXES) gives an alphabetical list of keywords and tells you which topics contain these keywords.
- The standard P/N index (CHAPTER 00 − INDEXES) tell you which topics contain data related to the P/N.
- The equivalence tables (CHAPTER 00 − INDEXES)

NOTE: The ESPM does not cover all the electrical P/Ns, e.g. old generation P/Ns that are no longer used for repair and P/Ns that are not frequently used, are not covered.

NOTE: For P/Ns not covered in the ESPM, you can refer to the Standards Manual (SM) which gives the specification of the standard P/N or an equivalent P/N you can use. You can then refer back to the ESPM for information related to that equivalent P/N given in the SM.

Presentation Of Each Chapter

- Sleeves and Ferrules
- Splices
- Connectors
- Terminal Blocks
- Relays and Relay Bases
- Repair Processes

  The selection is in relation to:

  – The type.
  – The P/N.
  – The gauge of the cable.

  A repair method is proposed in relation to the damage found.

  These chapters give repair processes:

  – 20−53−2X Electrical Cable Repair Processes
  – 20−53−3X Conduit Repair Processes
  – 20−53−4X Bundles Attachments Repair Processes
  – 20−53−5X Standard Electrical Item Repair Processes

- Other topics: Find the full P/N

  Sometimes the full P/N is not written on the electrical standard item (for example, for a cable only the cable type is shown), but for procurement the full P/N is necessary.

  You can find the full P/N in the other manuals

Definition of Terms

The terms below are used in the ESPM and are defined as follows:

- Standard Practices:
  Standard industry practices that are not specific to AIRBUS aircraft.
  Procedures specific to AIRBUS aircraft and applicable to several systems.
- Torque:
  Term used when a procedure requires a specific torque value.
- Tighten:
  Term used when no specific torque value is required.

The definitions of WARNING, CAUTION and NOTE are already explained for the A/C documentation and apply also to the ESPM.

Part Number (P/N) Construction

It is only with a P/N (not with a FIN) that you can access to the ESPM information.

The P/Ns listed in the ESPM are made up of two parts:

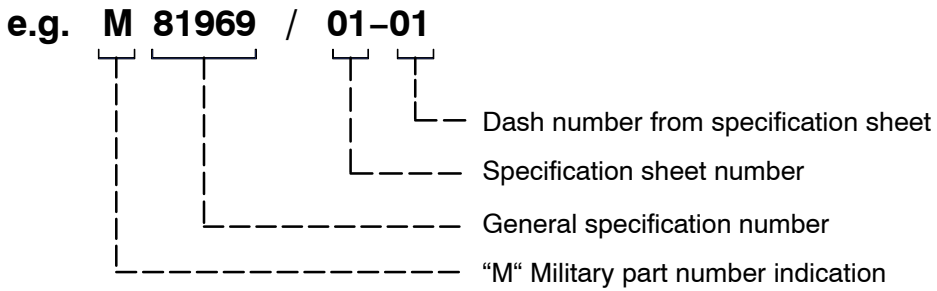
- a basic element which is the standard number/family,
- a suffix which defines the item.

e.g.	Basic element (standard)	+	suffix(item)	=	Full P/N
	NSA936504		TC0607		NSA936504TC0607
	ASNE0261		CF24		E0261CF24

NOTE: For ASNE standards, the 3 letters ”A, S, N” are omitted in the P/N. For clarity, only the suffix (item) (e.g. E0617 for ASNE0617) is shown in the tables.

However, you can identify the full P/N because the applicable standard number is always shown on the page. (In the title or/and on top of the table)

NOTE: For tool MIL (**M**ilitary **P**art **N**umber), the P/N consists of the letter M and of the basic specification number.



Interfaces with other manuals:

- The SM (**S**tandards **M**anual) and the IPC (**I**llustrated **P**arts **C**atalog) (Supplier, equivalent P/N) for the required P/N)
- The ACRT (**A**dditional **C**ross **R**eference **T**ables)
- The PMS (**P**rocess and **M**aterial **S**pecification)
- The AWL (**A**ircraft **W**iring **L**ist)
- The AWM (**A**ircraft **W**iring **M**anual)
- The ASM (**A**ircraft **S**chematics **M**anual)
- The AMM (**A**ircraft **M**aintenance **M**anual)
- CMMV (**C**omponent **M**aintenance **M**anual **V**endor) or CMMM (**C**omponent **M**anufacturer **M**aintenance **M**anual)
- The TSM (**T**rouble **S**hooting **M**anual)

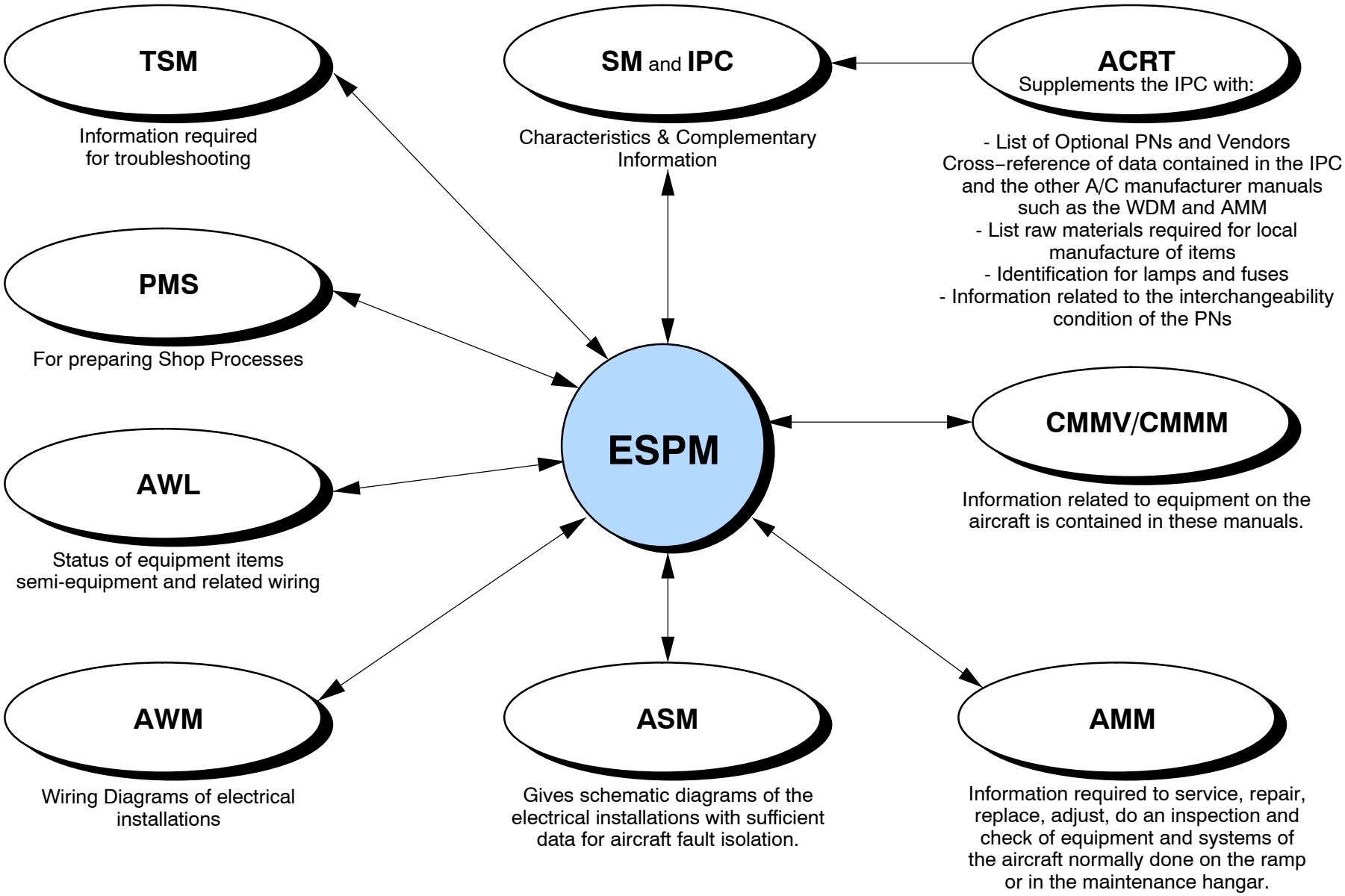


Figure 35 ESPM Interface with other Manuals

ILLUSTRATED PARTS CATALOG

ILLUSTRATED PARTS CATALOG PRESENTATION

Purpose

This IPC (**I**llustrated **P**arts **C**atalog) is intended only for use in identifying, provisioning, requisitioning, storing and issuing line replaceable aircraft parts and units.

This document includes PIPC (**P**ower Plant **IPC**) items related to the AMM tasks for the Engine Power Plant (CFM56, Rolls Royce Trent , etc...).

The IPC is a companion to the Maintenance Manual and includes all parts for which maintenance practice has been provided. AIRBUS expressly disclaims any and all responsibility for data added, deleted and/or revised by airline/operator initiated modifications to this document.

Part numbers shown in this document, arrangement and breakdown sequence of items are compatible with ATA (**A**ir **T**ransport **A**ssociation) specification.

Customization

The customized Illustrated Parts Catalog contains only the detailed parts list and numerical index information applicable to a particular customer or group of customers.

The illustrations are not customized and may contain parts and item numbers not applicable to a particular customer, therefore these items will not appear in the detailed parts list of this Illustrated Parts Catalog.

The customer code and the revision date appear at the top of the screen for the complete manual.

General System of Assembly Order – Detailed Part List

The indenture system used in the DPL (**D**etailed **P**arts **L**ist) shows the relationship of parts and assemblies to next higher assemblies or installations in assembly order as follows:

1 2 3 4 5 6 7

INSTALLATION

. DETAILED PARTS FOR INSTALLATION

. ASSEMBLY

. . DETAILED PARTS FOR ASSEMBLY

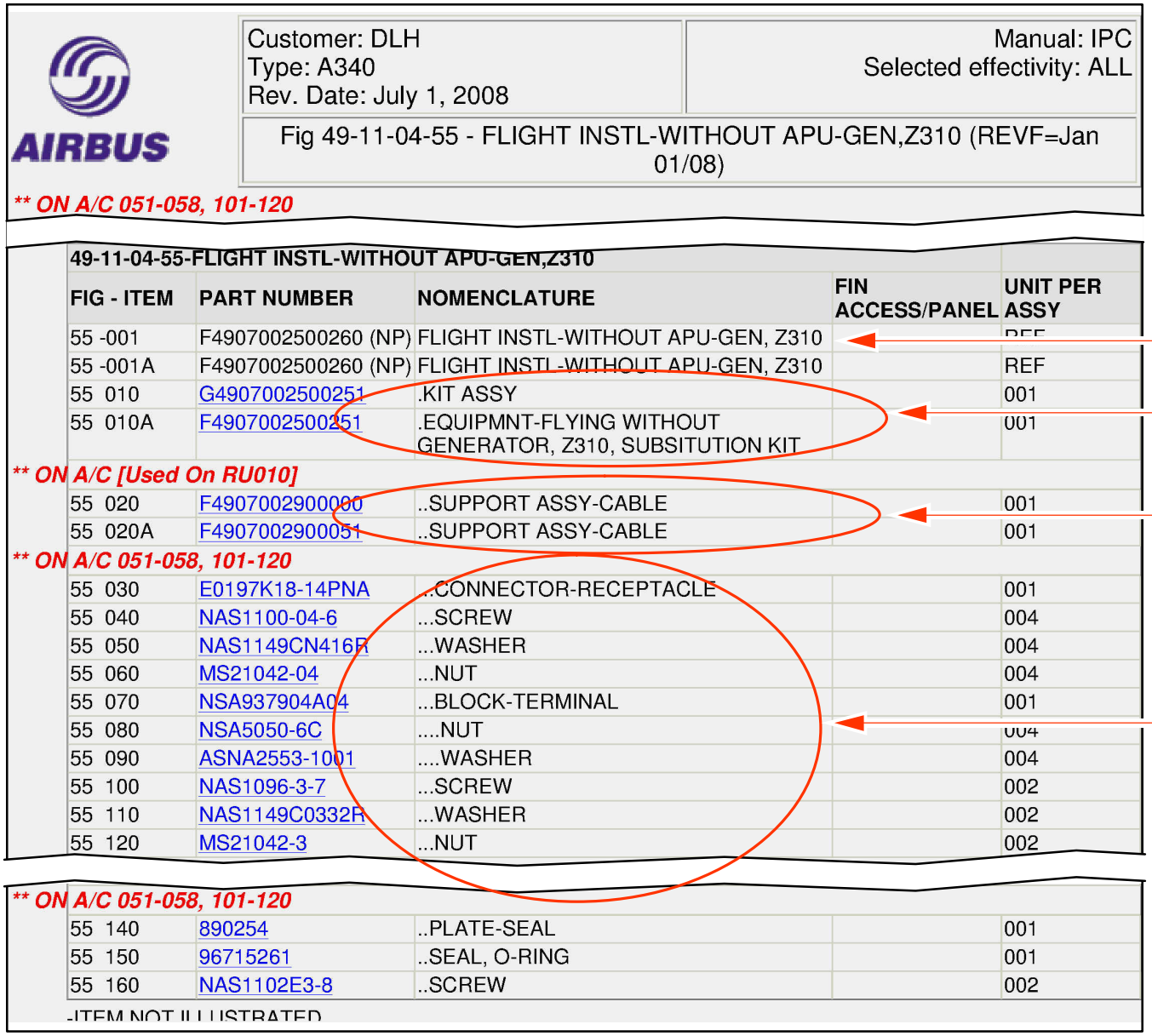
. . SUB–ASSEMBLY

. . . DETAILED PARTS FOR SUB–ASSEMBLY

. . . SUB–SUB–ASSEMBLY

. . . . DETAILED PARTS FOR SUB–ASSEMBLY

NOTE: NOTE: Dots preceding the item designation indicate the indenture level.



Customer: DLH
Type: A340
Rev. Date: July 1, 2008

Manual: IPC
Selected effectivity: ALL

Fig 49-11-04-55 - FLIGHT INSTL-WITHOUT APU-GEN,Z310 (REVF=Jan 01/08)

** ON A/C 051-058, 101-120

49-11-04-55-FLIGHT INSTL-WITHOUT APU-GEN,Z310

FIG - ITEM	PART NUMBER	NOMENCLATURE	FIN ACCESS/PANEL	UNIT PER ASSY
55 -001	F4907002500260 (NP)	FLIGHT INSTL-WITHOUT APU-GEN, Z310		REF
55 -001A	F4907002500260 (NP)	FLIGHT INSTL-WITHOUT APU-GEN, Z310		REF
55 010	G4907002500251	.KIT ASSY		001
55 010A	F4907002500251	.EQUIPMNT-FLYING WITHOUT GENERATOR, Z310, SUBSITUTION KIT		001
** ON A/C [Used On RU010]				
55 020	F4907002900000	..SUPPORT ASSY-CABLE		001
55 020A	F4907002900051	..SUPPORT ASSY-CABLE		001
** ON A/C 051-058, 101-120				
55 030	E0197K18-14PNA	..CONNECTOR-RECEPTACLE		001
55 040	NAS1100-04-6	...SCREW		004
55 050	NAS1149CN416R	...WASHER		004
55 060	MS21042-04	...NUT		004
55 070	NSA937904A04	...BLOCK-TERMINAL		001
55 080	NSA5050-6C	....NUT		004
55 090	ASNA2553-1001	....WASHER		004
55 100	NAS1096-3-7	...SCREW		002
55 110	NAS1149C0332R	...WASHER		002
55 120	MS21042-3	...NUT		002
** ON A/C 051-058, 101-120				
55 140	890254	..PLATE-SEAL		001
55 150	96715261	..SEAL, O-RING		001
55 160	NAS1102E3-8	..SCREW		002

-ITEM NOT ILLUSTRATED

INDENTURE LEVELS

INSTALLATION

DETAILED PARTS FOR INSTALLATION OR ASSEMBLY

DETAILED PARTS FOR ASSEMBLY (SUB–ASSEMBLY)

DETAILED PARTS FOR SUB–ASSEMBLY (SUB–SUB–ASSEMBLY)

Figure 36 Detailed Part List (Indenture System)

DESCRIPTION OF IPC CONTENT

The IPC lists data related to the line maintenance parts. Following data are available:

Alpha numerical index

This allows the search from a part number to the affected figure where the part number is listed.

Detailed Parts List (DPL)

The DPL is a part of the IPC where end item parts are listed in accordance with an item sequence. These parts are listed at the first item with the indenture 1. A generic text like “FOR OPERATING LIMITS/DATA, REFER TO xx xx xx xx FOR NHA“ is listed after each part.

Their respective breakdown parts are listed in cascade in the detailed figure

1 Effectivity (EFF)

The effectivity shows on which A/C the parts can be installed. The effectivity is given in FSN (**F**leet **S**erial **N**umber).

The effectivity shown is called “SPARES Effectivity“. The Spares effectivity is given in accordance with the interchangeability code between the parts and the A/C configuration.

The absence of a restrictive effectivity at all items in one IPC figure indicates that the part is effective for all aircraft of a customers fleet.

The absence of a restrictive effectivity at one item in one IPC figure indicates that the part is effective for the same A/C available at the item above with an effectivity.

NOTE: In addition, refer to “Interchangeability“, “Restrictive Usage“ (RU) and “Effectivity Engine Serial Number“ (EFF//ESN) paragraphs.

2 Figure Number (FGN)

The figure number refers to the corresponding illustration. Should modifications or system variants necessitate an additional figure, this will be introduced with a sequential alpha−suffix, for example, a modified version of Figure 1 would be Figure 1A; further variant of the same figure would be Figure 1B, and so on.

3 Functional Item Number (FIN)

Each part with precise function within an A/C system is defined with a specific identifier called FIN. The FIN is unique in the A/C.

4 Illustrations (ILL)

The illustrations are parts of the IPC where the parts listed in the DPL are illustrated. In addition, the illustrations show:

- the location of the item by ribs in pylons, wings, vertical and horizontal stabilizers, by frames in fuselage by zones.
- the continuation of the system when the first 6 digits are different.
- FIN, access door and panels ref.
- the data content of some IPC figures related to the Power Plant Data.

Illustrations are not customized and some items are not in the detailed parts list.

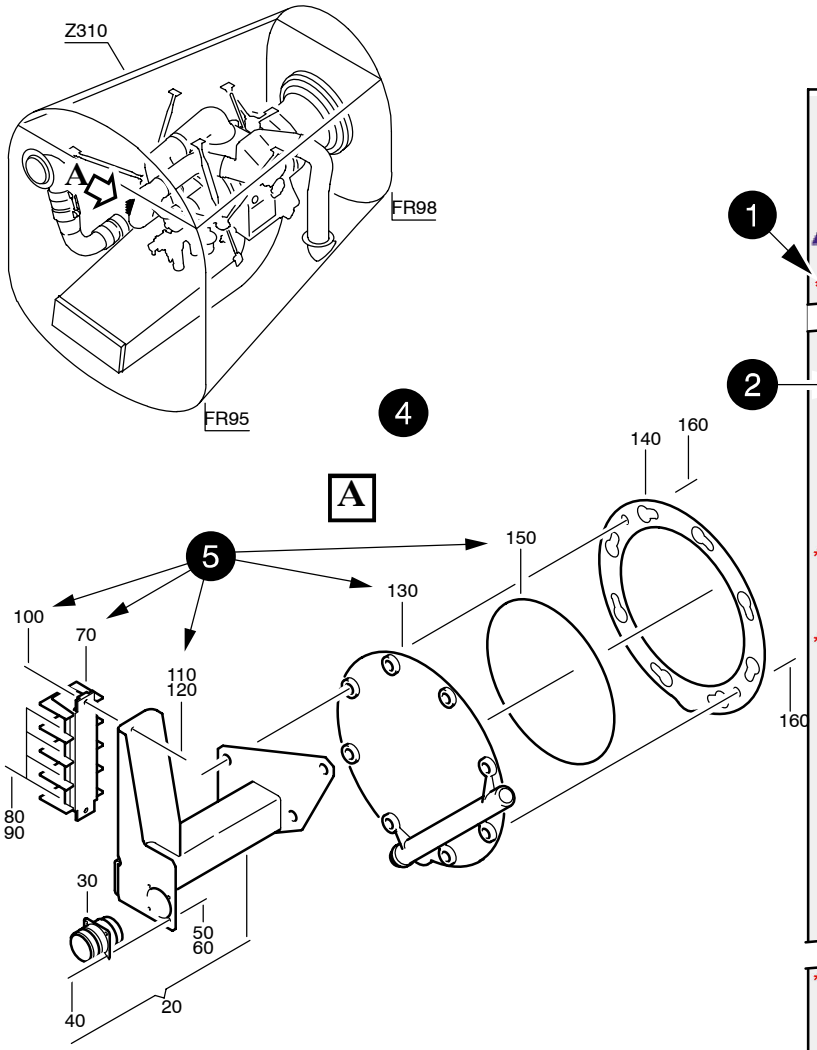
5 Item Number (ITEM)

An item number is assigned to each part listed in the detailed parts list. Item numbers are broken in sequence for the insertion of additional items.

Item number preceded by “−“ is not illustrated.

6 Not Procurable (NP)

NP indicates that this item is not procurable. The reference shown in the IPC is fictitious and is not systematically based on an existing drawing. Drawing references and effectivity are managed in the Drawing set Part usage data available on Airbus World portal in the “Mechanical Drawings“ service.



AIRBUS

Customer: DLH
Type: A340
Rev. Date: July 1, 2008

Manual: IPC
Selected effectivity: ALL

Fig 49-11-04-55 - FLIGHT INSTL-WITHOUT APU-GEN,Z310 (REVF=Jan 01/08)

1 → ** ON A/C 051-058, 101-120

49-11-04-55-FLIGHT INSTL WITHOUT APU-GEN,Z310

2 → FIG - ITEM	PART NUMBER	NOMENCLATURE	3 → FIN ACCESS/PANEL	UNIT PER ASSY
55 -001	F4907002500260 (NP)	FLIGHT INSTL-WITHOUT APU-GEN, Z310		REF
55 -001A	F4907002500260 (NP)	FLIGHT INSTL-WITHOUT APU-GEN, Z310		REF
55 010	G4907002500251	.KIT ASSY		001
55 010A	F4907002500251	.EQUIPMNT-FLYING WITHOUT GENERATOR, Z310, SUBSITUTION KIT		001
** ON A/C [Used On RU010]				
55 020	F4907002900000	..SUPPORT ASSY-CABLE		001
55 020A	F4907002900051	..SUPPORT ASSY-CABLE		001
** ON A/C 051-058, 101-120				
55 030	E0197K18-14PNA	...CONNECTOR-RECEPTACLE		001
55 040	NAS1100-04-6	...SCREW		004
55 050	NAS1149CN416R	...WASHER		004
55 060	MS21042-04	...NUT		004
55 070	NSA937904A04	...BLOCK-TERMINAL		001
55 080	NSA5050-6C	....NUT		004
55 090	ASNA2553-1001	....WASHER		004
55 100	NAS1096-3-7	...SCREW		002
55 110	NAS1149C0332R	...WASHER		002
55 120	MS21042-3	...NUT		002
** ON A/C 051-058, 101-120				
55 140	890254	..PLATE-SEAL		001
55 150	96715261	..SEAL, O-RING		001
55 160	NAS1102E3-8	..SCREW		002

-ITEM NOT ILLUSTRATED

Figure 37 IPC Example 1

1 Not illustrated Part

Parts with item numbers preceded by a dash are not illustrated.

2 Attaching Parts

Attaching parts are listed immediately following the item they attach and at the same indenture level. The first item is preceded by the phrase “Attaching parts“ and the last one is followed by the symbol “***“. Quantity shown is the quantity required to attached one part.

3 Part Number (PN)

Part identifier containing up to 15 digits (combination of alpha, numeric and dash as applicable). When the part identifier is more than 15 digits, refer to Overlength paragraph.

4 Quantity (QTY)

The quantity of the part used in one next higher assembly or installation is available in the DPL. For total quantity per aircraft for one location refer to alpha–numerical index.

5 Reference item (REF)

Item 001/ or 002 are the lead items of the figure. These items are listed for reference purposes with the RF.

6 Detail (SEE XX XX XX FOR DET)

This cross–reference indicates where the installation or assembly is broken down to its component parts.

Next Higher Assembly (SEE XX XX XX FOR NHA)

This cross–reference indicates the figure number where the lead item is listed in quantity.

Service Bulletin reference (AISB)

The integration of the PRE/POST AISB in the IPC is in accordance with the policy between AIRBUS and AIRLINES. The reference of the PRE AISB or POST AISB is in the IPC to help users about the redundant effectivity. After airlines reporting the interim PRE/POST AISB configuration is changed in POST AISB only to be consistent with the new A/C configuration.

Service Information Letter (SIL)

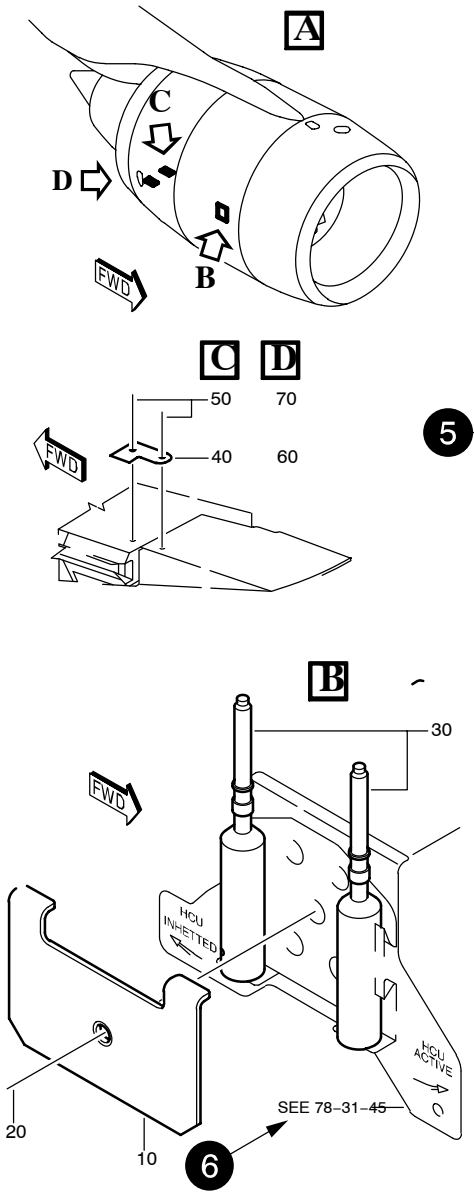
The SIL contains additional technical information related to a particular part listed in the IPC.

Symmetry (LH) or (RH)

- Parts used on left hand or right hand of symmetrical installations are designated by (LH) or (RH).
- Parts, assemblies or installations used only on one side of the aircraft are designated by ”(LH SIDE)” or ”(RH SIDE)”

Table of Content (TOC)

All figures are listed by ATA chapters.



AIRBUS

Customer: DLH
Type: A340
Rev. Date: July 1, 2008

Manual: IPC
Selected effectivity: ALL

Fig 78-30-00-70 - PIN INSTL-T R INHIBITION (REVF=Jul 01/08)

*** ON A/C 201-210, 401-412**

78-30-00-70-PIN INSTL-T R INHIBITION

FIG - ITEM	PART NUMBER	NOMENCLATURE	FIN ACCESS/PANEL	UNIT PER ASSY
*** ON A/C 201-210, 401-412**				
70 -001A	AP78-3000-70 (NP)	PIN INSTL-T R INHIBITION		REF
70 010	APL0204-01-0	.CLAMP-INHIBITION PIN		004
70 020	AS48409	Attaching Parts .BOLT * * *		001
70 030	APL1606-04-0	.PIN - INHIBITION		008
70 040	APL1084-03-0	.COVER-INHIBITION .PRE SPOL G-TR-05005		004
70 040A	APL2965-00-0	.COVER-INHIBITION .POST SPOL G-TR-05005		004
70 050	NAS1189E3P8	Attaching Parts .SCREW * * *		002
70 060	APL1084-53-0	.COVER-INHIBITION .PRE SPOL G-TR-05005		004
70 060A	APL2965-50-0	.COVER-INHIBITION .POST SPOL G-TR-05005		004
70 070	NAS1189E3P8	Attaching Parts .SCREW * * *		002

*** ON A/C 201-210, 401-412**

-ITEM NOT ILLUSTRATED

Figure 38 Example 2

REVISION SERVICE

DOCUMENTATION REVISION PRESENTATION

FRONT MATTER PAGES AND CHAPTER 00

The preliminary pages found at the beginning of the manuals are the front matter pages and the Chapter 00.

The front matter pages include:

- record of revisions that gives the AMM revision numbers and issue dates and is updated by the operator,
- Fleet No./MSN Cross-reference table,
- TR (**T**emporary **R**evision)

  Is the list of the temporary revisions (concerning all chapters) which shall be removed from the manual or which remain still effective.
- list of SBs which are applicable for at least one A/C of the fleet,
- COCs (**C**ustomer **O**riginated **C**hanges)

  List of the COCs which are applicable for at least one A/C of the fleet.

  COCs incorporated into the manuals at Customer request to reflect data or procedures originated by and peculiar to that specific customer, will be permanently identified by the COC reference number.

  The COC data incorporated into the Manuals is shown in ”POST” configuration only.
- specifically for the AMM, the deactivation/reactivation index, that gives the link to the AMM tasks called from the CDL or from the MMEL,
- specifically for the TSM, the indexes for warnings and malfunctions and for the fault messages.

The CHAPTER 00 includes:

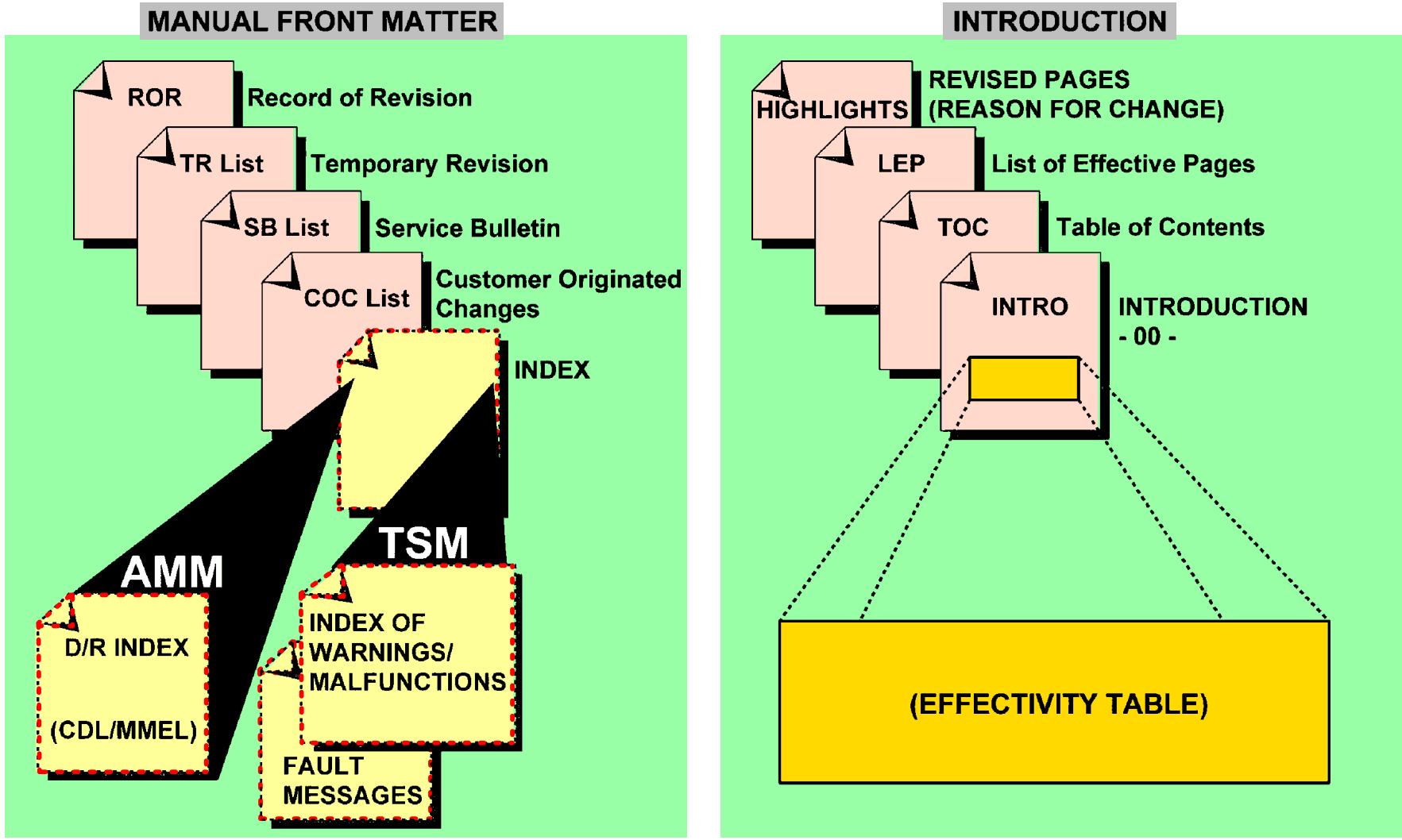
- highlights that give the reason for change of the modified data introduced at last revision,
- LEP (**L**ist of **E**ffective **P**ages) that lists all effective pages for a given revision issue. New pages are indicated by ”**N**”, Revised by ”**R**” or Deleted by ”**D**”,
- Table of Contents that shows the detailed breakdown of the manual and lists each chapter and procedures,
- introduction–Chapter 00 that gives explanation on how to use the manual, the symbols used in the manual and comprises the Effectivity Table that gives the relationship between the FSN (**F**leet **S**erial **N**umber) and the MSN (**M**anufacturer **S**erial **N**umber) and the A/C model.

Fleet No./MSN Cross-reference table

Airline	Customer Fleet Serial Number	Version Rank	Model	MSN	Registration
DLH	601	DLH040001	B4-603	0380	D-AIAH
DLH	602	DLH040002	B4-603	0391	D-AIAI
DLH	603	DLH040003	B4-603	0401	D-AIAK
DLH	604	DLH040004	B4-603	0405	D-AIAL
DLH	605	DLH040005	B4-603	0408	D-AIAM
DLH	606	DLH040006	B4-603	0411	D-AIAN
DLH	607	DLH040007	B4-603	0414	D-AIAP
DLH	608	DLH040008	B4-603	0546	D-AIAR
DLH	609	DLH040009	B4-603	0553	D-AIAS
DLH	610	DLH040010	B4-603	0618	D-AIAT
DLH	611	DLH040011	B4-603	0623	D-AIAU
DLH	651	DLH070001	B4-605	0773	D-AIAX
DLH	652	UAE020004	B4-605	0608	D-AIAY
DLH	653	UAE020005	B4-605	0701	D-AIAZ

EXAMPLE A300–600

Figure 39 Fleet No./MSN Cross-reference Table



AMM: **A**ircraft **M**aintenance **M**anual
CDL: **C**onfiguration **D**eviation **L**ist
D/R: **D**eactivation/**R**eactivation

MMEL: **M**aster **M**inimum **E**quipment **L**ist
TSM: **T**rouble **S**hooting **M**anual

Figure 40 Front Matter Pages and Chapter 00

LIST OF EFFECTIVE PAGES AND LIST OF SERVICE BULLETIN

Revision marker: ”N”, ”R” or ”D” indicates pages which are New, Revised or Deleted respectively.

The incorporation code is the SB configuration in the manual and can be ”S” or ”C”.

”S” is used to indicate Split or Dual configuration and ”C” is used to indicate Complete (final) configuration.

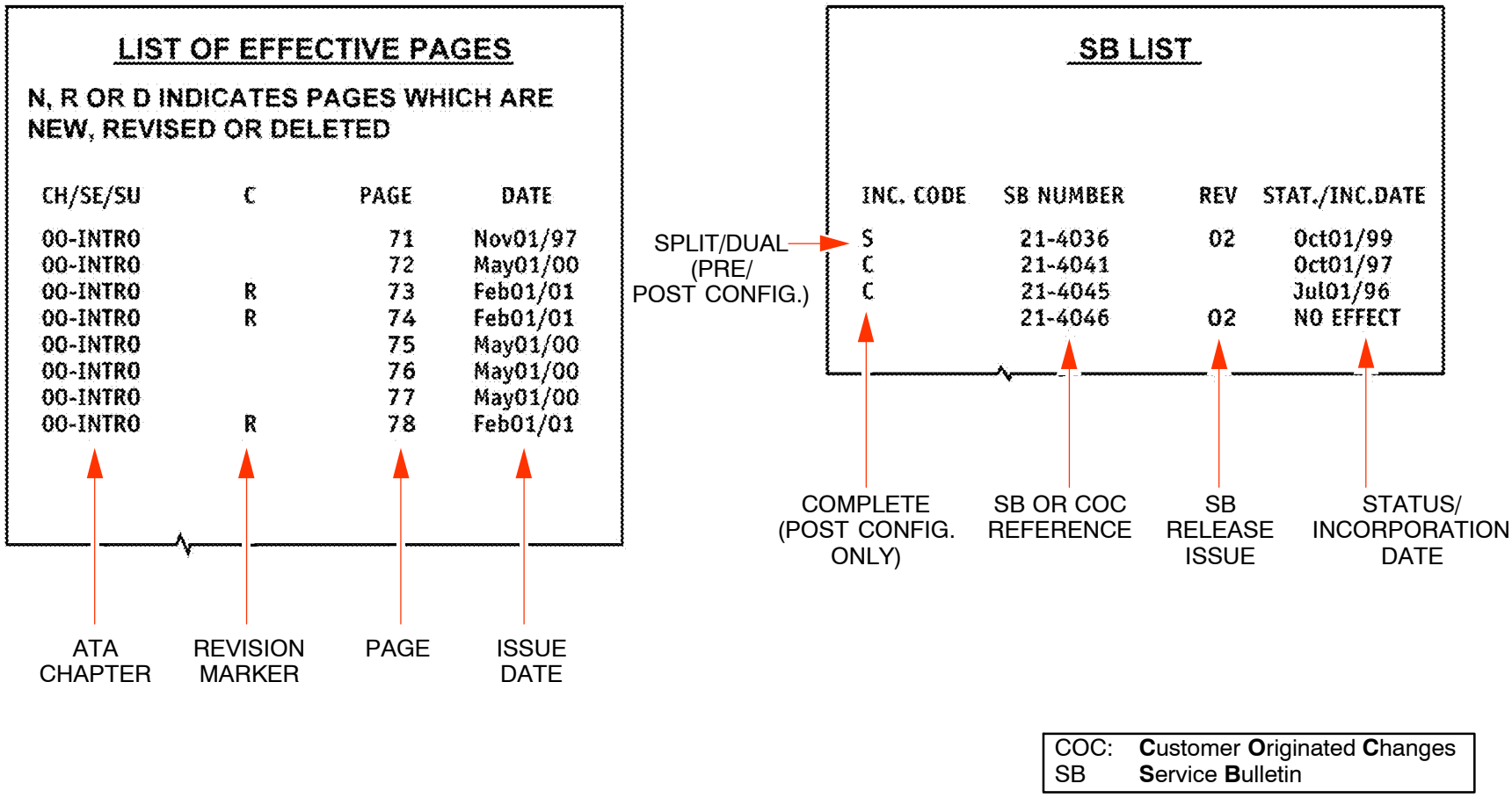


Figure 41 List of Effective Pages and List of Service Bulletin

REVISION SERVICE AND TEMPORARY REVISION

There are two types of revisions, normal and temporary. The normal revisions are calendar scheduled. For most manuals they are every three months.

The TR (**T**emporary **R**evisions) are used for urgent information requiring immediate attention or advance notification. They are shipped on yellow pages, yellow floppy disc and today on CD ROM.

Temporary Revision List

This list is always empty when delivered, to allow to attach the LETR (**L**ist of **E**ffective **TR**) dispatched separately each time a TR is issued.

TRs are supplied in digital via Airbus World and in CD format. These TRs have to be loaded as soon as received. Refer to AirN@v/Maintenance User Guide for updating and management.

The revised text is highlighted in Yellow.

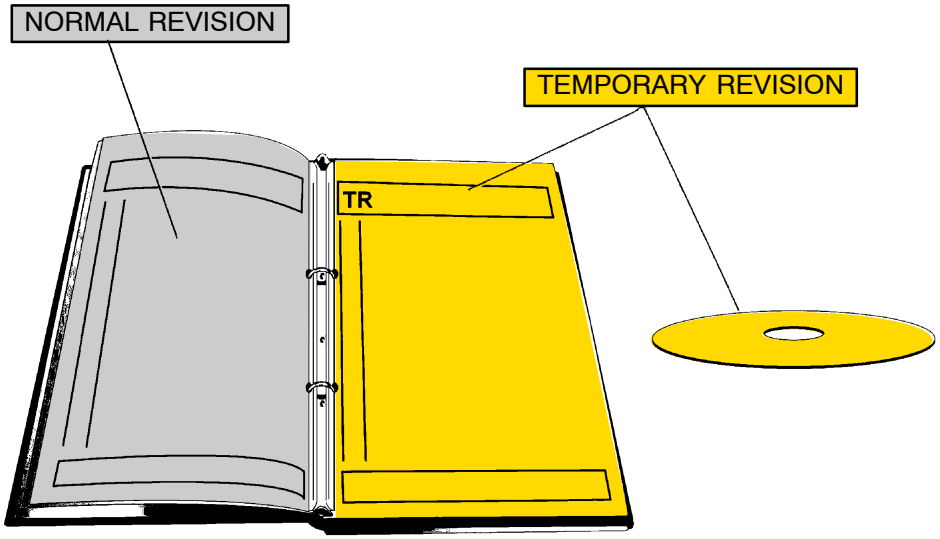


Figure 42 Temporary Revision

Normal Revisions

Normal revisions consist of an issue of differential data at the specified revision date. Highlights are provided by electronic link.

The Highlights provide the reasons for the revision (modification/SB incorporation etc.).

AIRCRAFT MODEL AND EFFECTIVITY TABLE

The A/C is identified by digits:

- A/C model is the 4th digit: id est 100, 200, 300, 500, 600,
- engine is the 5th digit,
- thrust rating [FADEC (**F**ull **A**uthority **D**igital **E**ngine **C**ontrol) pin programming] is the 6th digit.

The effectivity table is found in the manual section 00 – INTRO, with the following data:

- MSN,
- FSN,
- the VERSION indicates the initial ownership, to which company the A/C was manufactured in.

The page effectivity is by the FSN in the customized manuals and by the MSN in the non customized manuals.

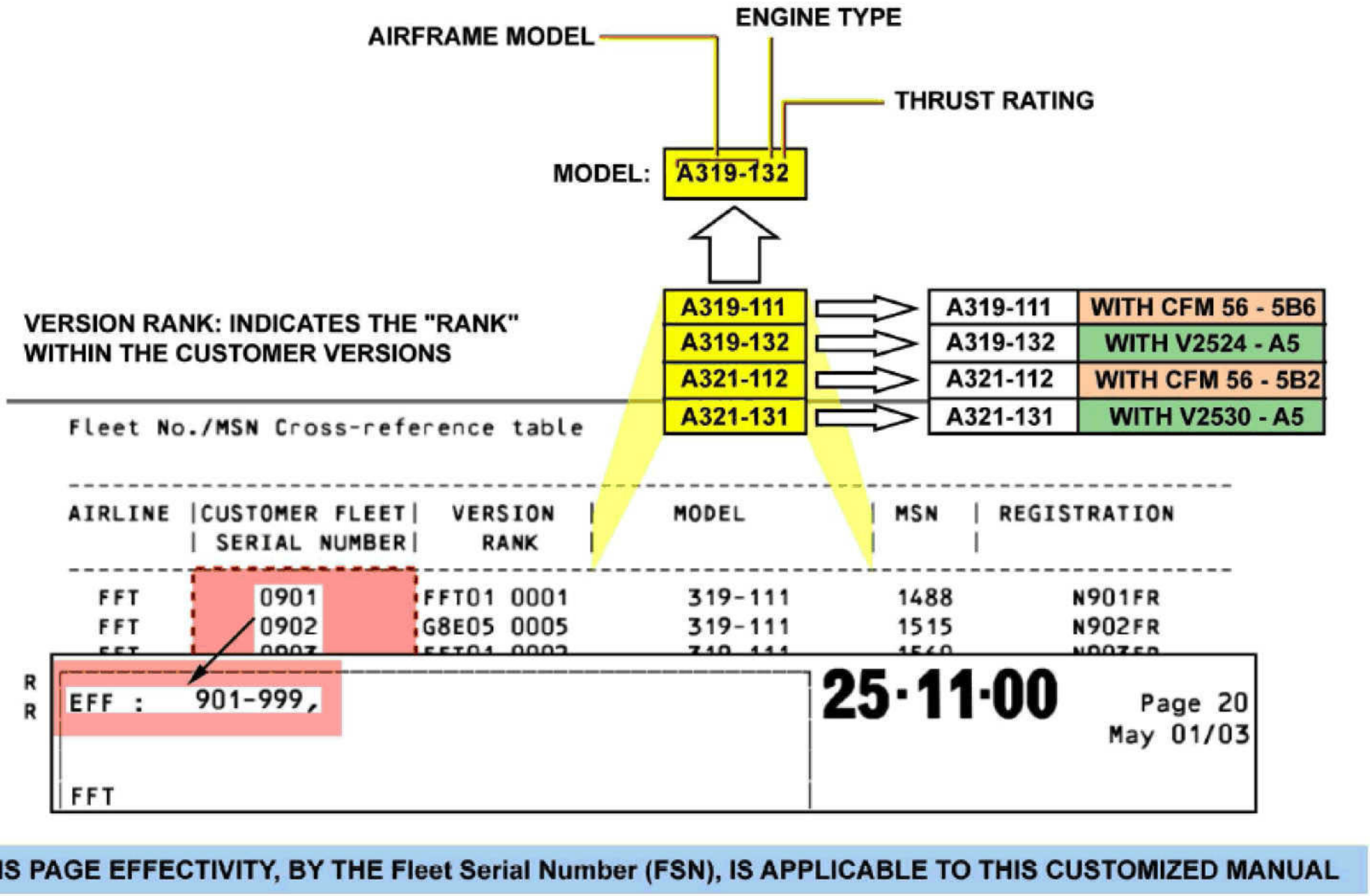


Figure 43 Aircraft Model and Effectivity Table

TECH DATA EFFECTIVITY

FSN is the criteria for the page effectivity for the customized manuals (AMM, ASM, IPC, ...).

Page level effectivity:

- ALL means applicable to the entire customer fleet (NOT applicable to all A/C of the Airbus world fleet),
- 001–005 means applicable for each MSN from 001 up to 005,
- 001, 005 means applicable for MSN 001 and MSN 005 only.

To distinguish differences in A/C layout or configuration, a supplementary page is published and distinguished by a specific configuration code.

Text level effectivity:

- pre or post SB (COC), as long as the SB is not fully embodied in the customer fleet.

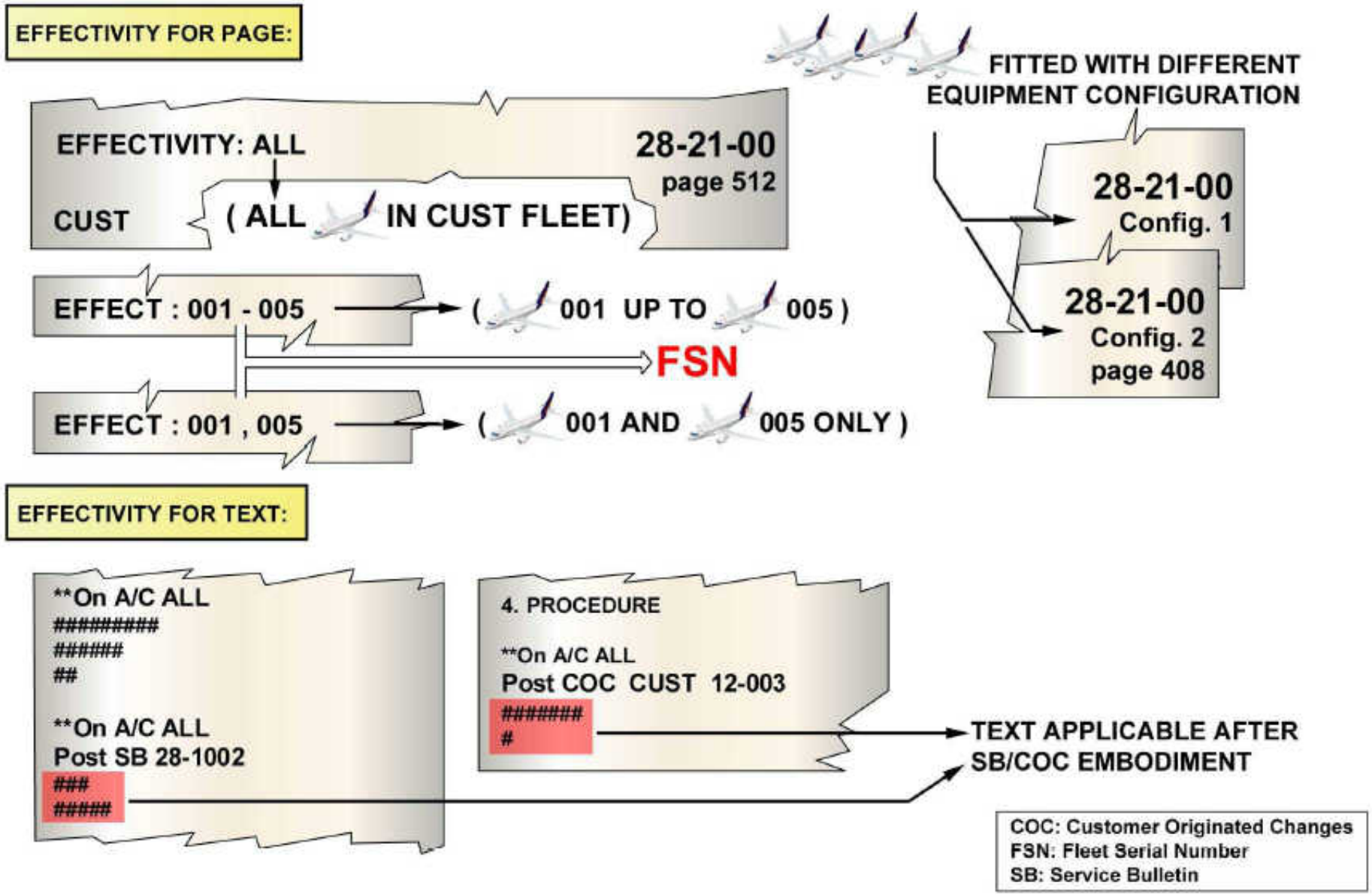


Figure 44 Tech Data Effectivity

TABLE OF CONTENTS

TABLE OF FIGURES