Fundamentals
M7
MAINTENANCE PRACTICES

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M7.5
Engineering Drawings, Diagrams and Standards

EASA Part-66
CAT B1

Training Manual

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M7 MAINTENANCE PRACTICES

M7.5 ENGINEERING DRAWINGS, DIAGRAMS AND STANDARDS

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WIRING DIAGRAMS AND SCHEMATIC DIAGRAMS

Introduction

There is a numerous amount of manuals for aircraft electrical and electronic systems. It is comparable to the number of manuals described in the module mechanics.

In modern aircraft (e. g. A380) the wiring system may add up to a total length of 400 km. Therefore it is very important to have detailed manuals explaining wiring diagrams, interconnection of systems, wiring repair as well as lists of every electronic component.

The manuals will be described in sequence on the following pages. Only AIRBUS manuals will be discussed because the documentations of the different aircraft manufacturers are very similar! The individual equipment identification and illustration is shown in the respective manuals introduction 00–00–00 of each aircraft manufacturer!

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Standard Practices ATA 20	**==>**	**Electrical/ Electronic Systems**		**ESPM**

Figure 1 Overview

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WDM (WIRING DIAGRAM MANUAL)

General

CONTENT

The Wiring Diagram Manual (WDM) is divided into 3 sub manuals:

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

The structure of the manuals complies with ATA Specification No.100.

Several years ago the ESPM (Standard Practices, ATA 20) became a stand–alone manual at AIRBUS Ind. The same applies to the Standard Practices Engine Electronics, which were transferred to the Standard Practices Engine (ATA 70).

Objective of the Manuals

The manuals shall facilitate the practices in the areas operation, troubleshooting and maintenance of electrical and electronic systems.

Scope of the Manual

The WDM consists of the following manuals:



Figure 2 WDM

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ASM	AWM	AWL
- Introduction	- Introduction	- Introduction
* Standard Practices	* Standard Practices	* Standard Practices
- Alphabetical Index	- Alphabetical Index	- Equipment List
- Numerical Index	- Numerical Index	- Hook-up List
- Diagrams	- Diagrams	- Master Wire List
		- Engine Data

* The contents 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)

Figure 3 Division

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ACCESS TO THE DATA IN THE MANUALS

The following flow chart describes the access to the data in the manuals. It always depends on which data are already available. The flow charts indicate how to get access to the unknown data.

ASM or AWM:

- Access via Alphabetical Index

AWL:

- Access with known FIN via EQUIPMENT LIST or HOOK–UP–LIST

AWL:

- Access with known Wire Number via MASTER WIRE LIST

ATTENTION: In AIRBUS manuals the unit of length is centimeter.

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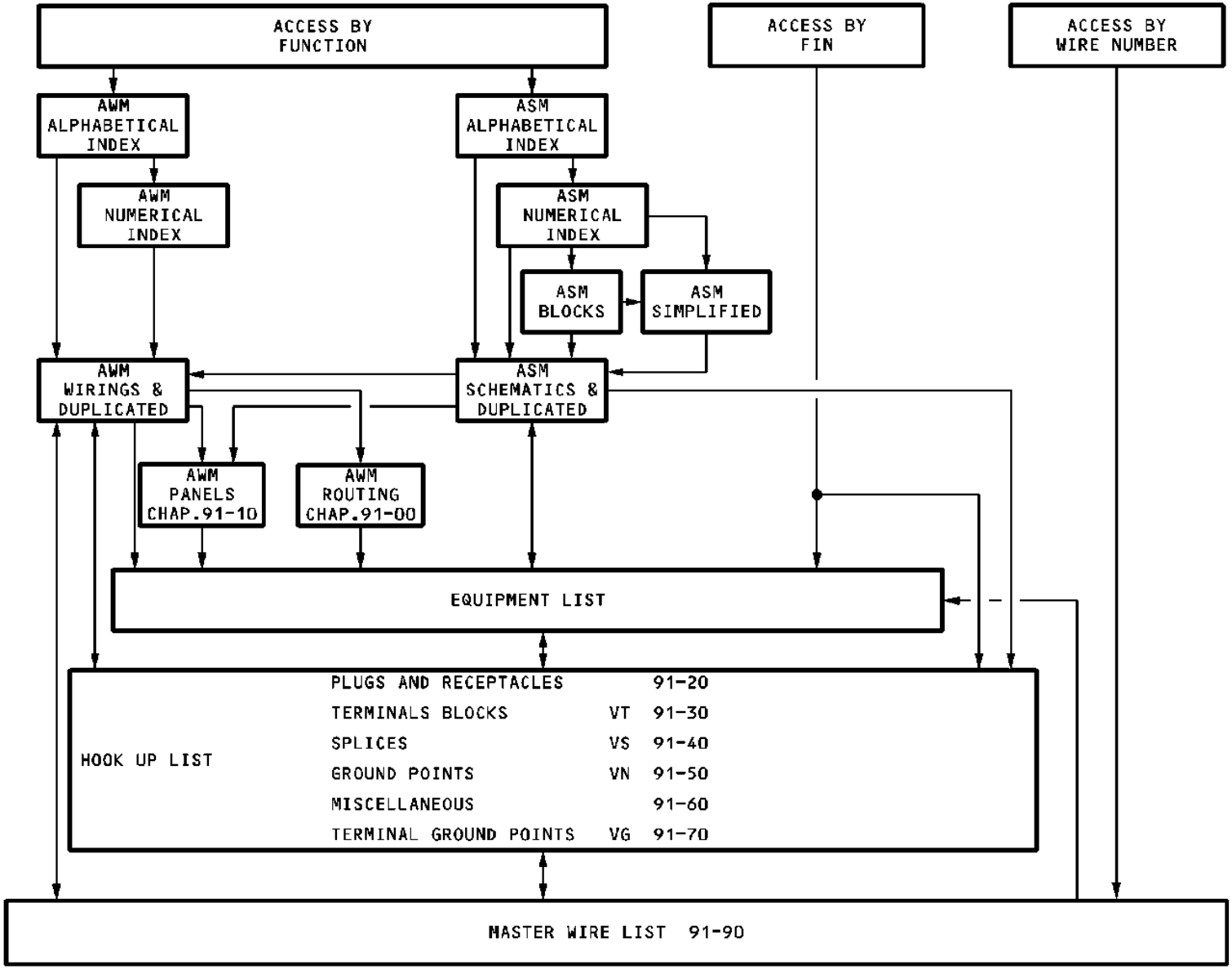


Figure 4 Flow Chart Manuals

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Effectivity

Customization

A WDM exclusively contains the manuals of the respective customer or a group of customers. The Customer Code and the Revision Date is shown at the bottom of each page.

Effectivity

Effectivity (EFF) indicates for which aircraft the page is applicable. It is shown at the bottom left. The FSN (Fleet Serial Number) of the respective aircraft can be depicted by the Registration Number or the MSN (Manufacturer Serial Number).

In the documentations the EFF of particular aircraft is represented by a 6–digit number. The first 3 digits represent the FSN of the first aircraft and the last 3 digits the FSN of the last aircraft of an aircraft batch, for which the pages are applicable.

If the documentations apply to every aircraft of the customer “EFF: ALL“ will be shown.

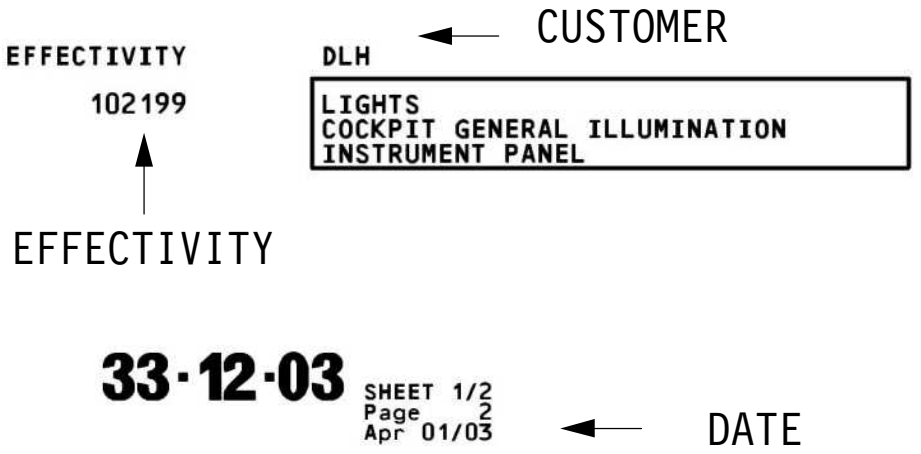


Figure 5 Date, Customer and EFF

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2. Numbering System and Aircraft Effectivity Table

A. Numbering System
The numbering system meets the requirements of ATA Specification No. 100.

B. Aircraft Effectivity Table
Only the aircraft identified to an AIRBUS INDUSTRIE Manufacturer Serial Number (MSN) in the following list are covered in the manual.

VER	RESTRICT. EFFECT.	MODEL	STD	ENGINE	OPERATOR
DLH02	0051-0099	340-311	ST1	56-5-C2	DEUTSCHE LUFTHANSA AG
DLH03	0101-0116	340-313	ST4	56-5-C4	DEUTSCHE LUFTHANSA AG
DLH04	0117-0199	340-313	ST4	56-5-C4	DEUTSCHE LUFTHANSA AG
R					
R DLH05	0201-0299	340-642	STA	556-61	DEUTSCHE LUFTHANSA AG
R					
R DLH07	0401-0499	340-642	STE	556-61	DEUTSCHE LUFTHANSA AG

Fleet No./MSN Cross-reference table

AIRLINE	CUSTOMER FLEET SERIAL NUMBER	VERSION RANK	MODEL	MSN	REGISTRATION
DLH	0051	DLH02 0001	340-311	0020	D-AIGA
DLH	0052	DLH02 0002	340-311	0024	D-AIGB
DLH	0053	DLH02 0003	340-311	0027	D-AIGC
DLH	0054	DLH02 0004	340-311	0028	D-AIGD
DLH	0055	DLH02 0005	340-311	0035	D-AIGF
DLH	0056	DLH02 0006	340-311	0052	D-AIGH
DLH	0057	DLH02 0007	340-311	0053	D-AIGI
DLH	0058	DLH02 0008	340-311	0056	D-AIGK
DLH	0101	DLH03 0001	340-313	0135	D-AIGL
DLH	0102	DLH03 0002	340-313	0158	D-AIGM
DLH	0103	DLH03 0003	340-313	0213	D-AIGN

Figure 6 EFF Table

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AWL (AIRCRAFT WIRING LIST)

General

Types of Lists

The following lists can be found in the AWL:

1. Equipment list
2. Hook-Up list, which comprises the following lists:
   - 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. Master Wire List ATA 91–90
4. Engine Data Lists, which comprise the following:
   - 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
   - Ground Terminal Blocks ATA 92-70
   - Master Wire List ATA 92–90

ATTENTION: The chapters Routing Diagrams ATA 91–00 Panels ATA 91–10 related to the charts can be found in the AWM.

Abbreviations specific to AWL

ABBR	TITLE
CM	Wire length in centimeters
CO	Wire color
CON	Connector contact
ELEC IDENT	Function Identification Number (FIN)
GP	Ground point
NUMBER	Wire identification number
SM	Splice
T/G	Wire type/gauge
TM	Terminal module
DNC	Do not connect
ISOL	ISOLATION
SHLD	SHIELD

Equipment list

The Functional Item Number is the listing criteria to determine the Part Number of every electrical/electronic component.

Equipment Identification (FIN)

In the following you will find an explanation how the AIRBUS Functional Item Number Systems works. It is an excerpt of the introduction to **AWL 00–00–00** in the orginal text!

Circuit Identification Letter

System Identification Letters

The letters A and B are reserved for special request by an airline for system references, where the system is considered likely to be unique to that airline and not covered by the system letters shown in the table.

C – Flight control systems

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D – De–icing
E – Engine monitoring
F – Flight instrumentation
G – Landing gear
H – Air conditioning
J – Hydraulics
K – Engine/APU control and starting
L – Lighting
M – Interior arrangement/Passenger service system
N – Wiring for negative and/or neutral polarity
P – DC generation
Q – Fuel
R – Radio (navigation & communications)
S – Radar, navigation
T – Recording
V – Fictitious circuits
W – Fire protection & warning system
X – AC Generation

Circuit identification

The identification number of a circuit consists of 2 letters: the letter of the system followed by a letter identifying the circuit within a system.

Example: CA

- C: System Identification
- A: Circuit Identification

Identification of circuits

C – Flight control systems
CA – FMGES – Electrical power supply
CB – FMGES – Discretes/analog interfaces
CC – FMGES – ARINC bus interfaces
CD – EFCS – ARINC buses and discretes interfaces
CE – EFCS – Control inputs & power supply
CF – Flaps position indicating
CN – Slats position indicating
CS – EFCS – Electrical contol and monitoring of actuation
CV – Flaps electrical control & monitoring
CW – Slats electrical control & monitoring
D – De–icing
DA – Probe ice protection
DB – Windshield rain protection
DD – Ice detection
DG – Windshield anti–icing & defogging
DH – Escape slide locking mechanism ice protection
DL – Wing ice protection
DN – Engine air intake ice protection
DR – Flight crew foot warmers
DS – Ancillary equipment
DU – Waste water ice protection
DV – Water servicing panels heating
DW – Potable water ice protection

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Functional Item Numbers (FIN)

The equipment on the A/C is identified by a unique identifier designated Functional Item Number (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.

For electrical equipment (any component with an electrical connection) the FIN is of the form 2CA1 where:

- 2 = Second component in circuit CA
- CA = Circuit two letter code
- 1 = Suffix – First of several similar systems (System 1)

ATTENTION: Several identical components which perform the same function in the same circuit can be differenciated by the suffix number. The general rule is that an even suffix is identifies a component on the right hand side and an odd suffix identifies a component on the left hand side.

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.

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

ATTENTION: Connectors on equipment fitted on mountings are identified with reference to the equipment but not with reference to the mounting. As a general rule, the connector PNs given are for connector without contacts.

Fictitious Components

All components not specifically related to a circuit are identified by fictitious circuit letter V. The second letter defines the type of component.

- VC A/C electrical connectors

  The electrical connector is identified in a fictitious circuit VC by a numerical designator.

  Example: 19VC–A
  - 19: Component number
  - VC: Fictitious circuit code
  - A: Plug identification letter
  - 19VC associated receptacle.
- VD diode module

  The diode module is identified in fictitious circuit VD by a numerical designator.

  Example: 138VD
  - 138: Component number
  - VD: Fictitious circuit code
- VG ground terminal block

  The ground terminal block is identified in fictitious circuit VG by a numerical designator taken from the complete aircraft.
- VN ground points

  The ground point is identified in fictitious circuit VN by a numerical designator taken from the complete aircraft.
- VS splices

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Splices are identified like equipment, being grouped by route and by type. Such grouping shall not be systematic, but only accomplished where a priority is required. Identification shall consist of a numeric designator, identifying the group in fictitious circuit VS, and an alpha designator giving connection identification per unit.

Example: 24VS A

- 24: Component group number
- VS: Fictitious circuit code
- A: Identification per unit

- VT terminal blocks

  The terminal block is identified in fictitious circuit VT by a numerical designator.

  Example: 494VT12 24

  - 494: Component number
  - VT: Fictitious circuit code
  - 12: The two digits following the circuit code will be reserved for identification of repetitive item numbers.
  - 24: The two digits following the repetitive item number will be reserved for identification of the module number within the repetitive circuit concerned.

- VU panels & racks

  The panels & racks are identified in fictitious circuit VU by a numerical designator.

  Example: 123VU

  - 123: Component number
  - VU: Fictitious circuit code

  There are several panels and racks (circuit VU) with the same function but different configuration in the A/C. The FIN of these components have one or two additional letters between the circuit letter and the suffix.

  Example:

  - 2040VU A 010
  - 2040VU B 010

  component identification: 2040VU

  configuration letter:

  - A first configuration
  - B second configuration
  - suffix (position number on the A/C) : 010

- VX

  A VX is an Electric/Electronic Printed Board made by the aircraft manufacturer.

  This assembly is identified in its functional circuit or in the VX circuit when used for multifunctions.

Busbar

Busbars are identified with:

- A sequence number
- Letters XP for AC busbars and PP for DC busbars
- A phase letter as applicable

Example:

- 12XP–A: AC busbar, phase A
- 2PP: 28 VDC busbar

Equipment Added in the Aircraft by the Customer

The equipment added in the aircraft by the customer shall be numbered from 9000 to 9999.

Example: Repair of the wires

- The splice shall be identified by a FIN in 9XXXVS serie (E. G 9001VS for the first splice installed on A/C by the customer).
- A sleeve shall be installed on each side of the splice and shall be print numbered in the 9XXXVS serie, in accordance with splice FIN.
- A Customer Originated Change (COC) shall be raised by the customer to incorporate the VS identified into the WDM (AWM/ASM/AWL).

Equipment List

The Functional Item Number is the identification criteria to determine the Part Number of every electrical/electronic and mecanical component.

The two letters of the FIN (Circuit Code) designate the circuit the equipment is related to. The FIN sequence number serves to differenciate between mechanical and electrical equipment. The sequence numbers below 5000 are

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reserved for electrical/electronic FINs and the sequence numbers equal or above 5000 are reserved for mechanical FINs.

Even numbers will be found on the starboard (right) side of the aircraft. Odd numbers on the port (left) side.

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FIN		FUNCTIONAL DESIGNATION	FSCM VENDOR OR AIRLINE SN	PART NUMBER	SB OR COC REFERENCE		QTY	WDM REF LOCATION	EFFECT	EFFECT	EFFECT
1RC1		XCVR VHF,1	4V792 ROCKWELL INTERNATIONA	822-1047-030			1	23-12/01 811VU 121	105120	201210	
1RC1		XCVR VHF,1	4V792 ROCKWELL INTERNATIONA	822-1047-030	E SB23-4069	R	1	23-12/01 811VU 121	POST	051058	101104
1RC1		XCVR VHF,1	4V792 ROCKWELL INTERNATIONA	822-1250-020	A SB23-5026	R	1	23-12/01 811VU 121	POST	201210	
1RC1		XCVR VHF,1	4V792 ROCKWELL INTERNATIONA	822-1250-020			1	23-12/01 811VU 121	401499		
1RC1	A	CONNECTOR		E0161D01A04X			1	23-12/01 811VU 121	ALL		
1RC1	X	MOUNT-VHF 1	13636 BARRY WRIGHT CORP	D3A03-00383			1	23-12/01 811VU 121	051099	101108	
1RC1	Y			D00030094000			1	811VU 121	109199	201299	401499
1RC2		XCVR VHF,2	4V792 ROCKWELL INTERNATIONA	822-1047-030			1	23-12/02 812VU 122	105120	201210	
1RC2		XCVR VHF,2	4V792 ROCKWELL INTERNATIONA	822-1047-030	E SB23-4069	R	1	23-12/02 812VU 122	POST	051058	101104
1RC2		XCVR VHF,2	4V792 ROCKWELL INTERNATIONA	822-1250-020	A SB23-5026	R	1	23-12/02 812VU 122	POST	201210	
1RC2		XCVR VHF,2	4V792 ROCKWELL INTERNATIONA	822-1250-020			1	23-12/02 812VU 122	401499		
1RC2	A	CONNECTOR		E0161D01A04X			1	23-12/02 812VU 122	ALL		
1RC2	X	MOUNT-VHF 2	13636 BARRY WRIGHT CORP	D3A03-00383			1	23-12/02 812VU 122	051099	101108	
1RC2	Y			D00030094000			1	812VU 122	109199	201299	401499

Figure 7 Equipment List

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Chapter 91 Hook up lists

Hook Up Lists

The listing criteria is the component, e. g. a Disconnect Nr.. Plugs and Receptacles are listed separately. It is determined in the Hook Up List which wire is hooked up to which contact.

There are Hook Up Lists for Terminal Blocks, Splices, Grounds as well as for each individual Wire.

CHAPTER 91–20–00 HOOK UP LIST (PLUG AND RECEPTACLES)

All components not specifically related to a circuit are identified by the fictitious circuit letter V (e. g. plugs for a combination of circuits are designated with the fictitious circuit letter -V- (Virtual).

For plug connections the letter -C- (Connector) is added.

The letter -A- in the FIN designates the plug (e. g. 2589 VC-A: This is plug 2589, not related to a specific circuit).

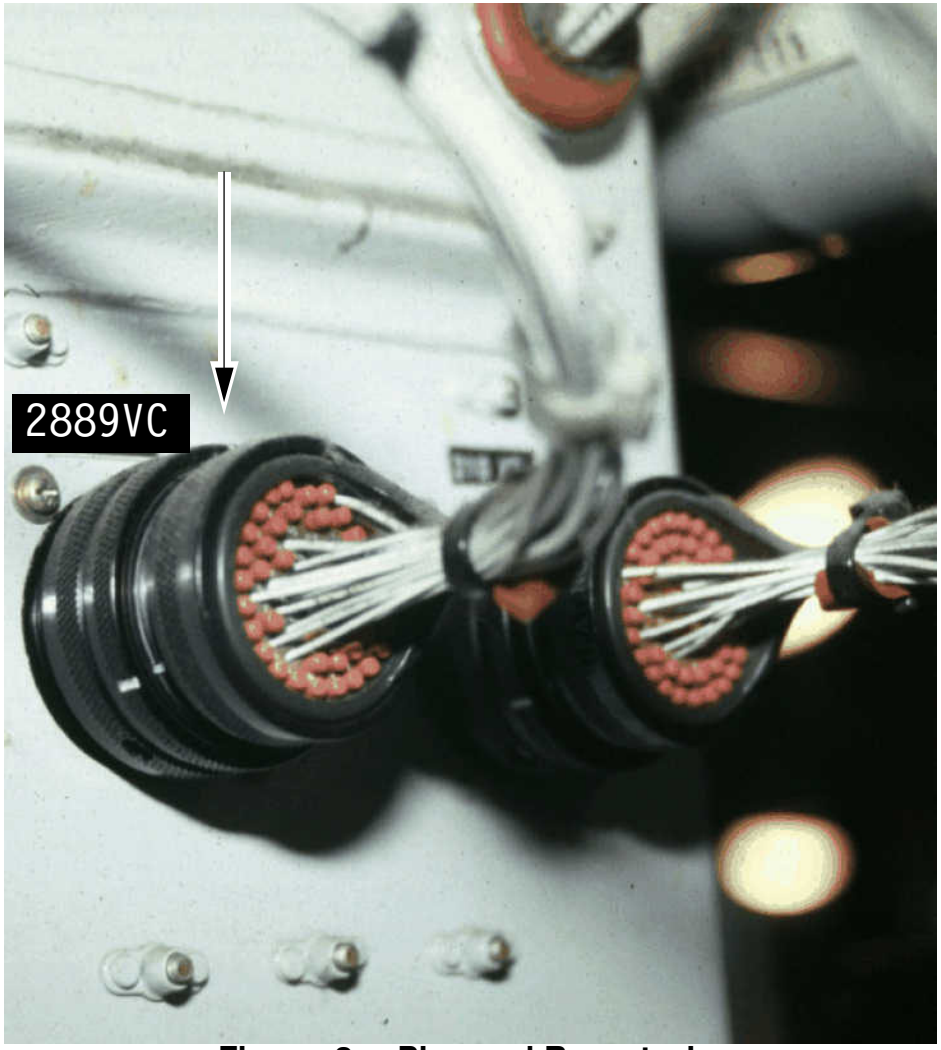


Figure 8 Plug and Receptacles

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FROM TERMINATION A						WIRE IDENTIFICATION						TO TERMINATION B					WDM REF	EFFECT	EFFECT
FIN		CON	LOCATION		CONTACT PN	NUMBER	CO	SENS	T/G	CM	ROUTE	FIN	CON		LOCATION		SB OR COC REFERENCE		
2889VC	A	1	809VU	121		UNUSED												051099	101103
2889VC	A	1	809VU	121	EN3155-015F2018	3448-0222			CF 24	137	1M	1WZ	AB	4C	851VU	121 34-48-05		104118	
2889VC	A	2				3448-0223			CF 24		1M	1WZ	AB	14D	851VU	121 34-48-05			
																	POST E SB34-4076		R
																		051058	101103
2889VC	A	2	809VU	121		3448-0223			CF 24	137	1M	1WZ	AB	14D	851VU	121 34-48-05			
																	POST E SB34-4076		R
																		104105	
2889VC	A	2	809VU	121	EN3155-015F2018	3448-0223			CF 24	137	1M	1WZ	AB	14D	851VU	121 34-48-05		106118	
2889VC	A	3	809VU	121		UNUSED												051099	101103
2889VC	A	3	809VU	121	EN3155-015F2018	3448-0224			CF 24	137	1M	1WZ	AB	5B	851VU	121 34-48-05		104118	
2889VC	A	4				UNUSED												101103	106118
2889VC	A	4			EN3155-015F2018	3448-0225			CF 24		1M	1WZ	AB	15C	851VU	121 34-48-05			
																	POST E SB34-4076		R
																		051058	
2889VC	A	4	809VU	121	EN3155-015F2018	3448-0225			CF 24	137	1M	1WZ	A	DNC	851VU	121 34-48-05		104105	

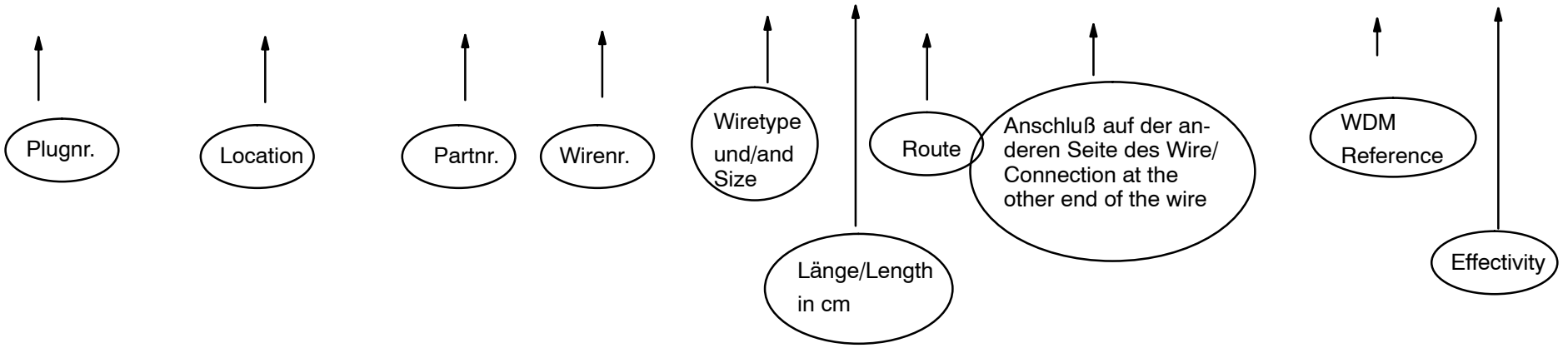


Figure 9 Plug & Receptacle List

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HOOK UP LIST 91–30 (TERMINAL BLOCK LIST)

Terminal Block List

The listing criteria is the Equipment Nr. of the Terminal Block. It is determined in the Terminal Block List which wire is hooked up to which Terminal Block.

1100 is the Component Number and VT is the fictitious Circuit Code for Terminals. The column SHT is reserved for Shunt. It can be depicted from this column which contacts are electrically interconnected. One example from the SHT column: M01 => the wires 2351-1026 and 2351-1027 have different contacts but they are electrically interconnected.

M stands for Modular Terminal Type.

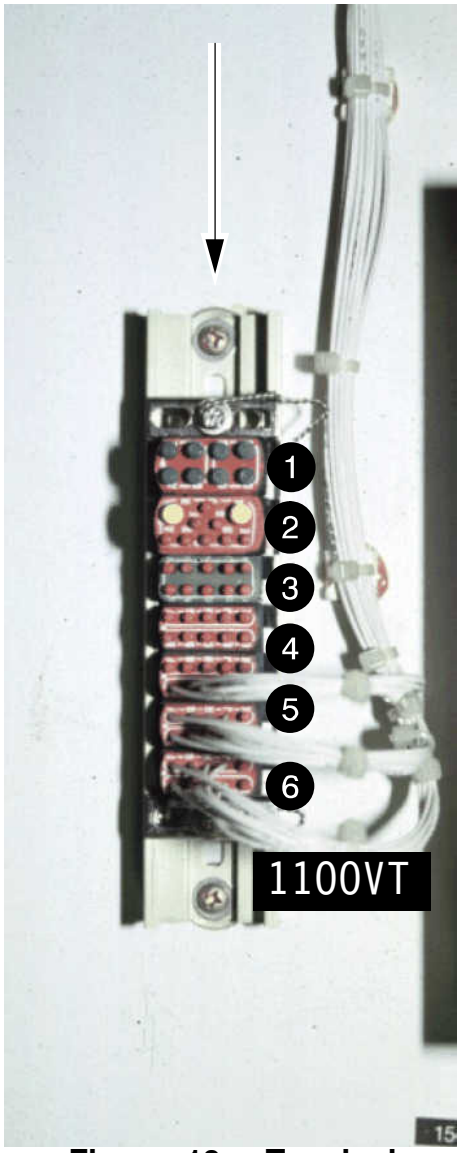


Figure 10 Terminal

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FROM TERMINATION A						WIRE IDENTIFICATION						TO TERMINATION B				WDM REF	EFFECT	EFFECT
FIN	SHT	CON	LOCATION	CONTACT PN		NUMBER	CO	SENS	T/G	CM	ROUTE	FIN	CON	LOCATION		SB OR COC REFERENCE		
1100VT	1	M01	A	122	EN3155-016M2222	2351-1026			CF 24	506	1R	2684VC	A	18	804VU 122	23-51-01	051099	101199
1100VT	1	M01	A	122	EN3155-016M2222	2351-1026			CF 24	648	1R	2684VC	A	18	804VU 122	23-51-01	201299	401499
1100VT	1	M02	B	122	EN3155-016M2222	2351-0996	R		TK 24	500	1R	760VC1	A	K	614VU1 211	23-51-01	051099	101199
1100VT	1	M02	B	122	EN3155-016M2222	2351-0996	R		TK 24	642	1R	760VC1	A	K	614VU1 211	23-51-01	201299	401499
1100VT	1	M03	C	122	EN3155-016M2222	2351-0997	B		TK 24	677	1R	1172VC1	A	J	612VU1 211	23-51-01	051099	101199
1100VT	1	M03	C	122	EN3155-016M2222	2351-0997	B		TK 24	828	1R	1172VC1	A	J	612VU1 211	23-51-01	201299	401499
1100VT	1	M04	D	122	EN3155-016M2222	2351-0008	R		TK 24	506	1R	2682VC	A	7	804VU 122	23-51-01	051099	101199
1100VT	1	M04	D	122	EN3155-016M2222	2351-0008	R		TK 24	648	1R	2682VC	A	7	804VU 122	23-51-01	201299	401499
1100VT	1	M05	E	122	EN3155-016M2222	2351-1029			SJ 24	500	1R	760VC1	A	E	614VU1 211	23-51-01	051099	101199
1100VT	1	M05	E	122	EN3155-016M2222	2351-1029			SJ 24	642	1R	760VC1	A	E	614VU1 211	23-51-01	201299	401499
1100VT	1	M06	F	122	EN3155-016M2222	2351-0990	B		PF 24	500	1R	760VC1	A	C	614VU1 211	23-51-01	051099	101199
1100VT	1	M06	F	122	EN3155-016M2222	2351-0990	B		PF 24	642	1R	760VC1	A	C	614VU1 211	23-51-01	201299	401499
1100VT	1	M07	G	122	EN3155-016M2222	2351-0018	R		PF 24	506	1R	2684VC	A	11	804VU 122	23-51-01	051099	101199
1100VT	1	M07	G	122	EN3155-016M2222	2351-0018	R		PF 24	648	1R	2684VC	A	11	804VU 122	23-51-01	201299	401499
1100VT	1	M01	H	122	EN3155-016M2222	2351-1027			CF 24	500	1R	760VC1	A	F	614VU1 211	23-51-01	051099	101199
1100VT	1	M01	H	122	EN3155-016M2222	2351-1027			CF 24	642	1R	760VC1	A	F	614VU1 211	23-51-01	201299	401499
1100VT	1	M02	J	122	EN3155-016M2222	2351-0997	R		TK 24	677	1R	1172VC1	A	K	612VU1 211	23-51-01	051099	101199
1100VT	1	M02	J	122	EN3155-016M2222	2351-0997	R		TK 24	828	1R	1172VC1	A	K	612VU1 211	23-51-01	201299	401499
1100VT	1	M03	K	122	EN3155-016M2222	2351-0006	B		TK 24	506	1R	2682VC	A	11	804VU 122	23-51-01	051099	101199
1100VT	1	M03	K	122	EN3155-016M2222	2351-0006	B		TK 24	648	1R	2682VC	A	11	804VU 122	23-51-01	201299	401499
1100VT	1	M04	L	122	EN3155-016M2222	2351-0995	R		TK 24	677	1R	1172VC1	A	H	612VU1 211	23-51-01	051099	101199
1100VT	1	M04	L	122	EN3155-016M2222	2351-0995	R		TK 24	828	1R	1172VC1	A	H	612VU1 211	23-51-01	201299	401499
1100VT	1	M05	M	122	EN3155-016M2222	2351-0010	R		TK 24	506	1R	2682VC	A	4	804VU 122	23-51-01	051099	101199
1100VT	1	M05	M	122	EN3155-016M2222	2351-0010	R		TK 24	648	1R	2682VC	A	4	804VU 122	23-51-01	201299	401499
1100VT	1	M06	N	122	EN3155-016M2222	2351-0018	B		PF 24	506	1R	2684VC	A	12	804VU 122	23-51-01	051099	101199
1100VT	1	M06	N	122	EN3155-016M2222	2351-0018	B		PF 24	648	1R	2684VC	A	12	804VU 122	23-51-01	201299	401499
1100VT	1	M07	P	122	EN3155-016M2222	2351-0990	R		PF 24	500	1R	760VC1	A	A	614VU1 211	23-51-01	051099	101199
1100VT	1	M07	P	122	EN3155-016M2222	2351-0990	R		PF 24	642	1R	760VC1	A	A	614VU1 211	23-51-01	201299	401499

Figure 11 Terminal List

FOR TRAINING PURPOSES ONLY!

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HOOK UP LIST 91–40 (SPLICE LIST)

Splice List

The listing criteria is the number of the Splice. It determines which wires are connected.

3702 is the Component Number and VS is the fictitious Circuit Code for a Splice.



Figure 12 Splice

FOR TRAINING PURPOSES ONLY!

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FROM TERMINATION A				WIRE IDENTIFICATION						TO TERMINATION B					
										FIN	CON	LOCATION	WDM REF	EFFECT	EFFECT
FIN	CON	LOCATION	CONTACT PN	NUMBER	CO	SENS	T/G	CM	ROUTE	SB OR COC REFERENCE					
3702VS	A		E0360RK1614	2924-0001	R		PF 14	322	1MB	3744VC	A	<G	671	29-24-01	051099 101199
3702VS	A		E0360RK1614	2924-0013			CF 14	1929	1MB	3647VC	A	40	253	29-24-01	051099 101199
3704VS	A		E0360RK1614	2924-0002	R		PF 14	324	1M	3726VC	A	H	671	29-24-01	051099 101199
3704VS	A		E0360RK1614	2924-0009			CF 14	1436	1M	3527VC	A	47	131	29-24-01	051099 101199

Figure 13 Splice List

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HOOK UP LIST 91–50 (GROUND POINTS)

Ground List

The listing criteria is the number of a Ground Point. It determines which wires are connected to this point.

274 is the Component Number and VN is the fictitious Circuit Code for Neutral (Ground).

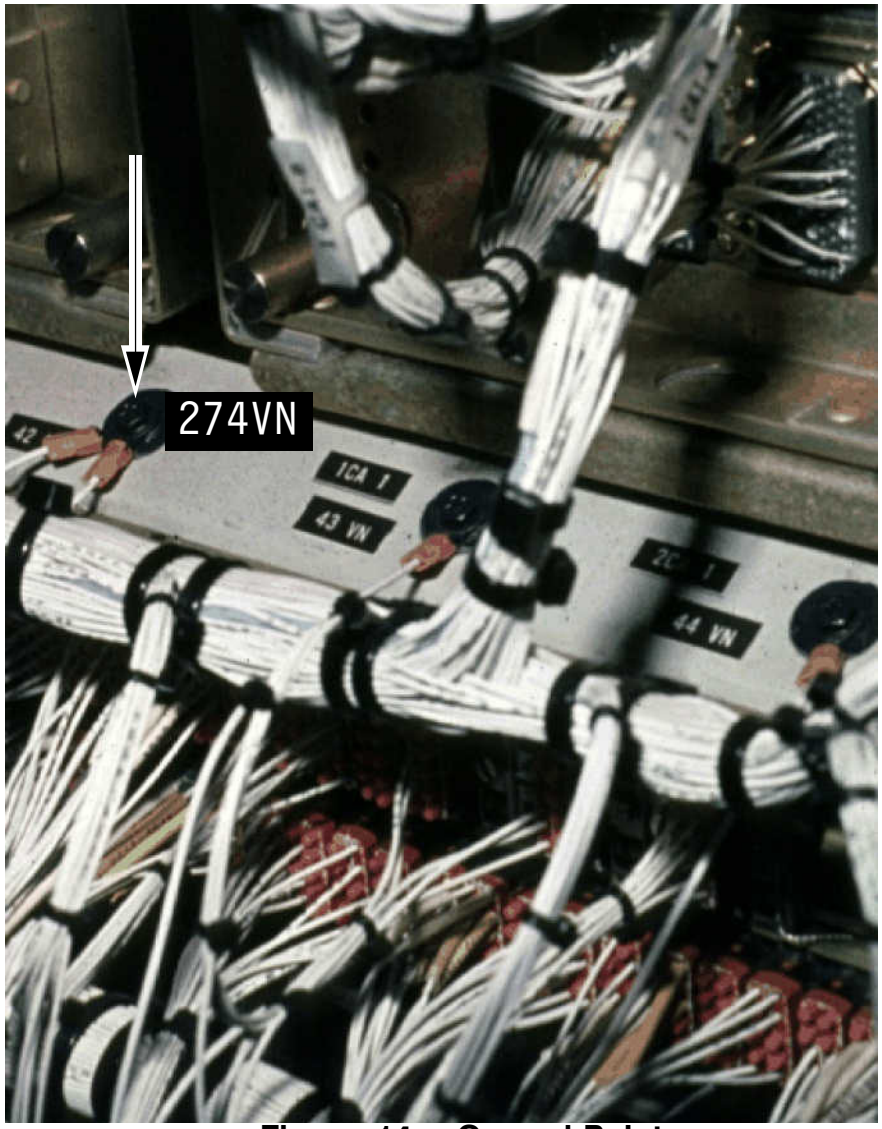


Figure 14 Ground Point

FOR TRAINING PURPOSES ONLY!

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FROM TERMINATION A				WIRE IDENTIFICATION						TO TERMINATION B						
										FIN	CON	LOCATION		WDM REF	EFFECT	EFFECT
FIN	CON	LOCATION	CONTACT PN	NUMBER	CO	SENS	T/G	CM	ROUTE	SB OR COC REFERENCE						
270VN	/	212	NSA936501TA2004	2284-0036			CF 20	65	2M	3CA	B	A		210	22-84-02	ALL	
270VN	/	212	NSA936501TA2004	3312-0563			CF 20	85	2M	42LE		B	412VU	212	33-12-10	201299	401499
271VN	/	211	NSA936501TA2004	2284-0029			CF 20	45	1M	3CA	A	A		210	22-84-02	ALL	
271VN	/	211	NSA936501TA2004	2284-0031			CF 20	45	1M	3CA	A	<U		210	22-84-02	ALL	
271VN	/	211	NSA936501TA2004	3312-0562			CF 20	85	1M	43LE		B	211VU	211	33-12-10	201299	401499
271VN	/	211	NSA936501TA2206	3313-0201			CF 24	45	1M	3CA	A	D		210	33-13-01	ALL	
272VN	/	212	NSA936501TA1604	2284-0039			CF 18	45	2S	3CA	B	<V		210	22-84-02	ALL	
272VN	/	212	NSA936501TA2206	2286-0412			CF 24	45	2S	2286GO291		SHLD			22-86-61	ALL	
272VN	/	212	NSA936501TA2206	7325-0901			CF 24	45	2S	7325GO277		SHLD			73-25-03	ALL	
273VN	/	211	NSA936501TA2206	2286-0385			CF 24	45	1S	2286GO295		SHLD			22-86-60	ALL	
273VN	/	211	NSA936501TA2206	2286-0434			CF 24	45	1M	2286GO285		SHLD			22-86-62	ALL	
273VN	/	211	NSA936501TA2206	2286-0584			CF 24	45	1S	2286GO580		SHLD			22-86-62	ALL	
274VN	/	212	NSA936501TA1604	3312-0555			CF 18	85	2M	42LE		C	412VU	212	33-12-10	201299	401499
274VN	/	212	NSA936501TA2206	2286-0441			CF 24	45	2M	2286GO287		SHLD			22-86-63	ALL	
275VN	/	211	NSA936501TA1604	3312-0552			CF 18	85	1M	43LE		C	211VU	211	33-12-10	201299	401499

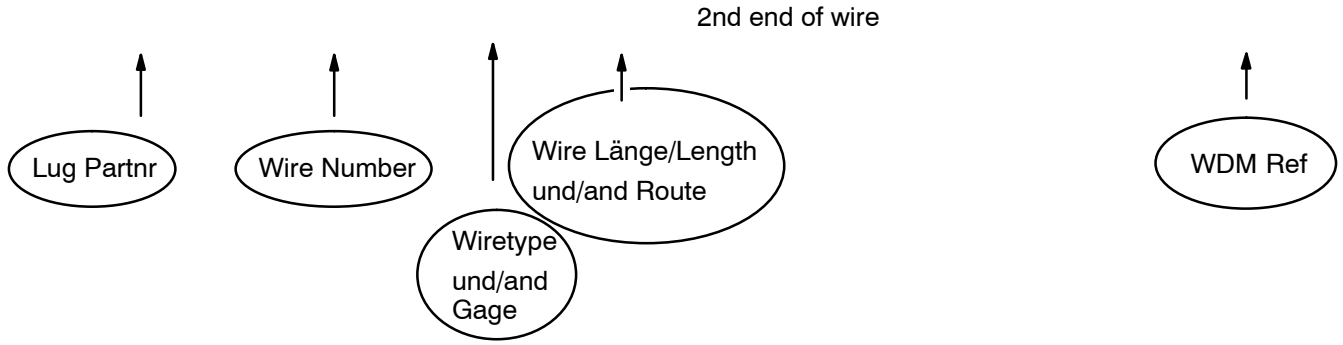


Figure 15 Ground Point List

FOR TRAINING PURPOSES ONLY!

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HOOK UP LIST 91-60 (MISCELLANEOUS EQUIPMENT LIST)

Miscellaneous Equipment List

This list shows the Equipment not listed in any previously mentioned HOOK UP LIST. You have to look for the respective Circuit in the Index first before you switch to the listing 91-6X-XX.

INDEX CHAPTER SECTION 91-60

CH/SE/SU	TO CH/SE/SU	CIRC	IDENT
91-61-94	91-61-94		LL
91-61-97	91-61-97		LP
91-61-98	91-61-98		LQ
91-61-99	91-61-99		LR
91-62-01	91-62-01		LS
91-62-03	91-62-03		LU
91-62-04	91-62-04		LV
91-62-05	91-62-05		LW
91-62-06	91-62-06		LX
91-62-07	91-62-07		LY
91-62-09	91-62-09		MA
91-62-10	91-62-10		MB
91-62-11	91-62-11		MC
91-62-12	91-62-12		MD
91-62-13	91-62-13		ME
91-62-14	91-62-14		MF
91-62-15	91-62-15		MG
91-62-16	91-62-16		MH
91-62-17	91-62-17		MJ
91-62-18	91-62-18		MK
91-62-19	91-62-19		ML
91-62-20	91-62-20		MM
91-62-22	91-62-22		MP
91-62-23	91-62-23		MQ
91-62-24	91-62-24		MR
91-62-25	91-62-25		MS
91-62-26	91-62-26		MT
91-62-30	91-62-30		MX
91-62-31	91-62-31		MY

CH/SE/SU	TO CH/SE/SU	CIRC	IDENT
91-62-36	91-62-36		PC
91-62-38	91-62-38		PE
91-62-41	91-62-41		PH
91-62-46	91-62-46		PN
91-62-47	91-62-47		PP
91-62-49	91-62-49		PR
91-62-52	91-62-52		PU
91-62-53	91-62-53		PV
91-62-55	91-62-55		PX
91-62-58	91-62-58		QA
91-62-59	91-62-59		QB
91-62-60	91-62-60		QC
91-62-62	91-62-62		QE
91-62-63	91-62-63		QF
91-62-64	91-62-64		QG
91-62-66	91-62-66		QJ
91-62-68	91-62-68		QL
91-62-69	91-62-69		QM
91-62-70	91-62-70		QN
91-62-72	91-62-72		QQ
91-62-75	91-62-75		QT
91-62-76	91-62-76		QU
91-62-77	91-62-77		QV
91-62-82	91-62-82		RA
91-62-83	91-62-83		RB
91-62-84	91-62-84		RC
91-62-85	91-62-85		RD
91-62-86	91-62-86		RE
91-62-87	91-62-87		RF

CH/SE/SU	TO CH/SE/SU	CIRC	IDENT
91-62-92	91-62-92		RL
91-62-93	91-62-93		RM
91-62-94	91-62-94		RN
91-62-95	91-62-95		RP
91-62-97	91-62-97		RR
91-62-98	91-62-98		RS
91-62-99	91-62-99		RT
91-63-02	91-63-02		RV
91-63-04	91-63-04		RX
91-63-05	91-63-05		RY
91-63-06	91-63-06		RZ
91-63-07	91-63-07		SA
91-63-09	91-63-09		SD
91-63-10	91-63-10		SG
91-63-11	91-63-11		SH
91-63-13	91-63-13		SM
91-63-13	91-63-13		SN
91-63-14	91-63-14		SQ
91-63-15	91-63-15		TD
91-63-16	91-63-16		TE
91-63-16	91-63-16		TL
91-63-17	91-63-17		TM
91-63-18	91-63-18		TP
91-63-20	91-63-20		TT
91-63-21	91-63-21		TU
91-63-22	91-63-22		TV
91-63-24	91-63-24		TX
91-63-27	91-63-27		VP
91-63-27	91-63-27		VX

Figure 16 Miscellaneous Index

FOR TRAINING PURPOSES ONLY!

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FROM TERMINATION A				WIRE IDENTIFICATION					TO TERMINATION B			WDM REF	EFFECT	EFFECT
FIN	CON	LOCATION	CONTACT PN	NUMBER	CO	SENS	T/G	CM	ROUTE	FIN	CON	LOCATION	SB OR COC REFERENCE		
113MX	1	925VU 120	EN3155-016M2018	2565-0020			BF 22	45	1M	113MX	5	925VU 120	25-65-01	112199 401499	201299
113MX	2	925VU 120	EN3155-016M2018	2565-0019			BF 22	75	1M	182OVC	<F	925VU 120	25-65-01	112199 401499	201299
113MX	3	925VU 120	EN3155-016M2018	3314-0874			BF 24	65	1M	9LP	3B	925VU 120	33-14-25	112199 401499	201299
113MX	4	925VU 120	EN3155-016M2018	2565-0021			BF 22	75	1M	182OVC	<G	925VU 120	25-65-01	112199 401499	201299
113MX	5	925VU 120	EN3155-016M2018	2565-0020			BF 22	45	1M	113MX	1	925VU 120	25-65-01	112199	201299

Figure 17 Miscellaneous Equipment List

FOR TRAINING PURPOSES ONLY!

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HOOK UP LIST 91–70 (GROUND TERMINAL BLOCKS)

Ground Terminal List

The listing criteria is the number of the Ground Terminal. It determines which wires are connected to this point.

1739 is the Component Number and VG is the fictitious Circuit Code for Ground.

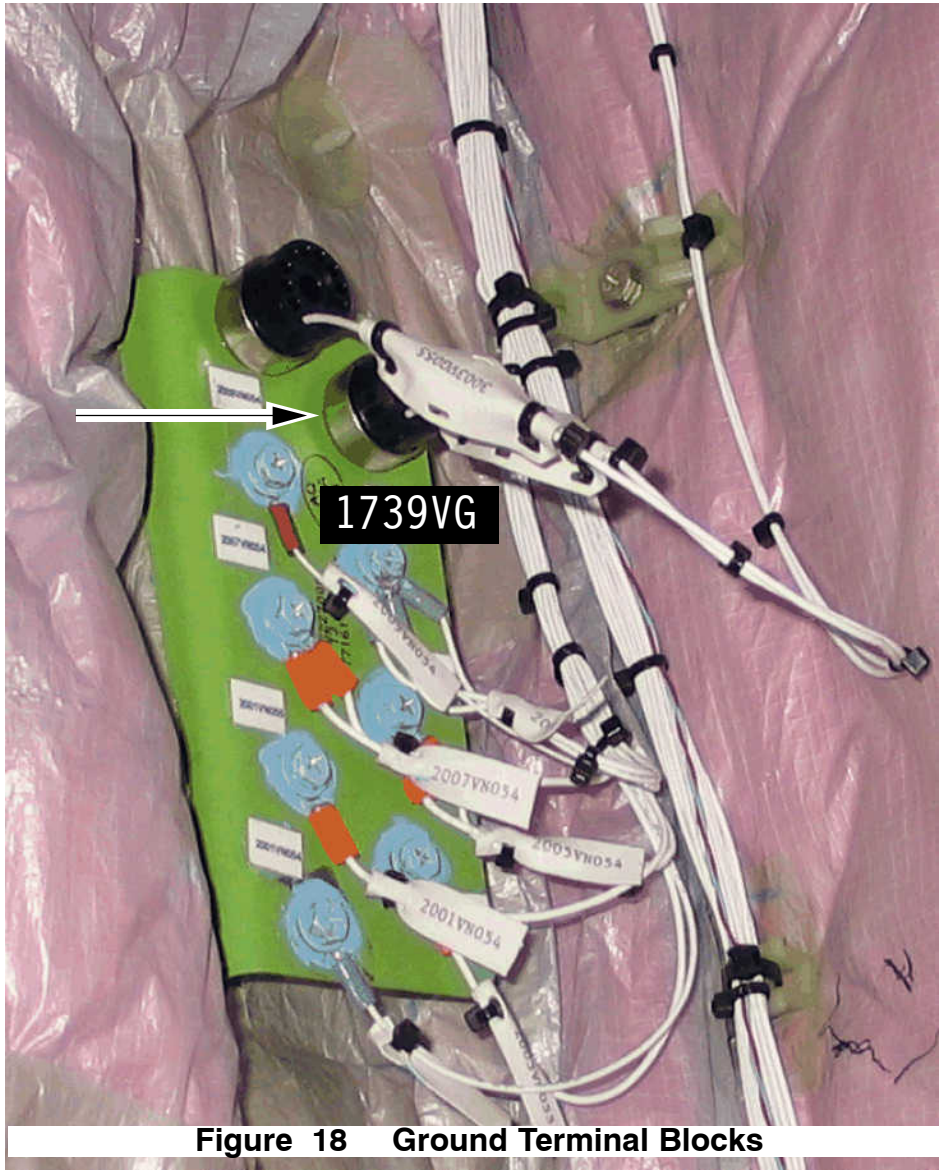


Figure 18 Ground Terminal Blocks

FOR TRAINING PURPOSES ONLY!

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FROM TERMINATION A				WIRE IDENTIFICATION						TO TERMINATION B			WDM REF	EFFECT	EFFECT
FIN	CON	LOCATION	CONTACT PN	NUMBER	CO	SENS	T/G	CM	ROUTE	FIN	CON	LOCATION	SB OR COC REFERENCE		
1739VG	/	121	EN3155-015F2018	3162-0466			CF 24	85	1M	3162G0625	SHLD		31-62-36	ALL	
1739VG	/	121	EN3155-015F2018	3162-0469			CF 24	85	1M	3162G0628	SHLD		31-62-37	ALL	
1739VG	/	121	EN3155-015F2018	3411-0254			CF 24	85	1M	3411G0148	SHLD		34-11-37	ALL	
1739VG	/	121	EN3155-015F2018	3411-0351		S	CF 24	65	1M	3411G0190	SHLD		34-11-45	ALL	
1739VG	/	121	EN3155-015F2018	3411-0352		S	CF 24	65	1M	3411G0189	SHLD		34-11-45	ALL	
1739VG	/	121	EN3155-015F2018	3411-0385		S	CF 24	65	1M	3411G0372	SHLD		34-11-36	ALL	
1739VG	/	121	EN3155-015F2018	3411-0579			CF 24	85	1M	3411G0085	SHLD		34-11-17	ALL	
1739VG	/	121	EN3155-015F2018	3411-0580			CF 24	85	1M	3411G0084	SHLD		34-11-17	ALL	
1739VG	/	121	EN3155-015F2018	3411-0581			CF 24	85	1M	3411G0086	SHLD		34-11-17	ALL	
1739VG	/	121	EN3155-015F2018	3411-0702			CF 18	85	1M	1FP3	AC	11 121	34-11-03	ALL	
1739VG	2	121		UNUSED										ALL	

Figure 19 Ground Terminal Block List

FOR TRAINING PURPOSES ONLY!

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HOOK UP LIST 91-90 (WIRE LIST)

Wire List

The listing criteria is the wire/cable number. It provides every necessary information: e.g. Wiretype, Wirelength and Connection points.

INDEX CHAPTER SECTION 91-90

CH/SE/SU	WIRE
91-92-12	212X
91-92-13	213X
91-92-14	214X
91-92-15	215X
91-92-16	216X
91-92-28	228X
91-92-31	231X
91-92-32	232X
91-92-33	233X
91-92-34	234X
91-92-35	235X
91-92-37	237X
91-92-38	238X
91-92-39	239X
91-92-42	242X
91-92-43	243X
91-92-44	244X
91-92-45	245X
91-92-46	246X
91-92-49	249X
91-92-51	251X
91-92-52	252X
91-92-53	253X
91-92-54	254X
91-92-55	255X
91-92-56	256X
91-92-61	261X
91-92-62	262X
91-92-75	275X
91-92-78	278X
91-92-83	283X
91-92-84	284X
91-92-85	285X
91-92-91	291X
91-92-92	292X
91-92-93	293X
91-93-01	301X
91-93-02	302X
91-93-03	303X
91-93-04	304X
91-93-07	307X
91-93-08	308X
91-93-11	311X
91-93-12	312X
91-93-13	313X
91-93-15	315X
91-93-16	316X
91-93-18	318X
91-93-23	323X
91-93-24	324X
91-93-25	325X
91-93-26	326X
91-93-31	331X
91-93-32	332X
91-93-33	333X
91-93-34	334X
91-93-35	335X
91-93-41	341X
91-93-42	342X
91-93-43	343X
91-93-52	352X
91-93-61	361X
91-93-62	362X
91-93-81	381X
91-93-83	383X
91-93-84	384X
91-94-51	451X
91-94-52	452X
91-94-54	454X
91-94-61	461X
91-94-62	462X
91-94-64	464X
91-94-91	491X
91-94-94	494X
91-94-96	496X
91-94-99	499X
91-95-23	523X
91-95-25	525X
91-97-32	732X
91-97-43	743X
91-97-61	761X
91-97-73	773X
91-97-83	783X
91-97-93	793X
91-98-98	898X
*** END OF LIST ***	

Figure 20 Wire List Index

FOR TRAINING PURPOSES ONLY!

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Zeichenerklärung:

/ Connection ohne Identification

// No type/gage

\+ Plus pole

\- Negative pole

R Revised

N New

S Sensitive Wire werden durch einen Pink Sleeve über dem Kabelbaum oder durch ein S, das auf der ganzen Kabellänge aufgedruckt ist, gekennzeichnet. Es zeigt, dass dieses Kabel ohne Erlaubnis von Airbus nicht modifiziert werden darf, bzw. besondere Kriterien bei der Begutachtung und besondere Teste nach Reparatur notwendig sind!

WIRE IDENTIFICATION						FROM TERMINATION A				TO TERMINATION B				WDM REF	EFFECT	EFFECT	EFFECT
NUMBER	CO	SENS	T/G	CM	ROUTE	FIN		CON	LOCATION	FIN		CON	LOCATION				
FEED TRHU / CT						FEED TRHU / CT				FEED TRHU / CT				SB OR COC REFERENCE			
FIN			CON		LOCATION	FIN		CON	LOCATION	FIN		CON	LOCATION				
3421-0001			DK 24		296 1M	2FV		2	742VU 121	1009VC		22	740VU 121	34-21-01	ALL		
3421-0003			CF 24		459 1M	1009VC	A	22	740VU 121	1529VC	A	12	751VU 121	34-21-01	ALL		
3421-0004			DK 24		126 1M	1501VT	2	A	751VU 121	1529VC		12	751VU 121	34-21-01	ALL		
3421-0005			DK 24		192 1M	4FV	A	1	751VU 121	1529VC		13	751VU 121	34-21-01	ALL		
3421-0006			CF 24		192 1M	1FV	A	A	311VU 211	213VG		/	121	34-21-01	ALL		
3421-0007			CF 24		848 1M	1FV	A	D	311VU 211	1529VC	A	13	751VU 121	34-21-01	ALL		
3421-0008			CF 18		133 1M	1FV	A	C	311VU 211	255VG		/	210	34-21-01	ALL		
3421-0009			CF 18		202 1M	3FV	A	C	311VU 211	219VG		/	121	34-21-01	ALL		
3421-0011			DK 24		194 1M	4FV	A	A	751VU 121	1501VT	2	H	751VU 121	34-21-01	ALL		
3421-0012			DK 24		194 1M	4FV	A	X	751VU 121	1501VT	2	R	751VU 121	34-21-01	ALL		
3421-0014			DK 24		192 1M	4FV	A	Z	751VU 121	1529VC		17	751VU 121	34-21-01	ALL		
3421-0015			CF 24		177 1M	5GA1	AB	8A	851VU 121	2615VC		18	801VU 121	34-21-01	ALL		
3421-0016			CF 24		618 1M	1529VC	A	17	751VU 121	2615VC	A	18	801VU 121	34-21-01	ALL		
3421-0053			CF 24		100 1M	2651VC		24	801VU 121	3121G0051		SHLD					

Information zum Wire

Von.....Nach

WDM Ref.

Effectivity

Figure 21 Master Wire List

FOR TRAINING PURPOSES ONLY!

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Signs and Symbols:

/ Connection No Identification

// No type/gage

\+ Plus pole

\- Negative pole

R Revised

N New

S Sensitive Wires are marked by a Pink Sleeve shrinked around the wiring harness or the letter S printed all along the cable. It indicates that no modification is allowed without approval from AIRBUS. During inspections specific procedures must be obeyed. After repairwork special tests and checks are mandatory!

WIRE IDENTIFICATION						FROM TERMINATION A				TO TERMINATION B				WDM REF	EFFECT	EFFECT	EFFECT
NUMBER	CO	SENS	T/G	CM	ROUTE	FIN		CON	LOCATION	FIN		CON	LOCATION				
	FEED TRHU / CT					FEED TRHU / CT				FEED TRHU / CT				SB OR COC REFERENCE			
	FIN		CON	LOCATION		FIN		CON	LOCATION	FIN		CON	LOCATION				
3421-0001			DK 24	296 1M		2FV		2	742VU 121	1009VC		22	740VU 121	34-21-01	ALL		
3421-0003			CF 24	459 1M		1009VC	A	22	740VU 121	1529VC	A	12	751VU 121	34-21-01	ALL		
3421-0004			DK 24	126 1M		1501VT	2	A	751VU 121	1529VC		12	751VU 121	34-21-01	ALL		
3421-0005			DK 24	192 1M		4FV	A	1	751VU 121	1529VC		13	751VU 121	34-21-01	ALL		
3421-0006			CF 24	192 1M		1FV	A	A	311VU 211	213VG		/	121	34-21-01	ALL		
3421-0007			CF 24	848 1M		1FV	A	D	311VU 211	1529VC	A	13	751VU 121	34-21-01	ALL		
3421-0008			CF 18	133 1M		1FV	A	C	311VU 211	255VG		/	210	34-21-01	ALL		
3421-0009			CF 18	202 1M		3FV	A	C	311VU 211	219VG		/	121	34-21-01	ALL		
3421-0011			DK 24	194 1M		4FV	A	A	751VU 121	1501VT	2	H	751VU 121	34-21-01	ALL		
3421-0012			DK 24	194 1M		4FV	A	X	751VU 121	1501VT	2	R	751VU 121	34-21-01	ALL		
3421-0014			DK 24	192 1M		4FV	A	Z	751VU 121	1529VC		17	751VU 121	34-21-01	ALL		
3421-0015			CF 24	177 1M		5GA1	AB	8A	851VU 121	2615VC		18	801VU 121	34-21-01	ALL		
3421-0016			CF 24	618 1M		1529VC	A	17	751VU 121	2615VC	A	18	801VU 121	34-21-01	ALL		
3421-0053			CF 24	100 1M		2651VC		24	801VU 121	3121G0051		SHLD					

Information on the Wire

From.....T o

WDM Ref.

Effectivity

Figure 22 Master Wire List

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AWM (AIRCRAFT WIRING MANUAL)

General

Content

The AWM consists of 3 parts:

- Introduction
- Wirings ATA 21 to ATA 80
- Charts ATA 91–00 (Routing) and ATA 91–10 (Panels)

Introduction

contains symbols and instructions how to use this manual.

Wirings

contains detailed wiring charts for every aircraft.

There is a NUMERICAL INDEX in front of every chapter. It contains the EFF. The NUMERICAL INDEX corresponds to the LEP in the AMM. It is updated with every revision.

AWM Figures

In the AWM every component is depicted very precise (that is different to the ASM). The figures are very detailed which makes it possible to identify every cable connection.

Charts

contains the Wire Routing and pictures of the Panels.

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SYMBOLS IN THE AWM AND ASM

DESCRIPTION	SCHEMATIC	SYMBOL BOTH	WIRING
IN-LINE CONNECTOR (SPLICE)			
SEPARABLE SPLICE			
CONNECTOR: A) COMPLETE B) INCOMPLETE C) INCOMPLETE BUT FULLY SHOWN ON SAME WD			FREE FIXED A B C

DESCRIPTION	SCHEMATIC	SYMBOL BOTH	WIRING
DOUBLE POLE, DOUBLE WAFER SWITCH WITH MOMENTARY MAKE			
SINGLE POLE, SINGLE THROW (MAKE) SWITCH			
DOUBLE POLE, SINGLE THROW SWITCH			

DESCRIPTION	SCHEMATIC	SYMBOL BOTH	WIRING
TOGGLE TYPE CIRCUIT BREAKER			
CIRCUIT BREAKER PUSH TYPE, WITH SEPARATE MANUEL TRIP BUTTON			
PUSH-PULL TYPE, CIRCUIT BREAKER			
PUSH-PULL TYPE, CIRCUIT BREAKER WITH AUXILIARY CONTACTS			
THREE POLES PUSH-PULL CIRCUIT BREAKER			

DESCRIPTION	SCHEMATIC	SYMBOL BOTH	WIRING
MOTOR (M) OR GENERATOR (G) DC WITH SEPARATE EXCITATION			
MOTOR (M) OR GENERATOR (G) DC WITH SHUNT EXCITATION			

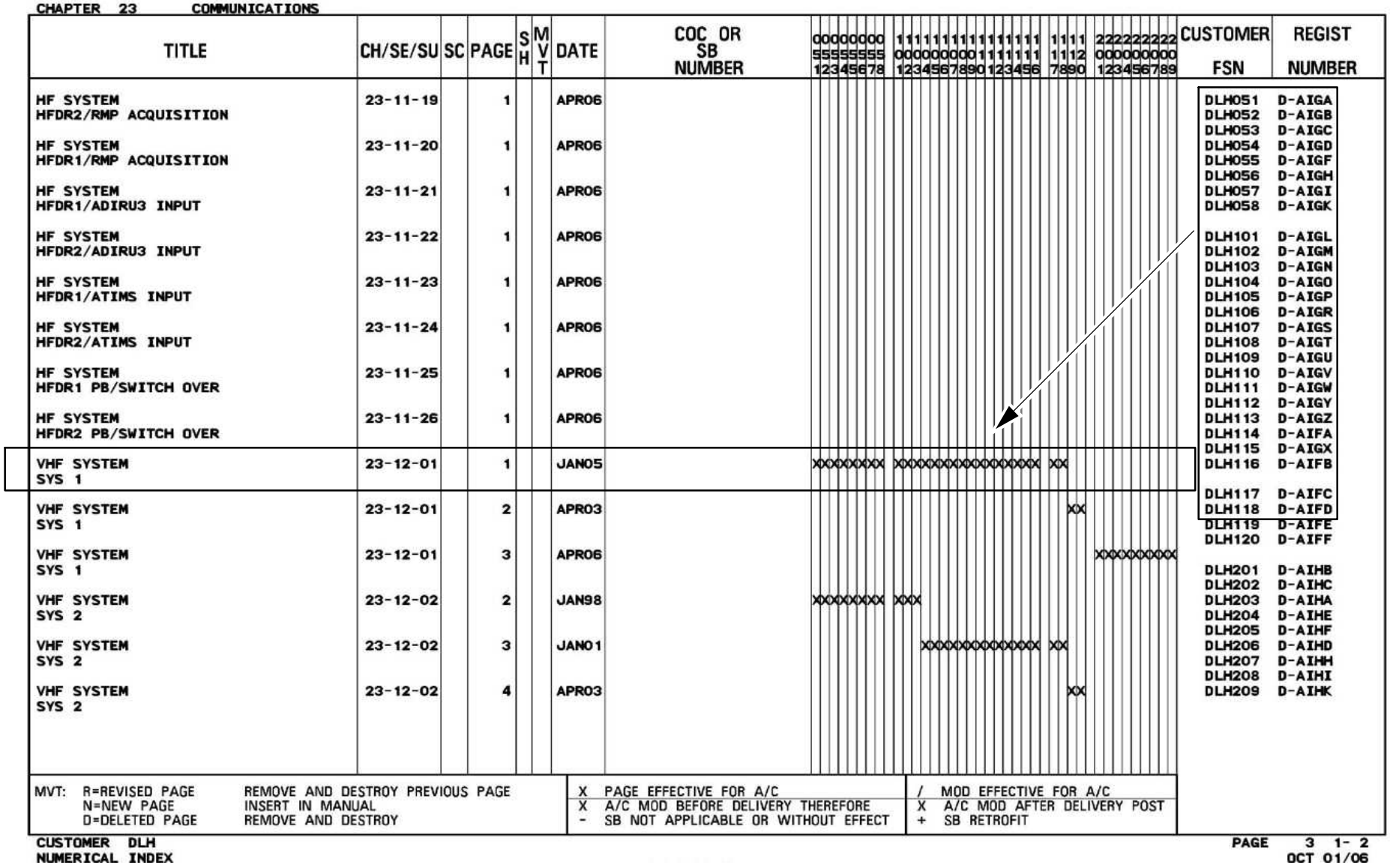
DESCRIPTION	SCHEMATIC	SYMBOL BOTH	WIRING
PLUG-IN RELAY COMPLETE			
PLUG-IN RELAY INCOMPLETE THE BASE MAY NOT BE SHOWN IN FULL IN THE FUNCTIONAL DESCRIPTION THE WORD RELAY MUST BE USED			

Figure 23 Examples for Symbols

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NUMERICAL INDEX



CHAPTER 23 COMMUNICATIONS

TITLE	CH/SE/SU	SC	PAGE	SH	MVT	DATE	COC OR SB NUMBER	CUSTOMER FSN	REGIST NUMBER
HF SYSTEM HFDR2/RMP ACQUISITION	23-11-19		1			APR06		DLH051	D-AIGA
								DLH052	D-AIGB
								DLH053	D-AIGC
HF SYSTEM HFDR1/RMP ACQUISITION	23-11-20		1			APR06		DLH054	D-AIGD
								DLH055	D-AIGF
								DLH056	D-AIGH
HF SYSTEM HFDR1/ADIRU3 INPUT	23-11-21		1			APR06		DLH057	D-AIGI
								DLH058	D-AIGK
HF SYSTEM HFDR2/ADIRU3 INPUT	23-11-22		1			APR06		DLH101	D-AIGL
								DLH102	D-AIGM
								DLH103	D-AIGN
HF SYSTEM HFDR1/ATIMS INPUT	23-11-23		1			APR06		DLH104	D-AIGO
								DLH105	D-AIGP
								DLH106	D-AIGR
HF SYSTEM HFDR2/ATIMS INPUT	23-11-24		1			APR06		DLH107	D-AIGS
								DLH108	D-AIGT
								DLH109	D-AIGU
HF SYSTEM HFDR1 PB/SWITCH OVER	23-11-25		1			APR06		DLH110	D-AIGV
								DLH111	D-AIGW
								DLH112	D-AIGY
HF SYSTEM HFDR2 PB/SWITCH OVER	23-11-26		1			APR06		DLH113	D-AIGZ
								DLH114	D-AIFA
								DLH115	D-AIGX
VHF SYSTEM SYS 1	23-12-01		1			JAN05		DLH116	D-AIFB
								DLH117	D-AIFC
VHF SYSTEM SYS 1	23-12-01		2			APR03		DLH118	D-AIFD
								DLH119	D-AIFE
VHF SYSTEM SYS 1	23-12-01		3			APR06		DLH120	D-AIFF
								DLH201	D-AIHB
								DLH202	D-AIHC
VHF SYSTEM SYS 2	23-12-02		2			JAN98		DLH203	D-AIHA
								DLH204	D-AIHE
								DLH205	D-AIHF
VHF SYSTEM SYS 2	23-12-02		3			JAN01		DLH206	D-AIHD
								DLH207	D-AIHH
								DLH208	D-AIHI
VHF SYSTEM SYS 2	23-12-02		4			APR03		DLH209	D-AIHK

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N=NEW PAGE — INSERT IN MANUAL
D=DELETED PAGE — REMOVE AND DESTROY

X PAGE EFFECTIVE FOR A/C
X A/C MOD BEFORE DELIVERY THEREFORE
- SB NOT APPLICABLE OR WITHOUT EFFECT

/ MOD EFFECTIVE FOR A/C
X A/C MOD AFTER DELIVERY POST
+ SB RETROFIT

CUSTOMER DLH
NUMERICAL INDEX

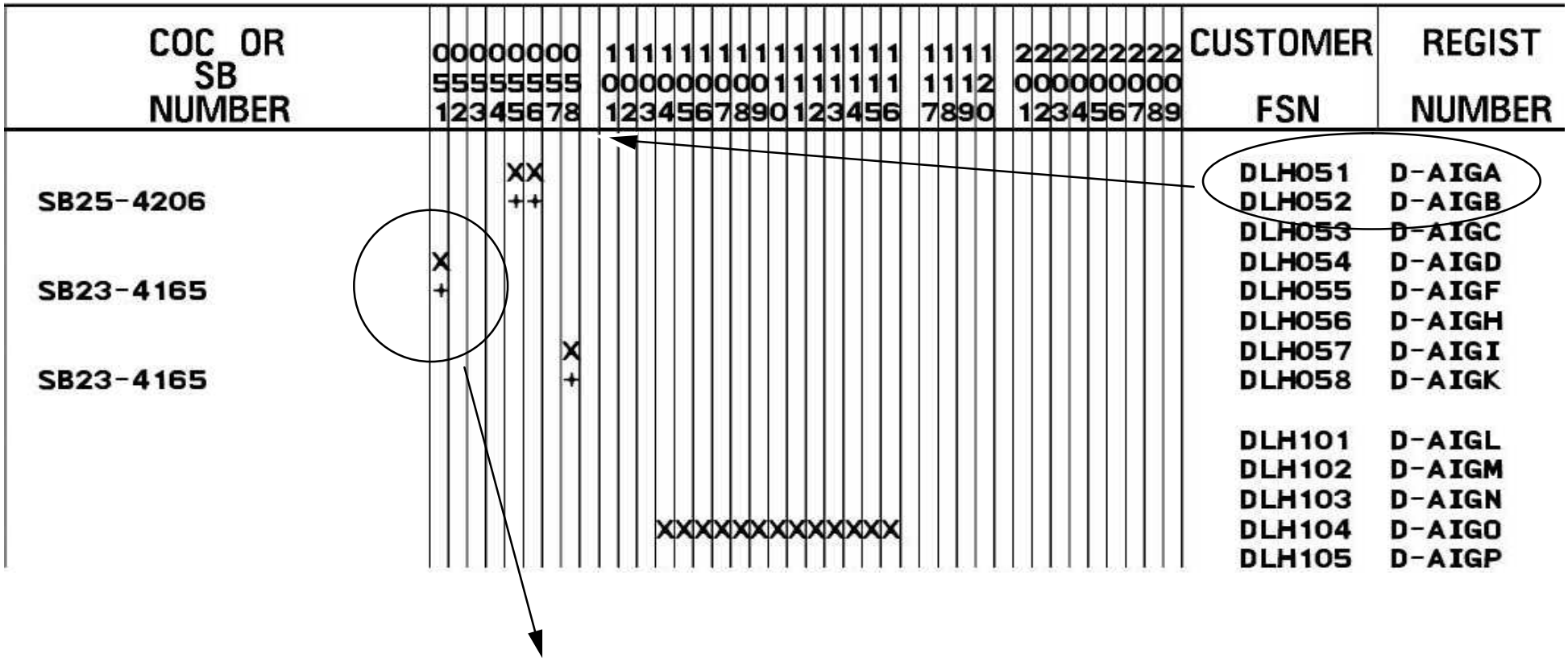
PAGE 3 1- 2
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Figure 24 Numerical Index

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MODIFICATIONS STAND AND EFF



MVT:	R=REVISED PAGE	REMOVE AND DESTROY PREVIOUS PAGE	X	PAGE EFFECTIVE FOR A/C	/ MOD EFFECTIVE FOR A/C
	N=NEW PAGE	INSERT IN MANUAL	X	A/C MOD BEFORE DELIVERY THEREFORE	X A/C MOD AFTER DELIVERY POST
	D=DELETED PAGE	REMOVE AND DESTROY	-	SB NOT APPLICABLE OR WITHOUT EFFECT	+ SB RETROFIT

Figure 25 Mod Stand in ASM/AWM

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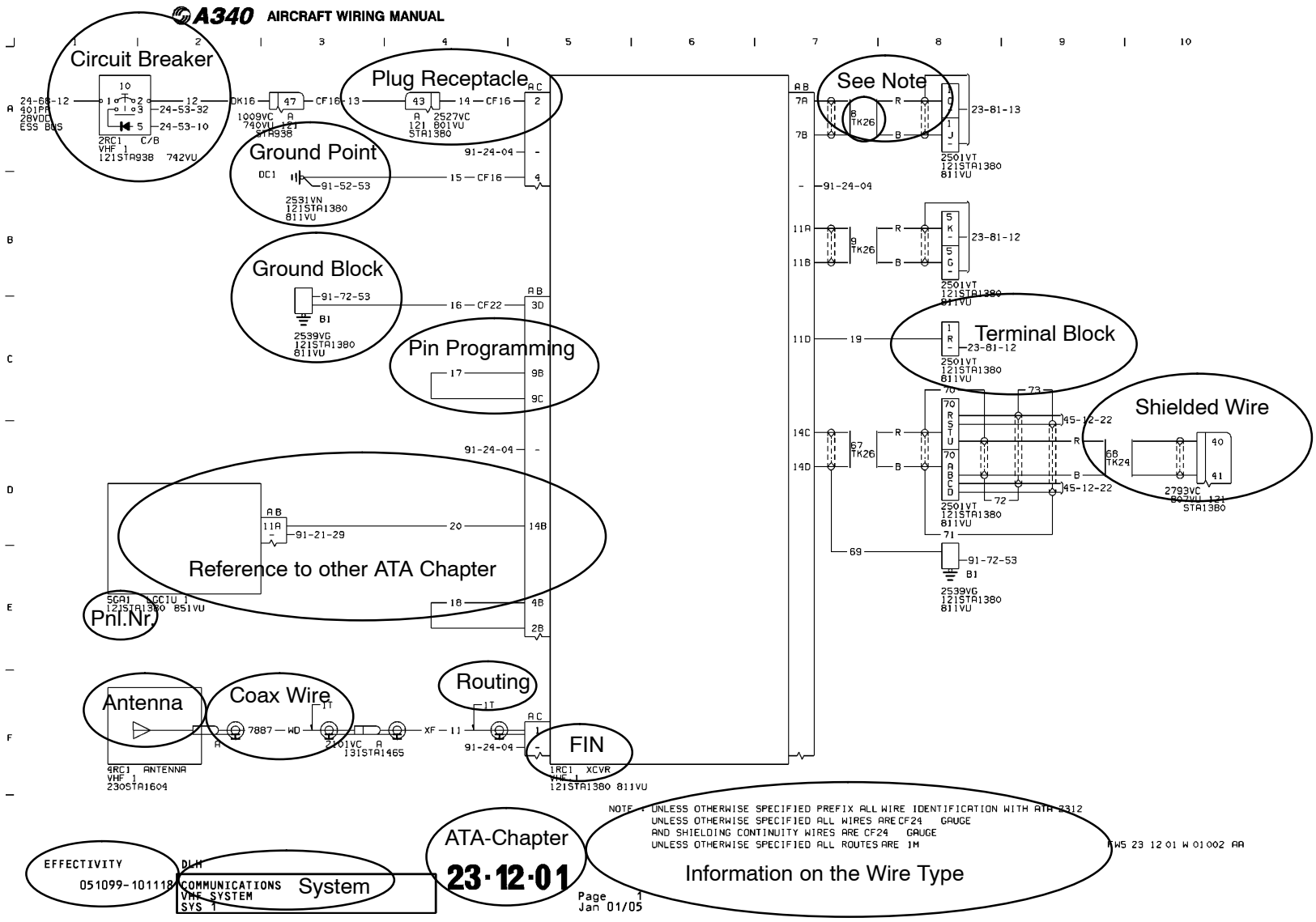


Figure 26 Wiring

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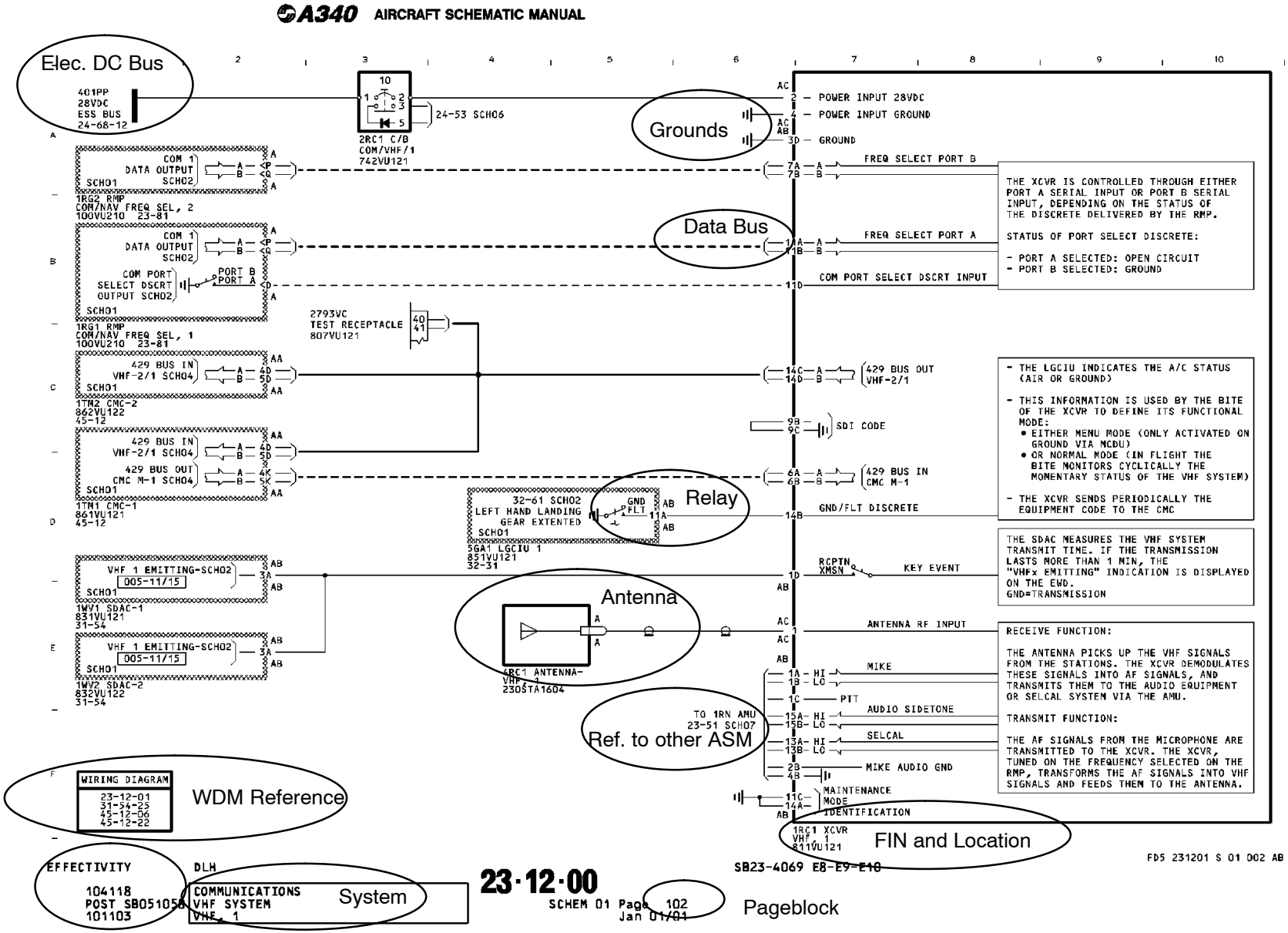


Figure 27 Schematic

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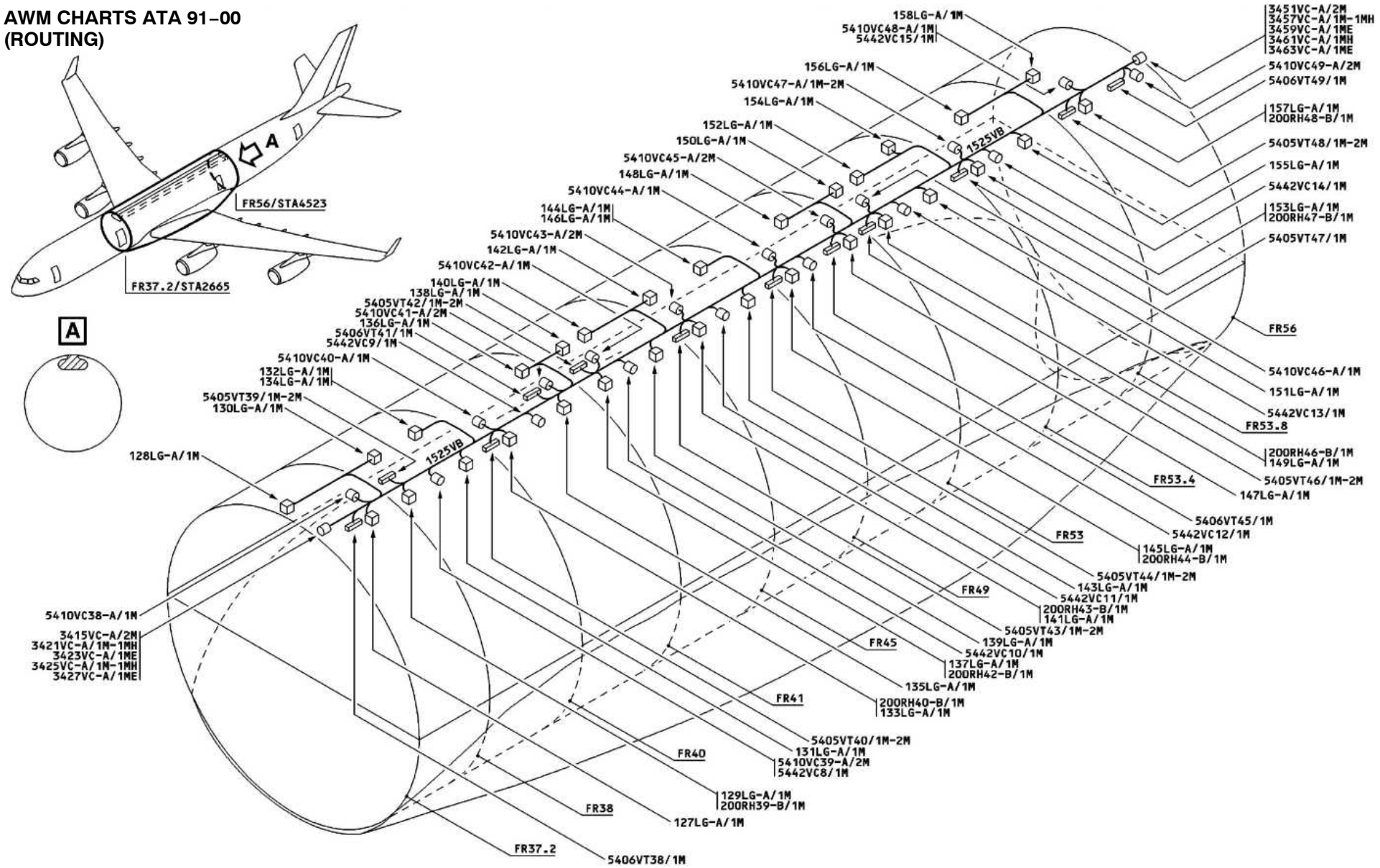


Figure 28 Charts ATA 91-00 Main Wire Routing

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AWM CHARTS ATA 91–10 (PANELS)

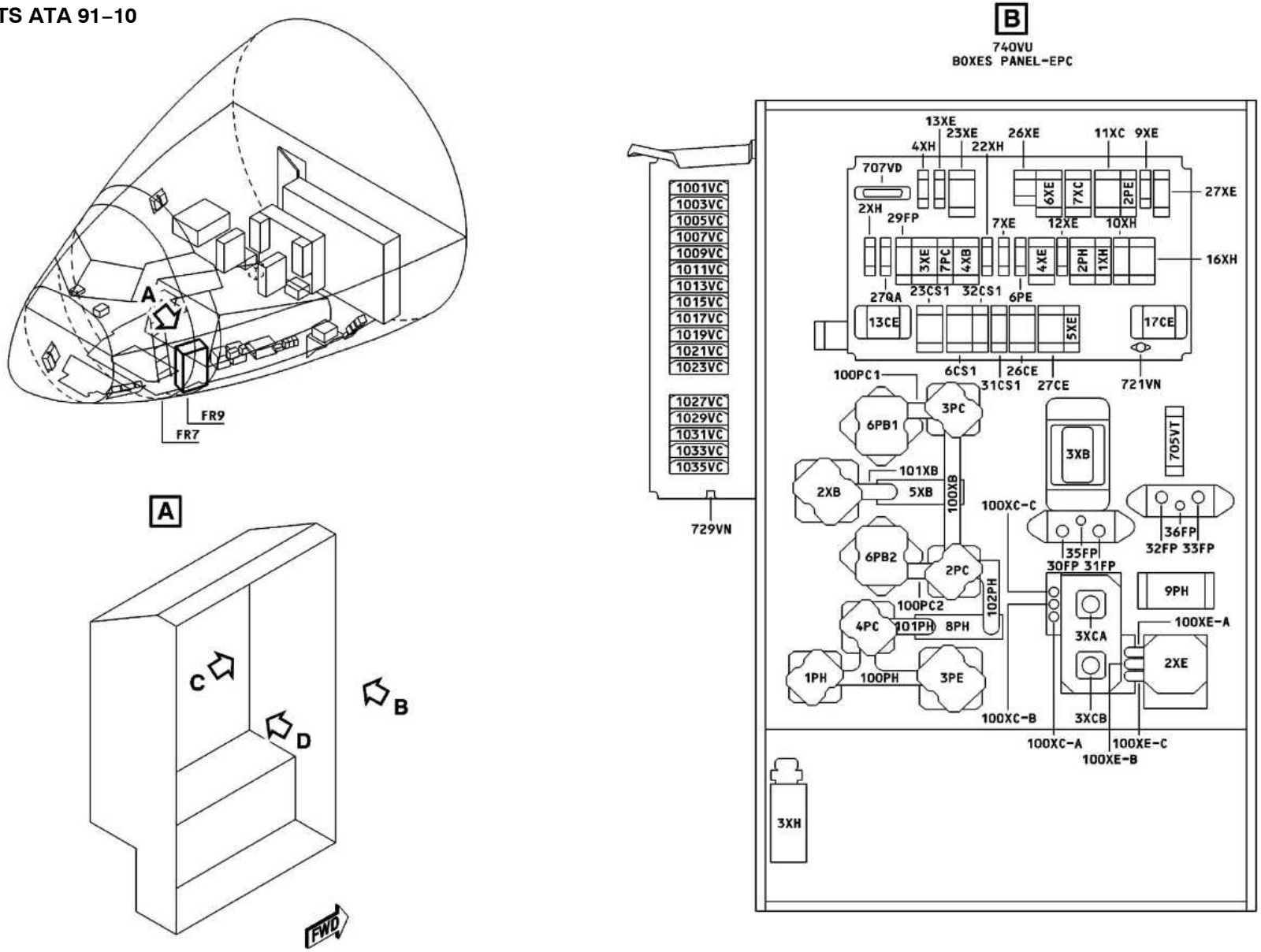


Figure 29 Charts ATA 91–10 Panel Pictures

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ASM (AIRCRAFT SCHEMATIC MANUAL)

General

ASM Presentation

In contrast to the AWM the figures in the ASM are not very precise. Components, wiring connections and other details are depicted simplified.

Component Home Diagram

The Component Home Diagram is a diagram showing every component related to the system.

Diagram Make–up

The ASM, like all the other manuals, structure complies with ATA Specification No. 100. Every schematic has a page number which is higher than 100.

Different varieties of presentations (ASM only).

A. Block Diagrams:

System overview (not very detailed).

B. Simplified Schematics:

Contains Schematic Symbols. Not detailed enough to perform troubleshooting.

C. Schematics:

Displays every Line Replaceable Items, complete A/C Wiring incl. Sub–Sub System and facilitates troubleshooting at he A/C.

D. Wiring Diagrams:

Displays every component and wire.

Different varieties of presentations (AWM only).

E. Zoning/Panel & Routing Diagrams.

Circuit breaker panels:

- AC power supply (24–58)
- DC power supply (24–68)
- Pin programming with Functional Equipment

Different varieties of presentations ASM and AWM.

F. Combined Diagrams are of the same Schematic Configuration in ASM and AWM (so called ”duplicated data”):

ASM Presentation

Power Supply and Signal Source are on the left hand (port) side.

Electric Consumer (Load), Display resp. Computer are on the right hand (starboard) side.

ASM Presentation in relation to the aircraft is as follows:

Top = right, bottom = left, front = left and aft = right!

Aircraft Configuration

The schematic displays the Aircraft Configuration as follows:

- Aircraft on the ground resting on landing gear
- Engines shut down, thrust reversers locked and closed
- Flaps, slats and speed brakes retracted
- Doors and gear doors closed
- Parking brake applied
- Aircraft electrical network de–energized
- All controls in normal, AUTO or OFF position
- If it is necessary to make changes or amendments to the above mentioned a/c configuration it will be indicated by a NOTE in the schematic.

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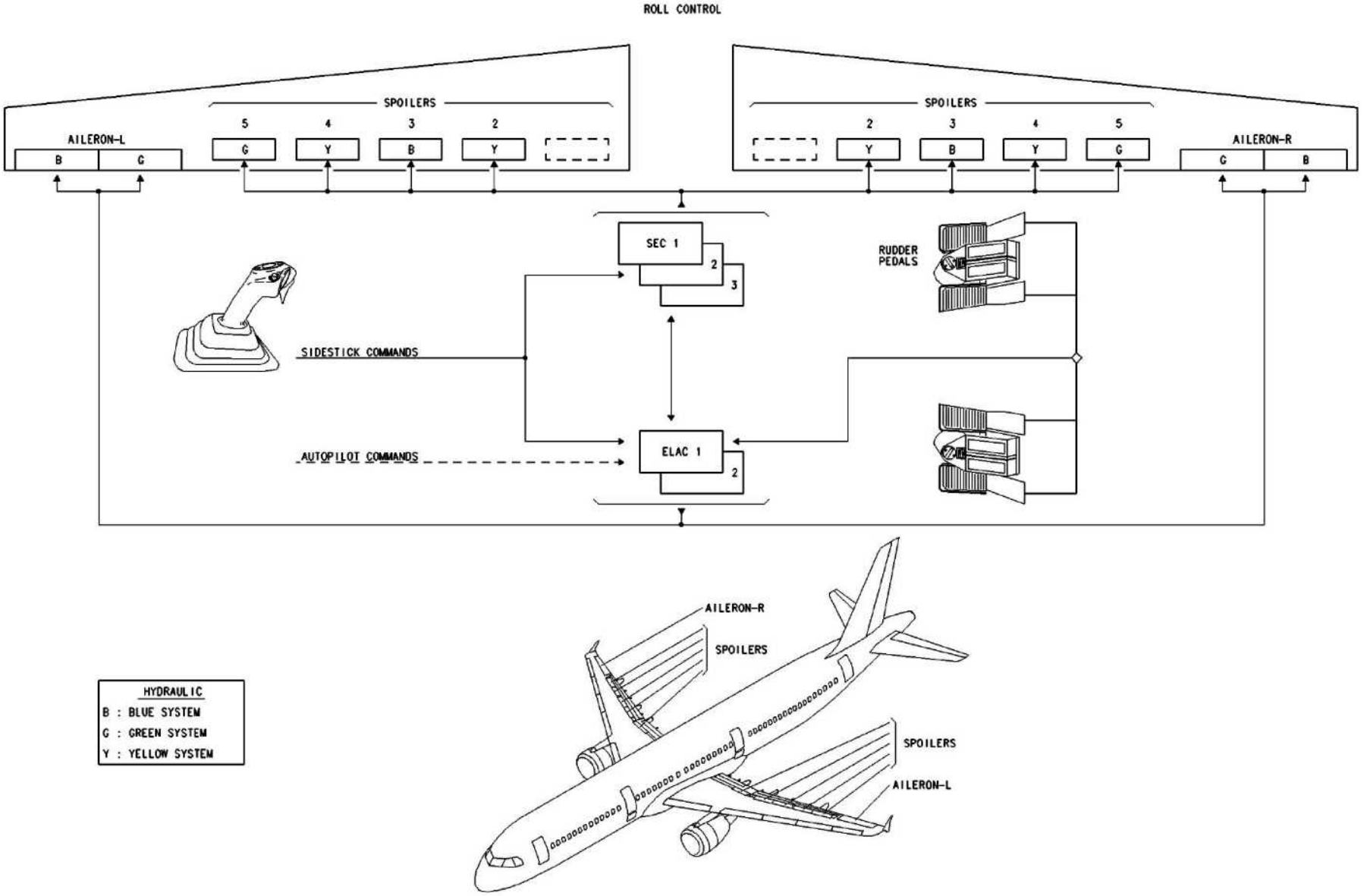


Figure 30 Block Diagramm

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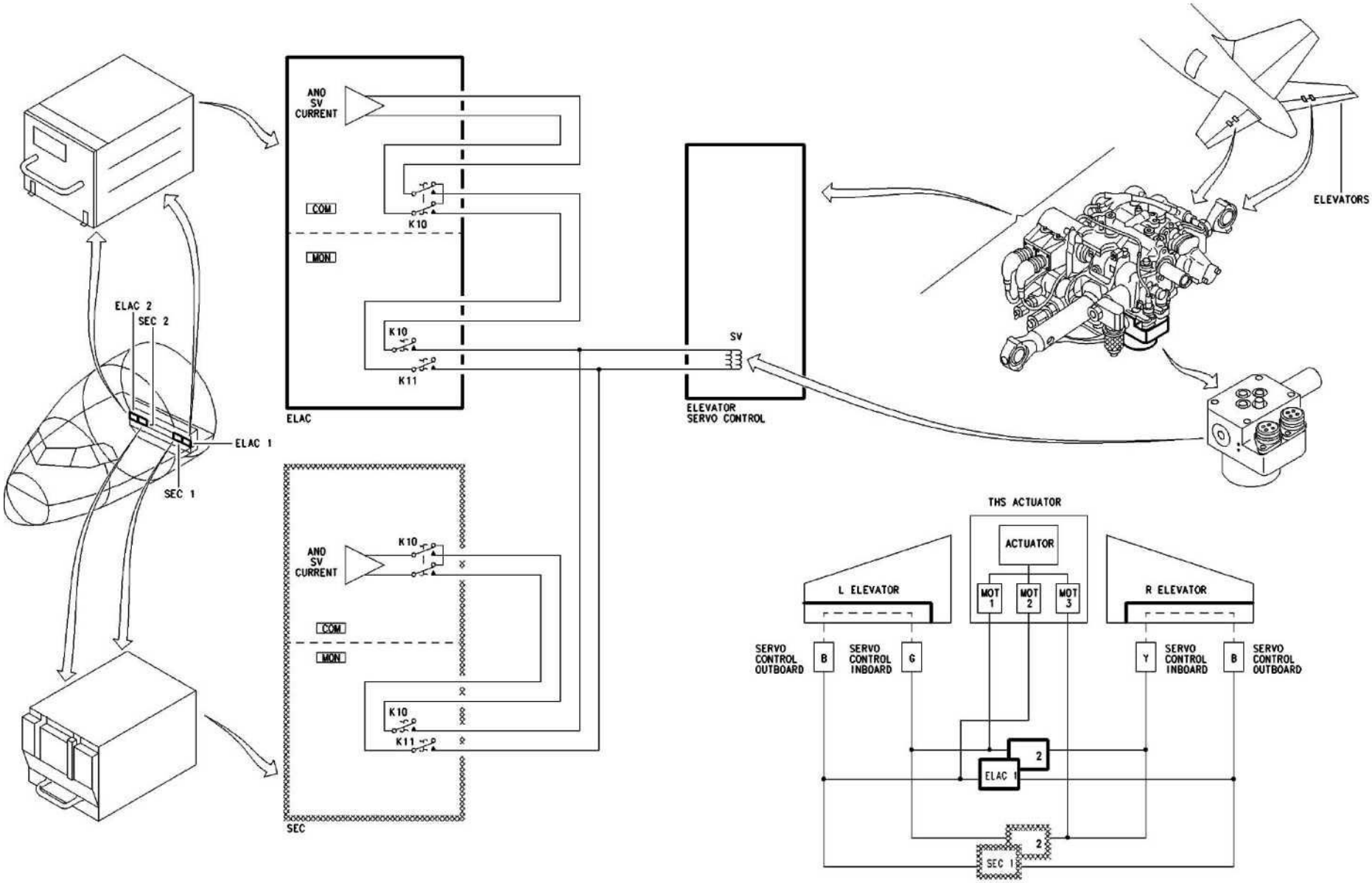


Figure 31 Simplified Schematic

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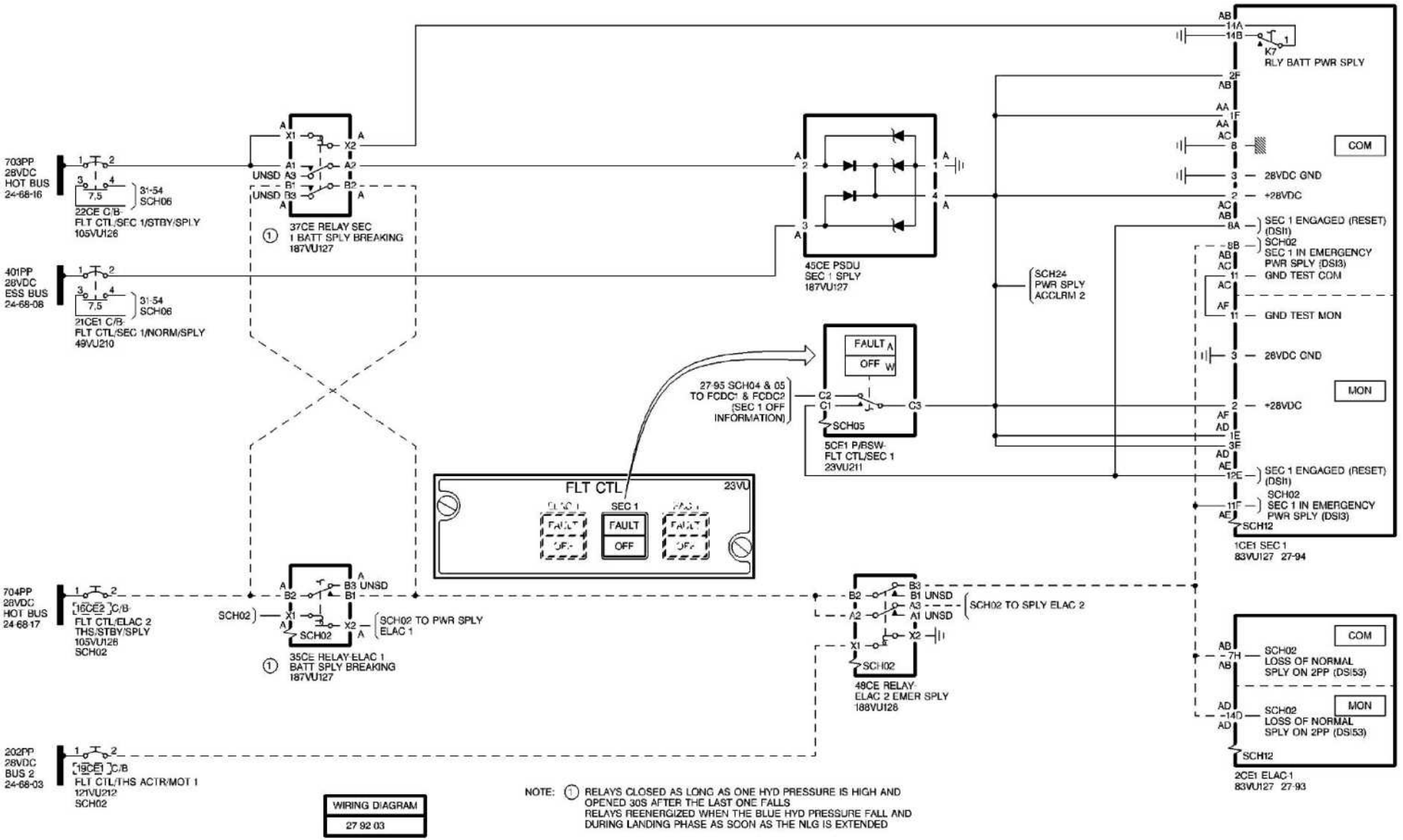


Figure 32 Schematic

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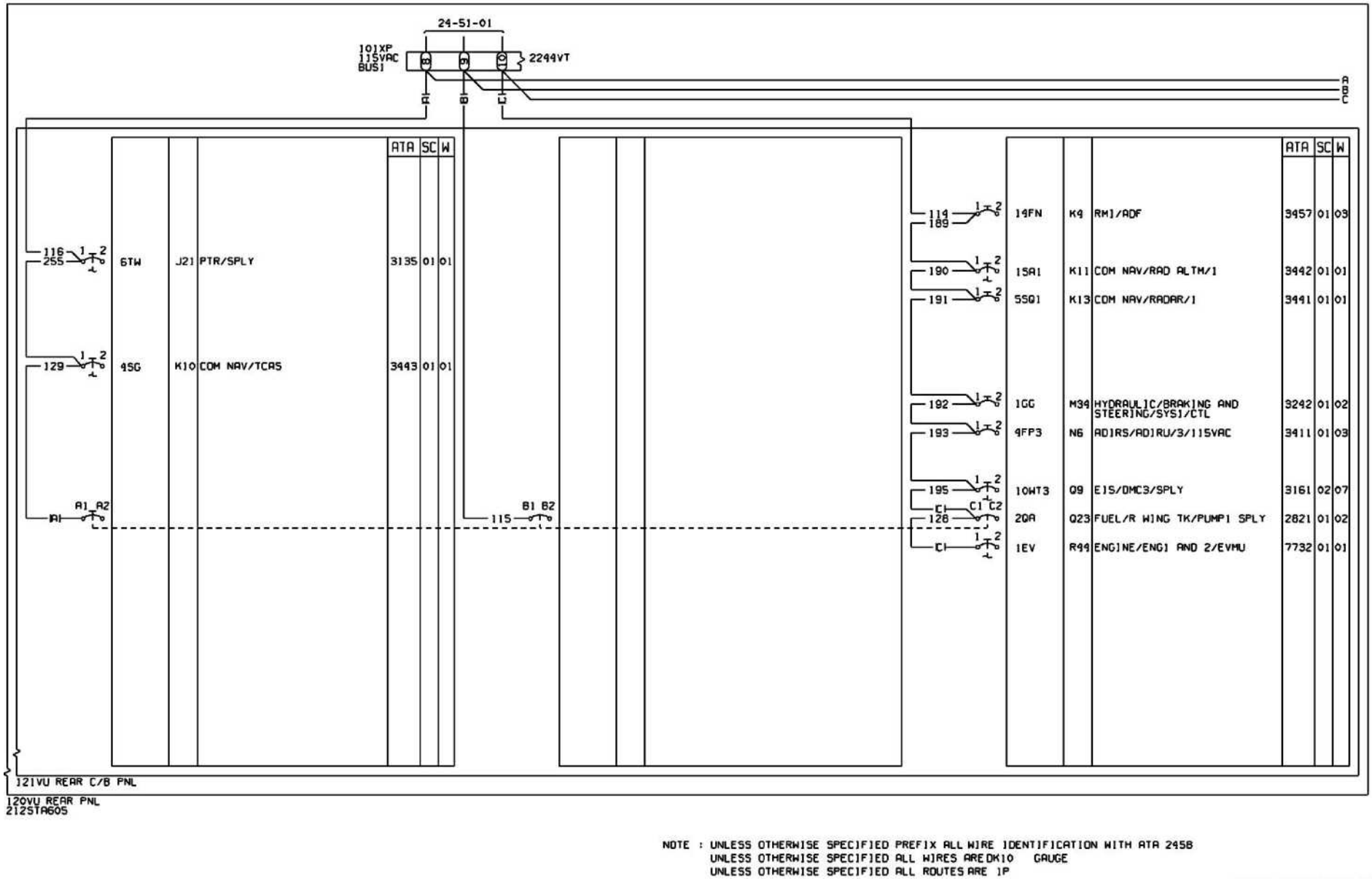


Figure 33 Combined Diagrams

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Numerical Index

The structure of the Numerical Index in the ASM is the same as it is in the AWM. The index includes an overview of the respective aircraft's EFF and Mod Stand.

The example shown below is identical to the Wiring Manual described in the chapter AWM.

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A340 AIRCRAFT SCHEMATIC MANUAL

CHAPTER 23 COMMUNICATIONS

TITLE	CH/SE/SU	SC	PAGE	SH	MVT	DATE	COC OR SB NUMBER	CUSTOMER FSN	REGIST NUMBER
SPEECH COMMUNICATION BLOCK DIAGRAM	23-10-00	01	101			JAN98		DLH051	D-AIGA
								DLH052	D-AIGB
								DLH053	D-AIGC
HF SYSTEM HF,1 SYSTEM PWR & CTL	23-11-00	01	101		R	OCT06		DLH054	D-AIGD
								DLH055	D-AIGF
								DLH056	D-AIGH
HF SYSTEM HF,1 SYSTEM PWR & CTL	23-11-00	01	104		R	OCT06		DLH057	D-AIGI
								DLH058	D-AIGK
HF SYSTEM HFDR, 1 SYSTEM PWR & CTL	23-11-00	01	105		R	OCT06		DLH101	D-AIGL
								DLH102	D-AIGM
								DLH103	D-AIGN
HF SYSTEM HF,2 SYSTEM PWR & CTL	23-11-00	02	101		R	OCT06		DLH104	D-AIGO
								DLH105	D-AIGP
								DLH106	D-AIGR
HF SYSTEM HF, 2 SYSTEM PWR & CTL	23-11-00	02	103		R	OCT06		DLH107	D-AIGS
								DLH108	D-AIGT
								DLH109	D-AIGU
HF SYSTEM HFDR, 2 SYSTEM PWR & CTL	23-11-00	02	104		R	OCT06		DLH110	D-AIGV
								DLH111	D-AIGW
								DLH112	D-AIGY
HF SYSTEM 429 BUS INPUT/ OUTPUT HFDR, 1	23-11-00	07	102			APR06		DLH113	D-AIGZ
								DLH114	D-AIFA
								DLH115	D-AIGX
HF SYSTEM 429 BUS INPUT/OUTPUT HFDR, 2	23-11-00	08	102			APR06		DLH116	D-AIFB
								DLH117	D-AIFC
HF SYSTEM HFDR1 MODE S ADDRESS	23-11-10		101			APR06		DLH118	D-AIFD
								DLH119	D-AIFE
								DLH120	D-AIFF
HF SYSTEM HFDR2 MODE S ADDRESS	23-11-11		101			APR06		DLH201	D-AIHB
								DLH202	D-AIHC
VHF SYSTEM VHF, 1	23-12-00	01	102			JAN01	SB23-4069	DLH203	D-AIHA
								DLH204	D-AIHE
								DLH205	D-AIHF
VHF SYSTEM VHF, 1	23-12-00	01	103			APR06		DLH206	D-AIHD
								DLH207	D-AIHH
								DLH208	D-AIHI
VHF SYSTEM VHF, 2	23-12-00	02	103			APR05	SB23-4069	DLH209	D-AIHK

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N=NEW PAGE — INSERT IN MANUAL
D=DELETED PAGE — REMOVE AND DESTROY

X PAGE EFFECTIVE FOR A/C
X A/C MOD BEFORE DELIVERY THEREFORE
- SB NOT APPLICABLE OR WITHOUT EFFECT

/ MOD EFFECTIVE FOR A/C
X A/C MOD AFTER DELIVERY POST
+ SB RETROFIT

CUSTOMER DLH
NUMERICAL INDEX

PAGE 1 1- 2
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Figure 34 Numerical Index

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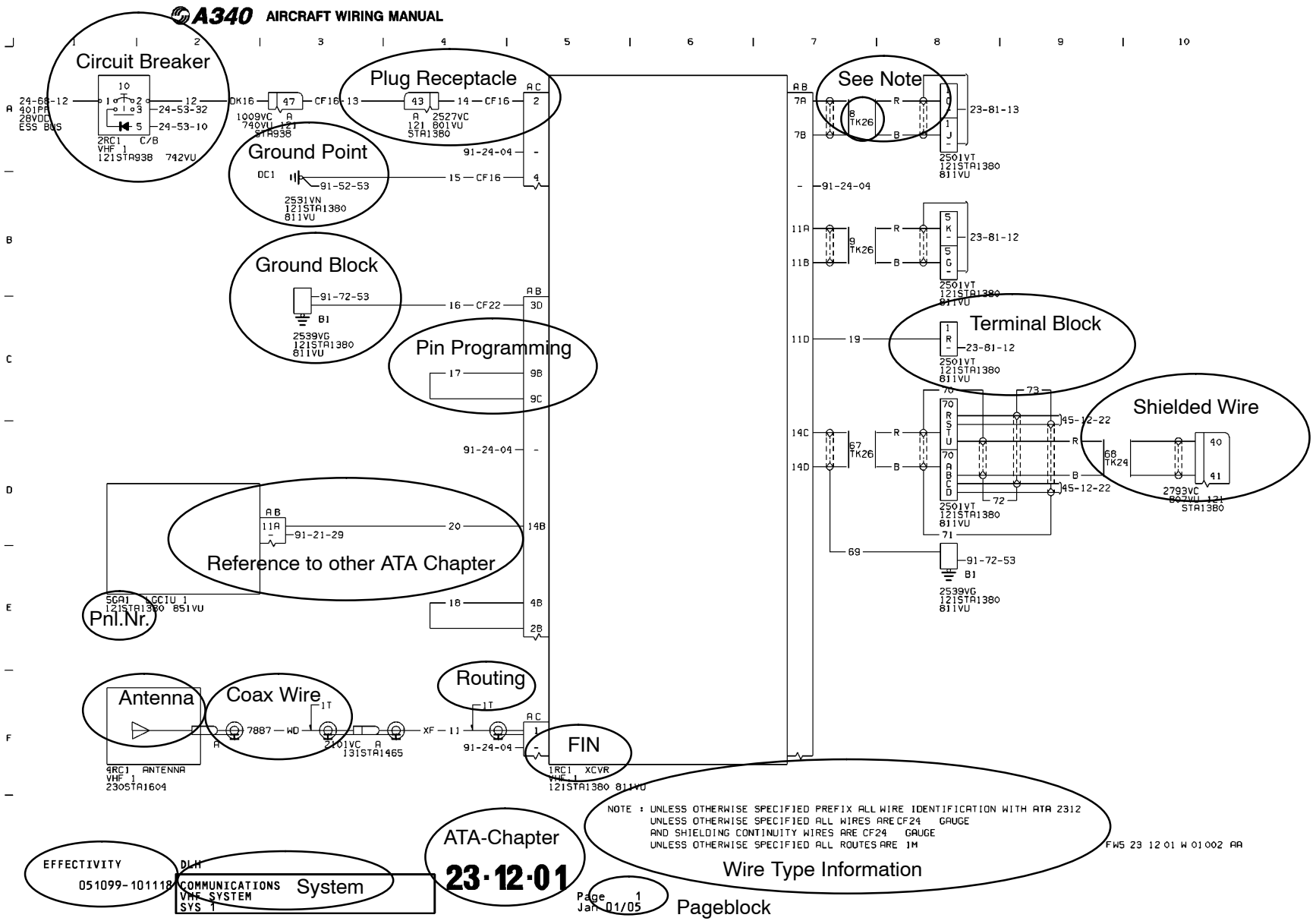


Figure 35 Wiring

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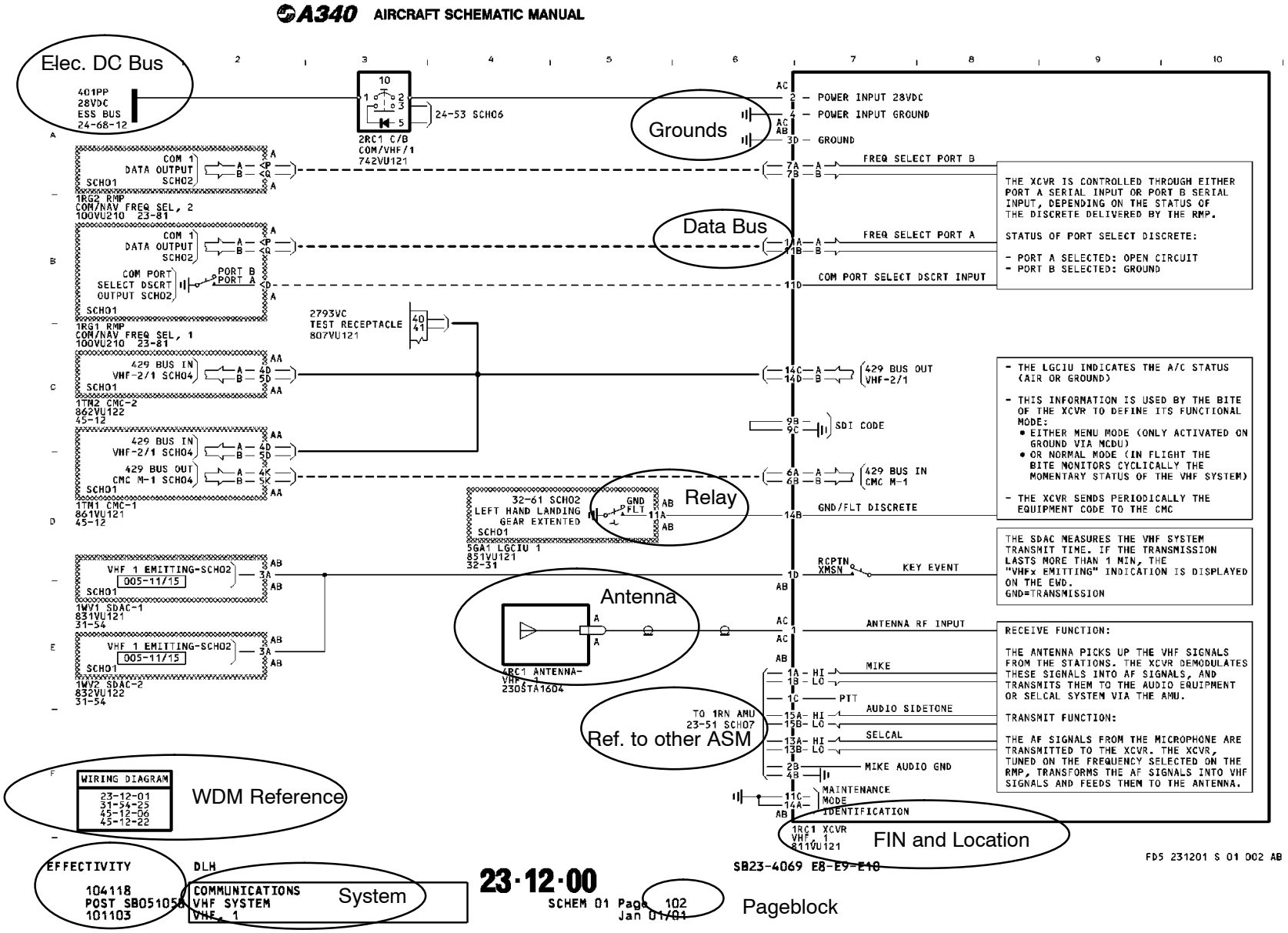


Figure 36 Schematic

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ESPM (ELECTRICAL STANDARD PRACTICES MANUAL)

General

Content

The Electrical Standard Practices Manual (ESPM) contains detailed data and procedures for electrical installations in every aircraft of the AIRBUS Family. The Standard Practices in this Manual describe how to perform Maintenance and Repair Work on electrical/electronic components.

The ESPM consists of the following Chapters:

- General, How to use (00–INTRO)
- Indexes (20–00–00)
- Safety Practices (20–10–00)
- Tools (20–25–XX)
- Chapter consisting of Standard Regulations and Recommendations (20–3X–XX):
  - Specific areas (20–31–XX)
  - Identification/Marking (20–32–XX)
  - Wire bundles (20–33–XX)
- Chapters consisting of Standard Electrical Items and Connecting Parts incl. description (P/N Identification and Characteristics) and relevant Procedures (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)
- Chapters consisting of Maintenance Processes (20–5X–XX):
  - Standard Processes (20–51–XX)
  - Inspection/Check and Test (20–52–XX)
  - Repair Processes (20–53–XX)
  - Protection during Maintenance Checks (20–54–XX)
  - Cleaning (20–55–XX)

Effectivity

The ESPM is applicable to every aircraft of the AIRBUS Family and their individual customers. Therefore every page is labelled „Eff ALL“ on the bottom left hand corner.

Comparison to other Manuals:

The Standard Manual (SM) or Process and Material Specification Manual (PMS) assists the user in finding information about Characteristics, Shop Processes or comprehensive information about the desired P/N.

The Equipment List, as part of the Aircraft Wiring List (AWL), provides the necessary information about the status of the P/N and in which aircraft the respective part is installed. It is sorted by FINs.

The Aircraft Wiring Manual (AWM) and the Aircraft Schematics Manual (ASM) provide information about wiring diagrams as well as how electrical components relate to each other.

The Aircraft Maintenance Manual (AMM) contains information about Service, Repair, Replacement, Adjustment, Inspection and Checks of every component and system.

The Trouble Shooting Manual (TSM) gives information about trouble shooting procedures and corrective actions.

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Damage identification and information gathering

The most common process in Damage Identification and Repair Work is described in the following.

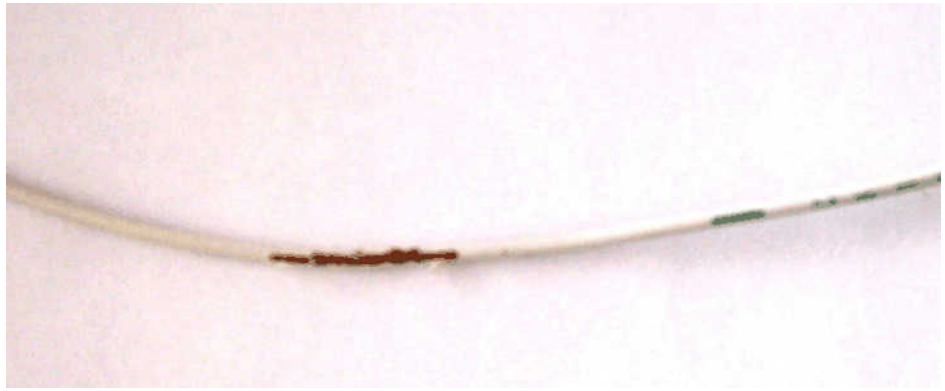


Figure 37 Damage on a CF 16 Wire

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AIRBUS

ELECTRICAL STANDARD PRACTICES MANUAL

INDEXES - DESCRIPTION AND OPERATION

1. Alphabetical Index

A		
MAIN KEY WORD	SECONDARY KEY WORD	TOPIC NUMBER
Wire	Harness Installation	20-33-10
	Harness Attachment	20-33-40
	Harness Protection	20-33-30
	Cleaning	20-55-20
	Description and Identification	20-32-21
	Functional Identification	20-32-22
	Locking procedure for Circular Connectors	20-51-12
	Locking procedure for Terminal Blocks	20-51-15
	Repair	20-53-20
	Spare Wire - Descrition and Installation	20-33-32
	Spare Wire - (Re) Connection	20-33-11

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Figure 38 Alphabetical Index

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3. Repair steps

CAUTION : BE CAREFUL IF THE DAMAGED CABLE IS A SENSITIVE CABLE OR AN EFCS CABLE. THE REPAIR CLASSIFICATION (GRADE) CAN BE DIFFERENT.

When a standard electrical item is damaged, do these steps:
- Find the damaged cable and its identification (P/N, type, sensitive/EFCS)
- Find and correct the cause(s) of the damage.
- Examine the wire to find the type of damage.

- You can have one or more repair types:
  Refer to the repair classification and select the repair depending on the repair grade.

Grade 0: no repair is necessary (permitted damage).
Grade 1: permanent repair.
Grade 2: a check of the repair is necessary at each C-check.
(Refer to chapter 20-52-10).
Grade 3: temporary repair only, replace with new wire in accordance with the basic definition within 20 months but preferably at subsequent C check.
Grade 4: no repair is permitted (replace the wire).

Figure 39 Repair Steps

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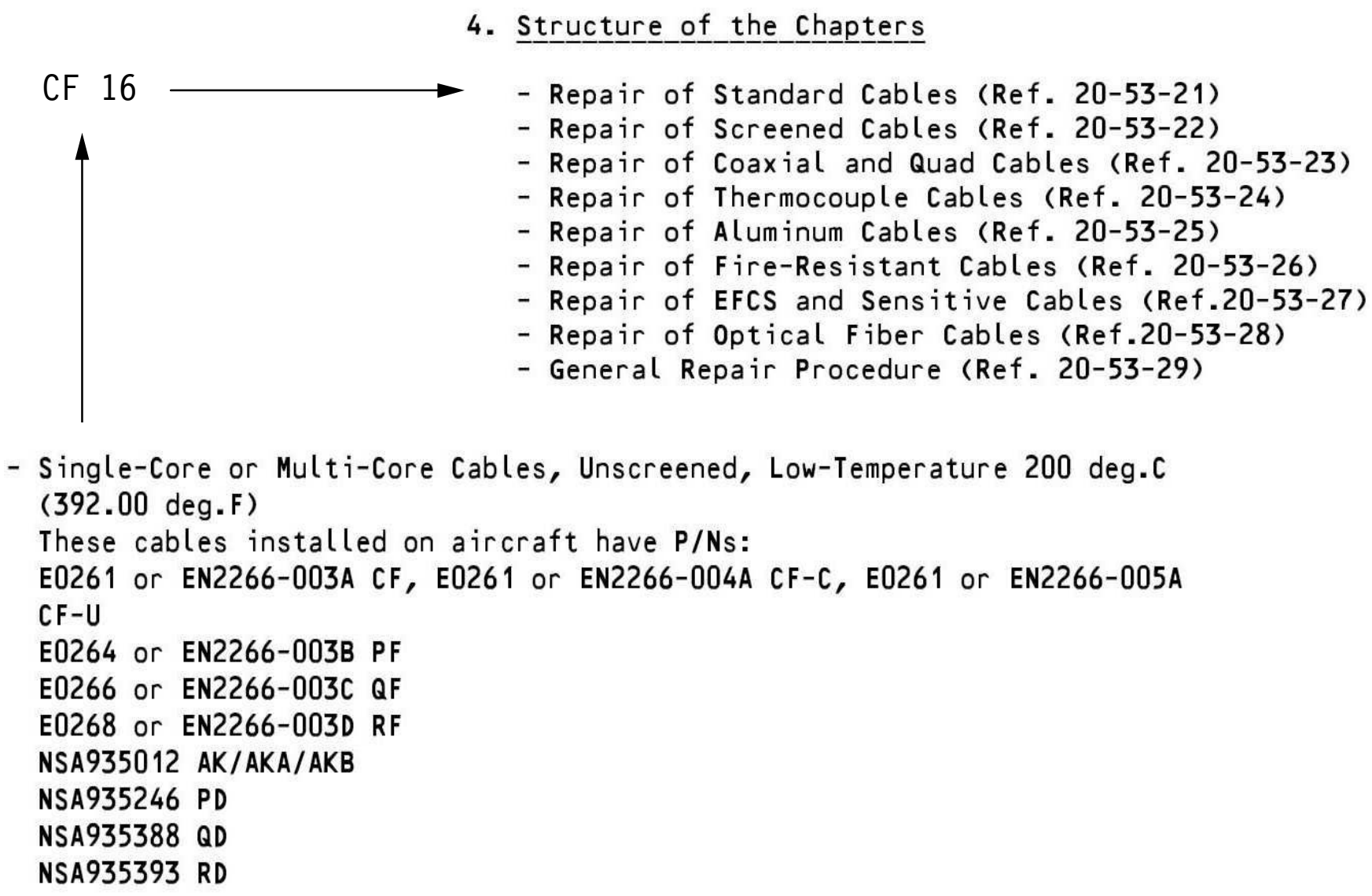


Figure 40 Standard Cables Repair

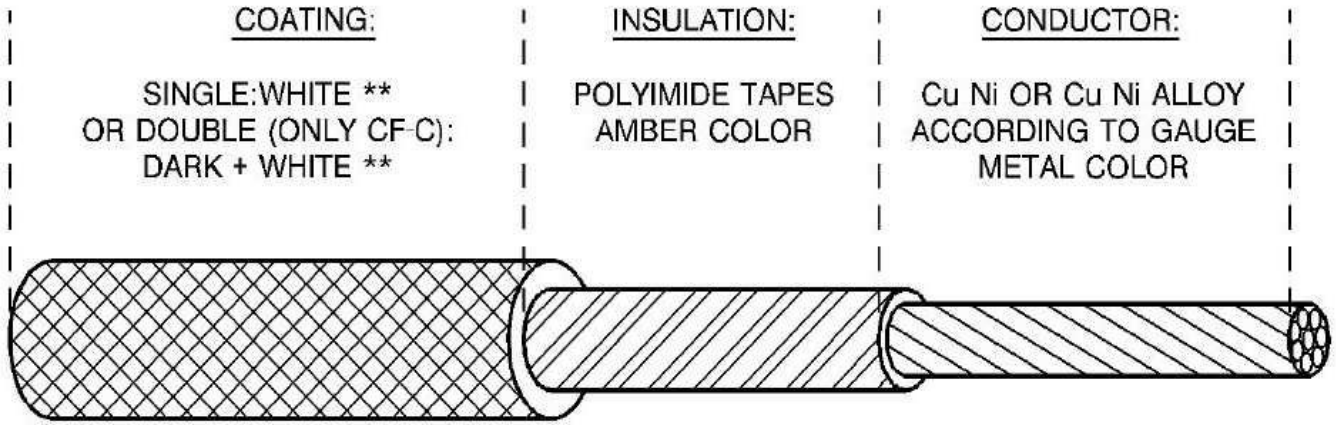
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AIRBUS®

ELECTRICAL STANDARD PRACTICES MANUAL

TYPE: AKA, AKB, CF, CF-C, CF-U, PD, PF, QD, QF, RD, RF, AK(150°C/302°F)



**IN SOME CASES, THE COATING CAN HAVE A DIFFERENT COLOR

Figure 41 Table for Damage Assessment (1)

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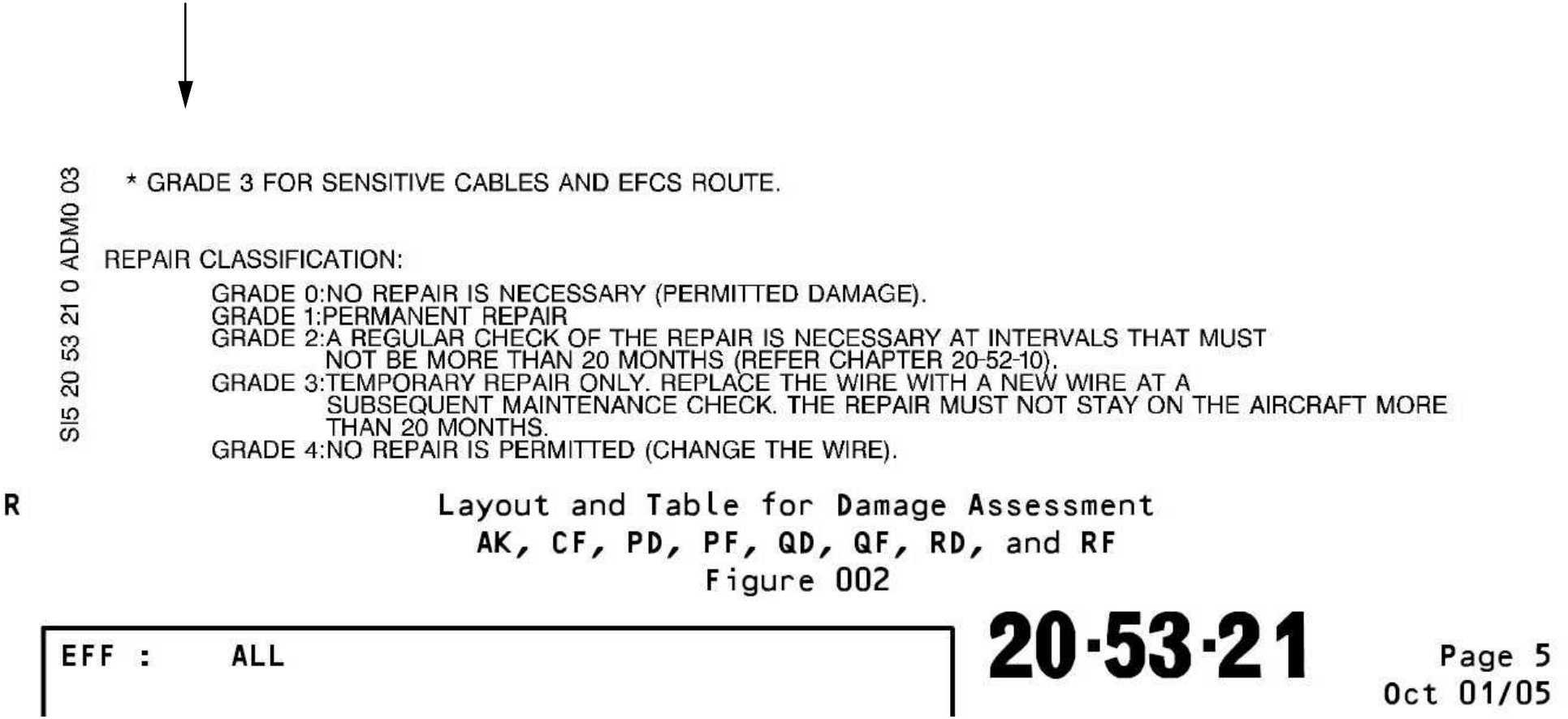
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DAMAGE LOCATION	DAMAGE ASSESSMENT	GRADE	REPAIR TYPE (ORDER OF PRIORITY)
COATING:	-SURFACE SCRATCHES ON OUTER COATING: YOU CAN SEE POLYIMIDE INSULATION BUT IT IS NOT DAMAGED. -CASE OF CF-C ONLY: YOU CAN SEE THE DARK COATING. YOU CAN SEE POLYIMIDE INSULATION THROUGH THE TRANSPARENT COATING BUT THE COATING IS NOT DAMAGED.	0	NO REPAIR (CABLE SATISFACTORY IN THIS CONDITION)
INSULATION:	-SURFACE NICKS IN POLYIMIDE: YOU CANNOT SEE THE CONDUCTOR.	1	1-B
	-DEEP NICKS IN POLYIMIDE: YOU CAN SEE THE CONDUCTOR BUT IT IS NOT DAMAGED.	1*	1-C 1-D 1-E
	-MIDDLE OF CABLE: SEPARATION OF AMBER COLORED POLYIMIDE TAPE (CHEMICAL AGRESSION).	4 1*	REPLACE THE CABLE 1-E
	-END OF CABLE: SEPARATION OF AMBER COLORED POLYIMIDE TAPE (CHEMICAL AGRESSION).	1	1-B
CONDUCTOR:	-DAMAGED STRANDS OR CUT CONDUCTOR: YOU CAN SEE THE COPPER (NICKEL DAMAGED) OR THE STRANDS ARE CUT.	1*	1-C 1-E

Figure 42 Table for Damage Assessment (2)

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Figure 43 Table for Damage Assessment (3)

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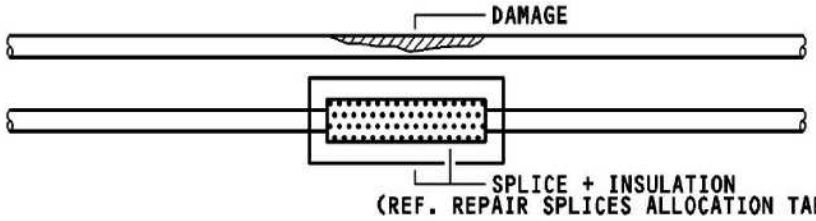
REPAIR TYPE		GENERAL DESCRIPTION	CONDITIONS OF APPLICATION
1	A	-WRAP WITH PTFE TAPE MATERIAL No 05-116	-DAMAGE ≤ 300mm(11.8110in.)
	B	-DISCONNECT THE CABLE TERMINATION -INSTALL THE APPLICABLE HEAT-SHRINK SLEEVE ON THE DAMAGE (REF. SLEEVES ALLOCATION TABLE)	-LENGTH MUST BE EASY TO REMOVE -DAMAGE ≤ 300mm(11.8110in.)
	C	-CUT THE WIRE AT THE DAMAGE -ENGAGE THE APPLICABLE HEAT-SHRINK SLEEVE OR STANDARD SLEEVE ON THE CABLE (REF. REPAIR SPLICES ALLOCATION TABLE) -INSTALL THE APPLICABLE SPLICE ON THE DAMAGE (REF. REPAIR SPLICES ALLOCATION TABLE) -INSTALL THE SLEEVE ON THE SPLICE	-LENGTH OF DAMAGE IS LESS THAN LENGTH OF THE SPLICE -IF THERE ARE MORE THAN 3 REPAIR SPLICES ON THE SAME WIRE, REPLACE THE CABLE
			
		MAKE SURE YOU USE THE CORRECT SLEEVE FOR THE AIRCRAFT TEMPERATURE ZONE.	

Figure 44 Repair Type (1)

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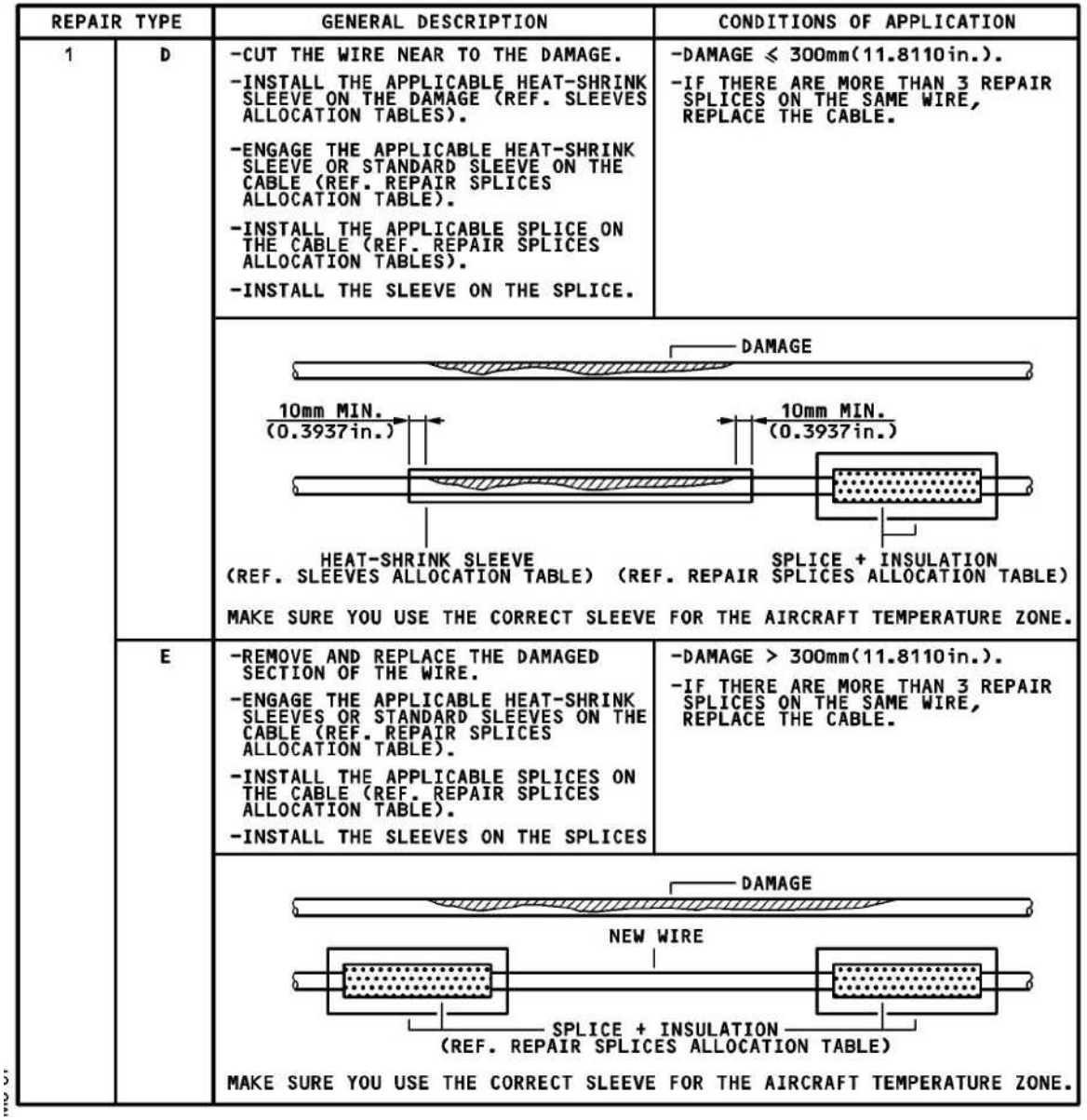


Figure 45 Repair Type (2)

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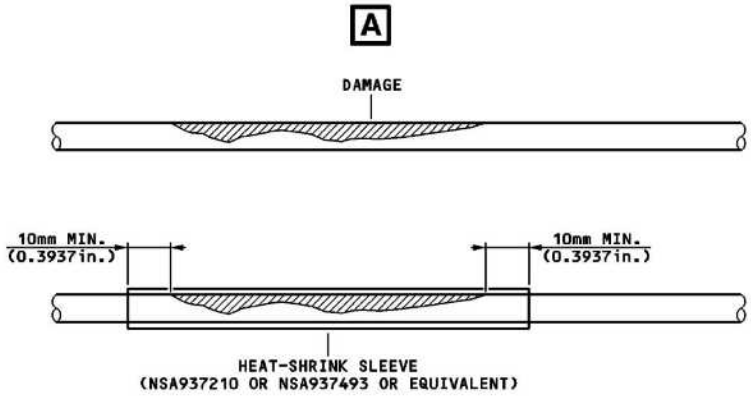
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LOW-TEMPERATURE CABLE TYPE:

SINGLE CORE: AK/AKA/AKB, CF, CF-C, CF-U
MULTI-CORE: PD, PF, QD, QF, RD, RF

CABLE GAUGE	SLEEVE NSA937210MBXX	SLEEVE NSA937493-XXX
26	01	001
24	01	001
22	01 OR 02	001
20	01 OR 02	001
18	01 OR 02	001
16	01 OR 02 OR 03	001 OR 002
14	02 OR 03	001 OR 002
12	02 OR 03 OR 04	001 OR 002
10	03 OR 04	001 OR 002 OR 003

NOTE: YOU CAN USE NSA937210MBXX (SEE DETAIL A)
OR NSA937493-XXX (SEE DETAIL A)
OR EQUIVALENT.



Repair Sleeves for Low-Temperature Cables - Allocation Table
Method 1B/1D only

E0360RKXXXX
NSA936803RAXXXX

COPPER CABLE				WIRE GAUGE	SPLICE
LOW TEMPERATURE (200°C/392°F)		HIGH TEMPERATURE (260°C/500°F)			
WIRE	CABLE *	WIRE	CABLE *		
AK/AKA/AKB CF/CF-C/CF-U	PD/PF QD/QF RD/RF	DE/DG DK/DK-C/DK-U DM/DR	DRB/DRC/DRD PE/PG/PN QE/QG/QL RE/RH/RK	26-24	RA2324 RA2424 RK2424
				22-20	RA2322 RK2220
				18-16	RA1816 RK1816
				14	RA1314 RK1614
				12	RA1112 RK1210
				10	RA1210 RK1210
				8	RA0808 RK0808
				6	RA0606 RK0606

NSA936809RGXXXX

COPPER CABLE				WIRE SECTION ** (mm²)	SPLICE	SLEEVE NSA937493
LOW TEMPERATURE (200°C/392°F)		HIGH TEMPERATURE (260°C/500°F)				
WIRE	CABLE *	WIRE	CABLE *			
AK/AKA/AKB CF/CF-C/CF-U	PD/PF QD/QF RD/RF	DE DK/DK-C/DK-U DM/DR	DRB/DRC/DRD PE/PG/PN QE/QG/QL RE/RH/RK	0.24 TO 1.3	RG0001	001
				1.3 TO 2.6	RG0002	002
				2.6 TO 6.6	RG0003	
				6.6 TO 10.5	RG0004	003
				10.6 TO 16.7	RG0005	004

* THE SPLICE ARE GIVEN ONLY FOR THE REPAIR OF THE WIRE(S) INCLUDED IN THESE CABLES.

** THE WIRE SECTION IS THE SUM OF THE CORE SECTIONS OF THE WIRES TO CONNECT.
(e.g.: GAUGE 18 WIRE = 0.93mm2 GAUGE 20 WIRE = 0.6mm2
=> 0.93 + 0.6 = 1.53mm2 => USE RG0002)

SI5 20 53 21 0 AVM0 03

Repair Splices - Allocation Table

Figure 46 Repair Methods

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Information gathering splice

In the following example the part number P/N: NSA 936803 of a Splice is known.

The NSA Index tells you if the Splice is listed.

You may look for “Splice” in the Alphabetical Index alternatively. It will tell you in which part of the ESPM the Splice is listed!



Figure 47 Splice NSA 936803

AIRBUS
ELECTRICAL STANDARD PRACTICES MANUAL

NSA	TOPIC NUMBER
NSA936603	20-42-00
NSA936603	20-42-13
NSA936604	20-42-00
NSA936604	20-42-13
NSA936803	20-43-11
NSA936805	20-43-11
NSA936807	20-43-11
NSA936808	20-43-12
NSA936809	20-43-12

Figure 48 NSA Index

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S		
MAIN KEY WORD	SECONDARY KEY WORD	TOPIC NUMBER
Splice	Allocation Table for wire repair	20-53-29
	High temperature (RA, RK)	20-43-11
	Low temperature (RE)	20-43-11
	Parallel	20-43-12
	RB for Aluminum wire	20-43-11
	RC for Copper/Aluminum wire	20-43-11
	Repair	20-53-53
	Sealed	20-43-11
	Separable cable splice	20-43-13
→	Splices and Pressure Seal	20-43-00

Figure 49 Alphabetical Index

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Information gathering splice (Contd.)

You will find different Splices for different purposes in the General Overview Splices (Figure 65).

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ELECTRICAL STANDARD PRACTICES MANUAL

SPLICES AND PRESSURE SEALS - DESCRIPTION AND OPERATION

1. General

This chapter concerns the description, installation and identification of splices and pressure seals used on aircraft.

A. Splices

(1) Butt splices (Ref. 20-43-11)
ABS0249
E0360
E0541
NSA936803
NSA936805
NSA936807
NSA936813

(2) Parallel splices (Ref. 20-43-12)
NSA936808
NSA936809

(3) Crimp-end splices (Ref. 20-43-13)
E0301
E0543
NSA936830

(4) Miscellaneous junction items (Ref. 20-43-19)
E0535

Figure 50 Overview of Splices

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Information gathering splice (Contd.)

The next step assists to get information about Temperature limits, Handling/Processing and Tools for Splice NAS 936803.

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ELECTRICAL STANDARD PRACTICES MANUAL

BUTT SPLICES - DESCRIPTION AND OPERATION

1. General

Butt splices installed on aircraft have the codes that follow:

- ABS0249 Butt splice
- E0360RK High temperature butt splice
- E0541 Butt Splice
- NSA936803RA High temperature butt splice for copper wires
- NSA936805RE Low temperature butt splice for copper wires
- NSA936807RB Butt splice for aluminum wires
- NSA936813RH Butt splice for aluminum wires or for copper/aluminum wires.

NSA936803

A. P/N Identification

```
     NSA936803   RA2220
          |         |
          |         ------------- Reference No.|  R = Splice Code
          |                                    |  A = Type
          |                                    | 22 = Sequence No.
          |                                    | 20 = Wire Gauge Reference
          |
          ----------------------- Standard P/N
```

B. P/N Characteristics

NOTE : NSA936803 is an assembly which has:
- an adapter NSA936810-XX
- a sleeve NSA936811-XX
- a splice NSA936812-XX.
  Two types of barrels can be available but the installation is the same.

(1) Temperature
Minimum operating temperature is -55 deg.C (-67.00 deg.F).
Maximum operating temperature is 260 deg.C (500.00 deg.F).

C. Connection Procedure
(Ref. Fig. 007, 008)

(1) Insulation
Do the insulation with the crimp sleeve supplied.
Install this sleeve on the wire before stripping.
Sleeve crimping is done after splice crimping.

(2) Wire stripping
- Use the applicable tool.
- Strip the wire to the length "A".

(3) Crimping
- Use the applicable crimping tool related to the splice reference number.
- Make sure that the insulation sleeve is installed on the wire.
- If necessary, install the adapters on the wire.
- For splice RA1212 on a gauge 14 wire only:
  - Put the stripped wire in the ferrule
  - Put the assembly in the splice barrel
  - Tightly hold the wire in the barrel
  - Put the assembly in the crimping tool die

Figure 51 Information on Splices and their Processing

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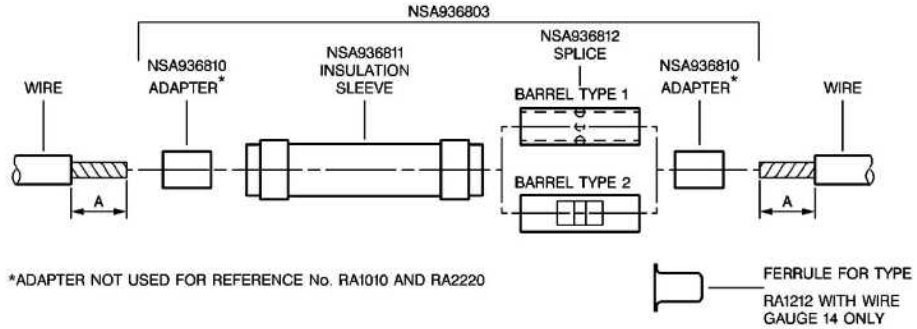
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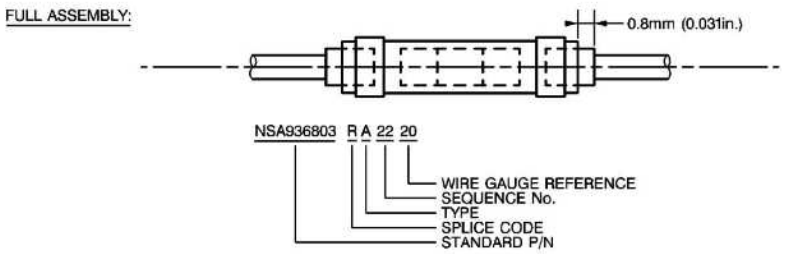
Information gathering splice (Contd.)

This table shows the Wire Gauge, Stripping Length and the appropriate Wire Stripping Tool for the Splice.

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NSA936803RAXXXX

SPLICE	PERMITTED WIRE GAUGE	STRIPPING			
		LENGTH "A" mm (in.)	TOOL		
			NORM	P/N	COLOR
RA2424	26	4.5 (0.177)	STRIPMASTER	45-2020-1	BLUE
RA2324	26-24	4 (0.157)			
RA2322	22-20	5 (0.197)			
RA2222	22	5 (0.197)			
RA2220	20 TO 16	5 (0.197)			
RA1816	18-16	5.8 (0.228)			
RA1514	16-14	5.8 (0.228)		45-1939-1	RED
RA1314	14	6.8 (0.267)			
RA1212	14-12	7.6 (0.299)			
RA1210	12 10	7.6 (0.299)			
RA1112	12	7.6 (0.299)			
RA1010	10	8 (0.315)			
RA0808	8	10.5 (0.413)	AS	9922801500 OR SCALPEL	-
RA0606	6	12.1 (0.476)	-		

Butt Splices - P/N Characteristics and Stripping Tools
NSA936803

Figure 52 Wire Stripping Length and the Appropriate Wire Stripping Tool

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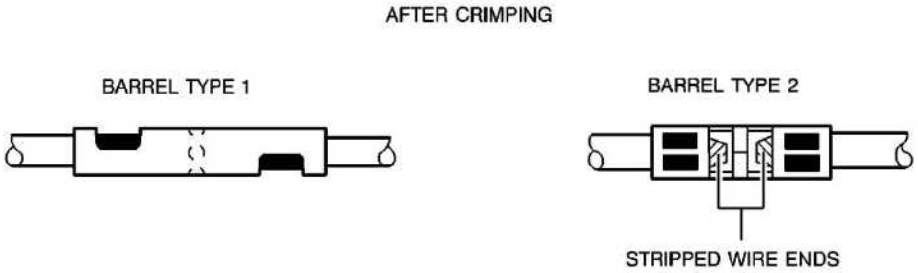
Information gathering splice (Contd.)

The second table contains information about Crimping Tools.

Information about the Crimping Tool can be found in the Tools Description. Identify the P//N of the Tool. Go to the MISCELLANEOUS INDEX and find the Reference in the ESPM. The same applies for the Stripping Tool.

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NSA936803RAXXXX

SPLICE	RING COLOR CODE	PERMITTED WIRE GAUGE	CRIMPING TOOL									
			TOOL			HEAD		DIE				
								CONDUCTOR		SLEEVE		
			NORM	P/N	COLOR	NORM	P/N	NORM	P/N	NORM	P/N	
RA2424	ALU	26	AMP	45730	YELLOW	-	-	-	-	-	-	
RA2324	YELLOW	26-24		45730		-	-	-	-	-	-	
RA2322	ALU	22 20		46467	WHITE	-	-	-	-	-	-	
RA2222	ALU	22		46467		-	-	-	-	-	-	
RA2220	ALU	16 TO 22		46467		-	-	-	-	-	-	
RA1816	RED	18-16		46468	RED	-	-	-	-	-	-	
RA1514	BLUE	16-14		46469	BLUE	-	-	-	-	-	-	
RA1314	BLUE	14		46469		-	-	-	-	-	-	
RA1212	YELLOW	14-12		46470	YELLOW	-	-	-	-	-	-	
RA1210	YELLOW	12-10		46470		-	-	-	-	-	-	
RA1112	YELLOW	12		46470		-	-	-	-	-	-	
RA1010	YELLOW	10		46470		-	-	-	-	-	-	
RA0808	RED	8		69355	-	-	-	-	-	-	-	
				69064 OR 69120 OR 781019	-	AMP	69099	AMP	69216	AMP	69211-1	
RA0606	BLUE	6		69064 OR 69120 OR 781019		AMP	69099	AMP	69217	AMP	69212-1	

Figure 53 Table to Choose the Crimping Tool

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Information gathering splice (Contd.)

The last part of the description explains everything about the Crimping Process.

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- Make sure that the splice is in the correct position against the positioner

NOTE : For different barrel types, the position against the positioner is not the same.

- Close the crimping tool.
- For other splice references:
  - Put one end of the splice in the crimping tool die
  - Make sure that the splice is in the correct position against the positioner.

NOTE : For different barrel types, the position against the positioner is not the same.

- Close the crimping tool handles sufficiently to hold the splice in position but do not crimp at this step.
- Put the stripped end of the wire in the splice barrel.
- Crimp the splice. To do this, fully close the tool handles until the safety ratchet releases.
- Remove the splice from the crimping tool.
- Do the same procedure from step 2 for the other side of the splice.

NOTE : For barrel type 1 only, the second crimping operation must be done opposite to the first one. For barrel type 2, the two crimping operations must be along the brazing seam centerline and on the same side.

- Do a check to make sure that the splicing is correct.

(4) Insulation sleeve crimping
- Put the insulation sleeve in the correct position.
- Install the sealing adapters below the sleeve. They must show out of the sleeve along a dimension of 0.80 mm (0.0314 in.).
- Put one side of the insulation sleeve in the crimping die.
- Apply a light force to the tool handles. Do this carefully so as not to change the position of the assembled items.
- Crimp the sleeve. To do this, fully close the tool handles until the ratchet releases.
- Remove the assembly from the crimping tool.
- Do the same procedure from step 2 for the other end of the sleeve.
- Do a check to make sure that the sleeves are in the correct condition.

Figure 54 Crimping Process of Splices and Sleeves

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ACRT (ADDITIONAL CROSS REFERENCE TABLE)

General

Content

This table assists the IPC by using cross references.

You will find exchangeabilities between FIN and P/N resp. between P/N and P/N in this table.

You will find subsections of this table in the following.

1. THE STANDARD CROSS–REFERENCE TABLE (NON INTERNATIONAL STANDARDS)
2. THE LIST OF THE FUNCTIONAL ITEM NUMBERS (FIN)
3. X FILE (LOCAL MANUFACTURE CROSS REFERENCE TABLE)
4. IPC LAMPS, FUSES IDENTIFICATION
5. INTERCHANGEABILITY CONDITION DOCUMENT

ATTENTION: This table is applicable to every A 340 fleet and is not assigned to a certain customer!

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AIRCRAFT : A340

ADDITIONNAL CROSS REFERENCE TABLES
FUNCTIONAL ITEM NUMBERS

PAGE : 30948

SORTED BY : P/N

CUSTOMER : ALL

DATE : APR.01/09

PART NUMBER	F.I.N	KEYWORD	CSN	A/C EFFECTIVITY SERIAL NBER	OVERLENGTH PN AND OPTIONAL PN
NSA936501TA2004	5379VN	TERMINAL	52 31 24 10 080	01960197 01990199 02010202 02040204 02070208 02100210 02120218 02200221 02250225 02270228 02330233 02350237 02390239 02420243 02450246 02520252 02570257 02600260 02630264 02680268 02700270 02730274 02780278 02800280 02820282 02890289 02920292 02970297 03020302 03040304 03070307 03100310 03180319 03210321 03250325 03270327	

IPC REFERENCE:
ATA
PAGE
FIGURE

Figure 55 Cross Reference between P/N and FIN

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ARCT (CONTD.)

This list is particularly suitable to identify P/Ns of Lamps and CBs.

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A/C : A340 ADDITIONNAL CROSS REFERENCE TABLES

IPC LAMPS, FUSES IDENTIFICATION

PAGE : 1

CUSTOMER : ALL

DATE : APR.01/09

FUNCTIONAL DESIGNATION SYSTEM / FUNCTIONAL DESCRIPTION	NEXTHIGHER ASSEMBLY PN	BASIC KEYWORD	BASIC P/N	BASIC FSCM	OPTIONAL P/N	OPTIONAL FSCM
*2121- CABIN AIR DISTRIBUTION AND RECIRCULATION						
C/B	E0415C3LM009	LAMP	E0530-01	F5442	0L718-297	S3774
		LAMP	E0530-01	F5442	0L718B	S3774
		LAMP	E0530-01	F5442	0L718AS15-297	S3774
*2126- AVIONICS EQUIPMENT VENTILATION						
AEVC	E0415C3LM003	LAMP	E0530-01	F5442	0L718-297	S3774
		LAMP	E0530-01	F5442	0L718B	S3774
		LAMP	E0530-01	F5442	0L718AS15-297	S3774
*2128- LOWER DECK CARGO COMPARTMENTS VENTILATION AND COOLING						
P/BSW-CARGO VENT/FWD ISOL VALVE	E0415C3LM002	LAMP	E0530-01	F5442	0L718-297	S3774
		LAMP	E0530-01	F5442	0L718B	S3774
		LAMP	E0530-01	F5442	0L718AS15-297	S3774
CONT-CARGO VENTILATION		LAMP	E0530-01	F5442	0L718-297	S3774
		LAMP	E0530-01	F5442	0L718B	S3774
		LAMP	E0530-01	F5442	0L718AS15-297	S3774
*2131- PRESSURE CONTROL AND MONITORING						
P/BSW-CABIN PREESS/DITCHING	E0415C3LM006	LAMP	E0530-01	F5442	0L718-297	S3774
		LAMP	E0530-01	F5442	0L718B	S3774
		LAMP	E0530-01	F5442	0L718AS15-297	S3774
P/BSW-CABIN PRESS/MODE SEL/AUTO	E0415C3LM004	LAMP	E0530-01	F5442	0L718-297	S3774
		LAMP	E0530-01	F5442	0L718B	S3774
		LAMP	E0530-01	F5442	0L718AS15-297	S3774
*2143- LOWER DECK CARGO COMPARTMENTS HEATING						
SENSOR-DUCT TEMP	E0070B0B07	LAMP	E0029-327	F5442	LN9337-327	D8442
		LAMP	E0029-327	F5442	MS25237-327	96906
		LAMP	E0029-327	F5442	0L327	S3774
		LAMP	E0029-327	F5442	0L327Q	S3774
		LAMP	E0029-327	F5442	2825-28	F1175
		LAMP	E0029-327	F5442	7284-04	D2696
		LAMP	E0029-327	F5442	327	97424
SENSOR-DUCT TEMP	E0415C3LM002	LAMP	E0530-01	F5442	0L718-297	S3774
		LAMP	E0530-01	F5442	0L718B	S3774
		LAMP	E0530-01	F5442	0L718AS15-297	S3774
SELECTOR-TEMP	E0415B3LM088	LAMP	E0530-01	F5442	0L718-297	S3774
		LAMP	E0530-01	F5442	0L718B	S3774
		LAMP	E0530-01	F5442	0L718AS15-297	S3774

Figure 56 IPC Lamps, Fuses Identification List

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SM (STANDARD MATERIAL)

General

Content

This manual describes dimensions and materials of every standard component.

Example: Splice NSA 936803

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AIRBUS

NSA936803

SPLICE - CABLE,
HIGH TEMPERATURE

Issue : S
Date : Feb 06
Page : 1/6

SUMMARY

1 - SCOPE AND FIELD OF APPLICATION
2 - REFERENCES
3 - TERMINOLOGY
4 - REQUIRED CHARACTERISTICS
5 - DESIGNATION
6 - MARKING
7 - TECHNICAL SPECIFICATION
8 - MANUFACTURERS
AMENDMENT RECORD SHEET

1 - SCOPE AND FIELD OF APPLICATION

This standard specifies the dimensions, tolerances, required characteristics and the mass of a cable splice for high temperature.

2 - REFERENCES

2.1 - Referenced documents

ABS0777 : Aerospace series - General technical specification for standard parts.
EN2424 : Aerospace series - Marking of aerospace products.

2.2 - Associated products standard

NSA936810 : Splice - Butt type (sleeve).
NSA936811 : Splice - Butt type (sheath).
NSA936812 : Splice - Butt type (splice).

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NSA936803

Issue : Feb 06
Page : 3

Table 1 - Dimensions, admissible cable, ring colors, mass

ITEM CODE No.	ADMISSIBLE CABLE	RING COLORS	ADMISSIBLE EXTERNAL Ø OF CABLE		NOTE	Mass (g)
			min.	max.		
RA2324	AKB24	Yellow	1,01	1,27		0,45
RA2322	AKB20	Alu.	1,17	1,80		0,65
RA2222	AKB22	Alu.	1,01	1,50		0,60
RA2424	DE24	Alu.	1,25	1,80		0,50
~~RA2220~~	AKB18/DE22 AKB16/DE20	Alu.	1,46	2,05	Splice without sleeve	0,60
~~RA2320~~	DE20	Alu.	1,64	2,20	Use RA2220	0,60
RA1816	DE18/DE16	Red	1,90	2,50		1,65
RA1314	AKB14	Blue	2,10	2,60		1,95
~~RA1514~~	AK14	Blue	Not to be used			1,95
~~RA1614~~	DE14	Blue				1,70
~~RA1414~~		Blue			Splice without sleeve	1,67
RA1112	AKB12	Yellow	2,35	3,02		1,70
RA1212	DE12/DE14	Yellow	2,60	3,00	Splice without rod	3,50
~~RA1312~~	DE12	Yellow	2,93	3,55	Use RA1212	3,60
RA1210	DE10	Yellow	3,17	4,00		4,00
~~RA1010~~	DG10	Yellow	4,06	5,90	Splice without sleeve	3,50
RA0808	DG8/DE8	Red	5,20	7,90		7,20
RA0606	DG6	Blue	6,30	7,80		10,05

Dimensions in mm.

Table 2 – Materials

ITEM CODE No.	MATERIAL
All item code Nos except RA1212	Gold-plated or nickel-plated copper with PTFE insulator
RA1212 only	Nickel-plated copper with PTFE insulator

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Figure 57 SM Excerpt

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EXERCISE FOR AIRBUS MANUALS CAT B

EXERCISE 2 (AIRBUS A 340, D-AIGT)

Entry in TLB:

Stand by compass light u/s, bulb change no help!

Trouble Shooting Result: The compass connection cable is damaged.

Student's Notes:

1.	Find out the correct effectivity for the Lufthansa D-AIGT	
2.	Look for the schematic and copy the ATA-Chapter and the page	
3.	Name the FIN of the Stand by compass	
4.	For safety reason you have to pull the concerning CB, find out the location	
5.	Change over to the AWM and copy the wire number, chapter and the page	
6.	Look for the wire type and the length of the wire (not the GND wire)	
7.	Change over to the ESPM and find out the Airbus partnumber of the concerning wire	

EXERCISE 3 (AIRBUS A 340, D-AIGT)

The Plug 1JC-A of the Blue Electric Hydraulic Pump is burned and has to be exchanged.

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8.	Find out how to repair this wire type	

Student‘s Notes:

1.	Look for the Partnumber of the plug.	

2.	Which CB must be pulled for safety reasons and where is it located?	

3.	Which contacts must be ordered?	

4.	Look for the stripping procedure, the crimping process and the tools needed	

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ATTENTION: YOU WILL FIND THE ANSWERS TO THE CAT B EXERCISE ON THE FOLLOWING PAGE.

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Answers to exercise CAT B

ANSWERS TO EXERCISE 2

1. AWM => 00=> Introduction => Page 3
   > D-AIGT, Fleet S/N: DLH 0108, Version: DLH 03 0008, MSN: 0304
2. ASM => 33–12–00
   > Schem 02, Page 102
3. ASM => 33–12–00 Schem 02, Page 102
   > FIN: 3FC
4. ASM => 33–12–00 Schem 02, Page 102
   > FIN: 1LE1 > C/B-CKPT LT EMER 742VU
5. AWM => 33–12–03 Sheet1/2, Page 2
   > Wire number 3312–0196
6. AWL => Index => 331x => 91–93–31 Page 5
   > Wire type CF 22, length 368 cm
7. ESPM => Alphabetical Index => CF => 20–32–21 Page 9,
   > Partnumber E0261 or EN2266–003A
8. ESPM => Alphabetical Index => Repiar Wire => 20–53–20
   > 20–53–21 Page 3 and on

ANSWERS TO EXERCISE 3

1. E0233–24–10SN (FIN Circuit JC Page 1, AWL Equipment List), ASM 29–22–00 Schem. 11
2. CB 9JC HYD PUMP B CTL 721 VU121
   (ASM 29–22–00 SCHEM11 PAGE 108) or (AWM 29–22–02 Pg 7)
3. E0347DR0801 (Hook up List: Plugs and Receptacles 91–22–03 Page 1)
4. ESPM 20–48–23 Page 1 and on

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