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DOSSIER TECHNIQUE

BACCALAURÉAT PROFESSIONNEL
AÉRONAUTIQUE

OPTION : AVIONIQUE

ÉPREUVE E2 (U2)
EXPLOITATION DE LA
DOCUMENTATION TECHNIQUE

SOMMAIRE

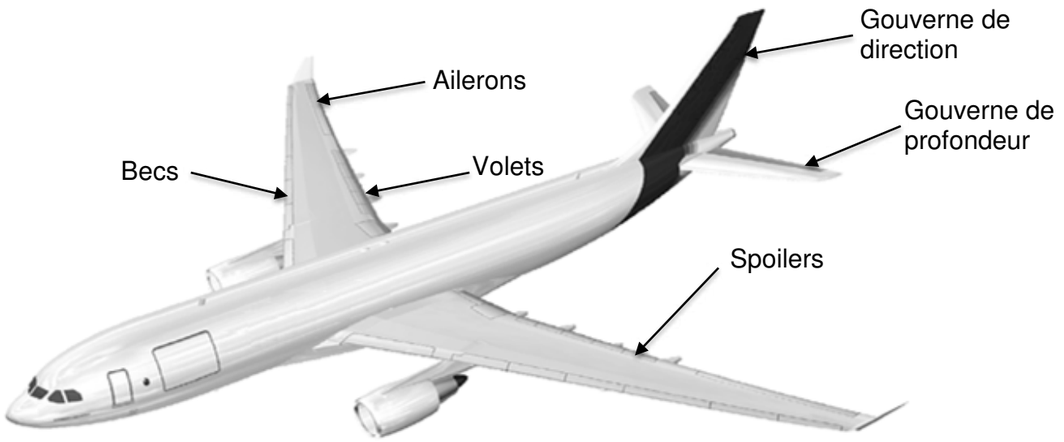
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1. PRESENTATION DES COMMANDES DE VOL

Les commandes de vol sont l'ensemble des éléments de pilotage destinés à maitriser (ou commander) le vol de l'avion. Elles sont composées de commandes de vol primaires et secondaires (voir figure ci-dessous).

Les commandes de vol primaires sont nécessaires pour contrôler l'attitude, la trajectoire et la vitesse un aéronef en toute sécurité pendant le vol et se composent d'ailerons, de spoilers, de gouvernes de profondeur et de gouvernes de direction.

Les commandes de vol secondaires sont destinées à contrôler la portance d'un avion à l'aide des becs de bord d'attaque et des volets.



2. PRESENTATION DES VOLETS

Les volets permettent de faire varier la courbure de l'aile, donc la portance et la traînée.
Ce type de volet est une simple articulation au bord de fuite et occupe une fraction de la profondeur de l'aile de 20 à 30 %.
Le braquage crée une dépression sur l'extrados du volet, qui accroît les dépressions sur l'extrados de l'aile et les surpressions sur l'intrados sont aussi augmentées, principalement sur la seconde moitié du profil.

3. TASK 24-41-00-861-801-A03

Energize the Aircraft Electrical Circuits from the External Power A and B

WARNING: MAKE SURE THAT ALL THE CIRCUITS IN MAINTENANCE ARE ISOLATED BEFORE YOU
SUPPLY ELECTRICAL POWER TO THE AIRCRAFT.
UNWANTED ELECTRICAL POWER CAN BE DANGEROUS.

CAUTION: DO NOT USE A GROUND POWER UNIT WITH A CAPACITY LESS THAN 90 KVA. IF YOU USE A LESS POWERFUL UNIT:
- AN OVERLOAD OF THE GROUND POWER UNIT COULD OCCUR
- IT COULD BE NECESSARY TO RESET MANY COMPUTERS ON THE AIRCRAFT.

1. Reason for the Job

NOTE: There are alternative methods for this procedure. This task gives one of the methods. For the other methods, refer to the other tasks in this Page Block.

2. Job Set-up Information

A. Fixtures, Tools, Test and Support Equipment

REFERENCE	QTY	DESIGNATION
98A24403000000	2	CABLE HOLDING STRAP

B. Work Zones and Access Panels

ZONE/ACCESS	ZONE DESCRIPTION
120	AVIONICS COMPARTMENT

C. Referenced Information

REFERENCE	DESIGNATION
Ref. 12-34-24-860-802-A	Aircraft Grounding (Earthing) for the Maintenance Operations
Ref. 12-34-24-860-802-A01	Aircraft Grounding (Earthing) during Transit, Turnaround or Overnight Stop
Ref. 24-41-00-040-801-A	Visual Inspection of the External Power Receptacle
Ref. 24-41-51-000-802-A	Removal of the External Power Receptacle
Ref. 24-41-51-400-802-A	Installation of the External Power Receptacle
Ref. 31-60-00-860-801-A	EIS Start Procedure
Ref. ESPM 20-55-10	

3. Job Set-up

SUBTASK 24-41-00-860-071-A
A. Aircraft Maintenance Configuration
(1) Make sure that the aircraft is correctly grounded (earthed):
For grounding (earthing), you must obey the local area regulations.
- Ground (Earth) the aircraft if necessary Ref. AMM TASK 12-34-24-860-802.

SUBTASK 24-41-00-480-052-A
B. Attach the CABLE HOLDING STRAP (98A24403000000) on the feeder cables.

SUBTASK 24-41-00-010-051-A
C. Open the access door 121EL to get access to the external power receptacles and the panel 925VU.

SUBTASK 24-41-00-480-053-A
D. Attach the snap hooks of the straps that hold the cables, to the fitting on the aircraft structure.

SUBTASK 24-41-00-420-051-A
E. Connection of the Connectors

WARNING: BEFORE YOU CONNECT THE GROUND POWER UNIT TO THE EXTERNAL POWER RECEPTACLE OF THE AIRCRAFT, MAKE SURE THAT THE EXTERNAL ELECTRICAL POWER SUPPLY IS NOT ENERGIZED. IF IT IS ENERGIZED, DANGEROUS ARCING CAN OCCUR.

CAUTION: MAKE SURE THAT THE CABLE STRAP SUPPORTS ALL THE WEIGHT OF THE CABLE WHEN THE CONNECTOR IS CONNECTED. THIS PREVENTS DAMAGE TO THE EXTERNAL POWER RECEPTACLE.

(1) Do a visual inspection of the external power receptacles and the GPU connectors for corrosion or contamination.
(a) If you find contamination:
- Clean the external power receptacle(s) or the GPU connector(s) Ref. ESPM 20-5510.
(b) If you find corrosion:
- Replace the external power receptacle(s) Ref. AMM TASK 24-41-51-000-802 and Ref. AMM TASK 24-41-51-400-802.
(2) Do a visual inspection of the external power receptacle(s) for overheat damage or cracks Ref. AMM TASK 24-41-00-040-801
(a) If you find burns and/or pits, scratches and/or nibbles, and/or if the pins are not correctly aligned:
- Replace the external power receptacle(s) Ref. AMM TASK 24-41-51-000-802 and Ref. AMM TASK 24-41-51-400-802.
(3) Connect the connectors of the GPU to the external power receptacles of the aircraft.

4. Procedure

SUBTASK 24-41-00-861-053-H

CAUTION: MAKE SURE THAT THE CONNECTOR OF THE GROUND POWER UNIT IS CORRECTLY CONNECTED TO THE EXTERNAL POWER RECEPTACLE BEFORE YOU START THE GROUND POWER UNIT.
THERE IS A RISK OF ARCING IF THE CONNECTOR IS NOT CORRECTLY CONNECTED.

A. Energize the Aircraft Electrical Circuits from the External Power A and B

NOTE: At the aircraft electrical power-up, the Air Traffic Service Unit (ATSU) transmits data automatically.
(1) On the ELEC control panel 235VU, make sure that:
- The GEN 1, GEN 2, APU GEN, BUS TIE, AC ESS FEED and COMMERCIAL pushbutton switches are pushed in
- All the other pushbutton switches are released.

(2) On the VENTILATION section of the panel 212VU, make sure that:
- The EXTRACT and CAB FANS pushbutton switches are pushed in.

(3) Obey the instructions given with the ground power units and start the ground power units.

(4) If the protection circuits operate correctly:
- On the EXT PWR control panel 925VU, the EXT PWR A/NOT IN USE, EXT PWR A /AVAIL, EXT PWR B/NOT IN USE, EXT PWR B/AVAIL indicator lights come on.
- On the ELEC control panel 235VU, the AVAIL legend of the EXT A and EXT B pushbutton switches come on.

(5) On the ELEC control panel 235VU, push the EXT A pushbutton switch:
- The AVAIL legend goes off
- The ON legend comes on.

(6) On the ELEC control panel 235VU, these legends come on:
- The FAULT legend of the GEN 1 and GEN 2 pushbutton switches
- The OFF legend of the BAT 1, BAT 2 and APU BAT pushbutton switches
- The OFF legend of the GALLEY pushbutton switch.

(7) On the EXT PWR control panel 925VU:
- The EXT PWR A/NOT IN USE indicator light goes off.

(8) On the VENTILATION section of the panel 212VU:
- Make sure that the FAULT legend of the EXTRACT pushbutton switch is off (this shows that the electronics rack ventilation operates correctly).

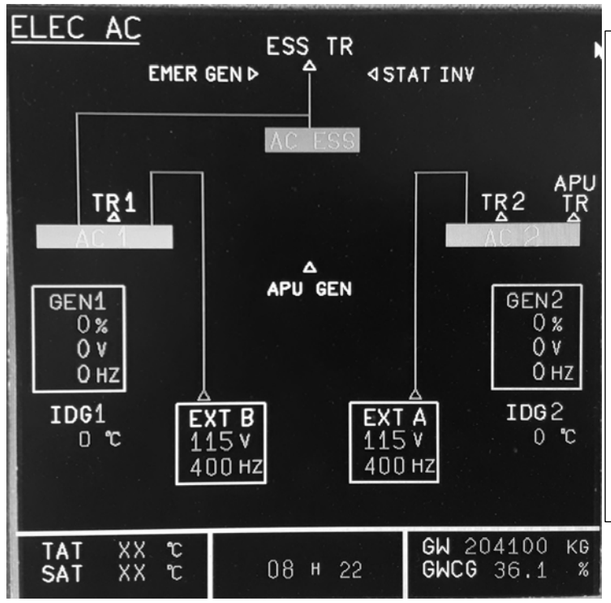
(9) On the ELEC control panel 235VU, push the EXT B pushbutton switch:
- The AVAIL legend goes off
- The AUTO legend comes on.

(10) Do the EIS start procedure (EWD DU, SD DU only) Ref. AMM TASK 31-60-00-860-801.

(11) On the ECAM control panel, push the EL/AC pushbutton switch and make sure on the SD that:
- EXT A supplies busbar AC2
- EXT B supplies busbar AC1.

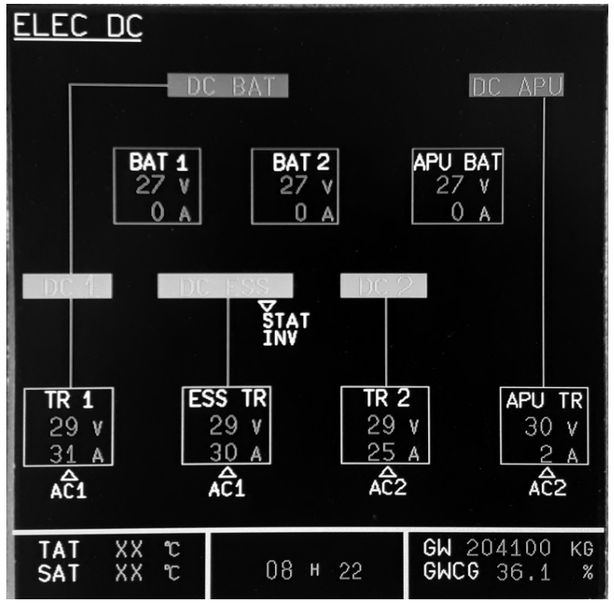
(12) On the ELEC control panel 235VU, push the BAT 1, BAT 2 and APU BAT pushbutton switches:
- The OFF legends go off

4. AFFICHAGE ECAM RESEAU ELECTRIQUE AC ET DC DE L'AVION



Un système de gestion centralisée est présent au cockpit, appelé EICAS: Engine Indication and Crew Alerting System. Ce système permet de visualiser l'état de chacun des systèmes avions, manuellement ou automatiquement afin de détecter des anomalies.

Sur certains aéronefs, ce système est appelé ECAM (Electronic Centralized Aircraft Monitor)



5. MINIMUM EQUIPMENT LIST (MEL)

ECAM Alert: F/CTL FLAP SYS 1 FAULT

Ident.: ME-27-00006434.0001001 / 18 JUL 12
Applicable to: ALL

AIRCRAFT STATUS	CONDITION OF DISPATCH
NIL	*Refer to Item 27-51-01 Flap System 1*

ECAM Alert: F/CTL FLAP SYS 2 FAULT

Ident.: ME-27-00006435.0001001 / 18 JUL 12
Applicable to: ALL

AIRCRAFT STATUS	CONDITION OF DISPATCH
NIL	*Refer to Item 27-51-02 Flap System 2*

ECAM Alert: F/CTL FLAP TIP BRK FAULT

Ident.: ME-27-00006436.0001001 / 18 JUL 12
Applicable to: ALL

AIRCRAFT STATUS	CONDITION OF DISPATCH
NIL	NO DISPATCH

ECAM Alert: F/CTL FLAPS FAULT

Ident.: ME-27-00006437.0001001 / 18 JUL 12
Applicable to: ALL

AIRCRAFT STATUS	CONDITION OF DISPATCH
NIL	NO DISPATCH

ECAM Alert: F/CTL FLAPS LOCKED

Ident.: ME-27-00006438.0001001 / 18 JUL 12
Applicable to: ALL

AIRCRAFT STATUS	CONDITION OF DISPATCH
NIL	NO DISPATCH

6. TASK 27-51-00-740-802-A

Ground scanning of the slat/flap control computer (sfcc)

1. Reason for the Job

   Self explanatory.

2. Job Set-up Information

A. Work zones and access

ZONE/ACCESS	ZONE DESCRIPTION
210	CKPT FWD PRESSURE BHD TO CKPT PARTITION

B. Referenced Information

REFERENCE	DESIGNATION
Ref. 24-41-00-861-801-A	Energize the Aircraft Electrical Circuits from the External Power A
Ref. 24-41-00-861-801-A	Energize the Aircraft Electrical Circuits from the APU (APU Started with APU BAT)
Ref. 24-41-00-861-801-A	Energize the Aircraft Electrical Circuits from the External Power A and B
Ref. 24-41-00-861-801-A	Energize the Aircraft Electrical Circuits from the APU (APU started with External power A)
Ref. 24-41-00-861-801-A	Energize the Aircraft Electrical Circuits from the External Power B
Ref. 24-41-00-861-801-A	De-energize the Aircraft Electrical Circuits from the External Power A
Ref. 24-41-00-862-801-A01	De-energize the Aircraft Electrical Circuits from the APU
Ref. 24-41-00-862-801-A03	De-energize the Aircraft Electrical Circuits from the External Power A and B
Ref. 24-41-00-862-801-A04	De-energize the Aircraft Electrical Circuits from the External Power B
Ref. 34-10-00-860-801-A	Air Data/Inertial Reference System (ADIRS) Start Procedure
Ref. 45-10-00-860-813-A	Procedure to get access to the SYSTEM/REPORRT/TEST F/CTL:FLAP/SLAT page

3. Job Set-up

SUBTASK 27-51-00-860-065-B

A. Aircraft Maintenance Configuration

(1) Energize the aircraft electrical circuits
Ref. AMM TASK 24-41-00-861-801.
(2) Make sure that this (these) circuit breaker(s) is(are) closed:
15CV, 16CV, 15CW, 16CW.

NOTE: The C/Bs 15CV, 16CV, 15CW and 16CW are for flight operation use only. These C/Bs are not added for maintenance use during troubleshooting or maintenance procedures.

(3) Open the circuit breakers 1CV, 2CV, 10CV, 1CW, 2CW and 10CW for 1 second and close them. You must do this in order to reset the SFCC 1 and the SFCC 2.
(4) Do the ADIRS start procedure Ref. AMM TASK 34-10-00-860-801.
(5) Do the procedure to get the SYSTEM REPORT/TEST item ATA: 27 F/CTL:FLAP/SLAT Ref. AMM TASK 45-10-00-860-813.

SUBTASK 27-51-00-865-069-A

B. On the ECAM control panel, push the C/B key (on the SD the C/B page comes into view). Make sure that the SD does not show this(these) circuit breaker(s) :

PANEL	DESIGNATION	FIN	LOCATION
261VU	RESET SFCC 1 FLAP	15CV	
261VU	RESET SFCC 1 SLAT	15CW	
262VU	RESET SFCC 2 FLAP	16CV	
262VU	RESET SFCC 2 SLAT	16CW	
721VU	SFCC 1 NORM	10CV	X14
721VU	SFCC 1 NORM AVAIL	10CW	X13
722VU	SFCC 2 FLAP	2CV	T43
722VU	LGCIU 2	2GA	U38
722VU	SFCC 2 SLAT	2CW	V40
742VU	LGCIU 1	1GA	L63
742VU	SFCC 1 SLAT	1CW	L62
742VU	SFCC 1 FLAP	1CV	L61

4. Procedure

SUBTASK 27-51-00-740-051-B

A. GROUND SCANNING of the SFCC 1 and the SFCC 2

NOTE: This test is for the SFCC 1, the test of the SFCC 2 is the same.

ACTION	RESULT
1.On the MCDU F/CTL: FLAP/ SLAT menu page: - push the line key adjacent to the SFCC 1(2)	On the MCDU: - the SFCC 1(2) menu comes on.
2.On the MCDU SFCC 1(2) menu page: - push the line key adjacent to the FLAP indication.	On the MCDU: - the SFCC 1(2): FLAP menu comes on.
3.On the MCDU SFCC 1(2): FLAP menu page: - push the line key adjacent to the GROUND SCANNING indication.	On the MCDU: - the GROUND SCANNING page comes on with the message GND SCAN IN PROGRESS 8S then: - after 8 seconds the message NO FAULT DETECTED comes on.
NOTE: Do the test again for the SFCC 2.	

5. Close-up

SUBTASK 27-51-00-860-066-A

A. Put the aircraft back to its initial configuration.

(1) On the ADIRS MSU 221VU, set the 3 OFF/NAV/ATT selector switches to OFF.
(2) On the CAPT and F/O EFIS switching panels 417VU and 418VU, set the PFD and the ND potentiometers to OFF.
(3) On the MCDU, push the line select key adjacent to the RETURN indication until the MAINTENANCE MENU 1/2 page comes into view
(4) Fully decrease the brightness of the MCDU screen (display off).
(5) De-energize the aircraft electrical circuits
Ref. AMM TASK 24-41-00-862-801.

****** END OF CARD ******

7. TSM 27-50-00-810-818-A

TSM 27-50-00-810-818-A - Confirmed LH/RH Asymmetry and/or LH/RH Overspeed

***** ON A/C ALL***

TASK 27-50-00-810-818-A
Confirmed LH/RH Asymmetry and/or LH/RH Overspeed
../..

Subtask 27-50-00-810-135-A

B. If the GROUND SCANNING gives the maintenance message FLP1(2) MECH DRIVE :
- examine the TORQUE SHAFTS for condition and replace if necessary TORQUE SHAFT ASSY-XMSN (5002CV) , TORQUE SHAFT ASSY-XMSN (5004CV) , TORQUE SHAFT ASSY-XMSN (5070CV) , TORQUE SHAFT ASSY-XMSN (5011CV) , TORQUE SHAFT ASSY-XMSN (5013CV) , TORQUE SHAFT ASSY-XMSN (5015CV) , TORQUE SHAFT ASSY-XMSN (5017CV) , TORQUE SHAFT ASSY-XMSN (5019CV) ,
  TORQUE SHAFT ASSY-XMSN (5025CV) , TORQUE SHAFT ASSY-XMSN (5027CV) , TORQUE SHAFT ASSY-XMSN (5029CV) , TORQUE SHAFT ASSY-XMSN (5035CV) , TORQUE SHAFT ASSY-XMSN (5037CV) , TORQUE SHAFT ASSY-XMSN (5039CV) , TORQUE SHAFT ASSY-XMSN (5045CV) , TORQUE SHAFT ASSY-XMSN (5046CV) , TORQUE SHAFT ASSY-XMSN (5048CV) , TORQUE SHAFT ASSY (5050CV) , Ref. AMM 27-54-45-000-801 , Ref. AMM 27-54-45-400-801 , Ref. AMM 27-54-45-000-802 , Ref. AMM 27-54-45-400-802 , Ref. AMM 27-54-45-000-803 , Ref. AMM 27-54-45-400-803
  Ref. AMM 27-54-45-000-804 , Ref. AMM 27-54-45-400-804 , Ref. AMM 27-54-45-000-805 , Ref. AMM 27-54-45-400-805 , Ref. AMM 27-54-45000-806 , Ref. AMM 27-54-45-400-806 , Ref. AMM 27-54-45-000-807 , Ref. AMM 27-54-45-400-807 ,
  Ref. AMM 27-54-45-000-809 , Ref. AMM 27-54-45-400-809 , Ref. AMM 27-54-45-000-810 , Ref. AMM 27-54-45-400-810 , Ref. AMM 27-54-45000-811 , Ref. AMM 27-54-45-400-811.

- examine the DRIVE SHAFT for condition and replace if necessary DRIVE SHAFT (5056CV) Ref. AMM 27-54-68-000-801 and Ref. AMM 27-54-68-400801,
- examine the ADAPTOR ASSY-PPU (5057CV) and replace if necessary Ref. AMM 27-54-21-000-801 and Ref. AMM 27-54-21-400-801,

- examine the DOWN DRIVE GEARBOXES and replace if necessary DOWN DRIVE (5005CV) Ref. AMM 27-54-55-000-801 and Ref. AMM 27-54-55-400- 801 ,

  DOWN DRIVE B (5020CV) , DOWN DRIVE A (5030CV) , Ref. AMM 27-54-55-000-802 and Ref. AMM 27-54-55-400-802 ,
  DOWN DRIVE A (5040CV) Ref. AMM 27-54-55-000-804 and Ref. AMM 27-54-55-400-804 ,
  V) Ref. AMM 27-54-55-000-803 and Ref. AMM 27-54-55-400-803 .

- examine the APPU and inspection window and if humidity found replace PPU-ASYMMETRY (APPU) (29CV) Ref. AMM 27-51-18-000-801 and Ref. AMM 27-51-18-400-801 ,

- examine the WING TIP BRAKE and replace if necessary BRAKE-WING TIP, LH FLAPS (33CV) Ref. AMM 27-51-51-000-801 and Ref. AMM 27-51-51-400801 ,

- examine the KINK GEARBOX and replace if necessary GEARBOX-KINK (5028CV) Ref. AMM 27-54-61-000-801 and Ref. AMM 27-54-61-400-801

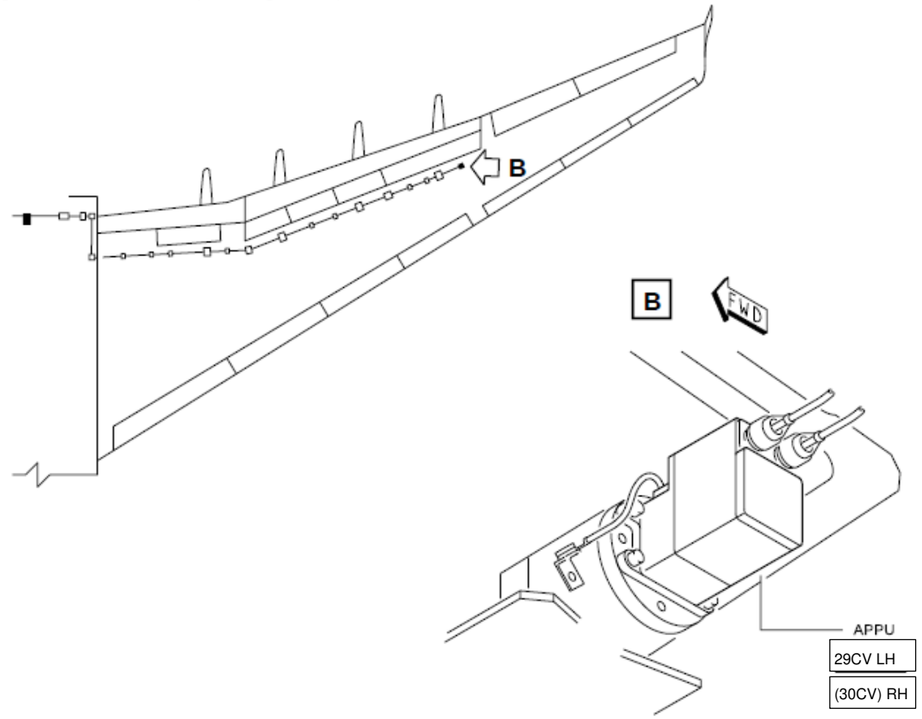
8. PRESENTATION DE L'APPU (ASYMMETRY POSITION PICK-OFF UNIT)

8.1 Présentation générale

L'APPU fait partie de la chaîne de transmission des volets

8.2 Localisation APPU

L'APPU est montée à chaque à extrémité de la chaîne de transmission des volets sur les ailes gauche et droite (voir figure 1)



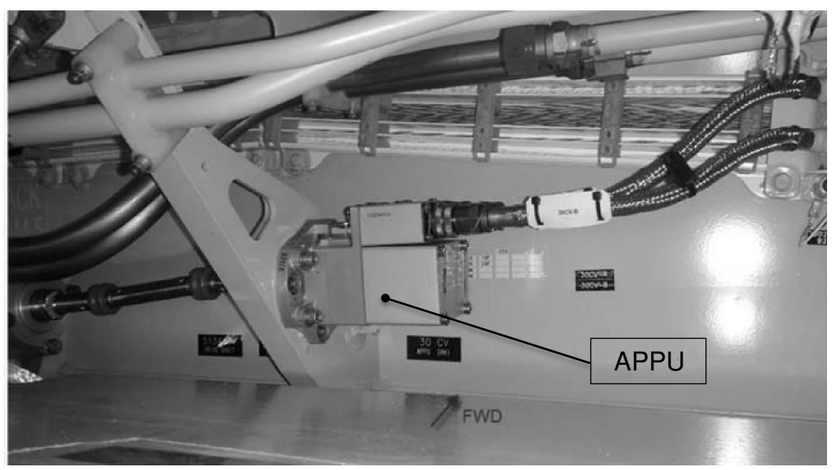


Fig 1 : Localisation APPU

8.3 Fonctionnement de l'APPU

L'APPU (figure 2) transmet la puissance mécanique aux volets.
Il est composé de 4 éléments principaux :

- 2 connectors A et B (figure 3)
- 2 synchro assemblies A et B (figure 2)
- d'engrenages (figure 4)
- d'un Harmonic drive assembly (figure 5)

Les 2 moteurs sont alimentés en énergie électrique par l'intermédiaire des connecteurs.
Ils transmettent la puissance mécanique aux engrenages et à l'harmonic drive assembly.
Les engrenages et l'harmonic drive augmente le couple en sortie de l'APPU.

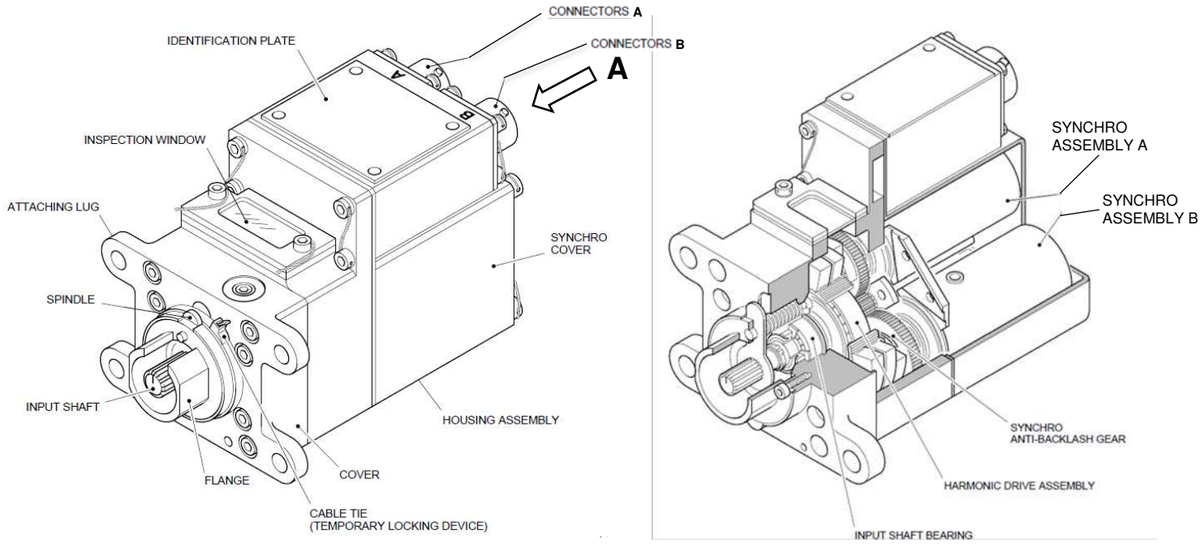


Fig 2 : APPU

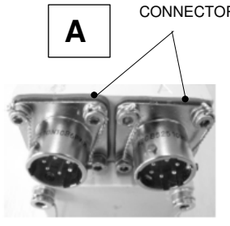


Fig 3 : Connectors seal only

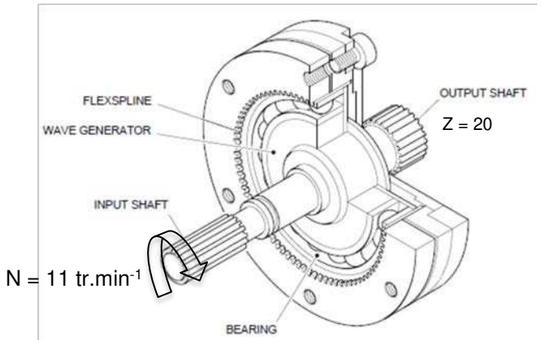


Fig 5: Harmonic drive assembly

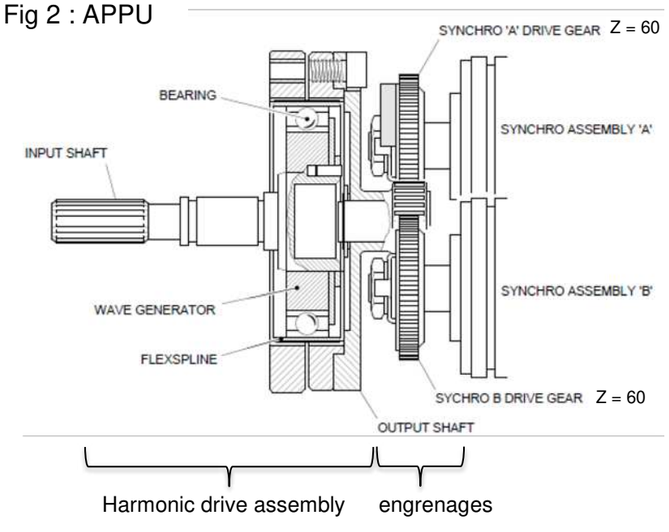
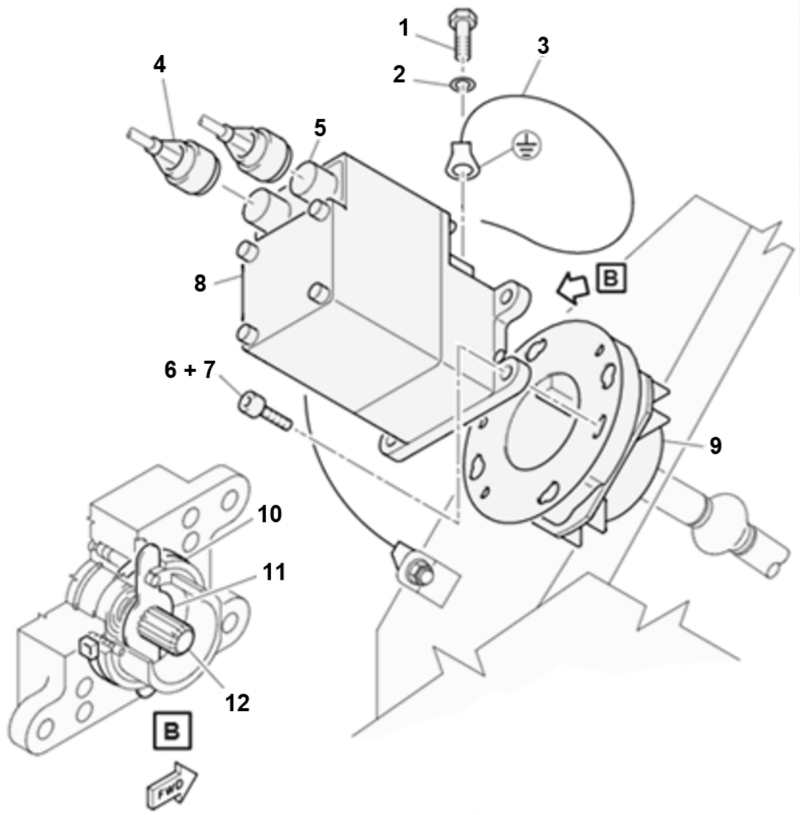


Fig 4 : Harmonic drive assembly + engrenages

9. ILLUSTRATED PARTS CATALOG



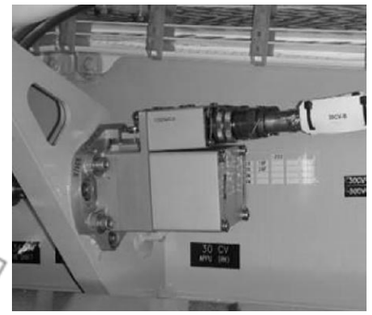


Fig 6 : Montage APPU

ITEM	PART NUMBER	NOMENCLATURE	UNIT PER ASSY
1	NAS 1132-1	BOLT	1
2	NAS 1149CN832R	WASHER	1
3	E0090-48-125	BONDING STRAP	1
4		ELETRICAL CONNECTOR	2
5	EN3646RS61006BW	CONNECTOR	2
6	NAS1351C4-12P	BOLT	4
7	MS20002-4	WASHER	4
8	9028A0005	APPU	1
9		APPU ADAPTATOR ASSEMBLY	1
10		TIE WRAP	1
11		LOCKING PLATE	1
12		INPUT SHAFT	1

Nomenclature

10. EXTRAIT TASK 27-51-18-000-801-A

Installation of the Asymmetry-Position Pick-Off Unit (APPU)
FIN : 29CV , 30CV

1. Reason for the Job
Self Explanatory

2. Job Set-up Information

Fixtures, Tools, Test and Support Equipment

A. Fixtures, Tools, Test and Support Equipment

REFERENCE	QTY	DESIGNATION
No specific	AR	ACCESS PLATFORM 3M (10 FT)- ADJUSTABLE
No specific	AR	ACCESS PLATFORM 5M (16 FT)
No specific	AR	TIE WRAP
No specific	AR	WARNING NOTICE(S)
No specific		Torque wrench: range **to between 0.78 and 0.86 m.daN (69.03 and 76.11 lbf.in)**

B. Consumable Materials

REFERENCE	DESIGNATION
(Material No. 03FDB1)	Mineral Oil base Grease-Anti-Fretting Paste -
(Material No. 06LCG9)	Non Hardening Jointing Putty-Medium Temp. Area - -
(Material No. 08BBB1)	Non Aqueous Cleaner-- Petroleum Based -
(Material No. 12AGC2)	Corrosion Preventive Compound-- Soft Film System

3. Job Set-up

Subtask 27-51-18-860-050-A

A. Aircraft Maintenance Configuration

(1) If you install a new Asymmetry-Position Pick-Off Unit (APPU) (8):

(a) Make sure that the flaps are fully retracted (Ref. AMM TASK 27-50-00-866-802) .

(2) Make sure that the ground service network is energized (Ref. AMM TASK 24-42-00-861-801) .

(3) Make sure that the WARNING NOTICE(S) is (are) in position on panel 114VU to tell persons not to operate the flap/slat controls.

(4) Make sure that the LOCKING TOOL-FLAP SLAT LEVER,INT. POSITION (98D27803000000) is installed on the flap/slat control-lever on panel 114VU.

(5) Make sure that the maintenance device of the Wing Tip Brake (WTB) is in the "O" position (Ref. AMM TASK 27-50-00-869-802) .

(6) Make sure that the ACCESS PLATFORM 5M (16 FT) is in position:

(a) FOR 29CV (PPU-ASYMMETRY (APPU))
Below access panel 574LB

(b) FOR 30CV (PPU-ASYMMETRY (APPU))
Below access panel 674LB.

(7) Make sure that the applicable access panel is removed:

(a) FOR 29CV (PPU-ASYMMETRY (APPU))
Remove 574LB.

(b) FOR 30CV (PPU-ASYMMETRY (APPU))
Remove 674LB.

(8) Make sure that the ACCESS PLATFORM 3M (10 FT)- ADJUSTABLE is in position below access door 811.

(9) Make sure that access door 811 is open.

Subtask 27-51-18-865-053-A

B. Make sure that this(these) circuit breaker(s) is(are) open, safetied and tagged:

PANEL	DESIGNATION	FIN	LOCATION
721VU	SFCC 1 NORM	10CV	X14
722VU	SFCC 2 FLAP	2CV	T43
742VU	SFCC 1 FLAP	1CV	L61

4. Procedure

(Ref. Fig. Flap APPU (29CV, 30CV) SHEET 1)

Subtask 27-51-18-560-050-A

A. Preparation of the Replacement Component

(1) Remove the setscrew (13) from the new APPU (8) and install it in the removed APPU (8).

Subtask 27-51-18-210-050-A

B. Preparation for Installation

(Ref. Fig. APPU Adjustment SHEET 1)

(1) Clean the interface of the APPU (8), the APPU adaptor assembly (9) and the bolts (6) with Non Aqueous Cleaner-- Petroleum Based - (Material No. 08BBB1).

(2) Examine the APPU (8) and the interface of the APPU adaptor assembly (9) for damage, cracks and corrosion.

(3) On the new APPU (8) make sure that:
- The zero indicator mark in the viewing window aligns with the fixed pointer.
- The fixed pointer aligns with the orange part of the zero area.
- The mark on the input shaft aligns with the reference mark on the APPU housing.

Subtask 27-51-18-420-050-A

C. Installation of the APPU

(1) Apply Non Hardening Jointing Putty-Medium Temp. Area - - (Material No. 06LCG9) to the mating face of the APPU (8) and the bolts (6).

(2) Apply Mineral Oil base Grease-Anti-Fretting Paste - (Material No. 03FDB1) to the input shaft (12).

(3) Remove the TIE WRAP (10) from behind the locking plate (11).

(4) Put the APPU (8) in position on the APPU adaptor assembly (9). Make sure that the shroud slot and key are correctly aligned.

(5) Engage the APPU input shaft (12) with the drive shaft.

(6) Put the APPU (8) fully in position:
- Apply pressure with your hand and push the APPU (8) fully in position in the APPU adaptor assembly (9).

NOTE: This force must only be sufficient to permit installation of the bolts (6).

(7) Hold the APPU (8) in this position and install the bolts (6) and the washers (7).

(8) TORQUE the bolts (6) to between 0.78 and 0.86 m.daN (69.03 and 76.11 lbf.in).

(9) Apply Corrosion Preventive Compound-- Soft Film System (Material No. 12AGC2) to the bolts (6).

(10) Put the bonding strap (3) in position and install the washer (2) and the bolt (1) (Ref. AMM TASK 2028-00-912-810) .

(11) Remove the blanking cap from each electrical connector and receptacle.

(12) Make sure that all the electrical connections are clean and in the correct condition.

(13) Connect the electrical connectors to the APPU (8):

(a) FOR 29CV (PPU-ASYMMETRY (APPU))
connect the electrical connector (5) to connector A and the electrical connector (4) to connector
B,

(b) FOR 30CV (PPU-ASYMMETRY (APPU))
connect the electrical connector (5) to connector A and the electrical connector (4) to connector
B.

Subtask 27-51-18-860-051-A

D. Aircraft Maintenance Configuration

(1) Remove the LOCKING TOOL-FLAP SLAT LEVER,INT. POSITION (98D27803000000) from the flap/slat control-lever on panel 114VU.

(2) Remove the warning notice(s).

(3) Make sure that the work area is clean and clear of tools and other items.

Subtask 27-51-18-865-052-A

E. Remove the safety clip(s) and the tag(s) and close this(these) circuit breaker(s):

PANEL	DESIGNATION	FIN	LOCATION
721V	SFCC 1 NORM	10CV	X14
722V	SFCC 2 FLAP	2CV	T43
742V	SFCC 1 FLAP	1CV	L61

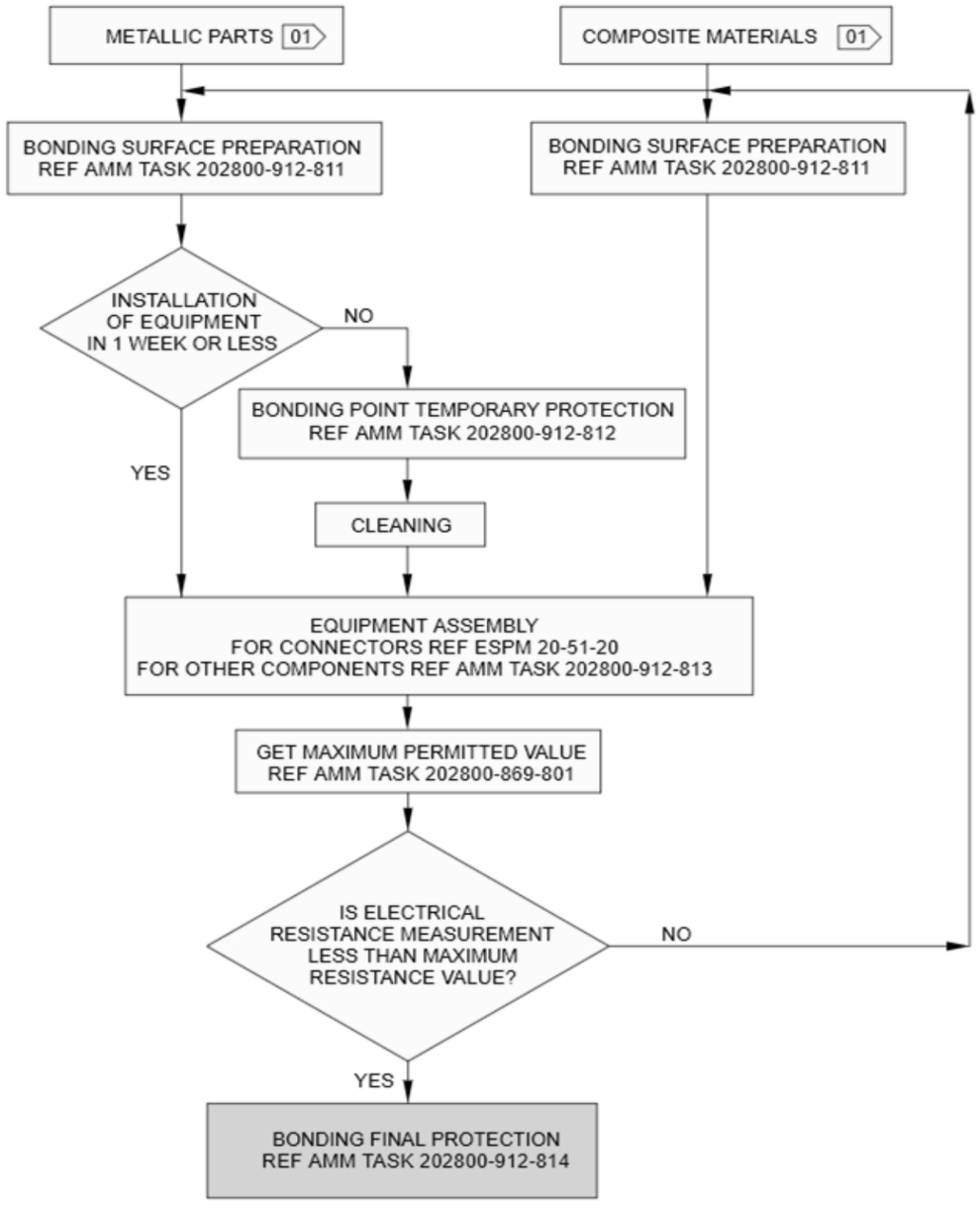
Subtask 27-51-18-710-050-A

F. Test

(1) Do the operational test of the flap system (Ref. AMM TASK 27-54-00-710-801)

Do a check of the PPUs with the SFCC SPECIFIC DATA and make sure that the PPU data is in the same limits (Ref. AMM TASK 27-51-00-820-801)

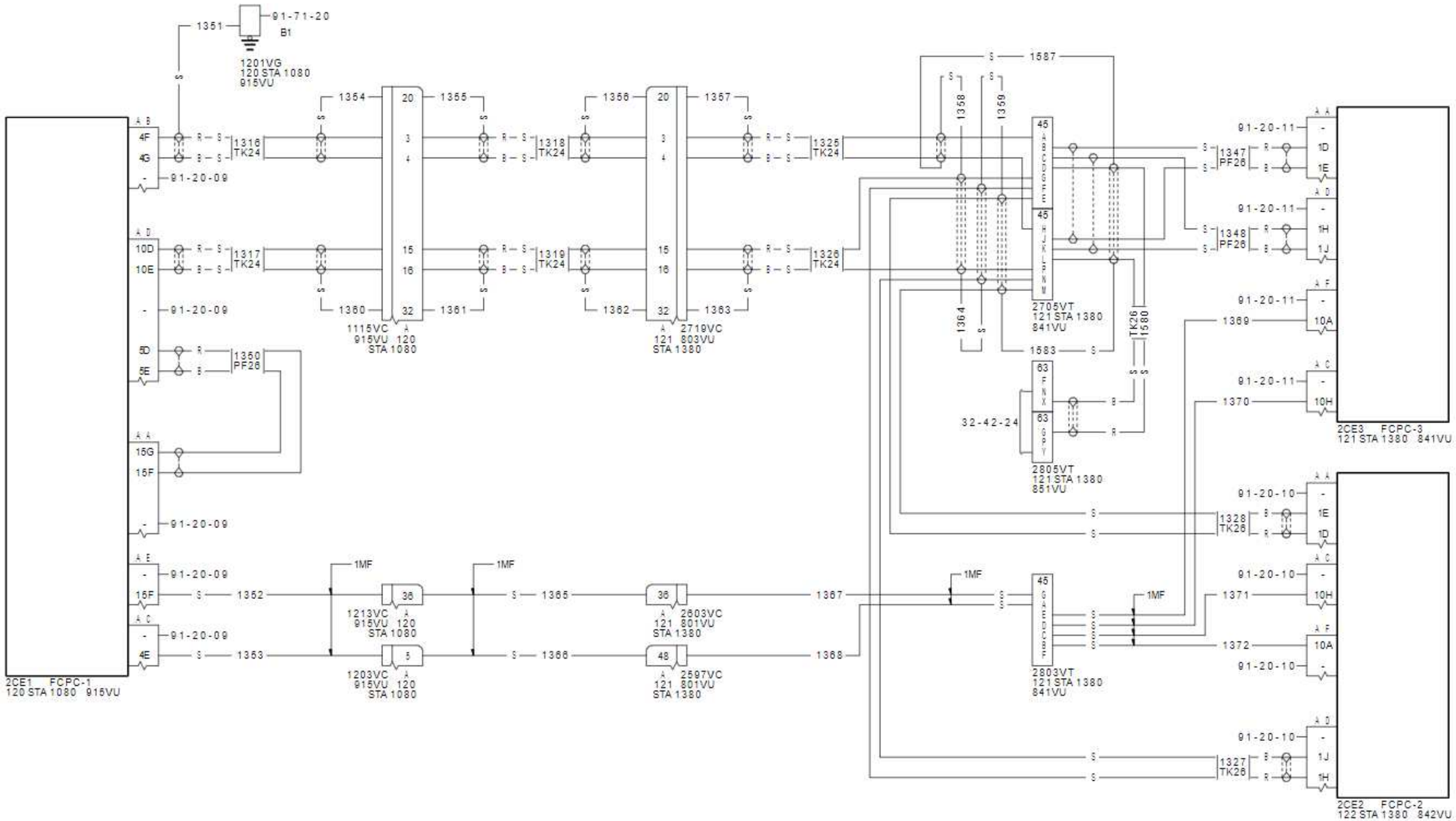
11. SYNOPTIQUE DE LA METALLISATION



12. JOB CARD : POSE TRESSE DE MASSE

Procedure
SUBTASK 20-28-00-010-051-A
A.
Definition
Electrical bonding is a process to make a current path between electrically conductive parts to make s ure that there is electrical continuity. This path can be between:
-
Two structural Parts
-
A system point and the structure.
SUBTASK 20-28-00-010-052-A
B.
General Bonding Principle
Ref. Fig. Bonding Process - Flow Chart
Do the bonding procedure during the installation of the equipment or the part assembly (access doors , fairings, antenna, fittings or pipes etc.) after the removal.
To do the electrical bonding, do the steps that follow:
-
Prepare the bonding surfaces
-
Apply temporary protection (if necessary)
-
Assemble the different parts of the assembly
-
TORQUE the bolts (1) to between 0.78 and 0.96 m.daN
-
Find the correct value of the ohmic resistance
-
Do a check of the ohmic resistance value
-
Apply the final protection on the bonding assembly (if applicable).
SUBTASK 20-28-00-912-072-A
C.
Bonding Surface Preparation
(1)
Prepare the bonding surfaces Ref. AMM TASK 20-28-00-912-811.
(2)
If it is not possible to install the part or equipment in 1 week or less after the removal:
-
Apply temporary protection on the bare bonding surfaces Ref. AMM TASK 20-28-00-912-812.
SUBTASK 20-28-00-400-050-A
D.
Equipment Assembly
(1)
If the bare surfaces are protected with temporary protection materials, remove temporary protection material with Non Aqueous Cleaner-General - - (Material Ref. 08BAA9) and a Textile-Lint free Cotton - (Material Ref. 14SBA1).
(2)
Assemble the fasteners (nuts, bolts, screws, washers etc.), bonding leads, clamp or the equipment. To do this, refer to the instructions as follows:
(a)
For electrical connectors, Refer to Ref. ESPM 20-51-20.
(b)
For all other components Ref. AMM TASK 20-28-00-912-813.
SUBTASK 20-28-00-760-050-A
E.
Electrical Resistance Measurement
(1)
Refer to the table of maximum ohmic resistance-values Ref. AMM TASK 20-28-00-869-801.
The table gives information of:
-
The maximum permitted value
-
The applicable measurement test.
(2)
If the measured value is less than the maximum permitted value: 20 a 30 miliohmetres.
-
Apply final protection to the bonding assembly 3). The time of use of the apply final is 4 hours.
(
If the measured value is more than the maximum permitted value, do the bonding surface preparation , the equipment assembly and the electrical resistance measurement again.
SUBTASK 20-28-00-916-054-A
F.
Final Protection
(1)
Apply final protection Ref. AMM TASK 20-28-00-912-814.

13. AWM 27-97-33
FLIGHT CONTROLS - ELECTRICAL FLIGHT CONTROL SYSTEM (EFCS) ARINC BUSES AND DISCRETES INTERFACES
FCPC 1 O/P DG01 DG05 COM & DS04 MON
EFFECTIVITY: all MSN



14. TABLE FCPC1 ARINC 429 PARAMETERS

Label ID	Refresh Rate	SDI Field [b10, b9]	SSM Field [b31, b30]	Sign (bit 29)	Nb bits Data	Data LSB	Data MSB	Parameter Type	Parameter Name	Description	Float coding type	Signed float	Float op. min	Float op. max	Float resolution
103	120	00=all, 01=F2, 10=F3, 11=NU	00=FW,01=NCD, 10=FT, 11= NO	0=PLUS 1=MINUS	9 bits	bit 11	bit 19	Float	FLAPS	FLAPS POSITION	BNR	yes	-64	64	0,125
104	120	00=all, 01=F2, 10=F3, 11=NU	00=FW,01=NCD, 10=FT, 11= NO	0=PLUS 1=MINUS	9 bits	bit 11	bit 19	Float	CONF	SLATS & FLAPS CONFIGURATION	BNR	yes	-8	8	0,015625
107	120	00=all, 01=F2, 10=F3, 11=NU	00=FW,01=NCD, 10=FT, 11= NO	0=PLUS 1=MINUS	9 bits	bit 11	bit 19	Float	SLATS	SLATS POSITION	BNR	yes	-64	64	0,125
110	120	00=all, 01=F2, 10=F3, 11=NU	00=FW,01=NCD, 10=FT, 11= NO	0=PLUS 1=MINUS	15 bits	bit 14	bit 28	Float	LHSPOILER	RH SPOILER POSITION	BNR	yes	-180	180	0,005493
111	120	00=all, 01=F2, 10=F3, 11=NU	00=FW,01=NCD, 10=FT, 11= NO	0=PLUS 1=MINUS	15 bits	bit 14	bit 28	Float	RHSPOILER	LH SPOILER POSITION	BNR	yes	-180	180	0,005493
270	40	00=all, 01=F2, 10=F3, 11=NU	00=FW,01=NCD, 10=FT, 11= NO	0=PLUS 1=MINUS	15 bits	bit 14	bit 28	Float	LHAILPOS	LEFT AILERON POSITION	BNR	yes	-180	180	0,005493
271	40	00=all, 01=F2, 10=F3, 11=NU	00=FW,01=NCD, 10=FT, 11= NO	0=PLUS 1=MINUS	15 bits	bit 14	bit 28	Float	RHAILPOS	RIGHT AILERON POSITION	BNR	yes	-180	180	0,005493
272	40	00=all, 01=F2, 10=F3, 11=NU	00=FW,01=NCD, 10=FT, 11= NO	0=PLUS 1=MINUS	15 bits	bit 14	bit 28	Float	RUDTRPOS	RUDDER TRIM POSITION	BNR	yes	-180	180	0,005493

15. CAPTURE ARINC DES MOTS EN DECIMAL

20210426-10:36:40:000	1610782914
20210426-10:36:45:000	1610782914
20210426-10:36:50:000	1610682562
20210426-10:36:55:000	1610682562
20210426-10:37:00:000	1610682562
20210426-10:37:05:000	1610682562
20210426-10:37:10:000	1610682562
20210426-10:37:15:000	1610682562
20210426-10:37:20:000	1610682562
20210426-10:37:25:000	1610682562
20210426-10:37:30:000	1610682562
20210426-10:37:35:000	1610682562
20210426-10:37:40:000	1610612930
20210426-10:37:45:000	1610612930
20210426-10:37:50:000	1610612930
20210426-10:37:55:000	1610612930
20210426-10:38:00:000	1610612930
20210426-10:38:05:000	1610612930
20210426-10:38:10:000	1610612930
20210426-10:38:15:000	1610612930
20210426-10:38:20:000	3758336194
20210426-10:38:25:000	3758336194
20210426-10:38:30:000	3758336194
20210426-10:38:35:000	3758336194
20210426-10:38:40:000	3758336194
20210426-10:38:45:000	3758336194
20210426-10:38:50:000	3758336194
20210426-10:38:55:000	3758336194
20210426-10:39:00:000	3758336194
20210426-10:39:05:000	3758336194
20210426-10:39:10:000	3758336194
20210426-10:39:15:000	3758336194
20210426-10:39:20:000	3758336194
20210426-10:39:25:000	3758336194
20210426-10:39:30:000	3758336194
20210426-10:39:35:000	4026900674
20210426-10:39:40:000	4026900674
20210426-10:39:45:000	4026900674

16. FORMULAIRE

Conventionnellement, une formule est toujours accompagnée d'unités :

Mécanique

- **Conversion de rad/s en tr /min**

$$\omega = \frac{\pi \times N}{30}$$

ω en rad/s
N en tr/min

- **Calcul du rapport de transmission**

$$r = \frac{N_{sortie}}{N_{entrée}} = \frac{\omega_{sortie}}{\omega_{entrée}} = \frac{\text{Produit du nombre de dents des roues menantes}}{\text{Produit du nombre de dents des roues menées}}$$

N_{sortie} = fréquence de sortie en tr/min

$N_{entrée}$ = fréquence d'entrée en tr/min

ω_{sortie} = vitesse de sortie en rad/s

- **Calcul de la puissance mécanique de rotation**

$$Pméca = C \times \omega$$

P en W
C en N.m
ω en rad/s

- **Calcul de rendement**

$$\eta = \frac{P_{sortie}}{P_{entrée}}$$

P_{sortie} en W
$P_{entrée}$ en W
η = rendement

- **Calcul du couple :**

$$C = d \times F$$

C en N.m
d en m
F en N

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