

AIRCRAFT MAINTENANCE MANUAL SUPPLEMENT



Aviation Partners, Incorporated

SUPPLEMENT TO DASSAULT AVIATION AIRCRAFT MAINTENANCE MANUAL FALCON 900 / 900EX / F900EX EASY

API DOCUMENT NUMBER:
APF9-0600

REVISION A, CHANGE 1
22 JANUARY 2013

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CHANGE HIGHLIGHTS

SECTION	CHANGE DESCRIPTION
TITLE PAGE	CHANGE TO REV A CHG 1, 22 JAN 13
LOEP	PAGE 2, DATE CHANGE
27-60-00A DO	TEXT CHANGES, SYSTEM TEST
27-60-00A AT	TEXT CHANGES, AB2 FUNCTIONAL TEST
27-60-00B AT	TEXT CHANGES, AB2 FUNCTIONAL TEST



REVISION TRANSMITTAL

TO: HOLDERS OF DASSAULT AVIATION DIGITAL AIRCRAFT MAINTENANCE MANUALS (AMM)
 FALCON 900 (NO. 37, OCTOBER 2008)
 FALCON 900EX (NO. 21, MARCH 2009)
 FALCON 900EX EASY (NO. 11, MARCH 2010)

FILING INSTRUCTIONS:

The sections in this manual supplement describe modifications made to the airplane, or block of airplanes modified under the API Winglet Modification Program. This data represents the current configuration for the airplanes listed in the Airplane Effectivity Cross Reference table and to specific airplanes as listed in section effectivity blocks.

Maintain this manual supplement along with Dassault documentation and file the supplemental sections in sequence with Dassault sections when paper versions of maintenance documentations are used.

Please file the supplemental page blocks / sections as indicated:

SUPPLEMENTAL API PAGE BLOCKS	EXISTING DASSAULT PAGE BLOCKS
06-10-01	06-10-00
23-60-01	23-60-00
27-30-00A	27-30-00
27-60-00A (F900/F900EX)	27-36-00
27-60-00B (F900EX EASY)	
27-80-00A (F900)	27-80-00A
27-80-00B (F900EX)	
27-80-00C (F900EX EASY)	
33-40-01	33-40-01
57-00-01	57-00-01
57-10-10	57-10-00
57-50-01	57-50-01
57-50-02	57-50-02
57-70-01	57-70-01
57-90-01	57-90-01
79-00-01	79-00-00



LIST OF EFFECTIVE PAGES

SECTION	PAGE NO.	DATE
TITLE	1	17 AUG 11
REVISION XMTL	1	17 AUG 11
EFFECTIVE PAGES	1	17 AUG 11
	2	17 AUG 11
	3	17 AUG 11
REV RECORD	1	17 AUG 11
TREV RECORD	1	17 AUG 11
SB LIST	1	17 AUG 11
A/C XREF	1	17 AUG 11
INTRODUCTION	1	17 AUG 11
	2	17 AUG 11
	3	17 AUG 11
	4	17 AUG 11
	5	17 AUG 11
06-10-01	1	17 AUG 11
	2	17 AUG 11
23-60-01	1	17 AUG 11
	2	17 AUG 11

SECTION	PAGE NO.	DATE
27-30-00A	1	17 AUG 11
	2	17 AUG 11
	3	17 AUG 11
	501	17 AUG 11
	502	17 AUG 11
	503	17 AUG 11
	504	17 AUG 11
	505	17 AUG 11
	506	17 AUG 11
27-60-00A	507	17 AUG 11
	508	17 AUG 11
	509	17 AUG 11
	1	22 JAN 13
	2	17 AUG 11
	501	22 JAN 13
	502	22 JAN 13
	503	17 AUG 11
	27-60-00B	501
502		22 JAN 13
503		17 AUG 11
27-80-00A	601	17 AUG 11
	602	17 AUG 11
	603	17 AUG 11
	604	17 AUG 11
	605	17 AUG 11
	606	17 AUG 11
	760	17 AUG 11
	608	17 AUG 11



Aviation Partners, Incorporated
DASSAULT AVIATION FALCON 900
AIRCRAFT MAINTENANCE MANUAL SUPPLEMENT

SECTION	PAGE NO.	DATE
27-80-00A CONT.	609	17 AUG 11
	610	17 AUG 11
	611	17 AUG 11
27-80-00B	601	17 AUG 11
	602	17 AUG 11
	603	17 AUG 11
	604	17 AUG 11
	605	17 AUG 11
	606	17 AUG 11
	760	17 AUG 11
	608	17 AUG 11
	609	17 AUG 11
	27-80-00C	601
602		17 AUG 11
603		17 AUG 11
604		17 AUG 11
605		17 AUG 11
606		17 AUG 11
760		17 AUG 11
608		17 AUG 11
609		17 AUG 11
610		17 AUG 11
611		17 AUG 11
612		17 AUG 11
33-40-01	1	17 AUG 11
	2	17 AUG 11
	3	17 AUG 11
	4	17 AUG 11

SECTION	PAGE NO.	DATE
33-40-01 CONT.	5	17 AUG 11
	6	17 AUG 11
	7	17 AUG 11
	401	17 AUG 11
	402	17 AUG 11
	403	17 AUG 11
	404	17 AUG 11
	405	17 AUG 11
	406	17 AUG 11
	407	17 AUG 11
601	17 AUG 11	
57-00-01	1	17 AUG 11
57-10-10	401	17 AUG 11
	402	17 AUG 11
	403	17 AUG 11
	404	17 AUG 11
	405	17 AUG 11
	406	17 AUG 11
57-50-01	1	17 AUG 11
	2	17 AUG 11
	401	17 AUG 11
	402	17 AUG 11
	403	17 AUG 11
	404	17 AUG 11
405	17 AUG 11	
406	17 AUG 11	



Aviation Partners, Incorporated
DASSAULT AVIATION FALCON 900
AIRCRAFT MAINTENANCE MANUAL SUPPLEMENT

SECTION	PAGE NO.	DATE
57-50-02	1	17 AUG 11
	401	17 AUG 11
57-70-01	401	17 AUG 11
57-90-01	1	17 AUG 11
	2	17 AUG 11
	3	17 AUG 11
79-00-01	301	17 AUG 11

SECTION	PAGE NO.	DATE
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AIRPLANE EFFECTIVITY CROSS REFERENCE

A/C MODEL	MFR SER NO.	VARIABLE NO.	CUST EFFECT
F900	AS CONFIGURED		
F900EX	AS CONFIGURED		
F900EX EASY	AS CONFIGURED		



INTRODUCTION

1. **General**

This supplemental Aircraft Maintenance Manual describes the Aviation Partners Inc. Blended Winglet modification to the Falcon 900 series aircraft. The Blended Winglets gives the Falcon 900 aircraft significantly improved cruise performance with a small increase to basic aircraft weight.

A. The following structures are removed from the original configuration:

- The basic wing tip
- The station 20 rib structure
- Wingtip anti-collision lights (bulb type)
- Wingtip navigation lights (bulb type)
- The lighting transformer mounted under the outboard leading edges of each wing

B. The following structures / systems have been modified:

- Static wick configuration
- Outboard Slats, Edge Slat stops, Slat Extend and Retract Switches
- Fixed Leading Edge Skin sections
- Ailerons
- Air Brakes 2 (AB2) Wiring and LRU installation
- Pitch ARTHUR Wiring

C. The following structures / systems have been installed:

- API composite blended winglets
- Wing Rib 20 structures and mounting flanges
- Wing Rib sections 17B, 18A
- Slat Rail 5 and 10 Sidebar Roller assemblies
- Wing upper and lower skin reinforcing straps
- LED anti-collision lights
- LED position lights
- Aircraft wiring harness extensions and supporting brackets that supply power to the LED Lighting assemblies
- Aileron reinforcing straps, upper and lower



2. Manual Arrangement and Numbering System

The arrangement of materials and numbering conventions used in this supplement comply with the Air Transportation Authority Information Specification 2200 (ATA iSpec-2200). The numbering system and organization of this manual is in general conformity with The Dassault Aviation Digital Documentation for the Falcon 900 Series Aircraft.

The page numbering conventions used in the supplement help the user identify the purpose of a text block within a section. The page block number system is as follows:

SUBJECT	PAGE BLOCK
DESCRIPTION AND OPERATION (DO)	1-99
FAULT ISOLATION (FI)	101-199
MAINTENANCE PRACTICES (MP)	201-299
SERVICING (SRV)	301-399
REMOVAL AND INSTALLATION (RI)	401-499
ADJUSTMENT AND TEST (AT)	501-599
INSPECTION AND CHECK (IC)	601-699
CLEANING AND PAINTING (CP)	701-799
APPROVED REPAIRS (AR)	801-899

3. Changes and Revisions

This supplemental manual shall be revised as required, and distributed to customers in print-ready PDF format, on disk, or made available for download as requested by the customer.

Revisions of this manual shall be issued to correct safety related issues or hazards identified by Aviation Partners or the customer. A full revision of this manual shall be released as a complete reprint with an updated Revision Record that shows the current revision letter and date. Each page of the revised manual shall carry the new revision date.

Customer requests for changes relating to Safety issues or Hazards should be immediately addressed to Aviation Partners via mail, e-mail, or fax. Identify all requests for safety related / hazard changes in the subject line of your correspondence as "F900 Blended Winglet Hazard Change Request."

Customer requests for minor changes should be submitted to Aviation Partners via mail, or e-mail: Identify requests for minor changes in the subject line of your correspondence as "F900 Blended Winglet Minor Change Request."



4. Source Documents

A. Aviation Partners, Inc. Engineering packages F20 (series) and F90 (series):

- F20-0002 Top Assy - Winglet
- F20-0004 Modification Installation - Wing Reinforcement
- F20-0026 Installation - Winglet Harness
- F20-0038 Access Door, Lower Skin
- F20-0039 Seal and Paint - Wing Mod
- F20-0070 Slat Modification
- F20-0071 Track Stops
- F20-0079 Slat Switch Installation
- F20-0085 Fixed LE Skin Modification
- F20-0100 Roller Fitting Installation, Rail 5 and 10
- F90-0003 Installation - Rib 20
- F90-0005 Winglet LightingWiring Modification
- F90-0007 Top Kit
- F90-0008 Installation - Winglet
- F90-0074 Slat Functional Check
- F90-0075 Slat Rigging
- F90-0080 Aileron Modification and Rigging
- F90-0220 AB2 LRU Installation Wiring Modification
- F90-0221 Pitch Arthur Wiring Modification

B. Dassault Aviation Digital Documentation, Falcon 900, Falcon 900EX, Falcon 900EX EASy

C. Flight Components AG Lighting System Drawings and Schematics:

- 03-9001-0003, -0004 LED Position Light
- 03-9503-5003, -5004 LED Anti-collision Light
- 07-7100-0010, -0011 Lens Assembly
- 08-9700-5000, -5001 Winglet Assembly Model 9700

D. AIPC Supplement

This document gives detailed parts lists for the API Blended Winglet to include structural parts, line-replaceable assemblies (LRUs), and attaching parts.



E. Process Specifications and Consumable Materials

Manufacture, assembly, and maintenance of the API blended winglet is controlled by several process specifications not referenced in the Dassault digital maintenance documentation.

Unless otherwise noted, all processes and specifications are in accordance with the Dassault digital maintenance documentation. For typical repairs refer to Chapter 20 (Standard Practices). For typical structural repairs refer to Chapter 51 (Structures) of the Structural Repair Manual (SRM). For consumable materials refer to Chapter 12 (Ingredients).

When process specifications or consumable materials are used that are not listed in the Dassault documentation, refer to the approved API engineering data.

5. **Authorized Repairs**

- A. Repairs to the blended winglet are limited to the repair of minor damage to the winglet surface, and to repair or replacement of the leading edges, tip cap, modified slats, the lens assemblies, and static wicks.
- B. Refer to the API Structural Repair Manual Supplement (APF9-0602) for allowable damage to blended winglet.
- C. Damage that extends into the carbon-fiber laminations of the winglet structure must be evaluated by qualified engineering personnel. No line-maintenance procedures are authorized for major structural damage. Contact Aviation Partners, Inc. to request assistance with NDI inspections and engineering assistance on major damage issues.

Attn: F900 Blended Winglet Repairs
Aviation Partners, Inc.
7299 Perimeter Road South
Seattle, Washington, 98108
Tel: (206) 762-1171
Fax: (206) 762-1158



6. Continued Airworthiness

The API F900 Blended Winglet is installed under FAA Project Number ST09686SE-T. This installation complies with the airworthiness requirements as set forth in U.S. Federal Aviation Administration Regulations, Title 14 CFAR Part 25, 25.571 and Amendment 25-119.

A. Inspect the blended winglet and associated assemblies as follows:

- (1) Inspect the blended winglet at the 3A+ Check in accordance with Dassault maintenance procedure MP 57-000.
- (2) Inspect the API blended winglet and Station 20 structures at the "C-Check" in accordance with Dassault maintenance procedures MP 57-001, MP 57-006, and MP 57-007.
- (3) Inspect the LED Position and Anti-collision light assemblies during the wing zonal inspections at the 3A+ Check in accordance with MP 57-000.
- (4) Inspect the LED Position and Anti-collision light assemblies at each Basic Check (2 months / 200 Flight Hours) for proper operation of the light assemblies and for damage or deterioration to the polycarbonate lens.
- (5) The blended winglet static wick installation shall be checked for proper bonding at the "B- Check".



DIMENSIONS AND AREAS

1. Main Dimensions

See Figure 1: General Dimensions - Falcon 900 with API Winglets

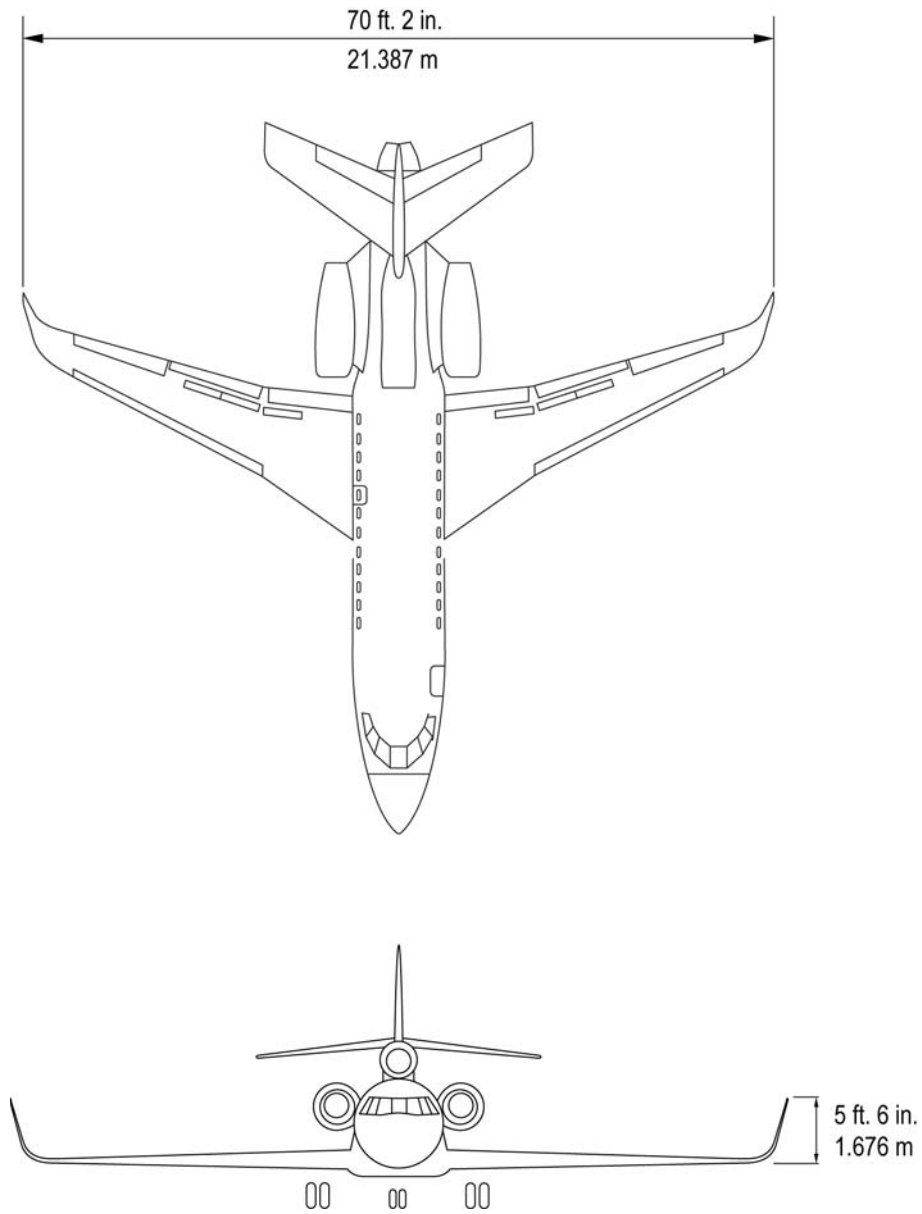


FIGURE 1: GENERAL DIMENSIONS - FALCON 900 WITH API WINGLETS



COMMUNICATIONS – DESCRIPTION

1. General

- A. The static wick configuration on the outboard wing tips on the Falcon 900 series aircraft changes with the installation of the API winglets.

Two additional static wicks are installed on a base-plate attached to the underside surface of each winglet.

- B. References:

- (1) API Drawing F20-0002 Winglet Assembly
- (2) API Drawing F20-0055 Static Wick Assembly
- (3) API Drawing F90-0008 Installation - Winglet

2. Removal and Installation

- A. For Removal / Installation procedures for static wicks see Dassault AMM 23-600 (Removal / Installation of Static Dischargers).

3. Check Procedures

- A. To do a Check of the static wicks see Dassault AMM 23-602 (Check of Static Dischargers and Bonding).

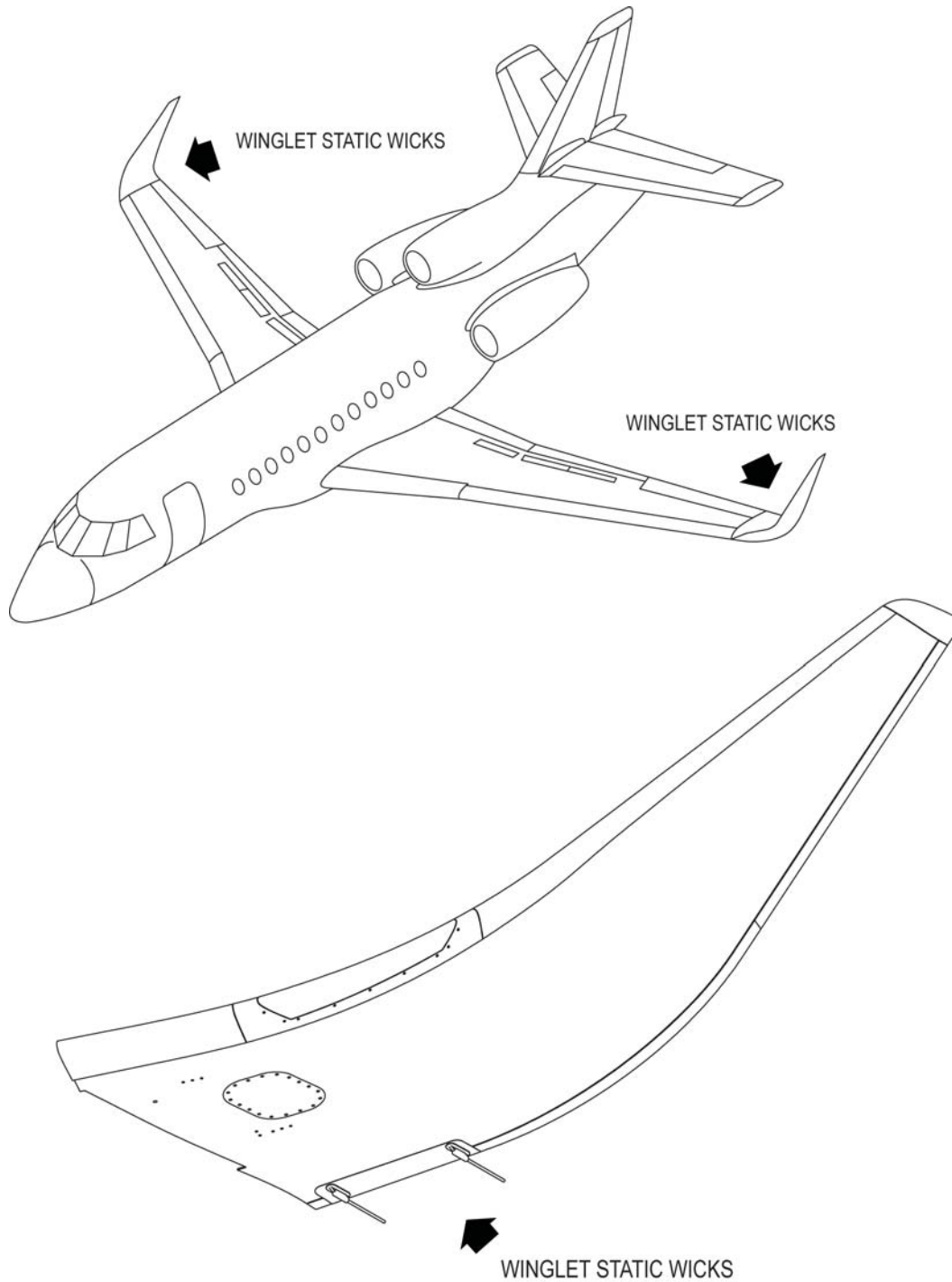


FIGURE 1: STATIC WICK LOCATIONS - F900 WITH API WINGLETS



**ELEVATOR – PITCH ARTHUR
DESCRIPTION AND OPERATION**

1. General

- A. Installation of the API blended winglets cause changes to the handling characteristics of the F900 Series aircraft. Minor modifications to the Pitch ARTHUR system have been made to compensate for those changes.
- B. References
 - (1) API F90-0230 Pitch Feel Wiring Diagrams
 - (2) Dassault 27-307 Functional Test of the Pitch ARTHUR Control System (F900 / F900EX)
 - (3) Dassault 27-308 Functional Test of the Pitch ARTHUR Control System (F900EX EASy)

2. Modification Description (Refer to Figures 1 and 2)

- A. The Pitch ARTHUR control box (42CW) receives primary input signals from the Slats, and the Horizontal Stabilizer. Airspeed data, a weight-on-wheels discrete signal, and formerly, a discrete signal from the middle air brakes panels are also processed. The control box uses these input signals to generate the “ARTHUR laws” that change the position of the ARTHUR variable bellcrank (43CW). The position of the ARTHUR actuator causes compression or decompression of the Main Artificial Feel Unit (524CW) that increases or decreases the force required to move the elevators.
- B. Wiring changes incorporated under the API blended winglet modification remove the middle air brakes discrete signal input to the Elevator ARTHUR control box. A constant 28 vdc input directly from the Pitch Feel (41CV) circuit breaker is sent to the Elevator ARTHUR control box on the air brakes input pin. This signal does not change the ARTHUR logic. The signal does cause the the Elevator ARTHUR control box to move the ARHTUR variable bellcrank from the default low-force position to the high-force position at a faster rate.

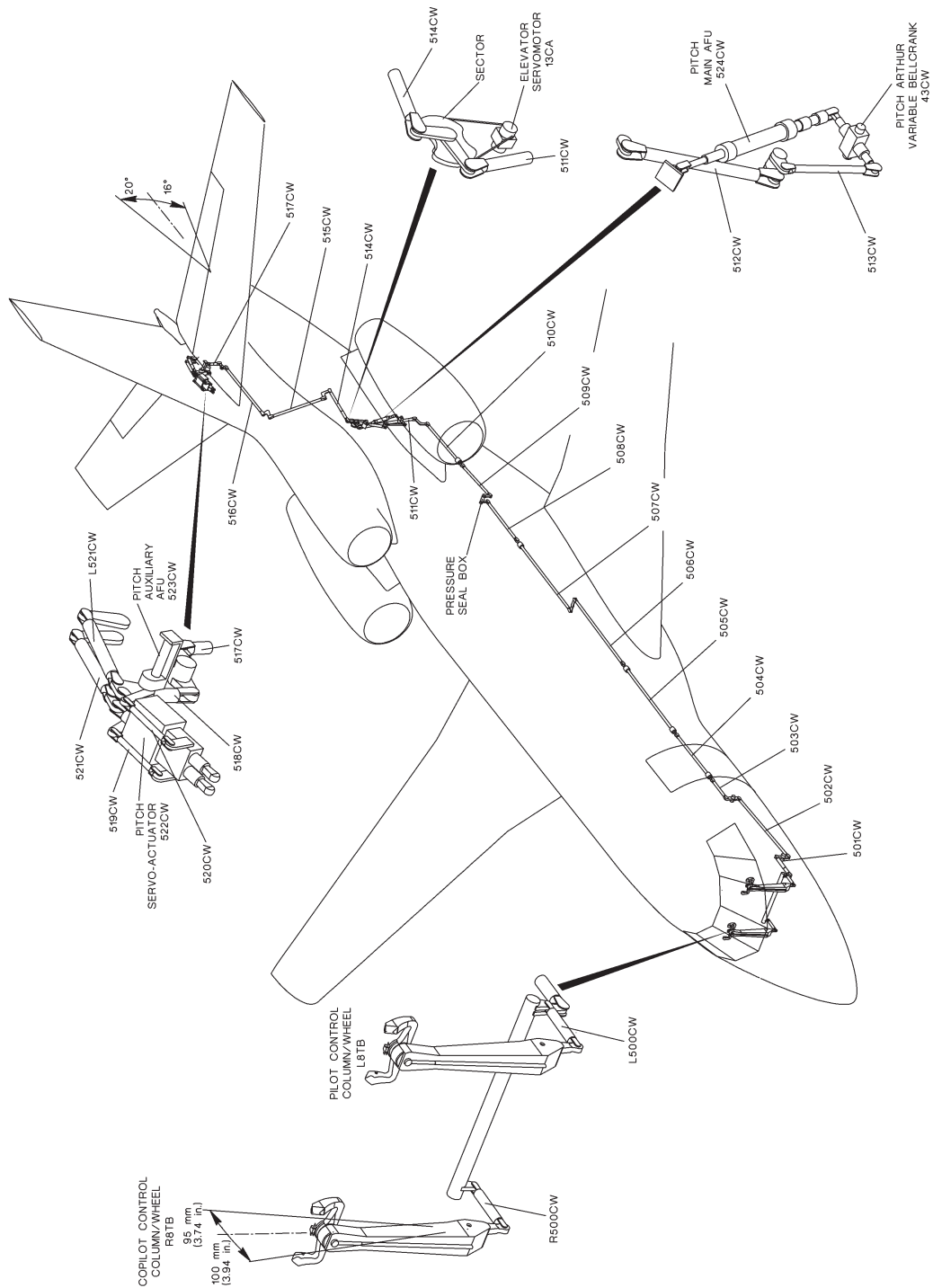


FIGURE 1: PITCH ARTHUR COMPONENTS

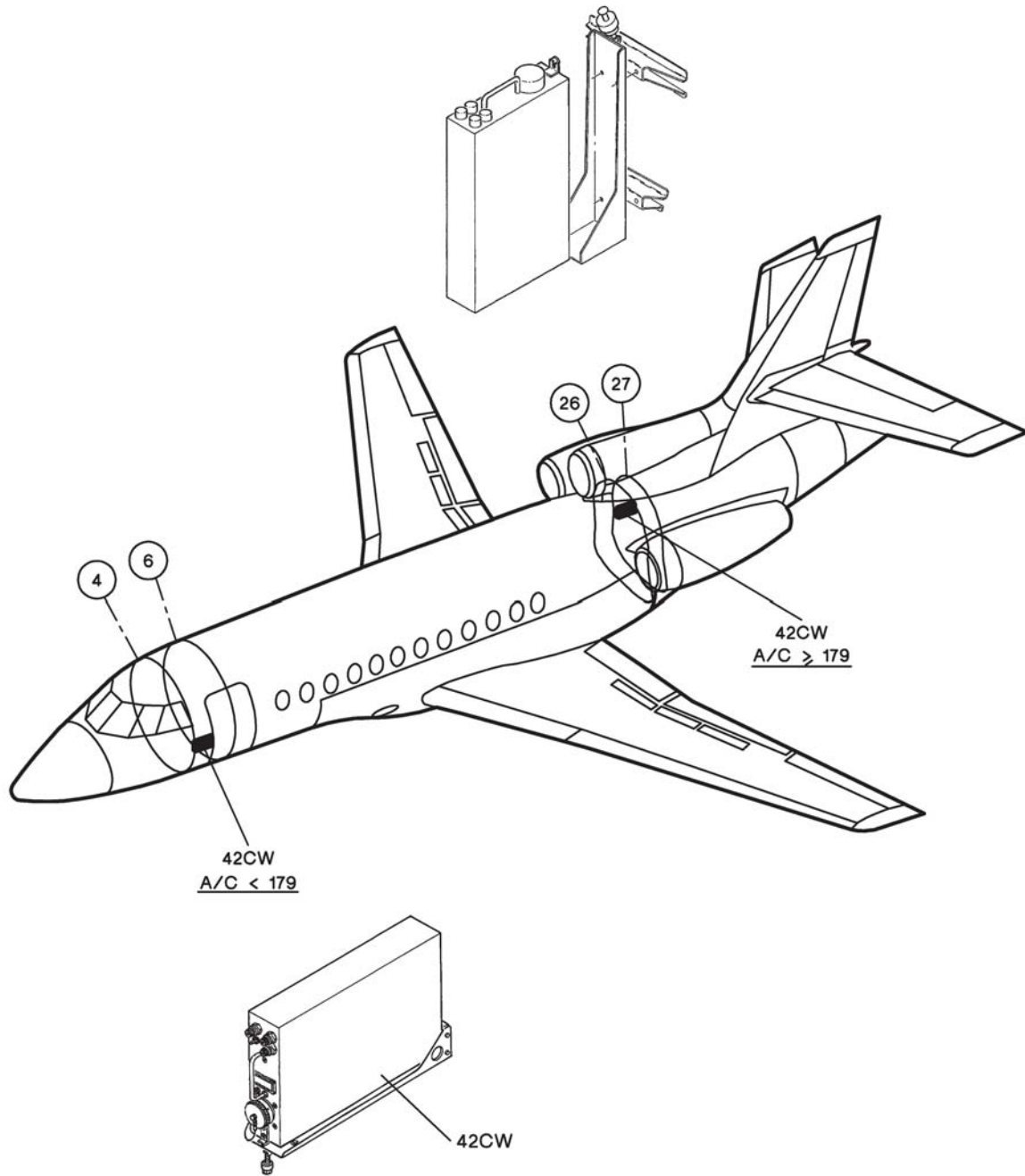


FIGURE 2: ELEVATOR ARTHUR CONTROL BOX LOCATIONS



PITCH ARTHUR CONTROL SYSTEM FUNCTIONAL TEST

1. General

- A. This supplemental procedure is to be used with Dassault 27-307 (Functional Test of the Pitch Arthur System). The installation of the Winglet modification and the changes to Pitch Arthur control wiring cause changes in the Test in Normal Operation of this system.
- B. The Test with Airbrakes does not apply to airplanes with the Winglet modification.
- C. Refer to these related maintenance procedures:
 - (1) 24-000 Energizing the Aircraft
 - (2) 27-026 Use of Flight Control Surface Deflection Measuring Fixtures
 - (3) 27-811 Extension / Retraction of Slat and Flaps
 - (4) 29-001 Pressurization of Hydraulic Systems
 - (5) 32-318 Use of Ground / Flight Box
 - (6) 34-113 Connection / Disconnection of the Digital Air Data Bench
 - (7) 55-110 Removal / Installation of Spring Loaded Fairings (A/C \geq 179)
- D. Refer to API Drawing F90-0221 Pitch ARTHUR Wiring Modifications for wiring data.

2. Tools and Equipment

- A. Break-out Box (AE1093-01)
- B. Adapter FAL1669507 (A/C \geq 179)
- C. Adapter FAL1669510 (A/C $<$ 179)
- D. Adapter FAL1669511 (A/C $<$ 179)
- E. Radio Headsets (3)

3. Access

- A. 331BT (A/C $<$ 179)
- B. 810AL, 850AL (A/C \geq 179)
- C. 870AB



4. Procedure Overview

- A. Cockpit Controls and Indicators (Refer to Figures 1 and 2)
- B. Refer to Dassault Procedure 27-307 for all tasks in this procedure except for the “Test in Normal Operation.” Use the procedures in this supplement to check the functions of the Pitch ARTHUR System in Normal Operation mode.
- C. Do all checks in this Functional Test procedures in the order listed below:
 - (1) Preliminary Steps (Set-up and initial airplane configuration requirements)
 - (2) Test of Monitoring System
 - (3) Test in Normal Operation
 - (4) Test with Slats
 - (5) Test with Air Data
 - (6) Final Steps (Return the airplane to the operational configuration)
- D. The Dassault OEM procedures list several WARNINGS, CAUTIONS. These items mandatory and must be followed for safety. Notes listed in the OEM procedures are “Best Practices” and are recommended for use in these procedures.

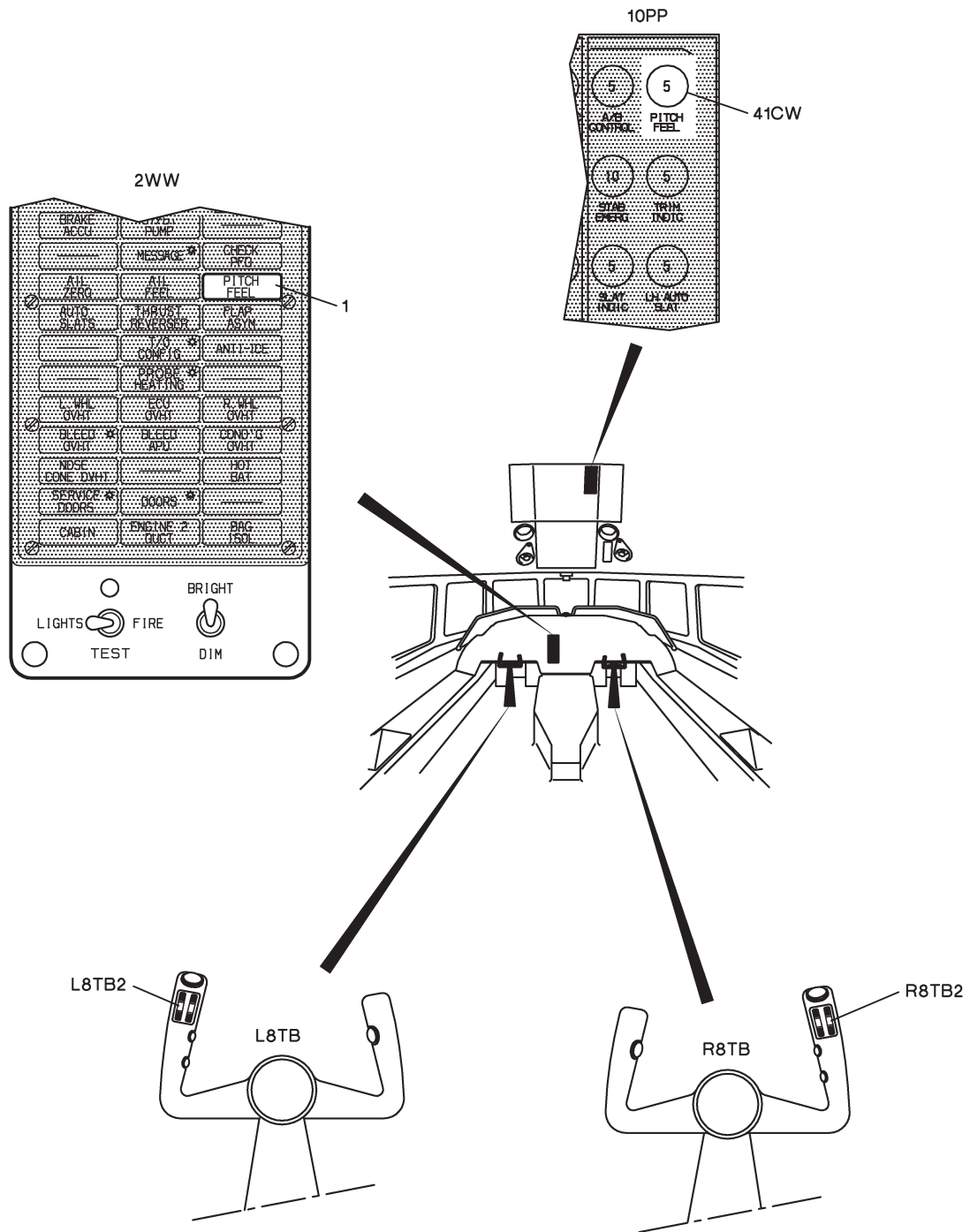


FIGURE 1: LOCATION OF COCKPIT CONTROLS AND INDICATORS
EFFECTIVITY: A/C \geq 179



5. Test in Normal Operation

- A. Location of Pitch Arthur Components (Refer to Figures 4 and 5)

NOTE: Three operators with radio headsets are required for this test:

- a) One operator in the cockpit set the Horizontal Stabilizer (HS) deflection
- b) A second operator reads the deflection values on the HS protractor
- c) A third operator measures the travel distance on pitch ARTHUR variable bellcrank (43CW).

NOTE: Hydraulic system 1 is still pressurized.

NOTE: Use a ruler to measure the pitch ARTHUR variable bellcrank travel.

- B. Use the ground / flight box to set the aircraft in flight configuration (refer to Dassault procedure 32-318, paragraph "Use...").
- C. Set Horizontal Stabilizer (HS) deflection to $-4^{\circ}30'$.
- D. Make sure that pitch ARTHUR variable bellcrank (43CW) is against its "low-speed" ARTHUR stop.
- E. Measure and record dimension (A) between a reference point (R) located on the variable bellcrank body and another point located at the end of the variable bellcrank rod (see Figure 4 or 5).

NOTE: Dimension (A) is the "low-speed" Arthur reference dimension.

- F. Measure the travel distance

- (1) Set HS deflection, in 1° increments, from -4° to $+1^{\circ}$.
- (2) For each HS deflection angle, measure and record dimension (B) between reference point (R) (chosen to measure dimension (A)) located on the variable bellcrank body and another point located at the end of the variable bellcrank rod (see figure 4 or 5).
- (3) Calculate the difference between dimension (B) and dimension (A).

NOTE: This difference represents travel value (C) of pitch ARTHUR variable bellcrank (43CW) (refer to Figure 4 or 5).

- (4) Record the measured values in Table 1, column "VALUE NOSE UP", opposite the corresponding HS deflection angle value.
- (5) Make sure that the recorded values are in compliance with Table 1, columns "MIN. "ARTHUR" TRAVEL" and "MAX. "ARTHUR" TRAVEL".
- (6) Set HS deflection to $+1^{\circ}30'$.
- (7) Do the same operations listed above and record the measured values in Table 1, column "VALUE NOSE DN", setting HS deflection, in 1° increments, from $+1^{\circ}$ to -4°



Table 1: Variation of the pitch ARTHUR variable bellcrank relative to Horizontal Stabilizer (HS) deflection.

HS Position	Min. ARTHUR Travel		Max. ARTHUR Travel		Value Nose Up	Value Nose Down
	mm	(in.)	mm	(in.)		
- 4"	0	(0)	2	(0.08)		
- 3"	9.5	(0.37)	15	(0.59)		
- 2"	21	(0.83)	27.5	(1.08)		
- 1"	33	(1.3)	42	(1.65)		
0	47.5	(1.87)	58	(2.28)		
+ 1"	62	(2.44)	65.7	(2.59)		

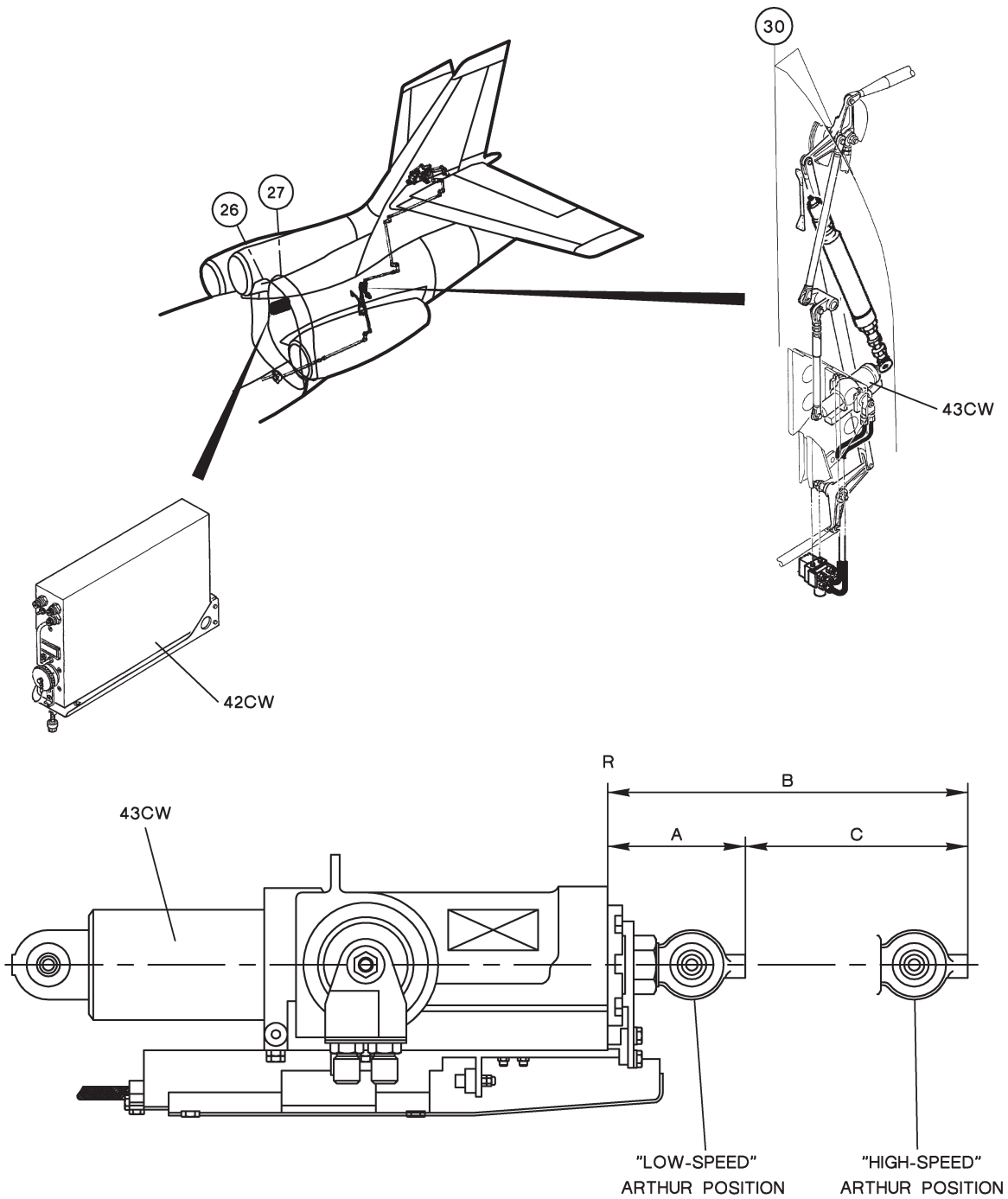


FIGURE 4: LOCATION OF PITCH ARTHUR COMPONENTS
EFFECTIVITY: A/C \geq 179

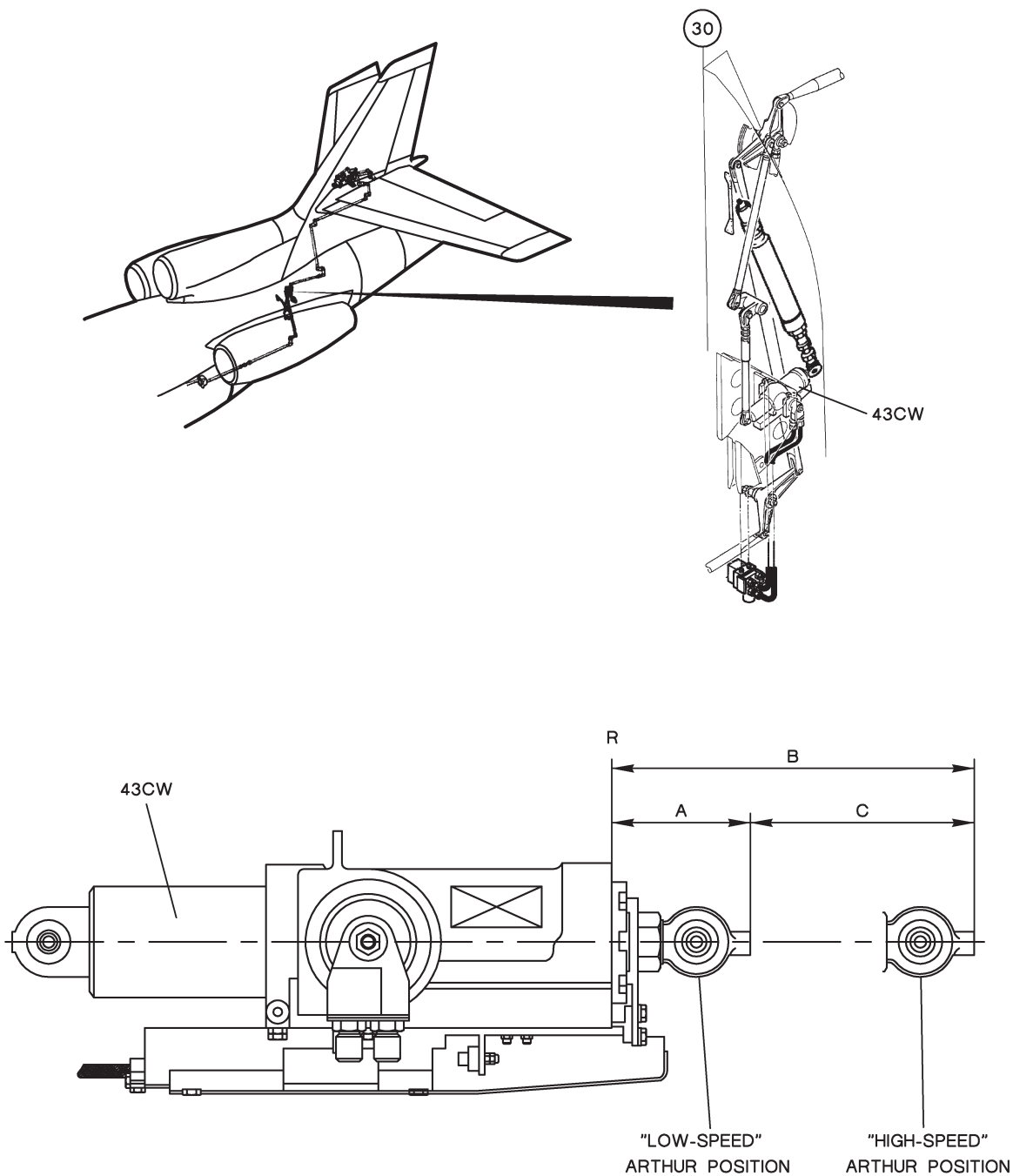


FIGURE 5: LOCATION OF PITCH ARTHUR COMPONENTS
EFFECTIVITY: A/C < 179



6. Test with the Airbrakes

This test is not valid for airplanes with the API Winglet Modification. The middle air brakes signal input to the Elevator ARTHUR control box has been removed as a part of the API blended winglet modification.

A constant 28 vdc input is supplied to the Elevator ARTHUR control box from the Pitch Feel (41CV) circuit breaker. This signal is applied to the control box on the pin previously used for the middle air brakes discrete signal. This input signal causes the Elevator ARTHUR control box to set the "ARTHUR law" to the high force-feel as the default in-flight setting.



AIRBRAKES – AB2 INHIBIT SYSTEM DESCRIPTION AND OPERATION

1. General

The AB2 Inhibit System is installed on aircraft with the API winglet modification to prevent deployment of the air brakes at speeds of 320 knots or greater. Deployment of the air brakes at high speeds can cause excessive wing loads.

2. System Description

- A. The AB2 Inhibit System receives airspeed inputs from the ARINC-429 GP2 bus. When the airspeed digital data indicates 320 KIAS or greater the AB2 control box interrupts power to the air brake solenoid selector valves, which causes the air brakes to retract. The air brakes will stay in the retracted position until the air brake lever on the Airbrakes / Tail Plane / Trim panel (2CF) is moved back to the “0” or “1” position. Once the air brakes lever is moved to the “0” or “1” position and the airspeed is reduced to < 320 KIAS, the airbrakes system is reset for normal operation.
- B. The AB2 control box is located on the copilot’s side panel aft. The control box receives 28 vdc from the A/B Control (1CD) circuit breaker. The control box monitors airspeed inputs from the ARINC bus, and a discrete input from the air brakes lever on the Airbrakes / Tail Plane / Trim panel. A single TEST / FAULT button indicates the status of this system.

3. System Test

- A. The AB2 Inhibit System TEST mode is enabled for ground test when the following conditions are set:
 - (1) The air brakes lever on the Airbrakes / Tail Plane / Trim panel is set to position 2 (all airbrakes extended)
 - (2) The airspeed is less than 50 KIAS
 - (3) ARINC data is available to the AB2 control box
- B. When the TEST button is pushed, input signals are checked and power to the air brake selector solenoids is interrupted. The TEST light (Green) lights and FAULT light (Amber) lights momentarily for approximately two (2) seconds, and the airbrakes fully retract within approximately 3.3 seconds. The TEST light stays on until the airbrakes lever is returned to the “0” or “1” position.
- C. Air brake position status is shown on the Primary Flight Displays (PFDs) on the F900EX EASy, or on the Configuration Panel (2DL) for the F900EX and F900 aircraft. Upon auto-retraction, the amber “Airbrakes” light will flash (F900, F900EX) or “AUTO RET” is annunciated (F900EX EASy)

4. Fault Indications

- A. If the FAULT light comes on and stays on when power is applied to the aircraft, a required signal input is missing. Make sure all required circuit breakers are closed, including the Left and Right Avionics Master switches and the Mini Load Master switch.
- B. A successful ground test clears the FAULT light. A FAULT light cannot be cleared in flight. AB2 test functions are disabled when the aircraft is in flight or moving faster than 50 KIAS.

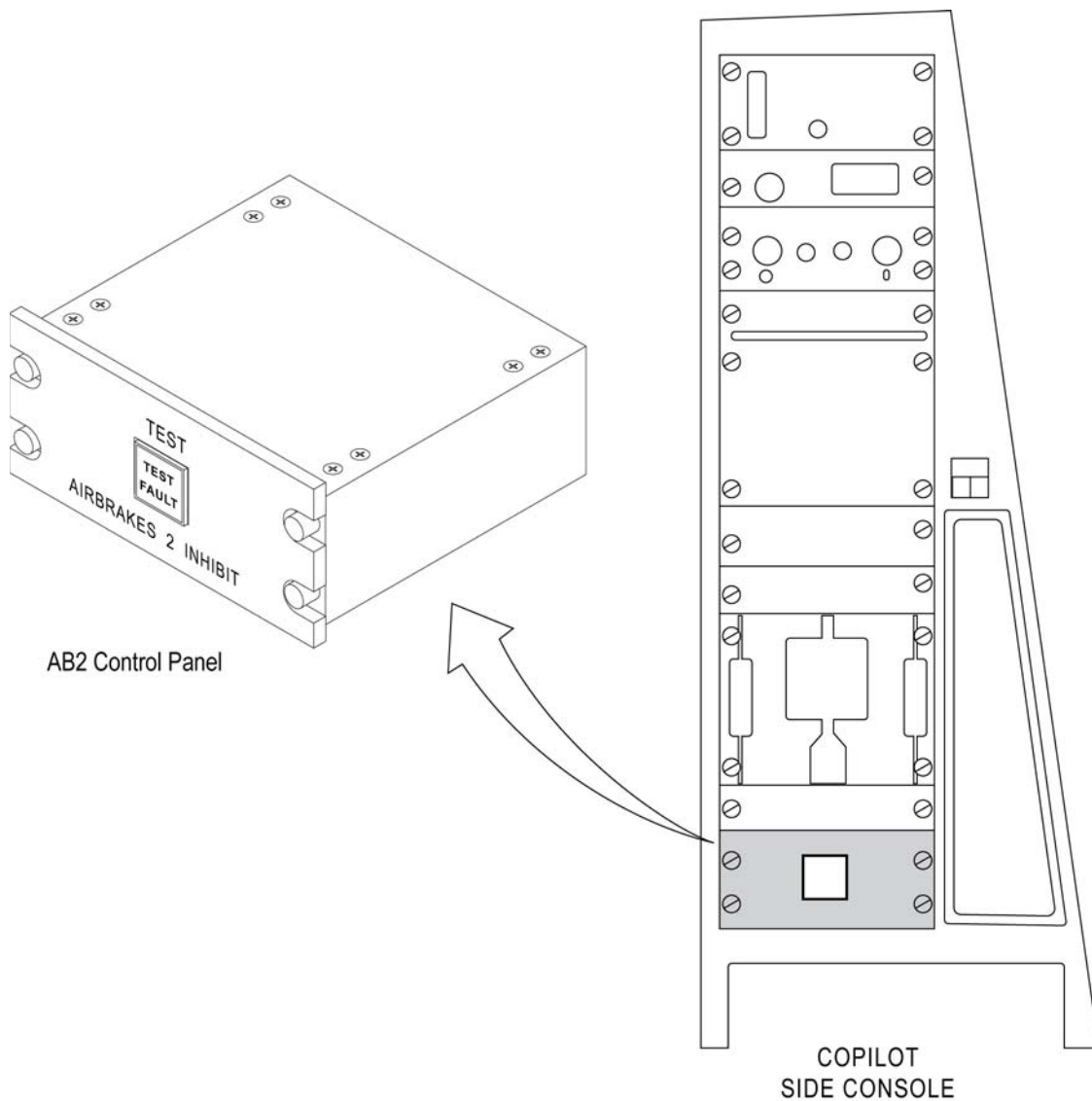


FIGURE 1: AB2 CONTROLS AND INDICATORS



AIR BRAKES – AB2 INHIBIT FUNCTIONAL TEST

1. General

- A. This test verifies proper operation of the AB2 control box, presence of required signal inputs to the control box, and AB2 initiated automatic retraction of the air brakes.
- B. References
 - (1) 27-605: Functional Test of Airbrakes Normal Mode and Automatic Retraction
 - (2) 24-000: Energizing the Aircraft
 - (3) 29-000: Pressurization of Hydraulic Systems
- C. Equipment Requirements
 - (1) Hydraulic ground power unit, or Standby Hyd Pump (optional)
 - (2) Electrical ground power unit

2. Air Brakes 2 Inhibit Functional Test

- A. This supplemental procedure has these steps:
 - (1) Preliminary Steps (Configure aircraft for test)
 - (2) AB2 Inhibit Functional Test
 - (3) Final Steps (Configure aircraft for normal operation)
- B. Preliminary Steps (Refer to Figure 1)

WARNING: Tell all persons in work on the airplane that flight surface tests are in progress. Make sure all persons are well clear of surfaces to be moved.

CAUTION: Move equipment and obstructions away from the flight control surfaces to be moved. Set up a safety perimeter and assign an external safety observer to monitor the test.

- (1) Make sure the A / B CONTROL (1CD) circuit breaker is closed on the center circuit breaker panel.
- (2) Set the air brakes control lever on the Air Brakes / Tail Plane / Trim panel (2CF) to "0".
- (3) Apply electrical power to the aircraft.
- (4) Set the LH and RH Avionics Master and Mini Load Master switches to ON.
- (5) Apply hydraulic power to the aircraft and pressurize hydraulic system 2.

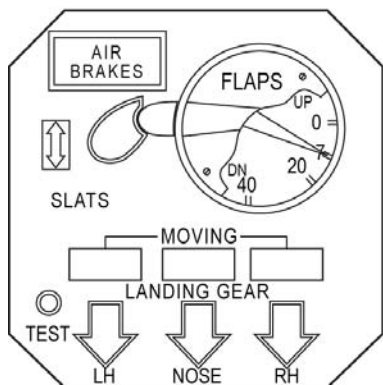


C. AB2 Inhibit Functional Test

- (1) Set the air brakes lever on the Air Brakes / Tail Plane / Trim panel (2CF) to position "2" and watch for these conditions:
 - (a) All air brake panels extend (approximately 1.8 seconds). Use of the Standby Hyd Pump may delay extension.
 - (b) The AIR BRAKE light on the Configuration panel flashes while the air brakes move to the deployed position.
 - (c) The AIR BRAKE light on the Configuration panel stays on when the air brakes are fully deployed.
- (2) Push the Test button on the AB2 Control panel and watch for these conditions:
 - (a) On the AB2 Control panel both the FAULT and TEST lights come on. FAULT goes out and TEST stays while the test is in progress.
 - (b) The AIR BRAKE light flashes on the Configuration panel while the airbrakes retract.
 - (c) All air brake panels retract (approximately 3.3 seconds). Use of the Standby Hyd Pump may delay retraction.
 - (d) The AIR BRAKE light the Configuration panel stays on. This indicates a mismatch between the actual air brakes position and the position of the air brakes control lever on the Air Brakes / Tail Plane / Trim panel.
- (3) Set the air brakes control lever to "0" and make sure the AIR BRAKE light on the Configuration panel and the TEST light on the AB2 Control panel go out.

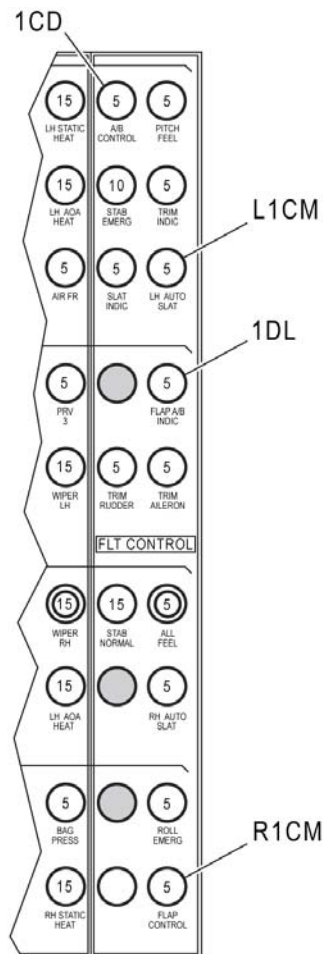
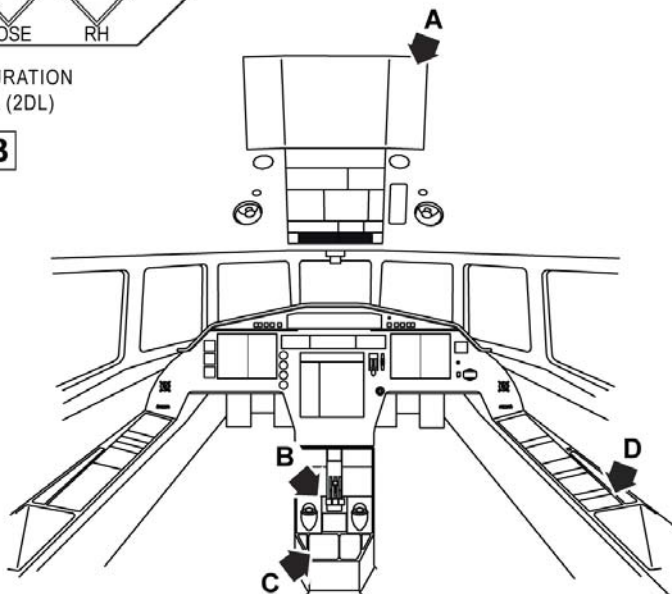
D. Final Steps

- (1) In the flight station, shut off hydraulic system 2.
- (2) Set the LH and RH Avionics Master switches and Mini Load Master switch to OFF.
- (3) In the flight station, shut off aircraft electrical power.
- (4) Shut off and bleed pressure from the external hydraulic unit if used, and remove the unit.
- (5) Shut down and remove the external electrical power unit.



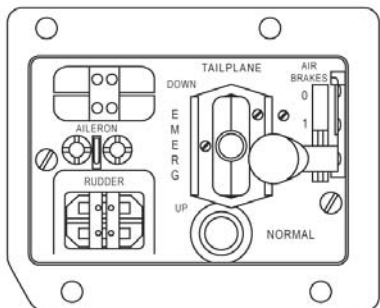
CONFIGURATION
 PANEL (2DL)

B



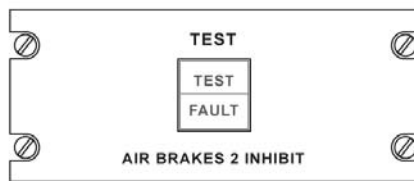
CENTER CIRCUIT
 BREAKER PANEL

A



TRIM / TAIL PLANE / AIRBRAKES
 CONTROL PANEL (2CF)

C



D

FIGURE 501: LOCATION OF COCKPIT CONTROLS AND INDICATORS



AIRBRAKES – AB2 INHIBIT FUNCTIONAL TEST

1. General

- A. This test verifies proper operation of the AB2 control box, presence of required signal inputs to the control box, and AB2 initiated automatic retraction of the air brakes.
- B. References
 - (1) 27-602: F900EX EASy Functional Test of Air Brakes Normal Mode and Automatic Retraction
 - (2) 24-000: Energizing the Aircraft
 - (3) 29-000: Pressurization of Hydraulic Systems
- C. Equipment Requirements
 - (1) Hydraulic ground power unit, or Standby Hyd Pump (optional)
 - (2) Electrical ground power unit

2. Air Brakes 2 Inhibit Functional Test

- A. This supplemental procedure has these steps:
 - (1) Preliminary Steps (Configure aircraft for test)
 - (2) AB2 Inhibit Functional Test
 - (3) Final Steps (Configure aircraft for normal operation)
- B. Preliminary Steps (Refer to Figure 1)

WARNING: Tell all persons in work on the airplane that flight surface tests are in progress. Make sure all persons are well clear of surfaces to be moved.

CAUTION: Move equipment and obstructions away from the flight control surfaces to be moved. Set up a safety perimeter and assign an external safety observer to monitor the test.

- (1) Make sure the A / B CONTROL (1CD) circuit breaker is closed on the center circuit breaker panel.
- (2) Set the air brakes control lever on the Air Brakes / Tail Plane / Trim panel (2CF) to "0".
- (3) Apply electrical power to the aircraft.
- (4) Set the LH and RH Avionics Master switches and Mini Load Master switch to ON.
- (5) Apply hydraulic power to the aircraft and pressurize hydraulic system 2.



C. AB2 Inhibit Functional Test

- (1) Set the air brakes lever on the Air Brakes / Tail Plane / Trim panel (2CF) to position "2".
- (2) Make sure all air brakes panels extend (approximately 1.8 seconds). Use of the Standby Hyd Pump may delay extension.
- (3) The AIR BRAKE symbol on the Left and Right PFDs replaces the [CLEAN] lable.
- (4) Push the Test button on the AB2 Control panel and watch for these conditions:
 - (a) On the AB2 Control panel both the FAULT and TEST lights come on. FAULT goes out and TEST stays while the test is in progress.
 - (b) The [AUTO RET] lable is shown over the AIR BRAKE symbol on the PFDs.
 - (c) All airbrake panels retract (approximately 3.3 seconds). Use of the Standby Hyd Pump may delay retraction.
 - (d) The [AUTO RET] lable stays on over the AIR BRAKE symbol on the PFDs. This indicates a mismatch between the actual air brakes position and the position of the air brakes control lever on the Air Brakes / Tail Plane / Trim panel.
 - (e) Set the airbrake control lever to "0" and make sure the [CLEAN] lable replaces the AIR BRAKES symbol on the PFDs and the TEST light on the AB2 Control panel goes out.

D. Final Steps

- (1) In the flight station, shut off hydraulic system 2.
- (2) Set the LH and RH Avionics Master Switches and Mini Load Master switch to OFF.
- (3) In the flight station, shut off aircraft electrical power.
- (4) Shut off and bleed pressure from the external hydraulic unit if used, and remove the unit.
- (5) Shut down and remove the external electrical power unit.

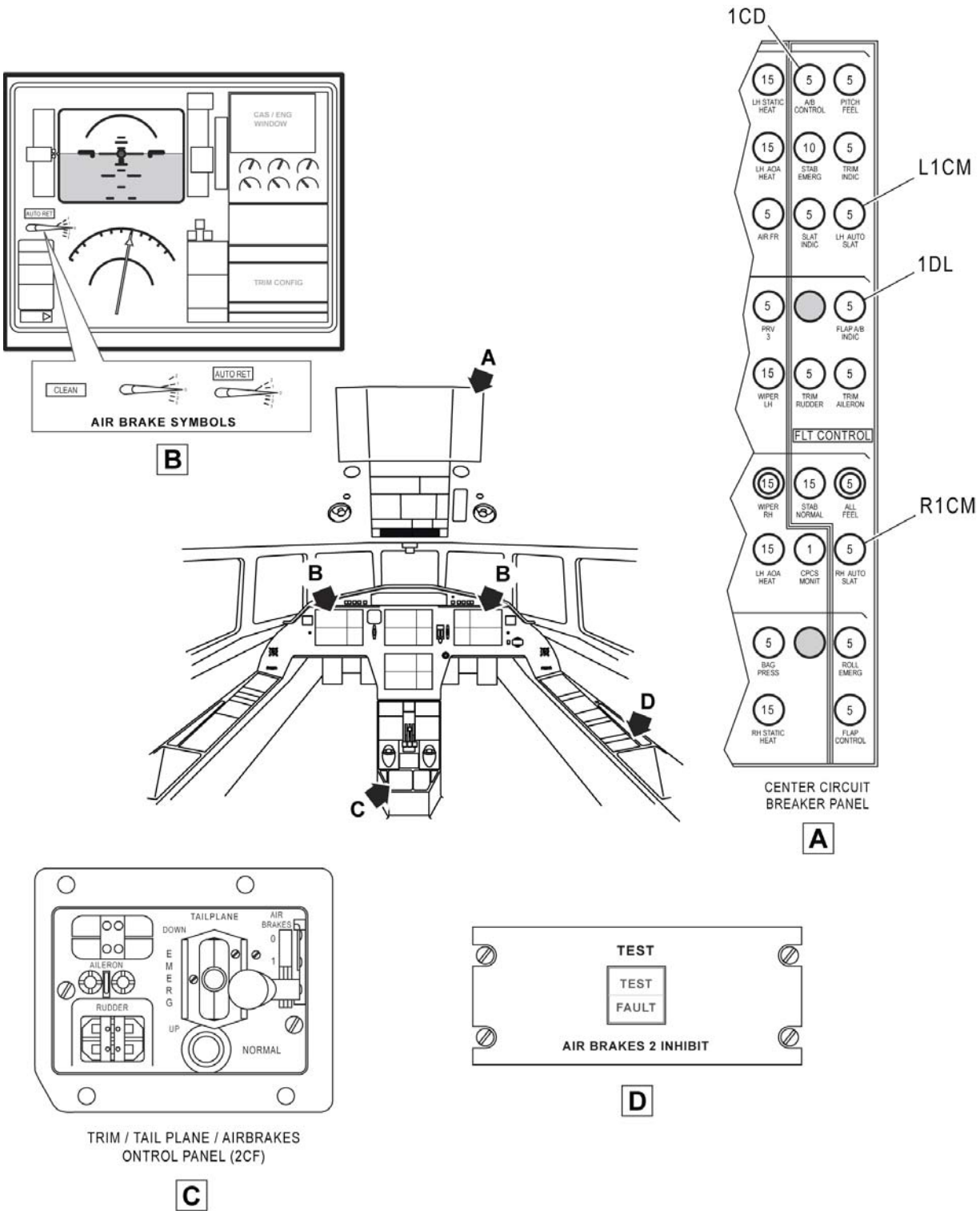


FIGURE 501: LOCATION OF COCKPIT CONTROLS AND INDICATORS



SLAT FUNCTIONAL CHECK

1. General

- A. This supplemental procedure is to be used along with Dassault 27-803 (Slat Functional Test). The installation of the Winglet modification and the changes to Slat Control and Monitoring wiring change the results of the Dassault OEM 27-803 procedure.
- B. The Dassault OEM procedures list several WARNINGS, CAUTIONS. These items mandatory and must be followed for safety. Notes listed in the OEM procedures are “Best Practices” and are recommended for use in these procedures.
- C. References
 - (1) API Drawing F90-0074 Slat Functional Check
 - (2) API Drawing F90-0095 Slat Control Wiring Modification
 - (3) API Drawing F90-0223 Slats Monitoring Wiring Diagrams

2. Tools and Equipment

- A. Chronometer
- B. Protractors for LH and RH angle-of-attack sensors FGFB934503A1 (A/C without SB F900-45).
- C. Protractors for LH and RH angle-of-attack sensors FGFB934503A3 or FGFB934503R2 (A/C with SB F900-45).
- D. Cutoff box equipped with one connector on the aircraft wiring side P/N 85100RC14-19P55, and one connector on the angle-of-attack sensor side P/N 85100RC14-19S55 (A/C without SB F900-45).

3. Slat Checks

- A. This supplemental procedure has these checks:
 - (1) Preliminary Steps (Configure aircraft for checks)
 - (2) Check of LH Protection
 - (3) 16° Threshold of RH AoA – Hydraulic #1 – LH Protection Simulated Inoperative
 - (4) 16° Threshold of RH AoA – Hydraulic #2 – LH Protection Simulated Inoperative
 - (5) 16° Threshold of RH AoA – Loss of Hyd 1 Simulated
 - (6) Final Steps (Configure aircraft for normal operation)



4. **Preliminary Steps**

- A. Refer to to Figure ures 1 and 2: Check of Angle of Attack Sensor Deflection
- B. Install the safety fences and the warning lights.
- C. Connect the electrical ground power unit (Refer to Dassault OEM procedure 24-000, paragraph "Connection of the Electrical Ground Power Unit").
- D. In the cockpit, make sure that:
 - (1) On slats / flaps control box (2CG), slats / flaps control lever is set to "CLEAN".
 - (2) On airbrake / tailplane / trims control box (2CF), airbrake control lever is set to "0".
 - (3) "EMERG SLATS "switch is set to normal position (guard lowered).
- E. Check the electrical zero setting of LH and RH AoA sensors (L11CM) and (R11CM) (Refer to Dassault OEM procedure 27-805, paragraphs "Preliminary Steps" then "Adjustment of LH AoA Sensor" and "Adjustment of RH AoA Sensor").
- F. Install in-flight simulating tools to simulate FLIGHT configuration (Refer to Dassault OEM procedure 32-319, paragraph "Use").
- G. Energize the aircraft systems (Refer to Dassault OEM procedure 24-000, paragraph "Energization with the Electrical Ground Power Unit").

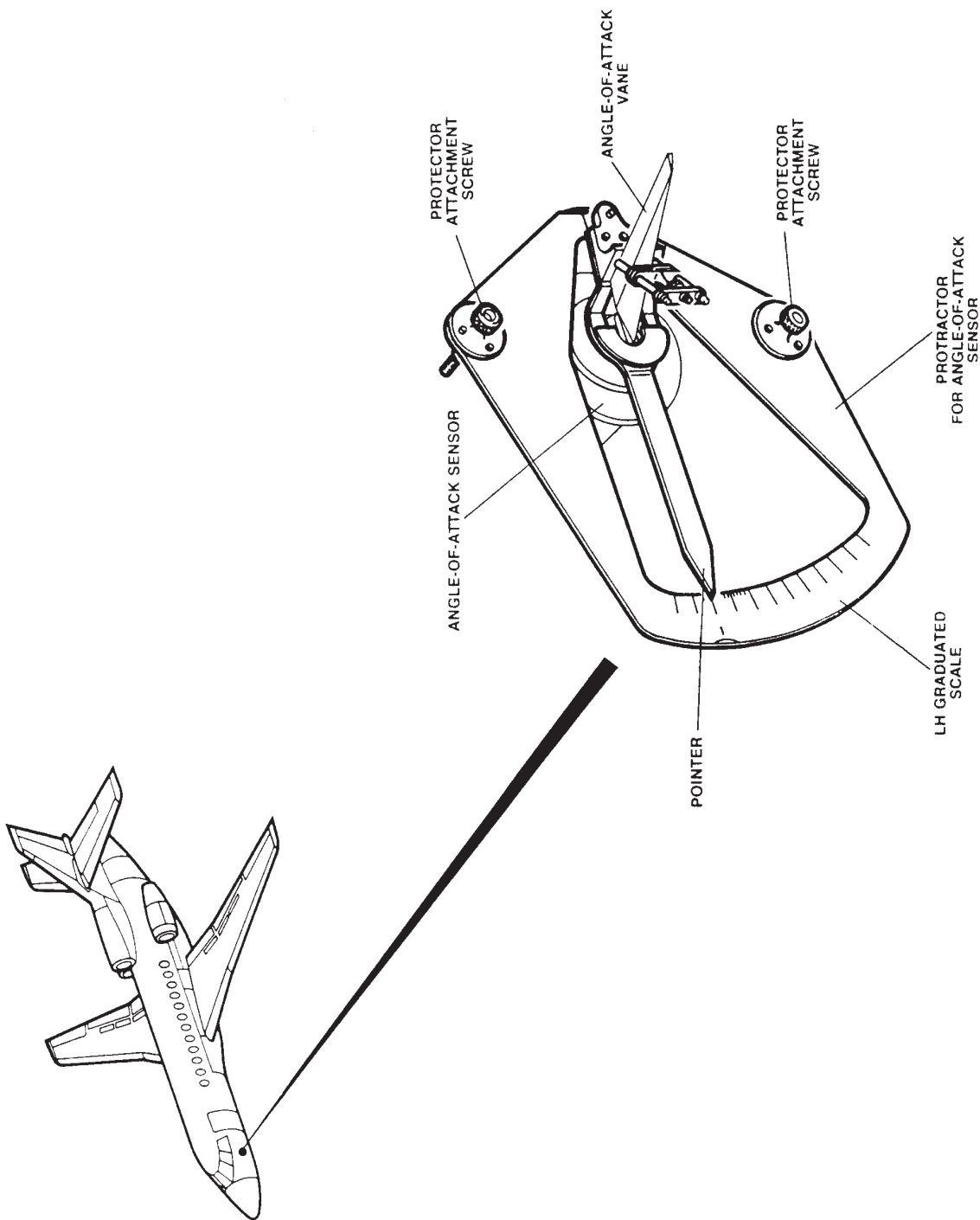


FIGURE 1: CHECK OF ANGLE-OF-ATTACK SENSOR DEFLECTION
EFFECTIVITY: A/C WITHOUT SB F900-45

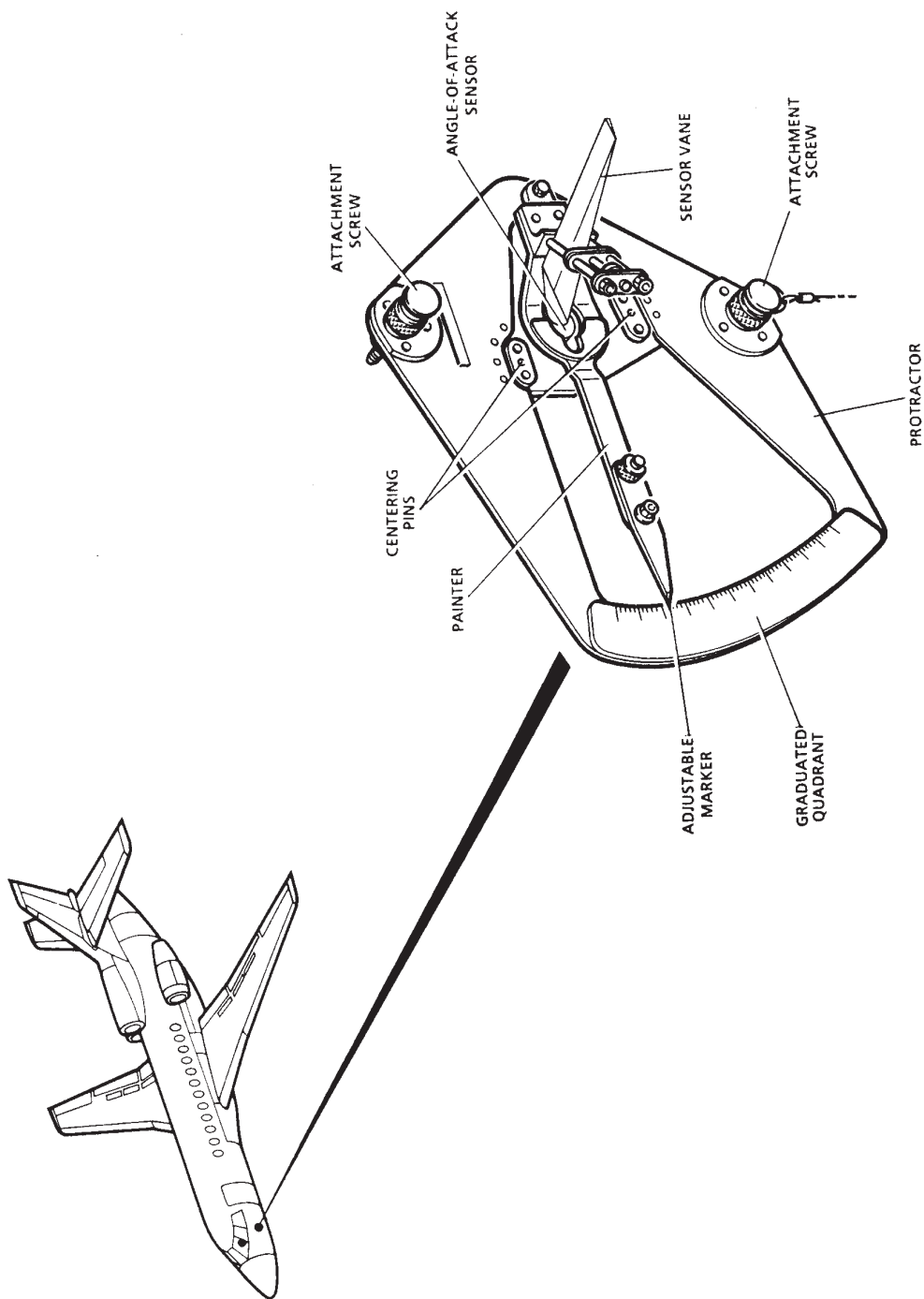


FIGURE 2: CHECK OF ANGLE-OF-ATTACK SENSOR DEFLECTION
EFFECTIVITY: A/C WITH SB F900-45



5. Check of LH Protection

A. Before starting this test:

- (1) Pressurize hydraulic systems 1 with stand-by electrical pump (Refer to Dassault OEM procedure 29-001, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (2) Check that slats are retracted.
- (3) To simulate hydraulic system #1 pressure, disconnect pressure switches 2DW1 (or L2DW) and 2DW2 (or M2DW).

B. Functional test through 14° threshold of LH AoA sensor (L11CM)

- (1) Slowly move the pointer support (Refer to Dassault OEM procedure 27-801 C Figure 1) to increase the LH AoA sensor angle (L11CM).
- (2) Make sure that when angle 14° ± 30' is reached:
 - (a) The outboard slats extend
 - (b) The amber "IGN 1", "IGN 2" and "IGN 3" lights on the overhead panel come on (A/C < 179). On A/C > 179, the "IGN" messages are displayed on the "ENG" page of EID (Engine Instrument Display) (62FV).
- (3) On configuration panel (2DL), once the outboard slats are fully extended, make sure that:
 - (a) Green slat indicator light is illuminated (flashing),
 - (b) Red indicator light (opposite double head arrow) is extinguished.
- (4) Select an IAS > 265 kt on the pilot air pressure systems.
 - (a) Make sure that the outboard slats retract.
- (5) Select an IAS < 265 kt on the pilot air pressure system.
 - (a) Make sure that the outboard slats extend.
- (6) Slowly set LH AoA sensor (L11CM) to 0° by moving pointer support of LH AoA sensor protractor.
 - (a) Make sure that the outboard slats retract.



- C. Slats previously extended through the LH protection, check that RH protection is inoperative
- (1) Maintain LH AoA at an angle of $14^{\circ} \pm 30'$. Make sure that outboard slats remain extended.
 - (2) Slowly move the pointer support (Refer to Dassault OEM procedure 27-801 C Figure 1) to increase the RH AoA sensor (R11CM) angle to an angle of $17^{\circ} \pm 30'$ and make sure that:
 - (a) The amber "IGN 1", "IGN 2" and "IGN 3" lights on the overhead panel come on (A/C < 179). On A/C > 179, the "IGN" messages are displayed on the "ENG" page of EID (Engine Instrument Display) (62FV).
 - (b) Emergency control valve R3CM is not energized (slide valve motion is noisy therefore could be easily identified).



6. 16° Threshold of RH AoA – Hydraulic #1 – LH Protection Simulated Inoperative

A. Before starting this test:

- (1) #1 hydraulic systems 1 is pressurized.
- (2) To simulate #1 pump pressure, pressure switches 2DW1 on A/C <179 (or L2DW on A/C >=179) and 2DW3 on A/C <179 (or R2DW on A/C >=179) are disconnected.
- (3) LH AoA angle (L11CM) < 13° and RH AoA angle (R11CM) < 13°. On slats / flaps control box (2CG), the slat control lever must be set to "CLEAN".
 - (a) Check that slats are retracted.

B. Functional test through 16° threshold of RH AoA sensor (R11CM)

- (1) Slowly move the pointer support (Refer to Dassault OEM procedure 27-803 Figure 1 or 2) to increase the RH AoA sensor angle (R11CM).
- (2) Make sure that when angle 16° ± 30' is reached:
 - (a) The outboard slats extend.
 - (b) The amber "IGN 1", "IGN 2" and "IGN 3" lights on the overhead panel come on (A/C < 179). On A/C > 179, the "IGN" messages are displayed on the "ENG" page of EID (Engine Instrument Display) (62FV).
- (3) On configuration panel (2DL), once the outboard slats are fully extended, make sure that:
 - (a) Green slat indicator light is illuminated (flashing).
 - (b) Red indicator light (opposite double head arrow) is extinguished.



7. 16° Threshold of RH AoA – Hydraulic #2 – LH Protection Simulated Inoperative

A. Before starting this test

- (1) De-pressurize hydraulic system 1.
- (2) Pressurize hydraulic systems 2 with stand-by electrical pump (Refer to Dassault OEM procedure 29-001, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (3) Check that slats are retracted.

B. Functional test through 16° threshold of RH AoA sensor (R11CM)

- (1) Slowly move the pointer support (Refer to Dassault OEM procedure 27-803C Figure 1 or 2) to increase the RH AoA sensor angle (R11CM).
- (2) Make sure that when angle $16^\circ \pm 30'$ is reached:
 - (a) The outboard slats extend.
 - (b) The amber "IGN 1", "IGN 2" and "IGN 3" lights on the overhead panel come on (A/C < 179). On A/C > 179, the "IGN" messages are displayed on the "ENG" page of EID (Engine Instrument Display) (62FV).
- (3) On configuration panel (2DL), once the outboard slats are fully extended, make sure that:
 - (a) Green slat indicator light is illuminated (flashing).
 - (b) Red indicator light (opposite double head arrow) is extinguished.



8. 16° Threshold of RH AoA – Loss of Hyd 1 Simulated

A. Before starting this test:

- (1) De-pressurize hydraulic system 2.
- (2) Pressurize hydraulic systems 1 with stand-by electrical pump (Refer to Dassault OEM procedure 29-001, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (3) Check that outboard slats retract.
- (4) De-pressurize hydraulic system 1.
- (5) Pressurize hydraulic systems 2 with stand-by electrical pump (Refer to Dassault OEM procedure 29-001, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (6) Reconnect pressure switches (loss of Hyd 1 is detected) 2DW1 on A/C <179 (or L2DW on A/C >=179) and 2DW3 on A/C <179 (or R2DW on A/C >=179)
- (7) LH AoA angle (L11CM) < 13° and RH AoA angle (R11CM) < 13°. On slats / flaps control box (2CG), the slat control lever must be set to "CLEAN".
 - (a) Check that slats are retracted.

B. 4.2. Functional test through 16° threshold of RH AoA sensor (R11CM)

- (1) Slowly move the pointer support (Refer to Dassault OEM procedure 27-801 C Figure 1) to increase the RH AoA sensor angle (R11CM).
- (2) Make sure that when angle 16° ± 30' is reached:
 - (a) The outboard slats extend.
 - (b) The outboard slats emergency valve (R3CM) is energized (emergency valve motion is noisy therefore is easily identified).
 - (c) The amber "IGN 1", "IGN 2" and "IGN 3" lights on the overhead panel come on (A/C < 179). On A/C > 179, the "IGN" messages are displayed on the "ENG" page of EID (Engine Instrument Display) (62FV).
- (3) On configuration panel (2DL), once the outboard slats are fully extended, make sure that:
 - (a) Green slat indicator light is illuminated (flashing),
 - (b) Red indicator light (opposite double head arrow) is extinguished.



- (4) Move the pointer support to decrease the sensor angle and read an angle $< 15^\circ$.
 - (a) Make sure that outboard slats start to retract. If needed, ensure partial retraction by manually pushing the slats.

- (5) As soon as both outboard slats begin retracting, quickly move the vane of RH AoA sensor (R11CM) to increase the sensor angle and read an angle $> 16^\circ 30'$.
 - (a) Make sure that outboard slats start to extend again before they are fully retracted.



9. Final Steps

- A. De-pressurize hydraulic system 2.
- B. De-energize the aircraft systems (Refer to Dassault OEM procedure 24-000, paragraph "De-Energization with the electrical Ground Power Unit").
- C. Remove the in-flight simulating tools (Refer to Dassault OEM procedure 32-319, paragraph "removal").
- D. Reconfigure LH and RH AoA sensors (L11CM) and (R11CM) (Refer to Dassault OEM procedure 27-804, paragraphs "Final Steps").
- E. Disconnect the electrical ground power unit (Refer to Dassault OEM procedure 24-000, paragraph "Disconnection of the Electrical Ground Power Unit").
- F. Remove the safety fences and the warning lights.



SLAT FUNCTIONAL CHECK

1. General

- A. This supplemental procedure is to be used along with Dassault 27-803 (Slat Functional Test). The installation of the Winglet modification and the changes to Slat Control and Monitoring wiring change the results of the Dassault OEM 27-803 procedure.
- B. The Dassault OEM procedures list several WARNINGS, CAUTIONS. These items mandatory and must be followed for safety. Notes listed in the OEM procedures are “Best Practices” and are recommended for use in these procedures.
- C. References
 - (1) API Drawing F90-0074 Slat Functional Check
 - (2) API Drawing F90-0095 Slat Control Wiring Modification
 - (3) API Drawing F90-0223 Slats Monitoring Wiring Diagrams

2. Tools and Equipment

- A. Chronometer
- B. Protractors for LH and RH angle-of-attack sensors FGFB934503A1 (A/C without SB F900-45).
- C. Protractors for LH and RH angle-of-attack sensors FGFB934503A3 or FGFB934503R2 (A/C with SB F900-45).
- D. Cutoff box equipped with one connector on the aircraft wiring side P/N 85100RC14-19P55, and one connector on the angle-of-attack sensor side P/N 85100RC14-19S55 (A/C without SB F900-45).

3. Slat Checks

- A. This supplemental procedure has these checks:
 - (1) Preliminary Steps (Configure aircraft for checks)
 - (2) Check of LH Protection
 - (3) 16° Threshold of RH AoA – Hydraulic #1 – LH Protection Simulated Inoperative
 - (4) 16° Threshold of RH AoA – Hydraulic #2 – LH Protection Simulated Inoperative
 - (5) 16° Threshold of RH AoA – Loss of Hyd 1 Simulated
 - (6) Final Steps (Configure aircraft for normal operation)



4. **Preliminary Step**

- A. Refer to Figure 1: Functional Test of Slats
- B. Install the safety fences and the warning lights.
- C. Connect the electrical ground power unit (Refer to Dassault OEM procedure 24-000, paragraph "Connection of the Electrical Ground Power Unit").
- D. In the cockpit, make sure that:
 - (1) On slats / flaps control box (2CG), slats / flaps control lever is set to "CLEAN".
 - (2) On overhead panel (1), engine 1, 2, and 3 start selector switches (L3KK, M3KK, and R3KK) are set to "GRD START".
 - (3) On airbrake / tailplane / trims control box (2CF), airbrake control lever is set to "0".
 - (4) "EMERG SLATS" switch is set to normal position (guard lowered).
- E. Check the electrical zero setting of LH and RH AoA sensors (L11CM) and (R11CM) (Refer to Dassault OEM procedure 27-804, paragraphs "Preliminary Steps" then "Adjustment of LH AoA Sensor" and "Adjustment of RH AoA Sensor").
- F. Install in-flight simulating tools to simulate FLIGHT configuration (Refer to Dassault OEM procedure 32-319, paragraph "Use").
- G. Energize the aircraft systems (Refer to Dassault OEM procedure 24-000, paragraph "Energization with the Electrical Ground Power Unit").

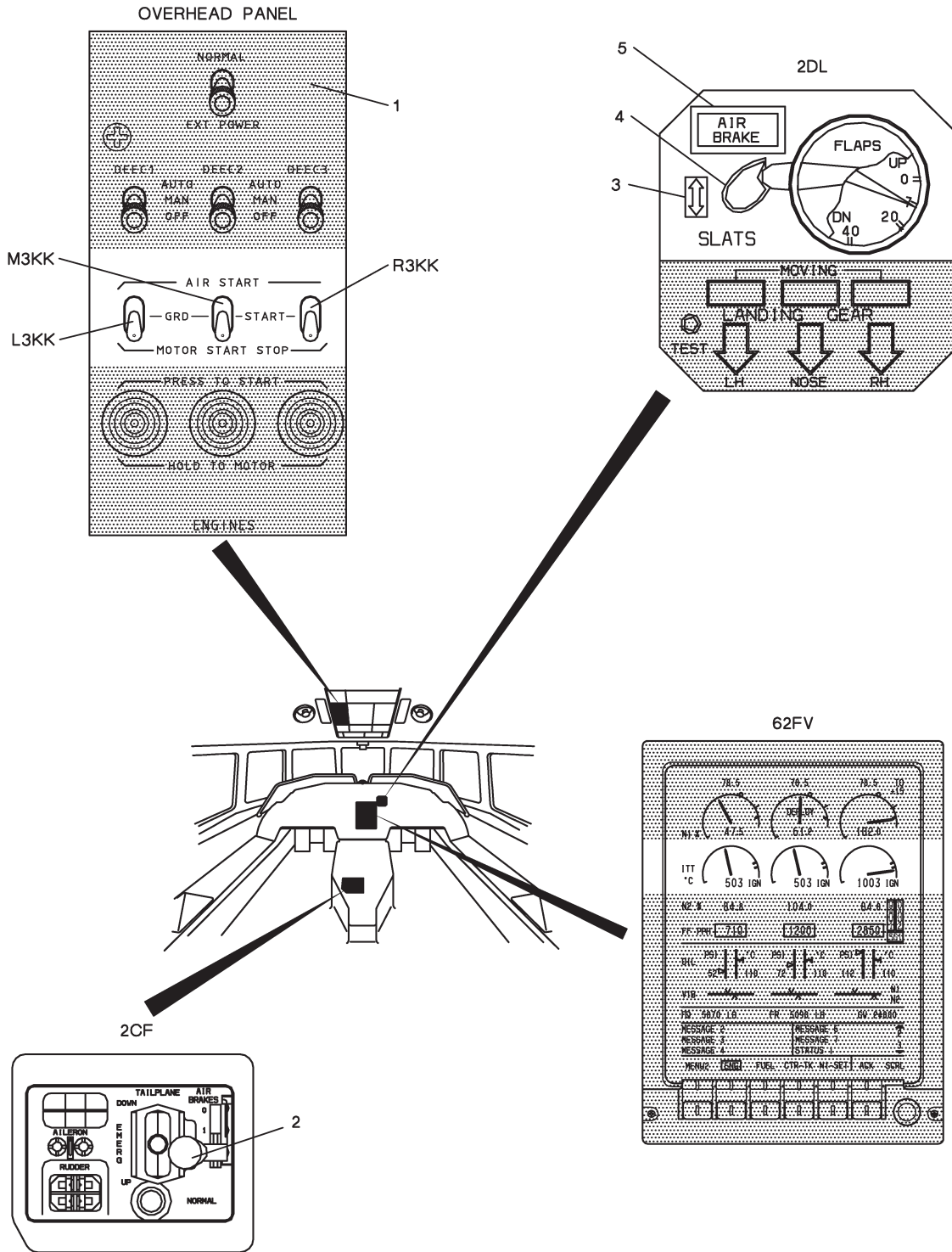


FIGURE 1: FUNCTIONAL TEST OF SLATS



5. Check of LH Protection

A. Before starting this test:

- (1) Pressurize hydraulic systems 1 with stand-by electrical pump (Refer to Dassault OEM procedure 29-000, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (2) Select and IAS < 265 kt on the pilot air pressure system.
- (3) Check that slats are retracted.
- (4) To simulate hydraulic system #1 pressure, disconnect pressure switches L2DW and R2DW.

B. Functional test through 14° threshold of LH AoA sensor (L11CM)

- (1) Slowly move the pointer support (Refer to Dassault OEM procedure 27-801 c Figure 1) to increase the LH AoA sensor angle (L11CM).
- (2) Make sure that when angle $14^\circ \pm 30'$ is reached:
 - (a) The outboard slats extend
 - (b) Engine 1, 2 and 3 igniter plugs (L4EZ4, M4EZ4, R4EZ4, L4EZ5, M4EZ5 and R4EZ5) are energized during 10 seconds. The sound of igniters firing is heard and Engine Instrument Display (EID) (62FV) displays the engine 1, 2 and 3 amber "IGN" labels.
- (3) On configuration panel (2DL), once the outboard slats are fully extended, make sure that:
 - (a) Green slat indicator light is illuminated (flashing),
 - (b) Red indicator light (opposite double head arrow) is extinguished.
- (4) Select an IAS > 265 kt on the pilot air pressure systems.
 - (a) Make sure that the outboard slats retract.
- (5) Select an IAS < 265 kt on the pilot air pressure system.
 - (a) Make sure that the outboard slats extend.
- (6) Slowly set LH AoA sensor (L11CM) to 0° by moving pointer support of LH AoA sensor protractor.
 - (a) Make sure that the outboard slats retract.



- C. Slats previously extended through the LH protection, check that RH protection is inoperative
- (1) Maintain LH AoA to an angle $14^{\circ} \pm 30'$. Make sure that outboard slats remain extended.
 - (2) Slowly move the pointer support (Refer to Dassault OEM procedure 27-801 c Figure 1) to increase the RH AoA sensor (R11CM) angle to an angle $17^{\circ} \pm 30'$ and make sure that:
 - (a) Engine 1, 2 and 3 igniter plugs (L4EZ4, M4EZ4, R4EZ4, L4EZ5, M4EZ5 and R4EZ5) are energized during 10 seconds. The sound of igniters firing is heard and Engine Instrument Display (EID) (62FV) displays the engine 1, 2 and 3 amber "IGN" labels.
 - (b) Emergency control valve R3CM is not energized (slide valve motion is noisy therefore could be easily identified).



6. 16° Threshold of RH AoA – Hydraulic #1 – LH Protection Simulated Inoperative

A. Before starting this test:

- (1) #1 hydraulic systems 1 is pressurized.
- (2) To simulate hydraulic system #1 pressure, pressure switches L2DW and R2DW are disconnected.
- (3) LH AoA angle (L11CM) < 13° and RH AoA angle (R11CM) < 13°. On slats/flaps control box (2CG), the slat control lever must be set to "CLEAN".
 - (a) Check that slats are retracted.

B. Functional test through 16° threshold of RH AoA sensor (R11CM)

- (1) Slowly move the pointer support (Refer to Dassault OEM procedure 27-801 c Figure 1) to increase the RH AoA sensor angle (R11CM).
- (2) Make sure that when angle 16° ± 30' is reached:
 - (a) The outboard slats extend.
 - (b) Engine 1, 2 and 3 igniter plugs (L4EZ4, M4EZ4, R4EZ4, L4EZ5, M4EZ5 and R4EZ5) are energized during 10 seconds. The sound of igniters firing is heard and Engine Instrument Display (EID) (62FV) displays the engine 1, 2 and 3 amber "IGN" labels.
- (3) On configuration panel (2DL), once the outboard slats are fully extended, make sure that:
 - (a) Green slat indicator light is illuminated (flashing).
 - (b) Red indicator light (opposite double head arrow) is extinguished.



7. 16° Threshold of RH AoA – Hydraulic #2 – LH Protection Simulated Inoperative

A. Before starting this test

- (1) De-pressurize hydraulic system 1.
- (2) Pressurize hydraulic systems 2 with stand-by electrical pump (Refer to Dassault OEM procedure 29-000, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (3) Check that slats are retracted.

B. Functional test through 16° threshold of RH AoA sensor (R11CM)

- (1) Slowly move the pointer support (Refer to Dassault OEM procedure 27-801 c Figure 1) to increase the RH AoA sensor angle (R11CM).
- (2) Make sure that when angle $16^\circ \pm 30'$ is reached:
 - (a) The outboard slats extend.
 - (b) The outboard slats emergency valve (R3CM) is energized (emergency valve motion is noisy therefore is easily identified).
 - (c) Engine 1, 2 and 3 igniter plugs (L4EZ4, M4EZ4, R4EZ4, L4EZ5, M4EZ5 and R4EZ5) are energized during 10 seconds. The sound of igniters firing is heard and Engine Instrument Display (EID) (62FV) displays the engine 1, 2 and 3 amber "IGN" labels.
- (3) On configuration panel (2DL), once the outboard slats are fully extended, make sure that:
 - (a) Green slat indicator light is illuminated (flashing).
 - (b) Red indicator light (opposite double head arrow) is extinguished.



8. 16° Threshold of RH AoA – Loss of Hyd 1 Simulated

A. Before starting this test:

- (1) De-pressurize hydraulic system 2.
- (2) Pressurize hydraulic systems 1 with stand-by electrical pump (Refer to Dassault OEM procedure 29-000, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (3) Check that outboard slats retract.
- (4) De-pressurize hydraulic system 1.
- (5) Pressurize hydraulic systems 2 with stand-by electrical pump (Refer to Dassault OEM procedure 29-000, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (6) Reconnect pressure switches L2DW and R2DW (loss of Hyd 1 is detected).
- (7) LH AoA angle (L11CM) $< 13^\circ$ and RH AoA angle (R11CM) $< 13^\circ$. On slats / flaps control box (2CG), the slat control lever must be set to "CLEAN".
 - (a) Check that slats are retracted.

B. Functional test through 16° threshold of RH AoA sensor (R11CM)

- (1) Slowly move the pointer support (Refer to Dassault OEM procedure 27-801 c Figure 1) to increase the RH AoA sensor angle (R11CM).
- (2) Make sure that when angle $16^\circ \pm 30'$ is reached:
 - (a) The outboard slats extend.
 - (b) Engine 1, 2 and 3 igniter plugs (L4EZ4, M4EZ4, R4EZ4, L4EZ5, M4EZ5 and R4EZ5) are energized during 10 seconds. The sound of igniters firing is heard and Engine Instrument Display (EID) (62FV) displays the engine 1, 2 and 3 amber "IGN" labels.
- (3) On configuration panel (2DL), once the slats are fully extended, make sure that:
 - (a) Green slat indicator light is illuminated (flashing)
 - (b) Red indicator light (opposite double head arrow) is extinguished.
- (4) Move the pointer support to decrease the sensor angle and read an angle $< 15^\circ$.
 - (a) Make sure that outboard slats start to retract. If needed, ensure partial retraction by manually pushing the slats.
- (5) As soon as both outboard slats begin retracting, quickly move the vane of RH AoA sensor (R11CM) to increase the sensor angle and read an angle $> 16^\circ 30'$.
 - (a) Make sure that outboard slats start to extend again before they are fully retracted.



9. Final Steps

- A. De-pressurize hydraulic system 2.
- B. De-energize the aircraft systems (Refer to Dassault OEM procedure 24-000, paragraph "De-Energization with the electrical Ground Power Unit").
- C. Remove the in-flight simulating tools (Refer to Dassault OEM procedure 32-319, paragraph "removal").
- D. Reconfigure LH and RH AoA sensors (L11CM) and (R11CM) (Refer to Dassault OEM procedure 27-804, paragraphs "Final Steps").
- E. Disconnect the electrical ground power unit (Refer to Dassault OEM procedure 24-000, paragraph "Disconnection of the Electrical Ground Power Unit").
- F. Remove the safety fences and the warning lights.



EXTERIOR LIGHTING – DESCRIPTION AND OPERATION

1. General

- A. The original manufacturer's wing-tip bulb-type Navigation and Anti-collision light assemblies, and the lighting transformers previously installed at the outboard forward spars are removed for the API winglet installation. Winglet installed LED Position and Anti-collision lights replace those assemblies.

The LED Position and Anti-collision lights are high-reliable, low-maintenance assemblies installed in the middle leading edge segment of each winglet. The leading edge segment contains the structural elements to mount the light assemblies and lens assembly. This segment, along with the light assemblies and lens assembly, is replaced as a single unit.

28VDC power for the LED lighting assemblies is supplied through the STROBE circuit breaker and the NAV circuit breaker on the center overhead circuit breaker panel (Refer to Figure 1). Both lighting assemblies use on-board circuitry to filter and regulate power and control the functions of the assemblies. Extension wiring harnesses connect to the existing aircraft wiring harness to the LED lighting assemblies in the winglets.

The Position and Anti-collision lights are activated by toggle buttons located on the flight station lighting control panel (NAV and ANTICOL). The function of these buttons is the same as in the original configuration.



B. References

- (1) API Drawing F20-0002 Top Assy – Winglet (Sheets 6 thru 9)
- (2) API Drawing F20-0005 Wing Wiring Harness Installation
- (3) API Drawing F20-0025 Winglet Wiring Harness Installation
- (4) API Drawing F20-0026 Winglet Wire Harness Parts List
- (5) API Wiring Diagram F90-0005 Wigtip Lighting Modification
- (6) API Wiring Diagram F90-0005-1 Wingtip Lighting Wiring Modification
- (7) API Wiring Diagram F90-0005-2 Wingtip Lighting Wiring Modification
- (8) API Wiring Diagram F90-0005-3 Wingtip Lighting Wiring Modification
- (9) Flight Components AG 03-9503-5003 LED Anti-collision Light
- (10) Flight Components AG 03-9503-5004 LED Anti-collision Light
- (11) Flight Components AG 03-9001-0003 LED Position Light
- (12) Flight Components AG 03-9001-0004 LED Position Light
- (13) Flight Components AG 07-7100-0010 Lens Assembly
- (14) Flight Components AG 07-7100-0011 Lens Assembly

C. Location of Controls

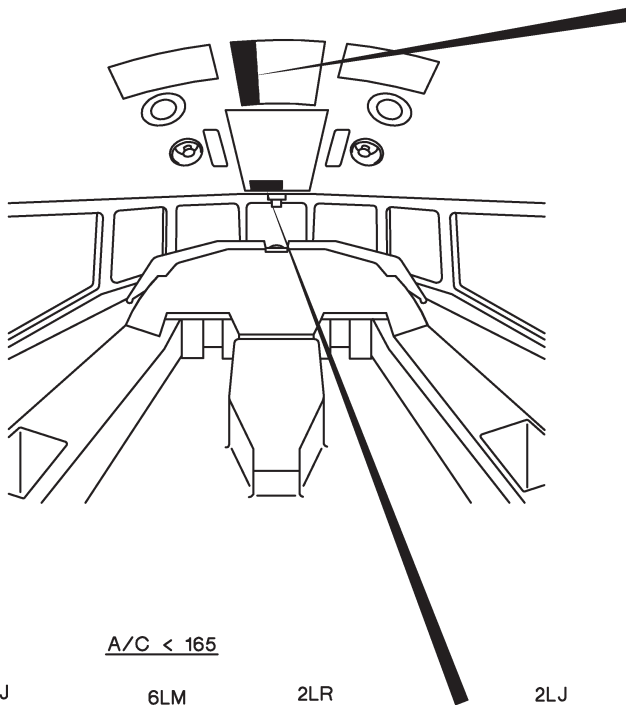
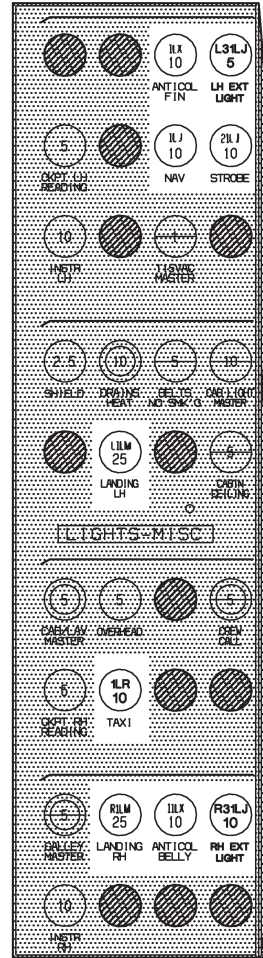
- (1) See Figure 1: Location of Cockpit Controls (Sheet 1 thru 4)

D. Location of Components

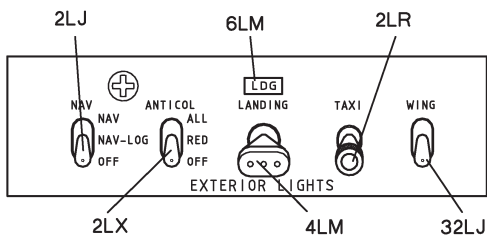
- (1) See Figure 2: LED Light Assemblies with API Winglets



CENTER CIRCUIT
 BREAKER PANEL



A/C < 165



A/C > 165

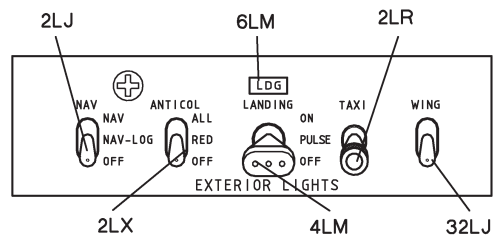


FIGURE 1: LOCATION OF COCKPIT CONTROLS
 (SHEET 1 OF 4)

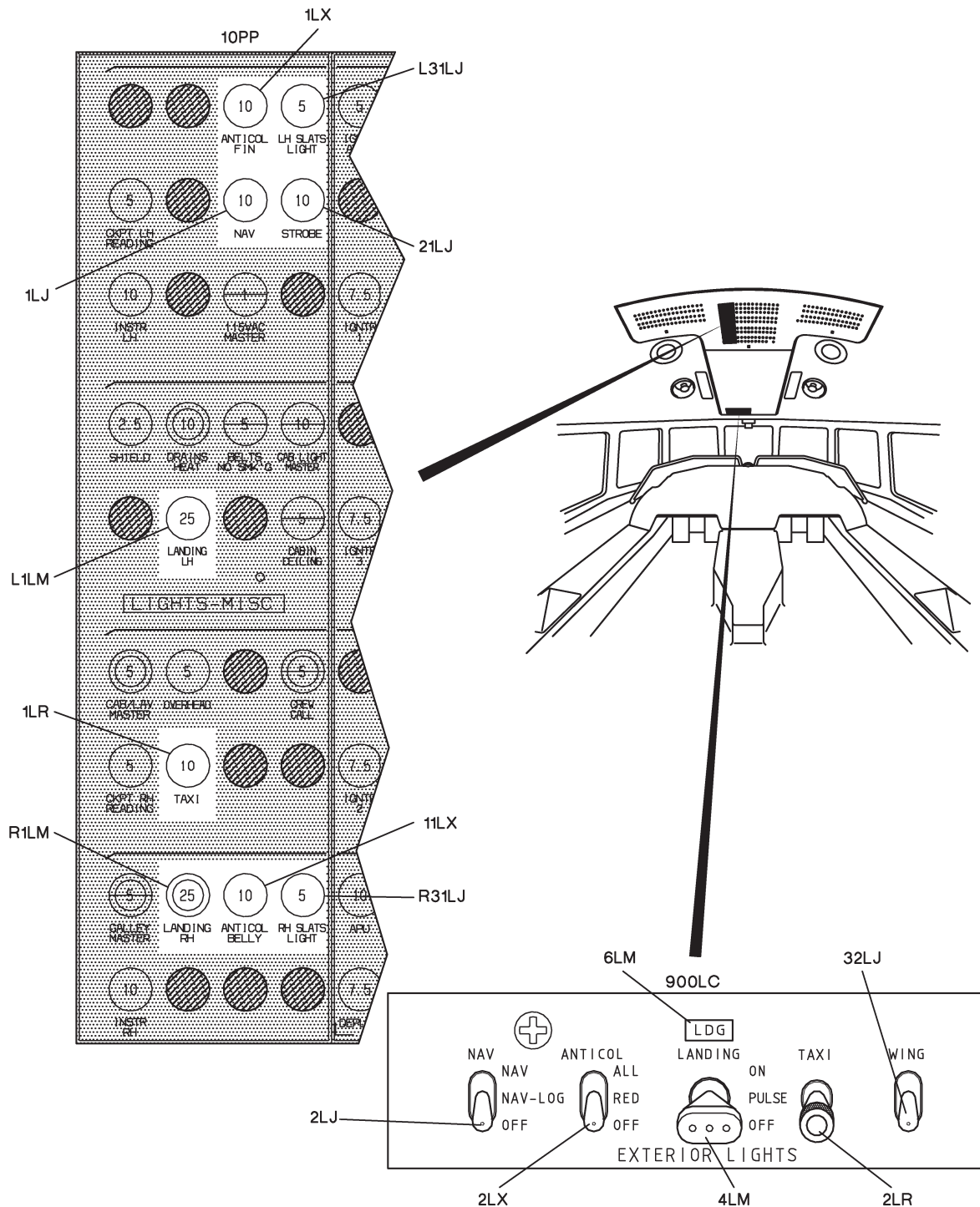
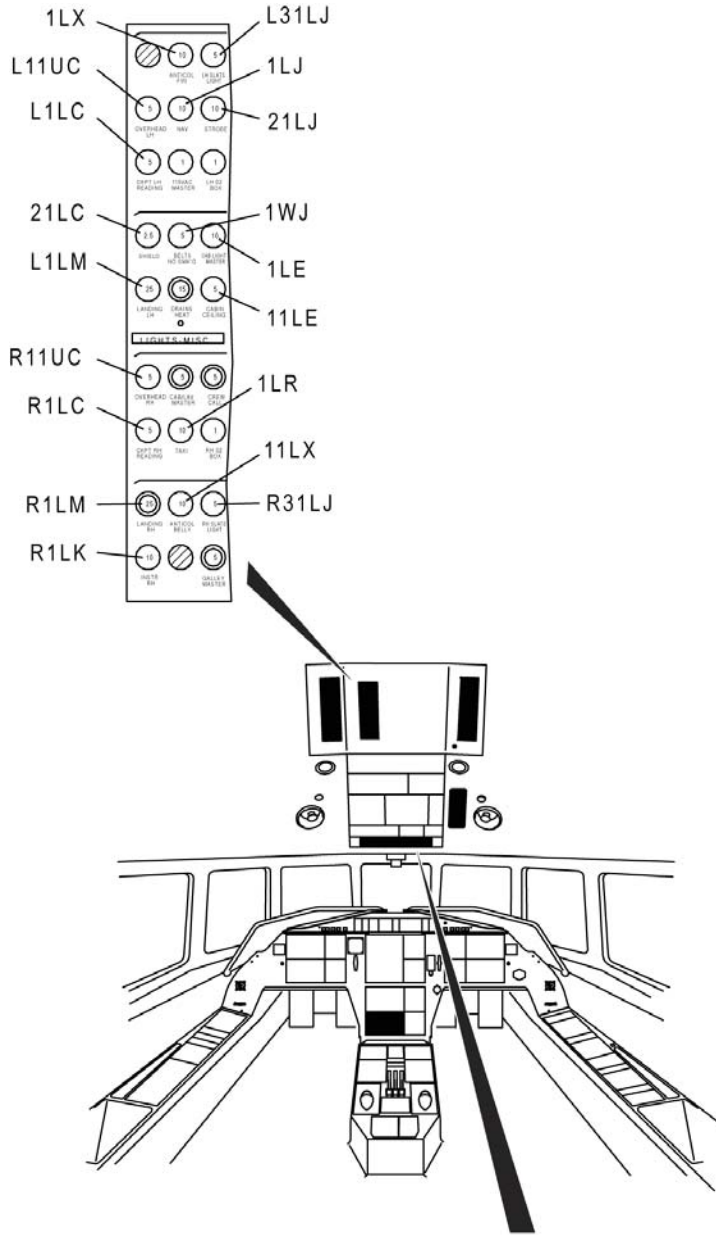


FIGURE 1: LOCATION OF COCKPIT CONTROLS
 (SHEET 3 OF 4)



LIGHT PART OF OVERHEAD PANEL 900LC

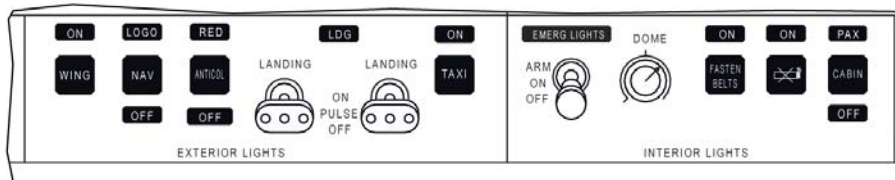


FIGURE 1: LOCATION OF COCKPIT CONTROLS
 (SHEET 4 OF 4)

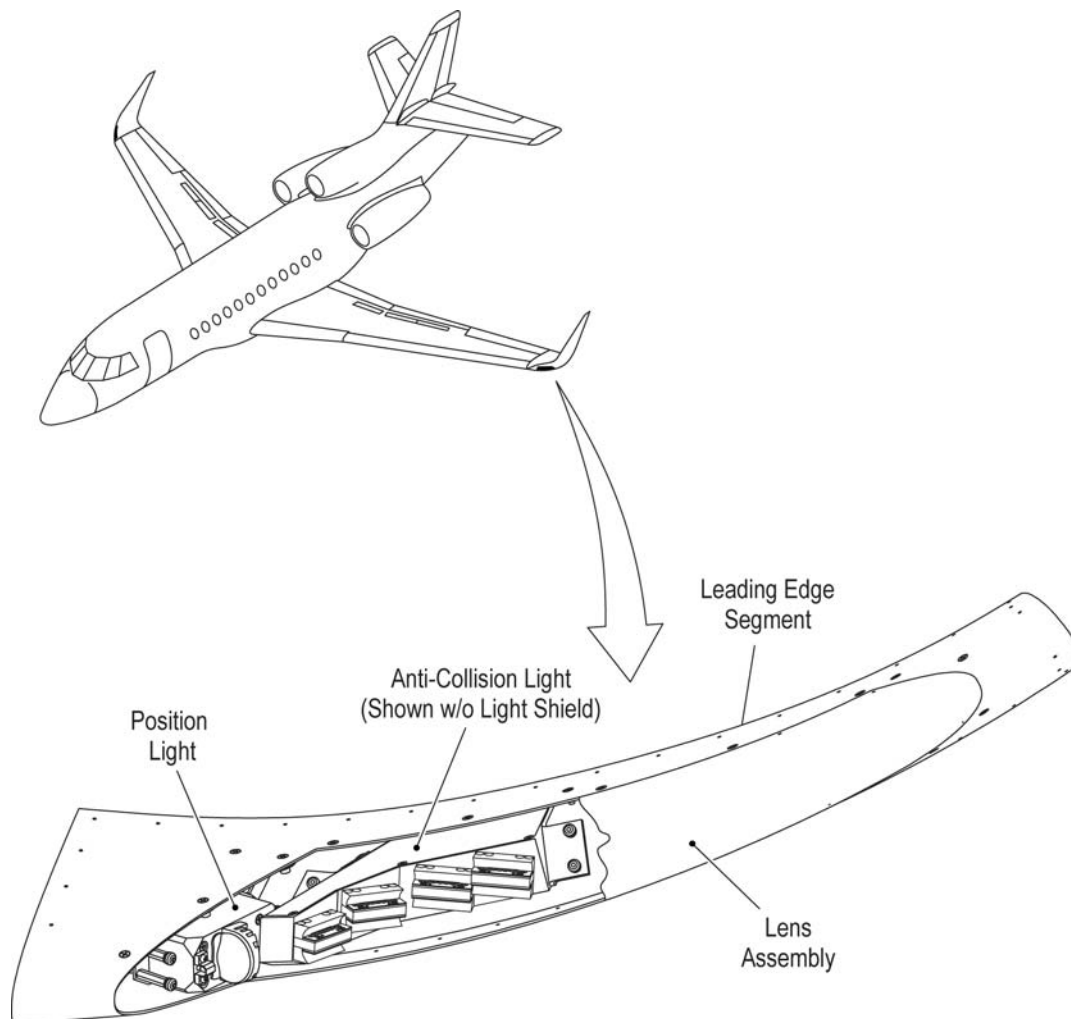


FIGURE 2: LED LIGHT ASSEMBLIES WITH API WINGLETS



EXTERIOR LIGHTING – REMOVAL / INSTALLATION

1. General

A. The Navigation / Anti-collision LED Lighting assemblies are installed in the middle leading edge segment. The leading edge segment and LED lighting assemblies are replaced as a single unit.

B. References

(1) API Drawing F20-0002 Top Assy – Winglet (Sheets 6 thru 9)

(2) API Drawing F20-0005 Wing Lighting Modification

(3) API Drawing F20-0025 Winglet Wiring Harness Installation

2. Leading Edge Segment / LED Lighting Assembly Removal

A. Open the NAV and STROBE circuit breakers on the overhead circuit breaker panel.

B. Remove the screws that attach the lighting assembly / leading edge segment to the winglet.

C. Carefully separate the leading edge segment from the faying-surface sealant and pull the leading edge segment away from the winglet. Use a thin-blade tool to carefully pry the leading edge away from the faying seal if needed.

D. Disconnect the Grounding Straps from the outboard and inboard leading edge segments.

E. Loosen or remove the clamps that hold the cables for the lighting assemblies at the inboard leading edge segment if needed.

F. Disconnect the plugs from the lighting assemblies.

G. Remove the leading edge segment / lighting assembly.

3. Leading Edge Segment / LED Lighting Assembly Installation

A. Clean and degrease the leading edge of the winglet.

(1) Use a non-metallic scraper to remove old sealing compound from the winglet surfaces.

WARNING: DO NOT GET METHYL ETHYL KETONE (MEK) IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM MEK. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE MEK. KEEP MEK AWAY FROM SPARKS, FLAME, AND HEAT. MEK IS A POISONOUS AND FLAMMABLE SOLVENT WHICH CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(2) Remove the remaining sealant with a lint-free cotton cloth moist with MEK.

(3) Clean the nut plates with acetone and a stiff-bristle brush. Use cotton swabs moist with acetone for a final cleaning pass on the threads.



- (4) Prime bolt holes with 10P20-44.
 - (5) Apply anti-seize corrosion preventive compound (MIL-C-11796, Class III) to the threads of the nut plates.
 - (6) Apply a thin coat of BMS PR1560MC, or PR1750 sealant to the winglet leading edge surface. Refer to Dassault Standard Practices 20-321 (Basic Sealing Methods).
 - (7) Take care not to let sealant get on to the threads of the nut plates.
- B. Clean the mating surfaces of the leading edge segment.
- (1) Use a non-metallic scraper to remove old sealant

WARNING: DO NOT GET METHYL ETHYL KETONE (MEK) IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM MEK. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE MEK. KEEP MEK AWAY FROM SPARKS, FLAME, AND HEAT. MEK IS A POISONOUS AND FLAMMABLE SOLVENT WHICH CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (2) Remove the sealant that remains with a lint-free cotton cloth moist with MEK.
- (3) Brush a thin coat of Camie A1000 release agent to the mating surface of the leading edge segment.
- (4) Attach the bonding straps on both ends of the leading edge segment.
- (5) Seal the bonding strap studs. Refer to Dassault Standard Practices 20-321 (Basic Sealing Methods).
- (6) Attach the connectors that supply power to the lighting assemblies
- (7) Tighten the clamps that hold the electrical cables.
- (8) Press the leading edge into position.
- (9) Install the fasteners and apply 20-25 ft / lbs of torque.
- (10) Wipe away any squeeze-out.
- (11) Seal the gaps between the leading and the winglet with BMS 5-95 sealant.

4. Leading Edge Lens Assembly Removal (Refer to Figure 401)

- A. Remove the leading edge segment. See Step 2 of this procedure.
- (1) Remove the 18 screws (4) that attach the leading edge (1) to the lens retaining frame (3).
 - (2) Remove the lens retaining frame (3).
 - (3) Carefully pry the polycarbonate lens (2) away from the leading edge.



5. Leading Edge Lens Assembly Installation (Refer to Figure 401)

A. Clean and degrease the polycarbonate lens.

- (1) Use a non-metallic scrapper to remove old sealant from the lens and leading edge surfaces. Take care not to scratch the surface of the lens.
- (2) Remove any sealant that remains with a soft cotton cloth and Altuglas polish No. 2 or BOLIT 707. Refer to Dassault Chapter 12 (Ingredients List).

B. Clean and degrease the leading edge and retaining frame.

WARNING: DO NOT GET METHYL ETHYL KETONE (MEK) IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM MEK. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE MEK. KEEP MEK AWAY FROM SPARKS, FLAME, AND HEAT. MEK IS A POISONOUS AND FLAMMABLE SOLVENT WHICH CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (1) Clean the surfaces that mate with the lens. Use a cotton cloth moist with MEK.
- (2) Clean the nut plates of the retaining frame with MEK and a stiff-bristle brush. Use cotton swabs moist with MEK to clean the threads of the nut-plates.

C. Install the polycarbonate lens

- (1) Brush a thin coat of Camie A1000 release agent to the mating surfaces of the leading edge segment and the lens.
- (2) Apply a thin coat of BMS PR1560MC, PR1750, or AMS-S-8802 sealant to the edges of the lens (2) forward of the screw holes.
- (3) Carefully place the lens (2) into the leading edge segment in alignment with the screw holes
- (4) Place the retaining frame (3) into position behind the lens in alignment with the screw holes.
- (5) Apply anti-seize corrosion preventive compound (MIL-C-11796, Class III) to the threads of the 18 screws (4) that attach the retaining frame to the leading edge segment.

CAUTION: DUE TO VARIATIONS IN THE MANUFACTURING PROCESS OF THE LEADING EDGE / LIGHT ASSEMBLY, THE SPECIFIED FASTENER NEAR THE MIDDLE OF THE NAVIGATION LIGHT ASSEMBLY MAY BE TOO LONG. DO NOT FORCE A LONG SCREW INTO THIS HOLE. DAMAGE TO THE NAVIGATION LIGHT ASSEMBLY MAY RESULT. USE OF A SCREW UP TO 1/8 INCH SHORTER IS APPROVED AT THIS POSITION (SEE FIGURE 401).

- (6) Install the fasteners and apply 20-25 ft / lbs of torque.
- (7) Wipe away any squeeze-out.



6. Anti-collision Light Assembly Removal (Refer to Fig. 402)

- A. Open the STROBE circuit breaker on the overhead circuit breaker panel.
- B. Remove the middle leading edge segment (1). Refer to Item 2 of this section.
- C. Disconnect the electrical connector that supplies power to the anti-collision light.
- D. Remove screws, lock washers, and washers (2, 3) that attach the grounding strap (4) to the anti-collision light assembly housing.
- E. Remove the screws, lock washers, and washers (5, 6) that attach the anti-collision lights to the leading edge frame (7).
- F. Remove the anti-collision light assembly (8).

7. Anti-collision Light Assembly Installation (Refer to Fig. 402)

- A. Set the anti-collision light assembly (8) in position over the inserts on the internal frame (7) of the leading edge segment.
- B. Install the screws, lock washers, and washers (5, 6) that hold the anti-collision lights in place and apply 20-25 ft / lbs of torque.
- C. Install the screws, lock washers, and washers (2, 3) that attach the grounding strap (4) to the anti-collision light assembly housing.
- D. Connect the electrical connector that supplies power to the anti-collision light.
- E. Before you install the leading edge segment, do a brief functional test of the anti-collision lights.
 - (1) Temporarily attach the leading edge segment to the winglet. Use a minimum of four screws.
 - (2) Apply external power to the airplane.
 - (3) Close circuit breaker STROBE on the overhead circuit breaker panel (500PM).
 - (4) Push the ANTICOL toggle button on the Exterior Lights Panel to activate the lights.
 - (5) Make sure that the LED elements of navigation light arrays illuminate.
 - (6) Push the ANTICOL toggle button to deactivate the lights.
 - (7) Open STROBE circuit breaker on the overhead circuit breaker panel.

CAUTION: THE LIGHTING ASSEMBLIES BECOME VERY HOT WHEN ACTIVATED. TO AVOID BURNS, LET THE LIGHTING ASSEMBLIES COOL DOWN FOR A MINIMUM OF FIVE MINUTES AFTER THE FUNCTIONAL TEST IS DONE.

- F. Install the middle leading edge segment (1). Refer to step 5 of this procedure.



8. Navigation Light Assembly Removal (Refer to Fig. 402)

- A. Open the NAV circuit breaker on the overhead circuit breaker panel.
- B. Remove the middle leading edge segment (1). Refer to Item 2 of this section.
- C. Disconnect the electrical connector that supplies power to the Navigation light.
- D. Remove screws, lock washers, and washers (9, 10) that attach the grounding strap (11) to the Navigation light assembly housing.
- E. Remove the screws, lock washers, and washers (12, 13) that attach the Navigation lights to the stand-offs (14).
- F. Remove the Navigation light assembly (15).

9. Navigation Light Assembly Installation (Refer to Fig. 402)

- A. Set the Navigation light assembly (15) in position over the stand-offs (14) attached to the internal frame of the leading edge segment (7).
- B. Install the screws, lock washers, and washers (12, 13) that hold the Navigation light in place and apply 20-25 ft / lbs of torque.
- C. Install the screws, lock washers, and washers (9, 10) that attach the grounding strap (11) to the Navigation light assembly housing.
- D. Connect the electrical connector that supplies power to the Navigation light.
- E. Before you install the leading edge segment, do a brief functional test of the Navigation lights.
 - (1) Temporarily attach the leading edge segment to the winglet. Use a minimum of four screws.
 - (2) Apply external power to the airplane.
 - (3) Close NAV circuit breaker on the overhead circuit breaker panel.
 - (4) Push the NAV toggle button on the Exterior Lights Panel to activate the lights.
 - (5) Make sure that the RED LED assembly is installed on the left-side winglet, and that the GREEN LED assembly is installed on the right-side winglet.
 - (6) Push the NAV toggle button to deactivate the lights.
 - (7) Open NAV circuit breaker on the overhead circuit breaker panel.

CAUTION: THE LIGHTING ASSEMBLIES BECOME VERY HOT WHEN ACTIVATED. TO AVOID BURNS, LET THE LIGHTING ASSEMBLIES COOL DOWN FOR A MINIMUM OF FIVE MINUTES AFTER THE FUNCTIONAL TEST IS DONE.

- F. Install the middle leading edge segment (1). Refer to step 5 of this procedure.

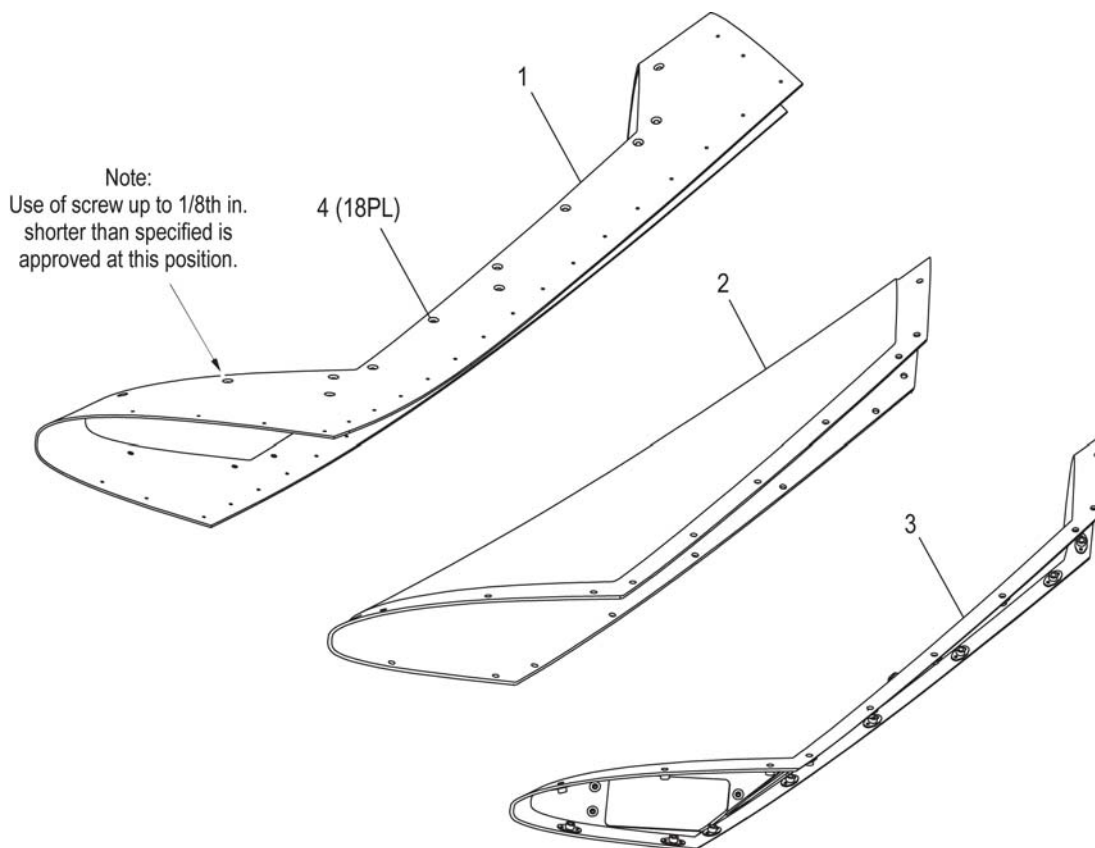


FIGURE 401:
LEADING EDGE / LENS REMOVAL AND INSTALLATION

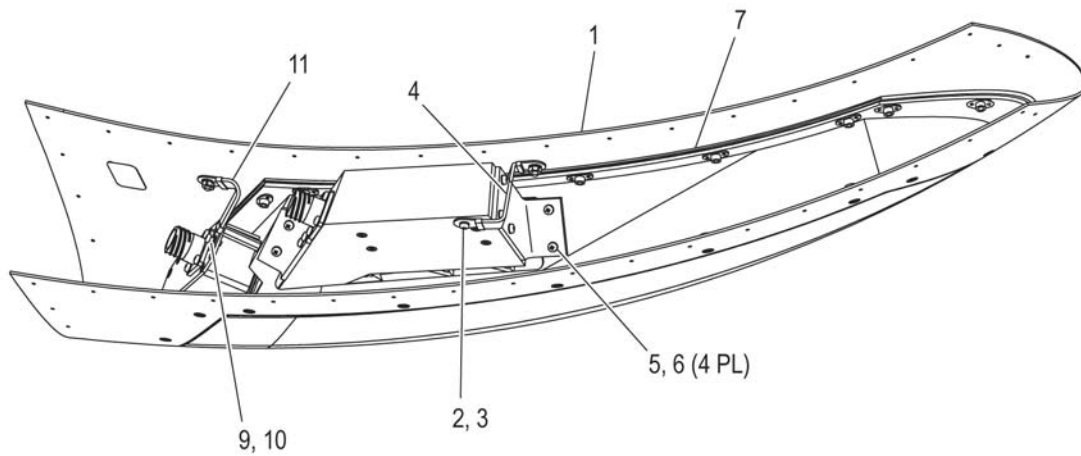
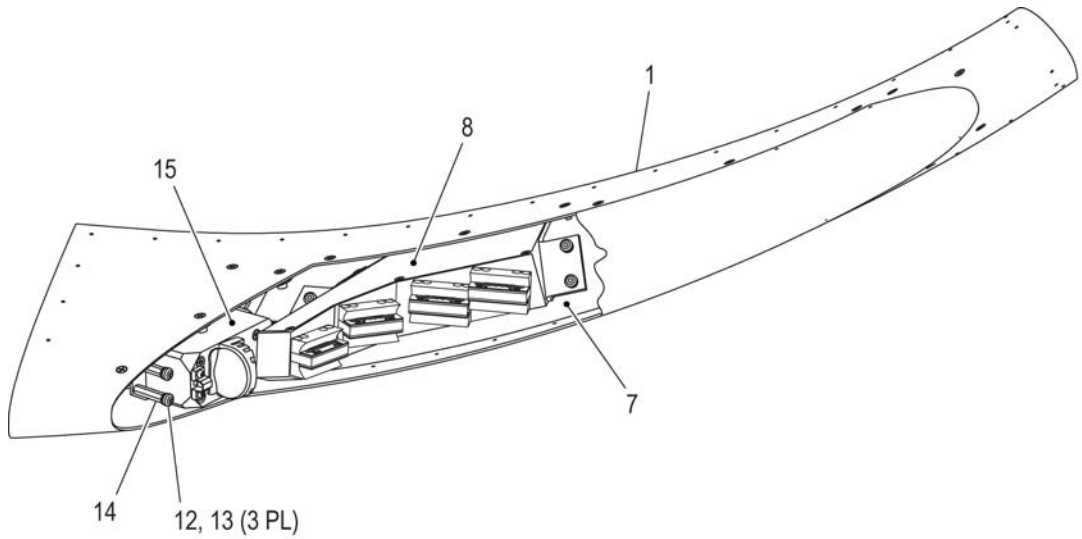


FIGURE 402:
LEADING EDGE / LIGHTING ASSEMBLIES REMOVAL AND INSTALLATION



WING MODIFICATIONS – DESCRIPTION

1. General

- A. The API blended winglet installation adds composite winglets to a modified primary wing structure. These winglets improve cruise performance and overall fuel efficiency with a nominal increase to aircraft basic weight.
- B. References
 - (1) API Drawing F20-0003 Installation - Rib 20
 - (2) API Drawing F20-0004 Modification Installation - Wing Reinforcement
- C. Modified Wing Structure
 - (1) The winglets add 121 pounds to the primary wing structure on each side and change the basic wing geometry. To compensate for the additional forces applied to the wing by the winglets, the primary structure of the wing has been modified.
 - (2) New ribs are added to include: 17B, and 18A
 - (3) Wiring harness brackets are added at the 17B rib and the forward spar.
 - (4) An upper skin support strap is installed from the rib at station 13 to the modified station 20 interface.
 - (5) Two lower skin support straps are installed. The forward lower strap is installed between station 17A and station 19. The aft lower strap is installed between station 17A and station 20. The upper and lower support straps are riveted to adapter brackets attached to the rib sections.
 - (6) The original rib section at station 20 has been removed and replaced by a modified station 20 installation. This installation includes flanges to mount the winglets, forward and aft spar splice plates, trailing edge ribs, and brackets, fillers, and web sections required for structural support.
 - (7) The hydraulic access door that gives access to the slat actuator assembly has been reinforced with doubler sections and a support bracket to eliminate flex in that area.



SLAT FUNCTIONAL CHECK

1. **General**

- A. This supplemental procedure is to be used along with Dassault 27-803 (Slat Functional Test). The installation of the Winglet modification and the changes to Slat Control and Monitoring wiring change the results of the Dassault OEM 27-803 procedure.
- B. The Dassault OEM procedures list several WARNINGS, CAUTIONS. These items mandatory and must be followed for safety. Notes listed in the OEM procedures are “Best Practices” and are recommended for use in these procedures.
- C. References
 - (1) API Drawing F90-0074 Slat Functional Check
 - (2) API Drawing F90-0095 Slat Control Wiring Modification
 - (3) API Drawing F90-0223 Slats Monitoring Wiring Diagrams

2. **Tools and Equipment**

- A. Chronometer

3. **Access**

- A. MSD
- B. PAX

4. **Refer to these Maintenance Procedures**

- A. 24-000 Energizing the Aircraft
- B. 27-804 Functional Test of Angle-of-Attack Sensors
- C. 27-808 Slat Hydraulic System Bleeding
- D. 27-811 Extension / Retraction of Flaps and Slats
- E. 29-000 Pressurization of Hydraulic Systems
- F. 32-319 Use of Targets for Flight Simulation
- G. 34-113 Connection / Disconnection of the Digital Air Data Bench
- H. 34-114 Use of ADM and Discrete Signal Simulation Tool
- I. 45-000 Use of Central Maintenance Computer (CMC)



5. **Slat Checks**

A. This supplemental procedure has these checks:

- (1) Preliminary Steps (Configure aircraft for checks)
- (2) Check of LH Protection
- (3) 16° Threshold of RH AoA – Hydraulic #1 – LH Protection Simulated Inoperative
- (4) 16° Threshold of RH AoA – Hydraulic #2 – LH Protection Simulated Inoperative
- (5) 16° Threshold of RH AoA – Loss of Hyd 1 Simulated
- (6) Final Steps (Configure aircraft for normal operation)



6. Preliminary Steps

- A. Refer to Figure 1: Functional Test of Slats
- B. The slat indications are read on PFD (L12FV / R12FV).
- C. Before starting this test, make sure that:
 - (1) On the slats / flaps control box, the slat control lever is set to the "CLEAN" position.
 - (2) On the Throttle Control Unit (TCU) (500EC), the three throttle control levers (L500EC, M500EC, and R500EC) are set to the "STOP" position.
- D. Check the electrical zero setting of LH and RH AoA sensors (L11CM) and (R11CM) (Refer to Dassault OEM procedure 27-804, paragraphs "Preliminary Steps" then "Check of AoA Sensors").
 - (1) On circuit breaker panel (10PP), the circuit breaker lockouts securing the following circuit breakers must stay in place:
 - (2) In "A1 BUS" section, "ANTI ICE-COND'G" zone, "LH AoA HEAT" circuit breaker (L31FL).
 - (3) In "B1 BUS" section, "ANTI ICE-COND'G" zone, "RH AoA HEAT" circuit breaker (R31FL).
- E. Install in-flight simulating tools to simulate FLIGHT configuration (Refer to Dassault OEM procedure 32-319, paragraph "Use").
- F. Energize the aircraft systems (Refer to Dassault OEM procedure 24-000, paragraph "Energization with the Electrical Ground Power Unit").

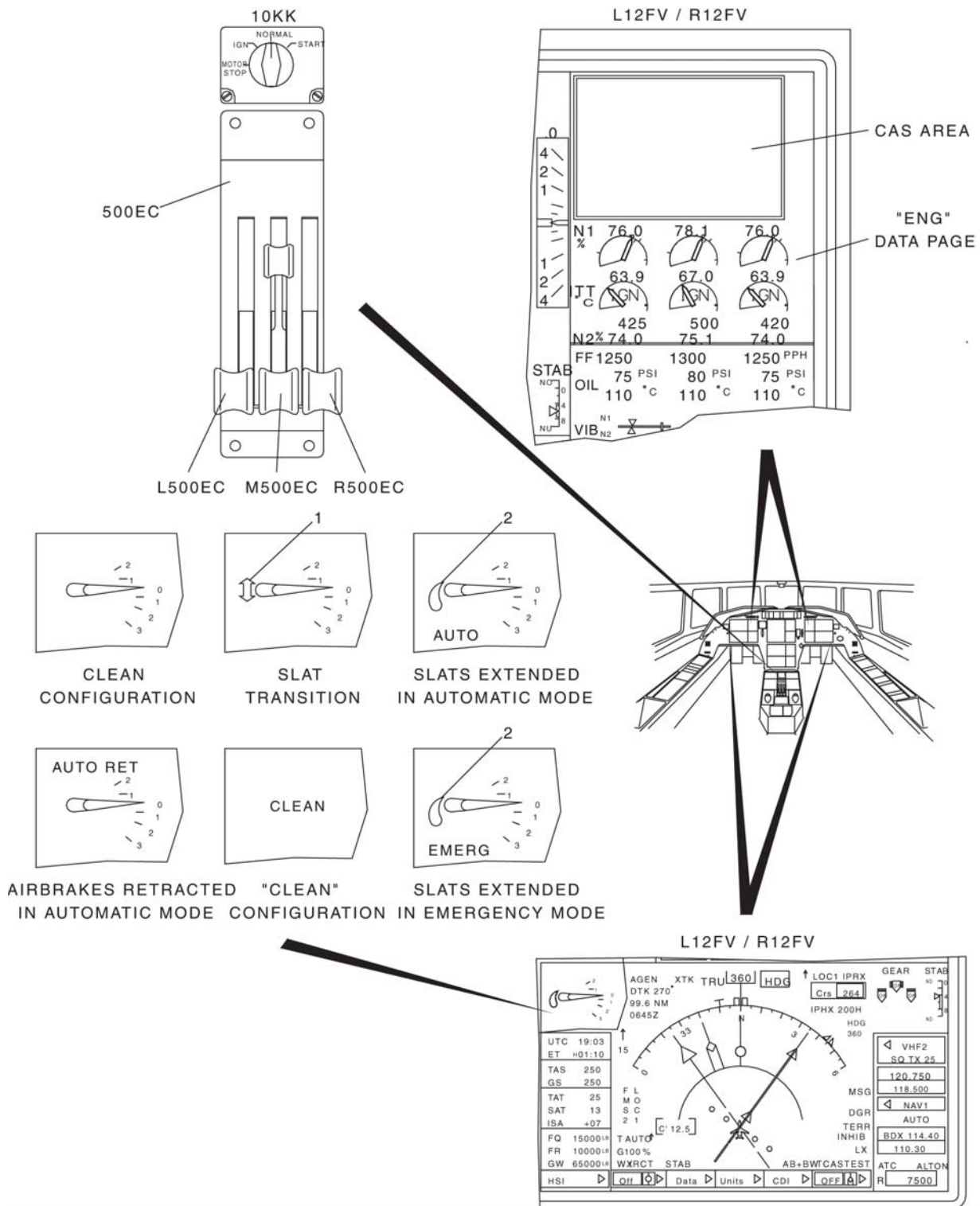


FIGURE 1: FUNCTIONAL TEST OF SLATS



7. Check of LH Protection

A. Before starting this test:

- (1) Pressurize hydraulic system 1 with stand-by electrical pump (Refer to Dassault OEM procedure 29-000, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (2) On the Throttle Control Unit (TCU) (500EC), set engine throttle levers (L500EC, M500EC, and R500EC) to the "IDLE" position.
- (3) Set the mode start selector (10KK) located in front of TCU (500EC) to "NORMAL".
- (4) Check that the outboard slats are retracted.
- (5) To simulate hydraulic system #1 pressure, disconnect pressure switches L2DW and R2DW.
- (6) Select an IAS between 50 kt and 265 kt (Refer to Dassault OEM procedure 34-113 or Refer to Dassault OEM procedure 34-114, paragraph "Use").

B. Functional test through 14° threshold of LH AoA sensor (L11CM)

- (1) Gain access to the "AoA MEASUREMENTS" Maintenance Screen (see MS 34-10-AM) (Refer to Dassault OEM procedure 45-000), using a remote terminal.
- (2) Slowly move the vane of LH AoA sensor (L11CM) to increase the sensor angle and read the following parameter: "LH AoA SENSOR (L11CM) POSITION 2 (°)": 19.4° to 20.6°.
- (3) When angle 19.4° to 20.6° is reached make sure that:
 - (a) The outboard slats are extended or extending.
 - (b) Below slat symbol, amber "AUTO" indicator illuminates,
 - (c) Amber "AUTO SLATS" CAS message is displayed.
 - (d) On the ITT indicator of the "ENG" synoptic page, the three amber "IGN" indications illuminate indicating that the automatic energization of the three engine igniters is active.
- (4) Gain access to the "SLAT AUTOMATIC EXTENSION" Maintenance Screen (see MS 27-80-SAE) (Refer to Dassault OEM procedure 45-000), using a remote terminal. Check the following parameter:
 - (a) "LH AoA SENSOR (L11CM) POSITION > 14° AND NOT WOW7": True



- (5) Test of slat automatic retraction commanded by LH AoA sensor (L11CM) with IAS \geq 265 kt
- (a) Select an IAS \geq 265 kt on the pilot air data system (Refer to Dassault OEM procedure 34-113 or Refer to Dassault OEM procedure 34-114, paragraph "Use").
 - (b) Check that:
 - 1. The outboard slats retract
 - 2. The amber "AUTO" indicator below slat symbol extinguishes
 - 3. The green / blank double-head arrow symbol flashes during the retraction of the slats, and then extinguishes once the slats are retracted
- (6) Select an IAS $<$ 265 kt (i.e. 200 kt) to extend the slats. Check that:
- (a) The outboard slats are extended or extending
 - (b) Below slat symbol, amber "AUTO" indicator illuminates
 - (c) Amber "AUTO SLATS" CAS message is displayed
 - (d) On the ITT indicator of the "ENG" synoptic page, the three amber "IGN" indications illuminate indicating that the automatic energization of the three engine igniters is active
- (7) Test of slat automatic retraction commanded by LH AoA sensor (L11CM) with IAS $<$ 265 kt
- (a) Gain access to the "AoA MEASUREMENTS" Maintenance Screen (see MS 34-10-AM) (Refer to Dassault OEM procedure 45-000), using a remote terminal.
 - (b) Slowly return the vane of LH AoA sensor (L11CM) to 0° and read the following value: "LEFT AoA SENSOR (L11CM) POSITION 2 (°)": 5.4° to 6.6°.
 - (c) Check that:
 - 1. The outboard slats retract
 - 2. The amber "AUTO SLATS" CAS message extinguishes



- C. Slats previously extended through the LH protection, check that RH protection is inoperative.
- (1) Maintain the vane of LH AoA sensor (L11CM) to an angle higher than 14°. Make sure the outboard slats remain extended.
 - (2) Slowly move the vane of RH AoA sensor (R11CM) to increase the sensor angle and read the following parameter: "RH AoA SENSOR (R11CM) POSITION 2 (°)" > 23°.
 - (a) Make sure that on the ITT indicator of the "ENG" synoptic page, the three amber "IGN" indications illuminate indicating that the automatic energization of the three engine igniters is active.
 - (b) Make sure that emergency control valve R3CM is not energized (slide valve motion is noisy and should therefore be easily identified). NOTE: The slat emergency valve (R3CM) is located in the LH main landing gear compartment (741AB).
 - (c) Gain access to the "SLAT AUTOMATIC EXTENSION" Maintenance Screen (see MS 27-80-SAE) (Refer to Dassault OEM procedure 45-000), using a remote terminal. Check the following parameter:
 1. "RH AoA SENSOR (R11CM) POSITION > 16° AND NOT WOW7": True



8. 16° Threshold of RH AoA – Hydraulic #1 – LH Protection Simulated Inoperative

A. Before starting this test:

- (1) Verify #1 hydraulic system 1 is pressurized.
- (2) To simulate hydraulic system #1, pressure switches L2DW and R2DW are disconnected.
- (3) Make sure the vanes of LH AoA sensor (L11CM) and RH AoA sensor (R11CM) are less than 13°. On slats / flaps control box (2CG), the slat control lever must be set to "CLEAN".
 - (a) Check that slats are retracted.

B. Functional test through 16° threshold of RH AoA sensor (R11CM)

- (1) Gain access to the "AoA MEASUREMENTS" Maintenance Screen (see MS 34-10-AM) (Refer to Dassault OEM procedure 45-000), using a remote terminal.
- (2) Slowly move the vane of RH AoA sensor (R11CM) to increase the sensor angle and read the following parameter: "RH AoA SENSOR (R11CM) POSITION 2 (°)": 21.4° to 22.6°.
- (3) When angle 21.4° to 22.6° is reached make sure that:
 - (a) The outboard slats are extended or extending
 - (b) Below slat symbol, amber "AUTO" indicator illuminates
 - (c) Amber "AUTO SLATS" CAS message is displayed
 - (d) On the ITT indicator of the "ENG" synoptic page, the three amber "IGN" indications illuminate indicating that the automatic energization of the three engine igniters is active
- (4) Gain access to the "SLAT AUTOMATIC EXTENSION" Maintenance Screen (see MS 27-80-SAE) (Refer to Dassault OEM procedure 45-000), using a remote terminal. Check the following parameter:
 - (a) "RH AoA SENSOR (R11CM) POSITION > 16° AND NOT WOW7": True
- (5) Slowly return the vane of the RH AoA sensor to 0°. Check that the outboard slats retract.



9. 16° Threshold of RH AoA – Hydraulic #2 – LH Protection Simulated Inoperative

A. Before starting this test:

- (1) De-pressurize hydraulic system 1.
- (2) Pressurize hydraulic system 2 with stand-by electrical pump (Refer to Dassault OEM procedure 29-000, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (3) Select an IAS between 50 kt and 265 kt (Refer to Dassault OEM procedure 34-113 or Refer to Dassault OEM procedure 34-114, paragraph "Use").
- (4) Check that slats are retracted.

B. Functional test through 16° threshold of RH AoA sensor (R11CM)

- (1) Gain access to the "AoA MEASUREMENTS" Maintenance Screen (see MS 34-10-AM) (Refer to Dassault OEM procedure 45-000), using a remote terminal.
- (2) Slowly move the vane of RH AoA sensor (R11CM) to increase the sensor angle and read the following parameter: "RH AoA SENSOR (R11CM) POSITION 2 (°)": 21.4° to 22.6°.
- (3) When angle 21.4° to 22.6° is reached make sure that:
 - (a) The outboard slats are extended or extending
 - (b) Below slat symbol, amber "AUTO" indicator illuminates
 - (c) Amber "AUTO SLATS" CAS message is displayed
 - (d) On the ITT indicator of the "ENG" synoptic page, the three amber "IGN" indications illuminate indicating that the automatic energization of the three engine igniters is active
 - (e) The outboard slats emergency valve (R3CM) is energized (emergency valve motion is noisy therefore is easily identified)
- (4) Gain access to the "SLAT AUTOMATIC EXTENSION" Maintenance Screen (see MS 27-80-SAE) (Refer to Dassault OEM procedure 45-000), using a remote terminal. Check the following parameter:
 - (a) "RH AoA SENSOR (R11CM) POSITION > 16° AND NOT WOW7": True



10. 16° Threshold of RH AoA – Loss of Hyd 1 Simulated:

A. Before starting this test:

- (1) De-pressurize hydraulic system 2.
- (2) Pressurize hydraulic system 1 with stand-by electrical pump (Refer to Dassault OEM procedure 29-000, paragraph "Pressurization from Hydraulic Ground Power Unit").
 - (a) Check that outboard slats retract.
- (3) De-pressurize hydraulic system 1.
- (4) Pressurize hydraulic system 2 with stand-by electrical pump (see proc.29-000, paragraph "Pressurization from Hydraulic Ground Power Unit").
- (5) Reconnect pressure switches L2DW and R2DW (loss of hyd 1 is detected).
- (6) Gain access to the "MAIN HYDRAULIC POWER SUPPLY" maintenance screen (see MS 29-10-MH) (Refer to Dassault OEM procedure 45-000). Make sure that the following values have the correct value for relevant hydraulic pressure switch (L2DW / R2DW):
 - (a) "HYDRAULIC PUMP 1 PRESSURE": Low
 - (b) "HYDRAULIC PUMP 3 PRESSURE": Low
- (7) Make sure the vanes of LH AoA sensor (L11CM) and RH AoA sensor (R11CM) are less than 13°. On slats / flaps control box (2CG), the slat control lever must be set to "CLEAN".
 - (a) Check that slats are retracted.

B. Functional test through 16° threshold of RH AoA sensor (R11CM)

- (1) Gain access to the "AoA MEASUREMENTS" Maintenance Screen (see MS 34-10-AM) (Refer to Dassault OEM procedure 45-000), using a remote terminal.
- (2) Slowly move the vane of RH AoA sensor (R11CM) to increase the sensor angle and read the following parameter:
 - (a) "RH AoA SENSOR (R11CM) POSITION 2 (°)": 21.4° to 22.6°



- (3) Make sure that when angle 21.4° to 22.6° is reached:
 - (a) The outboard slats emergency valve (R3CM) is energized (emergency valve motion is noisy therefore is easily identified)
 - (b) The outboard slats are extended or extending
 - (c) Below slat symbol, amber "AUTO" indicator illuminates
 - (d) Amber "AUTO SLATS" CAS message is displayed
 - (e) On the ITT indicator of the "ENG" synoptic page, the three amber "IGN" indications illuminate indicating that the automatic energization of the three engine igniters is active
- (4) Gain access to the "SLAT AUTOMATIC EXTENSION" Maintenance Screen (see MS 27-80-SAE) (Refer to Dassault OEM procedure 45-000), using a remote terminal. Check the following parameter:
 - (a) "RH AoA SENSOR (R11CM) POSITION > 16° AND NOT WOW7": True
- (5) Move the RH AoA sensor (R11CM) to decrease the sensor angle and read the following parameter: "RH AoA SENSOR (R11CM) POSITION 2 (°)": < 20°.
 - (a) Make sure the outboard slats start to retract.
 - (b) Make sure pressure is relieved from emergency slat actuator and slight slat motion is observed.
- (6) As soon as both outboard slats are not fully extended, quickly move the vane of RH AoA sensor (R11CM) to increase the sensor angle and read the following parameter:
 - (a) "RH AoA SENSOR (R11CM) POSITION 2 (°)": > 23°
 - (b) Make sure that outboard slats start to extend again before fully retracting.



11. Final Steps

- A. Cut off and drop the pressure in hydraulic system 2 (Refer to Dassault OEM procedure 29-000 of the Dassault maintenance manual, paragraph "Cut off and drop the pressure from Hydraulic Ground Power Unit").
- B. De-energize the aircraft systems (Refer to Dassault OEM procedure 24-000 of the Dassault maintenance manual, paragraph "De-energization with the Electrical Ground Power unit").
- C. Disconnect the hydraulic ground power unit (Refer to Dassault OEM procedure 29-000 of the Dassault maintenance manual, paragraph "Disconnection of the Hydraulic Ground Power unit").
- D. Disconnect the electrical ground power unit (Refer to Dassault OEM procedure 24-000 of the Dassault maintenance manual, paragraph "Disconnection of the Electrical Ground Power unit").
- E. Remove the safety fences and the warning lights.



EXTERIOR LIGHTING – INSPECTION / CHECK

1. General

The LED lighting assemblies installed in the center leading edge segment are designed for high reliability and long service life. No routine maintenance of these assemblies is required.

2. Basic Check

- A. Do an operational check of the winglet Position and Anti-collision lights every 2 months or 200 Flight Hours.
 - (1) Make sure that the Position lights strobe at a regular rate. The frequency of the strobe rate is controlled by on-board circuitry in the lighting assembly.
 - (2) Make sure that the elements in the LED arrays of the Position lights illuminate.
 - (a) The Position light uses a single LED array with 16 elements. Replace the assembly if 4 or more LED elements fail to illuminate.
 - (b) The Anti-collision light uses 4 LED arrays, each with 8 LED elements. Replace the assembly if any single array, or group of arrays fail to illuminate.
- B. Inspect the Lighting Assemblies during the wing zonal inspections at the 3A+ Check in accordance with MP 57-000.
- C. Do a check of the lens.
 - (1) Look for cracks and eroded or scratched lens surfaces.
 - (2) Polish lenses that are eroded or scratched to restore clarity. Refer to Dassault MP 56-001.
 - (3) Replace lenses that have structural damage.

3. “C-Check” Inspection

- A. Inspect the LED lighting assemblies when the leading edges are removed for the “C” Inspection.
- B. Inspect the lighting assemblies for these conditions:
 - (1) Corrosion on the surfaces of the lighting assemblies
 - (2) Corrosion on the nut-plates and attaching parts
 - (3) Condition of the bonding straps
 - (4) Corrosion on the connectors and condition of the electrical contacts
 - (5) Condition of the wiring and extension harnesses
 - (6) Condition of the lens assembly
 - (7) Condition of the brackets and clamps the hold the wiring



WINGLET TIP CAP – REMOVAL / INSTALLATION

1. General

The winglet tip cap is a replaceable structural component of the API winglet. The winglet tip cap is fixed into position by rivets and electrically bonded to the leading and trailing edges of the winglet.

2. Winglet Tip Cap Removal

A. References

- (1) F20-0002, Top Assembly – Winglet
- (2) F20-0013, Tip Cap

B. Tools

- (1) Drill & bits
- (2) Non Metallic Scraper (Plexiglas or hard plastic)

C. Consumable Materials:

- (1) Cleaning solvent, Acetone O-A-51C

D. Removal Procedure (Refer to Figure 401)

CAUTION: Take care not to damage the edges of the laminated structure of the winglet main bond assembly when removing the winglet tip cap. Remove old sealant with a non-metallic scraper and a minimum amount of solvent.

CAUTION: Do not let solvents soak in to the exposed edges of the main bond assembly. Solvents can cause edge deterioration and loss of structural integrity of the winglet main bond assembly.

- (1) Remove the bolts that attach the winglet tip cap to the forward electrical bond points.
- (2) Drill out the rivets that hold the winglet tip cap to the main bond assembly. Take care not to make the holes in the main bond assembly larger.
- (3) Remove old sealant from the main bond assembly with a non-metallic scraper. Use a minimal amount of solvent to loosen and remove the old sealant from the composite winglet structure.
- (4) Inspect the winglet main bond assembly / winglet tip cap mating surface.
 - (a) Visually inspect the laminated structure of the winglet for cracks and deterioration.
 - (b) Visually inspect the trailing edge arrowhead extrusion and leading edge skin at the tip cap interface for cracks, deformation, or elongated holes.



3. Winglet Tip Cap Installation

A. References

- (1) Dassault Standard Practices 20-231, Basic Sealing
- (2) NASM33537 Helicoil Installation Standard

B. Tools

- (1) Cherry Max Gun
- (2) Rivet Gun
- (3) Bucking Bar
- (4) Rivet Grinder
- (5) Milliohmmeter: SEFELEC RCP2SE, or RCP2A

C. Consumable Materials

- (1) Acetone, O-A-51C
- (2) Methyl Ethyl Keytone (MEK), TT-M-261
- (3) Sealant, AMS-8802 Type II (PR1560MC, PR1750 Class A, or Proseal 870)
- (4) Release Agent, Camie A1000 (or equivalent)

D. Required Parts

- (1) F20-0013-1, Tip Cap Assy LH
- (2) F20-0013-2, Tip Cap Assy RH
- (3) CR3524P-5-2 Cherry Blind Rivets (6 per assy)
- (4) NAS8803A3 Bolts (2 per assy)
- (5) MS124655 Heli-Coil Inserts (2 per assy)
- (6) MS20426T5-10 Rivets (1 per assy)



E. Installation Procedure

(1) Preliminary Winglet Tip Cap Fitting (Refer to Figure 401)

- (a) Fit the new tip cap assembly to the main bond assembly.
- (b) Mark the locations for the center points of the forward-most inboard and outboard holes under the leading edge skin.

NOTE: Do not drill these holes at this time. These holes are to be fitted with helical coil inserts.

- (c) Match drill the winglet tip cap to existing holes in winglet main body assembly. Use drill bushings to locate holes in tip cap assembly relative to existing holes.
- (d) Remove the winglet tip cap, clean, and deburr the fastener holes.
- (e) Drill the forward inboard and outboard holes in the winglet tip cap and install the helicoil inserts. Hole specification are as follows:
 - Minor diameter .1968 - .2041
 - Countersink .230 - .260 diameter at 115° - 125°
 - Thread per NASM33537 for .1900 - 32 UNF-3B helicoil insert
 - Minimum full thread depth .220 (thread thru is permissible)
 - Pitch diameter .2103 - .2123
 - Major diameter .2306 minimum

(2) Surface Preparation

WARNING: DO NOT GET METHYL ETHYL KETONE (MEK) IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE MEK FUMES. USE EYE PROTECTION AND GLOVES WHEN YOU USE MEK. KEEP THIS SOLVENT AWAY FROM SPARKS, FLAME, AND HEAT.

- (a) Use an abrasive pad to clean both bonding surfaces of the winglet tip cap at the helicoil area, and both sides of the aft-most hole of the tip cap.
- (b) Wipe the winglet tip cap and the mating surface of the winglet main bond assembly with a cotton cloth moistened with MEK.

CAUTION: Do not apply release agent at the electrical bonding areas. An effective electrical bond requires metal-to-metal contact.

- (c) Apply a thin uniform coat of release agent to the mating surface of the winglet main bond assembly.



(3) Installation of the Winglet Tip Cap

WARNING: DO NOT GET ACETONE IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE ACETONE FUMES. USE EYE PROTECTION AND GLOVES WHEN YOU USE ACETONE. KEEP THIS SOLVENT AWAY FROM SPARKS, FLAME, AND HEAT.

CAUTION: Do not apply sealant to the electrical bonding areas. An effective electrical bond requires metal-to-metal contact.

- (a) Apply AMS-8802 Type II sealant to the lower mating edges of the winglet tip cap.
- (b) Set the winglet tip cap in place and install the NAS8803A3 bolts that make the electrical bonds between the winglet tip cap and the leading edge.
- (c) Install the MS20426T5-10 Rivet that makes the electrical bond between the winglet tip cap and the trailing edge aluminum arrowhead extrusion.
- (d) Use the SEFELEC milliohm meter to do a resistance test of the winglet tip cap to leading and trailing edges structures:
 1. Measure resistance between the NAS8803A3 bolts and the MS20426T5 rivet.
 2. Measure resistance between the MS20426T5 rivet and the leading edge skin.
 3. Maximum bonding path resistance is .0005 ohms.
- (e) Install the blind rivets that fix the winglet tip cap to the main body assembly.
- (f) Shave or grind rivet heads flush to skin $+0.002$ / -0.003 .
- (g) Fill and fair external skin fasteners common to the tip cap and the main bond assembly with AMS-8802 Type II sealant as needed.
- (h) Seal the gap between the tip cap and winglet main bond assembly with AMS-8802 Type II sealant.



4. **Painting and Touch-up**

A. Reference:

- (1) F20-0006, Seal and Paint - Winglet

B. Touch-up Paint Procedure

- (1) Paint the exposed surfaces of tip cap in accordance with F20-0006.
- (2) Do not apply paint to the polished metal leading edge surfaces.
- (3) Apply touch-up paint to the winglet Main Bond Assembly as needed to match the existing winglet finish.
- (4) Polish rivet heads common to the leading edge surfaces and the winglet tip cap to match the leading edge surface finish.

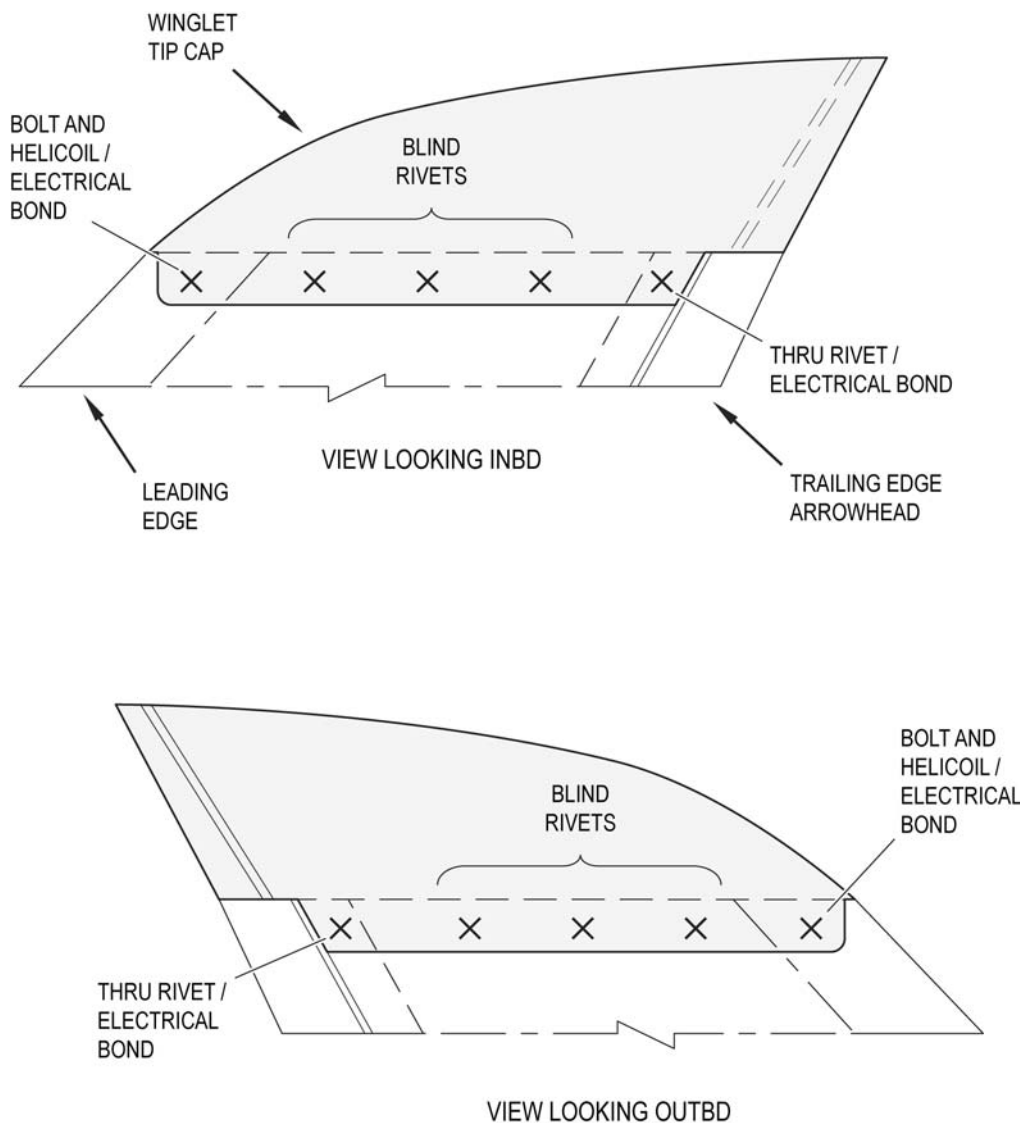


FIGURE 401:
WINGLET TIP CAP REMOVAL AND INSTALLATION



LEADING EDGES – DESCRIPTION

1. General

- A. Three leading edge segments protect the winglet installation. These polished aluminum segments attach to the primary winglet bond assembly and are electrically bonded. The outboard segment attaches to the aluminum / composite tip cap assembly and is electrically bonded to that assembly.
- B. The middle leading edge segments holds the LED navigation and anti-collision lighting assemblies and the lens assemblies.
- C. The inboard leading edge segment contains a 22-lb brass ballast to reduce winglet flutter. The electrical extension cables that supply power to the LED lighting assemblies pass through the inboard segment and the ballast.

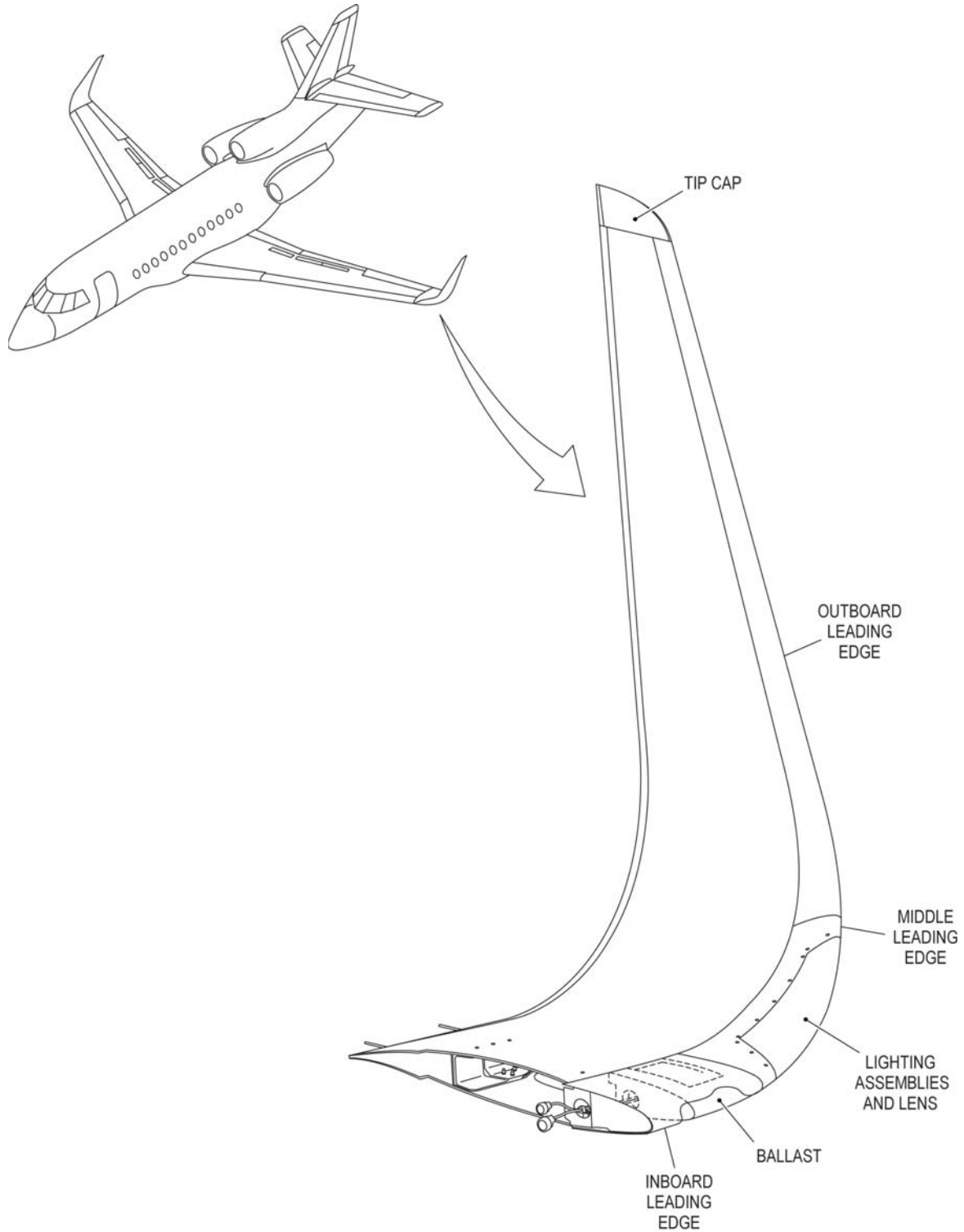


FIGURE 1: LEADING EDGES - F900 WITH API WINGLETS



LEADING EDGES – REMOVAL / INSTALLATION

1. General

- A. The three leading edge segments of the API winglet installation are made of aluminum alloy and polished to a mirror finish. All of the segments are inter-connected electrically with bonding straps.
- B. The inboard leading edge contains a 22 pound ballast weight. The middle segment contains the LED lighting assemblies. The outboard leading edge is electrically connected to the winglet tip cap.

2. Leading Edge Removal

A. References

- (1) API Drawing F20-0002 Top Assembly Winglet
- (2) API Drawing F20-0005 Wing Wiring Harness Installation
- (3) API Drawing F20-0008 Winglet Installation Leading Edge
- (4) API Drawing F20-0014 Leading Edge

B. Tools

- (1) Non-metallic Scraper (Plexiglas or hard plastic)
- (2) Small Bristle Brush
- (3) Spatula

C. Removal Procedure

- (1) Remove fasteners that attach the leading edge to the winglet primary bond assembly.
- (2) With a spatula, carefully pry the leading edge away from the winglet.
- (3) Remove the sealant and disconnect the ground straps at both ends of the leading edge segment.
- (4) Remove the electrical connectors (middle segment only).
- (5) Remove the leading edge.



3. Leading Edge Installation

A. References

- (1) API Drawing F20-0002 Top Assembly Winglet
- (2) API Drawing F20-0005 Wing Wiring Harness Installation
- (3) API Drawing F20-0008 Winglet Installation Leading Edge
- (4) API Drawing F20-0014 Leading Edge
- (5) Dassault Standard Practices 20-231 Basic Sealing

B. Consumable Materials

- (1) Sealant, PR1560MC, or PR1750 Class A, or AMS-S-8802 Type II
- (2) Corrosion Inhibiting Compound, MIL-C-11796 or COR-BAN27L
- (3) Methyl Ethyl Keytone (MEK) TT-M-261
- (4) Primer, 10P20-44 (AK Nobel), or MIL-PRF-23377 Type 1, Class C (or equivalent)
- (5) Release Agent - Camie A1000 (or equivalent)
- (6) Acetone, O-A-51C
- (7) Lint-free Cotton Cloth

C. Installation Procedure

- (1) Surface Preparation

WARNING: DO NOT GET METHYL ETHYL KETONE (MEK) IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM MEK. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE MEK. KEEP MEK AWAY FROM SPARKS, FLAME, AND HEAT. MEK IS A POISONOUS AND FLAMMABLE SOLVENT WHICH CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

- (a) Wipe the winglet and mating surfaces of the leading edges with a lint-free cotton cloth moist with MEK.
- (b) Let the surface dry completely.
- (c) Use masking tape to protect the lens assembly when you clean the middle leading edge segment.
- (d) Do not let MEK come in contact with the surface of the polycarbonate lens. This solvent can cause damage to the lens.



(2) Installation of Leading Edge

Use the procedures in either Option 1, or Option 2 to install the replacement Leading Edge.

Option 1

- (a) Install .250 Outer Diameter / .1285 inner diameter drill bushings in holes in winglet skins.
- (b) Put the new leading edge in place, lining up LE pilot holes to winglet pilot holes with .1285 pin and maintaining dimensions on Detail A.
- (c) Install the pins from the center of the LE skin and work outward. The LE skin and winglet skin holes should line up. If not, readjust maintaining dimensions in Detail A.
- (d) After LE skin pins are in place, remove the center pin and bushing, drill the hole to .250 dia. and de-burr per best shop practice.

WARNING: DO NOT GET ACETONE IN YOUR MOUTH OR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM ACETONE. PUT ON A PROTECTIVE SPLASH GOGGLE AND GLOVES WHEN YOU USE ACETONE. KEEP THIS SOLVENT AWAY FROM SPARKS, FLAME, AND HEAT.

- (e) Clean the nut plates and threads of the previously drilled hole with acetone and a stiff-bristle brush.
- (f) Prime the bolt holes with 10P20-44.
- (g) Apply corrosion inhibiting compound, MIL-C-11796 (Class III) to the fasteners.
- (h) Install the fasteners when the leading edge in place starting from the center and working outward.
- (i) Continue drilling holes and installing fasteners as described above, working outward from the center.

Option 2

- (j) Apply Transfer Tape or Masking Tape to composite skin and LE skin OML surface as shown In Detail A.
- (k) Draw lines perpendicular to one another using a straight edge and sharp pencil through all hole centers on winglet skin per Detail B.
- (l) Install .250 outer diameter / .1285 inner diameter drill bushings into holes in winglet skins.
- (m) Put the new leading edge in place, lining up LE pilot holes to winglet pilot holes and maintaining dimensions on Detail A. The LE skin and winglet skin holes should line up. If not, readjust LE skin so that all of the pilot holes line up with substructure holes. Install .1285 dia. pins where necessary to stabilize the LE skin to the winglet.



- (n) Using a straight edge and pencil, draw lines onto the LE skin using the previously drawn lines on the winglet skin as a guide. The intersection of the lines drawn on the LE skin should line up with the winglet skin hole centerlines. Drill full size holes at starting at the center of the LE. The pilot holes in the LE should be removed entirely after drilling (ref Detail B). Do this until all holes are drilled to full size, repositioning pins as needed. De-burr the holes per shop practice.
 - (o) Clean the nut plates and threads of the previously drilled holes with acetone and a stiff-bristle brush.
 - (p) Prime the bolt holes with 10P20-44.
 - (q) Apply corrosion inhibiting compound, MIL-C-11796 (Class III) to the fasteners.
 - (r) Install the fasteners when the leading edge in place starting from the center and working outward.
- (3) Installation of Bonding Straps
- (a) Attach the bonding straps that electrically connect the leading edge segments.
 - (b) Tighten the fasteners to 20-25 in-lbs. torque. Make sure the lock washers are fully compressed.
 - (c) Use a multi-meter to check the resistance between the bonding straps and the leading edge segments. Make sure resistance is 5 milliohms or less.
 - (d) Apply PR1560MC sealant to the electrical bonding strap fasteners.

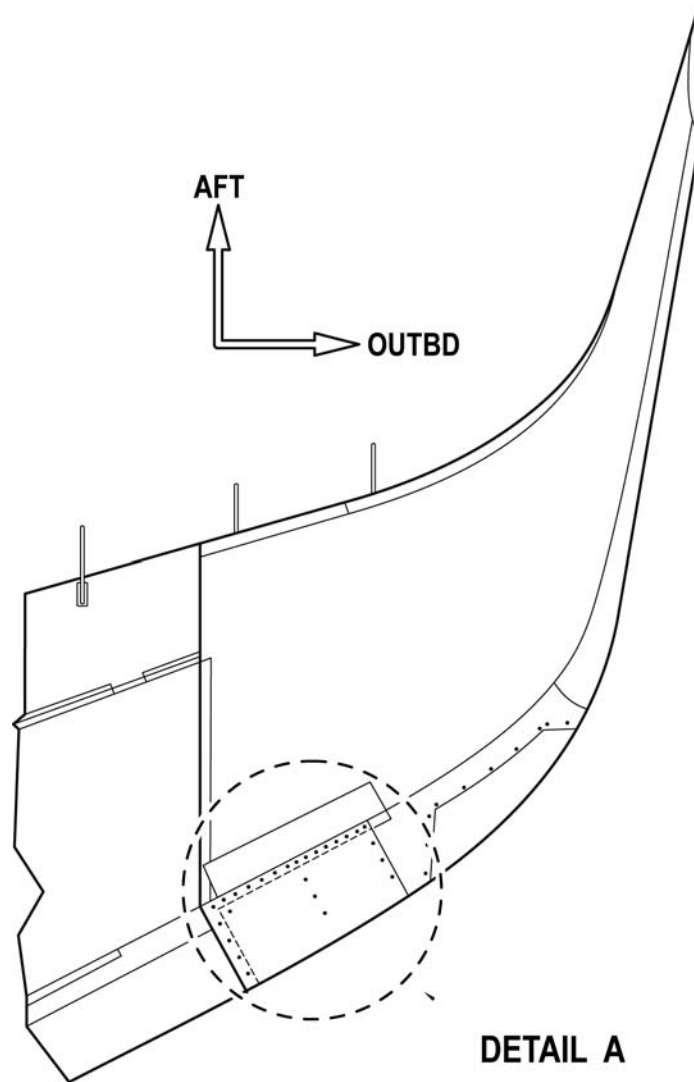
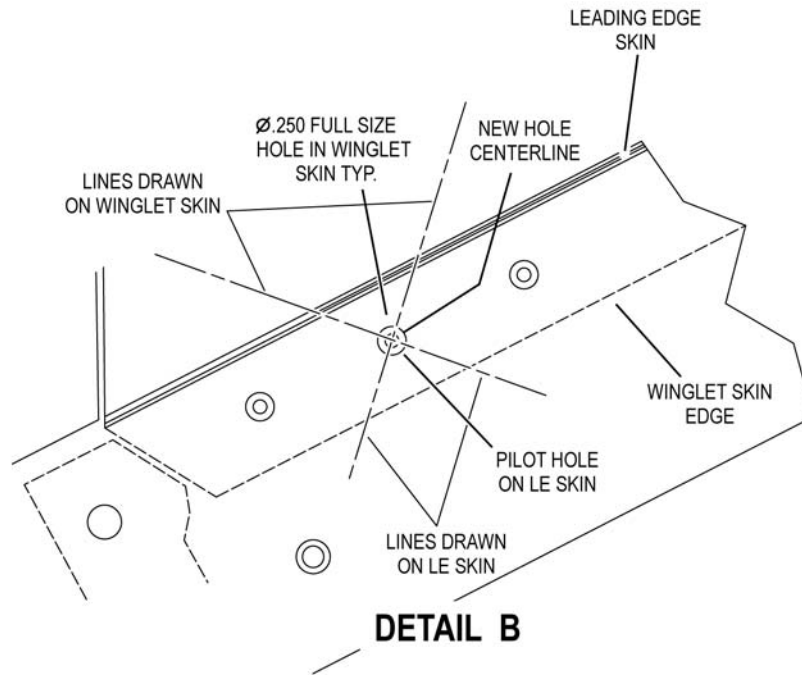
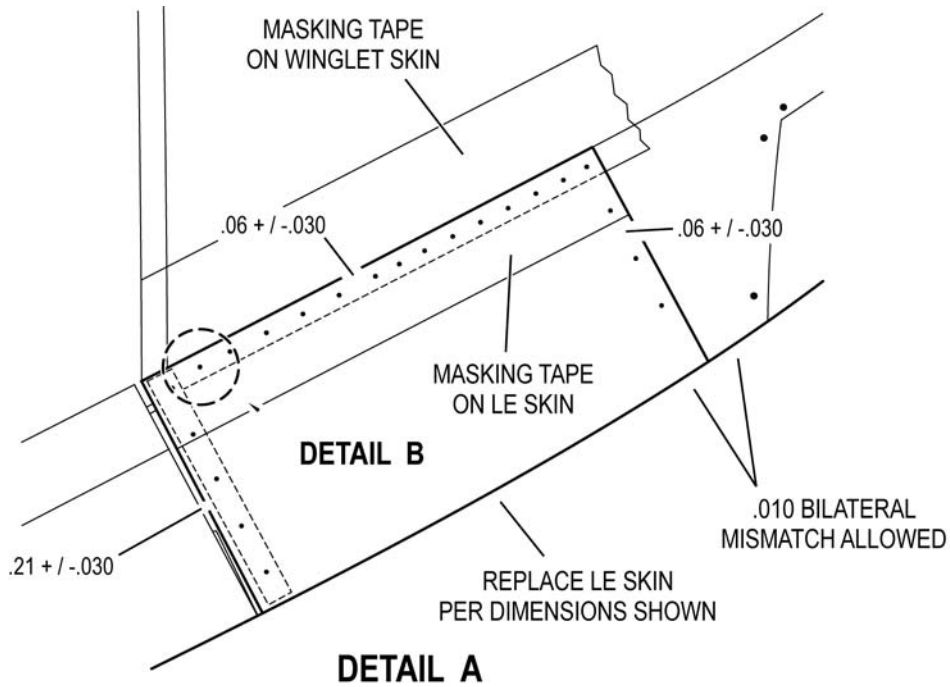


FIGURE 401 (SHEET 1 OF 2):
LEADING EDGE REMOVAL AND INSTALLATION



DRAW LINES THROUGH ALL COMPOSITE SKIN AND SKIN HOLE CENTERS

FIGURE 401 (SHEET 2 OF 2):
 LEADING EDGE REMOVAL AND INSTALLATION

EFFECTIVITY:
 F900, F900EX, F900EX EASY



SLATS – DESCRIPTION

1. General

- A. The outboard slats edges have been modified to fair to the winglet installation. The outboard slat edges have been trimmed, and modified rib sections and foam core components are installed to support the slats.

Slat rail stops, extend and retract switches, and roller fitting assemblies have been modified for the blended winglet installation.

B. References

- (1) API Drawing F20-0002 Top Assembly – Winglet
- (2) API Drawing F20-0070 Slat Modification
- (3) API Drawing F20-0071 Track Stops
- (4) API Drawing F20-0079 Slat Position Switch Installation
- (5) API Drawing F20-0100 Roller Fitting Instl Rails 5 & 10



SLAT – REMOVAL / INSTALLATION

1. General

The outboard slats have been trimmed to fair with the winglet installation. Original Dassault parts must not be used without modification.

2. References

- A. API Drawing F90-0075 Slat Rigging
- B. API Drawing F20-0070 Slat Modification
- C. F900: Refer to Dassault AMM 57-511 Removal / Installation of Slats
- D. F900EX : Refer to Dassault AMM 57-503 Removal / Installation of Slats
- E. F900EX EASy: Refer to Dassault AMM 57-503 Removal / Installation of Slats

3. Removal and Installation

Remove and install the outboard slats using the procedures described in the Dassault AMM.

4. Rigging

The API Winglet Modification changes the rigging procedures for the outboard Slats. Refer to API Drawing F90-0075 to rig the slats.



AILERONS – REMOVAL / INSTALLATION

1. General

Aileron rigging is changed with the installation of the API Winglet modification.

2. References

- A. API Drawing F90-0080 Aileron Modification and Rigging
- B. F900: Refer to Dassault AMM 57-517 Removal / Installation of Ailerons
- C. F900EX : Refer to Dassault AMM 57-701 Removal / Installation of Ailerons
- D. F900EX EASy: Refer to Dassault AMM 57-701 Removal / Installation of Ailerons

3. Removal and Installation

Use the procedures described in the Dassault AMM to remove and install the ailerons.

4. Rigging

The API Winglet Modification changes the rigging procedures for ailerons. Use API Drawing F90-0080 to rig the ailerons.



WINGLETS – DESCRIPTION

1. General

- A. The API blended winglet is a permanent installation attached to a modified primary wing structure. The winglet uses advanced composite construction in the primary bond assembly and uses aluminum leading edges, trailing edges, and a composite / aluminum winglet tip cap.
- B. The winglet primary bond assembly uses both fiberglass and carbon-fiber layers, laminated under high heat and pressure, and bonded to honey-comb support core elements. The high-stress areas of the winglet have up to 26 layers in the laminated structure.
- C. References
 - (1) API Drawing F20-0002 Top Assembly – Winglet
 - (2) API Drawing F20-0020 Bond Assembly - Winglet

2. Removal / Installation

The blended winglet is a permanent installation of the Falcon 900 aircraft. If the winglet is damaged to the point where it must be removed for repairs, or if the winglet must be replaced, contact Aviation Partners, Inc. for engineering assistance.

Aviation Partners, Inc.
7299 Perimeter Road South
Seattle, WA 98108-1107
Telephone: (206) 762-1171

3. Authorized Repairs

- A. Damage to the winglet may be classified as either damage to the glass fabric, or damage to the carbon fiber material. Damage to the glass fabric includes scraps and scratches to the winglet surface that do not penetrate into the carbon-fiber layers of the winglet primary bond assembly. This type of damage may be repaired with a fill and fair procedure and repainted to restore the aircraft appearance.
- B. Damage to the carbon fiber material is damage that penetrates into the carbon-fiber layers of the primary winglet bond assembly. Gouges and punctures that break into the carbon-fiber layers can cause loss of structural integrity of the winglet. This type of damage must be evaluated by API Engineering to determine if the damaged winglet can be considered airworthy.



C. Repair of Damage to Glass Fabric Layers

(1) Scratches and shallow gouges

Nicks, scratches, and gouges that do not cause damage to the carbon-fibers are permitted with no length or width limits. Those that cause damage to the glass fabric but not the carbon fibers are permitted, provided damage is temporarily sealed to prevent water penetration.

Minor damage to the winglet that does not penetrate into the carbon-fiber structure may be temporarily repaired as follows:

- (a) Pre-clean the effected area with a mild soap and water solution, and thoroughly dry the area.
- (b) Wipe the area with MEK to remove any remaining soap film or surface contamination. Let the area dry.
- (c) Apply aluminum foil tape (3M 436 Speed Tape) to the area.

NOTE: Make sure the area is completely sealed and that no air remains in the area.

- (d) Record the temporary repair action in the aircraft log book.
- (e) Make sure that the tape is in satisfactory condition at 100 flight cycles or 3 months. Replace tape that shows deterioration.
- (f) Do a permanent repair of the damage within 600 flight cycles or 6 months, whichever comes first.

(2) Permanent seal of repairs

- (a) Apply EA-9396 epoxy resin to the damaged area.
- (b) Apply one layer of 10P20-44 primer.
- (c) Apply one layer of 24F20-101 paint to the areas sealed with epoxy resin.



D. Repair of Damage to Carbon-Fiber Material

(1) Large gouges and punctures

- (a) No line-maintenance repairs for damage that penetrates into the carbon-fiber material are authorized.
- (b) Damage that penetrates into the carbon-fiber layers of the winglet primary bond assembly must be evaluated by API engineering.
- (c) This type of damage requires NDI inspections and engineering assistance to determine the extent of the damage and assess the airworthiness of the winglet. Contact Aviation Partners, Inc. for assistance:

Aviation Partners, Inc.
7299 Perimeter Road South
Seattle, WA 98108-1107
Telephone: (206) 762-1171

(2) Permanent seal of repairs

- (a) Apply EA-9396 epoxy resin to the damaged area.
- (b) Apply one layer of 10P20-44 primer.
- (c) Apply one layer of 24F20-101 paint to the areas sealed with epoxy resin.

E. General Winglet Repainting

- (1) Heavy dynamic loads are applied to the winglet in normal flight, and absolute weight restrictions apply to the winglet structures. Multiple coats of paint are not permitted on the winglets.
- (2) If the entire winglet must be repainted, refer to API F20-0006 (Seal and Paint - Winglet). The winglets must be stripped of the previous paint system before refinishing. Only one coat of primer and paint is permitted on API winglets.



SERVICING

1. General

- A. The Blended Winglet modification improves the performance and extends the range of the aircraft. The minimum oil level must be increased to allow for the extended flight time.
- B. Refer to the placard on the inside face of the engine oil servicing door and make sure oil is added to meet the revised minimum levels.
- C. Refer to Dassault MP 79-001 for detailed servicing procedures and authorized oil type.

TABLE 1: OIL ENDURANCE			
AIRCRAFT MODEL	FALCON 900	FALCON 900EX	FALCON 900EX EASy
ENGINE OIL AVAILABLE (USG)	0.30	0.26	0.41
FUEL ENDURANCE (HOURS)	9.837	12.29	12.29
CALCULATED ENGINE MAXIMUM OIL RATE (USG / HR)	0.030	0.021	0.033
PUBLISHED MAINTENANCE MANUAL – OIL CONSUMPTION LIMIT (USG / HR)	0.025	0.026	0.026
CALCULATED ENGINE MAXIMUM OIL RATE (LBM / HR)	0.23939	0.166	0.262
PUBLISHED MAINTENANCE MANUAL – OIL CONSUMPTION LIMIT (LBM / HR)	0.19625	0.20	0.20