



AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

**ON A/C ALL

57-00-00-001

WINGS, GENERAL

Introduction

The wingbox structure has attachments for the lateral flight control surfaces and the nacelle support structure. It has the ailerons, spoilers and trailing edge flaps. It is also used for fuel storage, including the collector and surge bays.

General Description

Refer to Figures 1 and 2.

The wing is a cantilever unit installed through the upper fuselage. It includes a center and outer section as well as wing tips and wing leading edges. The center wing section extends from Sta YW 00.00 to Sta YW 191.2, the outboard side of the nacelles. The outer wing section extends from Sta YW 191.2 to Sta YW 535.019. The wing tip is located outboard of Sta YW 535.019 to Sta YW 559.958.

The skin assemblies use metal bonding techniques to attach stringers to the skins and to improve fatigue resistance. The leading edges are made of composite material with integral lightweight pneumatic deicing boots. Composite shrouds fitted to the rear spar, ahead of the flaps and ailerons, give access to these systems.

Refer to Figure 3.

The wing has:

- Integral Fuel Tanks (SDS 28-11-00)

- Nacelle Mounting Structure (SDS 54-10-00)
- Center Wing (SDS 57-10-00)
- Outer Wing (SDS 57-20-00)
- Wing Tip (SDS 57-30-00)
- Wing Leading Edge (SDS 57-40-00)
- Trailing Edge Devices / Flaps (SDS 57-50-00)
- Ailerons (SDS 57-60-00)
- Spoilers (SDS 57-70-00).

Detailed Description

The wingbox structure has a straight center section of constant chord tapering by 3.87 degrees from wing Sta YW 00.00 to YW 191.0 left and right. The front and rear machined spars are connected by machined ribs and upper and lower skins to form the wingbox. The spars supply mounting structure for the fuselage, nacelles and several components for the various aircraft systems. The spars also have the jacking pads.

The wing structure is attached to fittings on the fuselage section with tension bolts. The wingbox has composite shrouds for the trailing edge flap assembly and metal composite leading edges.

The outer wingbox section has a constant tapered chord extending from Sta YW 191.2 to YW 535.019. The wing dihedral of the outboard wing is 2.5 degrees. The front and rear machined spars are connected by machined ribs and upper and lower skins to form the wingbox.

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The spars supply mounting structure for:

- Composite leading edges
- Composite shroud assemblies
- Flap actuator attachment brackets
- Fuel components
- Hydraulic components
- Electrical components
- Aileron attachment fittings.

The ribs are machined from aluminum plate.

The upper skin panel is made from aluminum. The upper skin machined pockets vary in thickness. Machined Z and T stringers add stiffness to the upper skin and are attached to the skin by countersunk rivets and Hi-Lite fasteners. The skin has a constant machined thickness of 0.190 in. (4.83 mm).

The lower skin is formed from aluminum. Machined Z add stiffness to the lower skin and are attached to the skin by countersunk rivets and Hi-Lite fasteners.

The internal wing panel surface and structure is protected with anodic coating and integral fuel tank epoxy primer. The exterior skins are anodized, epoxy primed and painted with enamel top coat for added protection.

The integral fuel tanks are part of the wingbox and extend outboard from the fuselage. The fuel tanks include the collector and surge bays.

Center Wing (57–10–00)

[Refer to Figure 4.](#)

The center wing has a one piece machined aluminum upper and lower skin, extending from wing Sta YW 191.0 LH to YW 191.0 RH. Machined Z and T stringers add stiffness to the upper skin and are attached to the skin by countersunk rivets and Hi-Lite fasteners. Machined Z stringers add stiffness to the lower skin and are also attached to the skin by countersunk rivets and Hi-Lite fasteners.

Access panels are attached by screws to access cut-out surround structures in the upper skin. Gang channels with dome nut plates are attached to the lower surface flange for attachment of the access panels.

The front spar has three machined aluminum sections. The center section extends from Sta YW 32.0 LH to YW 32.0 RH. The outboard sections extend from YW 32.0 to YW 191.0. The rear spar is a one piece aluminum section extending from YW 191.2 LH to YW 191.2 RH.

The front and rear spar attachment fittings and strut attachment fittings for the wing to fuselage are made from corrosion resistant steel. The spar caps are part of the machined spar assembly.

The wet bay fuel access panels are on the top of the center wing on both the left and the right wing. They are identified as 522AT, 522BT, 522CT and 523AT on the left wing and 622AT, 622BT, 622CT and 623AT on the right wing.



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Outer Wing (57–20–00)

Refer to Figure 5.

The outer wing upper skin panel is a one piece machined section from YW 191.2 to YW 425.019 LH/RH, made from aluminum. The upper skin varies from 0.100 to 0.195 in. (2.54 to 4.95 mm) with machined pockets vary from 0.065 to 0.140 in. (1.65 to 3.56 mm) in thickness. Machined Z and T stringers add stiffness to the upper skin and are attached to the skin by countersunk rivets and Hi-Lite fasteners.

Access panels are attached by screws to access cut-out surround structures in the upper skin. Gang channels with dome nut plates are attached to the lower surface flange for attachment of the access panels.

The lower skin is a one piece aluminum machined section with same dimensions as upper skin. The lower skin is 0.100 in. (2.54 mm). Machined Z stringers add stiffness to the lower skin and are attached to the skin by countersunk rivets and Hi-Lite fasteners.

Wing Tip (57–30–00)

Refer to Figure 6.

The wing tip encloses the outboard end of the wing structure and gives a smooth profile to reduce drag. It also supplies attachment points for the wing tip position lights. The wing tip fairing is located between YW 535.019 and YW 559.958. It is attached by screws to the wing box structure, to the aileron shroud and to the outer wing leading edge. There are panels in the fairing to give access inside the fairing.

Wing Leading Edge (57–40–00)

Refer to Figures 7 and 8.

The leading edge is a sandwich structure made of aluminum facings and core. Pneumatic deice boots are bonded to the leading edges.

The inboard leading edge stretches between the fuselage (YW 55.2) and the nacelle (YW 155.2). It is attached by screws to the upper and lower cap flanges of the front spar. The outboard leading edges start outboard of the nacelles and extend from wing Sta YW 191.019 to YW 554.499.

Trailing Edge Devices / Flaps (57–50–00)

Refer to Figure 9.

Each wing has an inboard and an outboard flap surface. The inboard flap is installed between the fuselage structure and the engine nacelle inboard structure. The outboard flap is installed between the engine nacelle outboard structure and the aileron. The inboard flap has a constant cord and the outboard flap is tapered. When the flaps are retracted, they fit into the flap shrouds along the trailing edge of the wing to form an aerodynamically clean wing surface.

There are five flap tracks on each wing. Flap tracks #1 and #2 are cam type tracks, which support the inboard flap section. Flap track #1 is located on the side of the fuselage while flap track #2 is located on the inboard side of the nacelle. Flap tracks #3, #4 and #5 support the outboard flap section. Flap track #3 is a cam type track and is located on the outboard side of the nacelle. Flap tracks #4 and #5 are cantilever type tracks attached to the wing rear spar extending aft from the bottom of the wing surface.



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Roller carriages are attached to the end of each flap track. These carriages are provided with rollers that engage with the tracks.

Ailerons (57-60-00)

[Refer to Figure 10.](#)

The aileron assembly has three hinge fittings which are on the aileron itself. A fourth outer hinge attaches to the wing rear spar hinge arms. The aileron structure includes the skins, ribs and stiffeners. It also has actuator fittings as well as trim and gear tab hinge attachment points. The aileron box, trailing edge, gear and trim tabs are made of aluminum. The leading edge and aileron tip are of composite construction.

Spoilers (57-70-00)

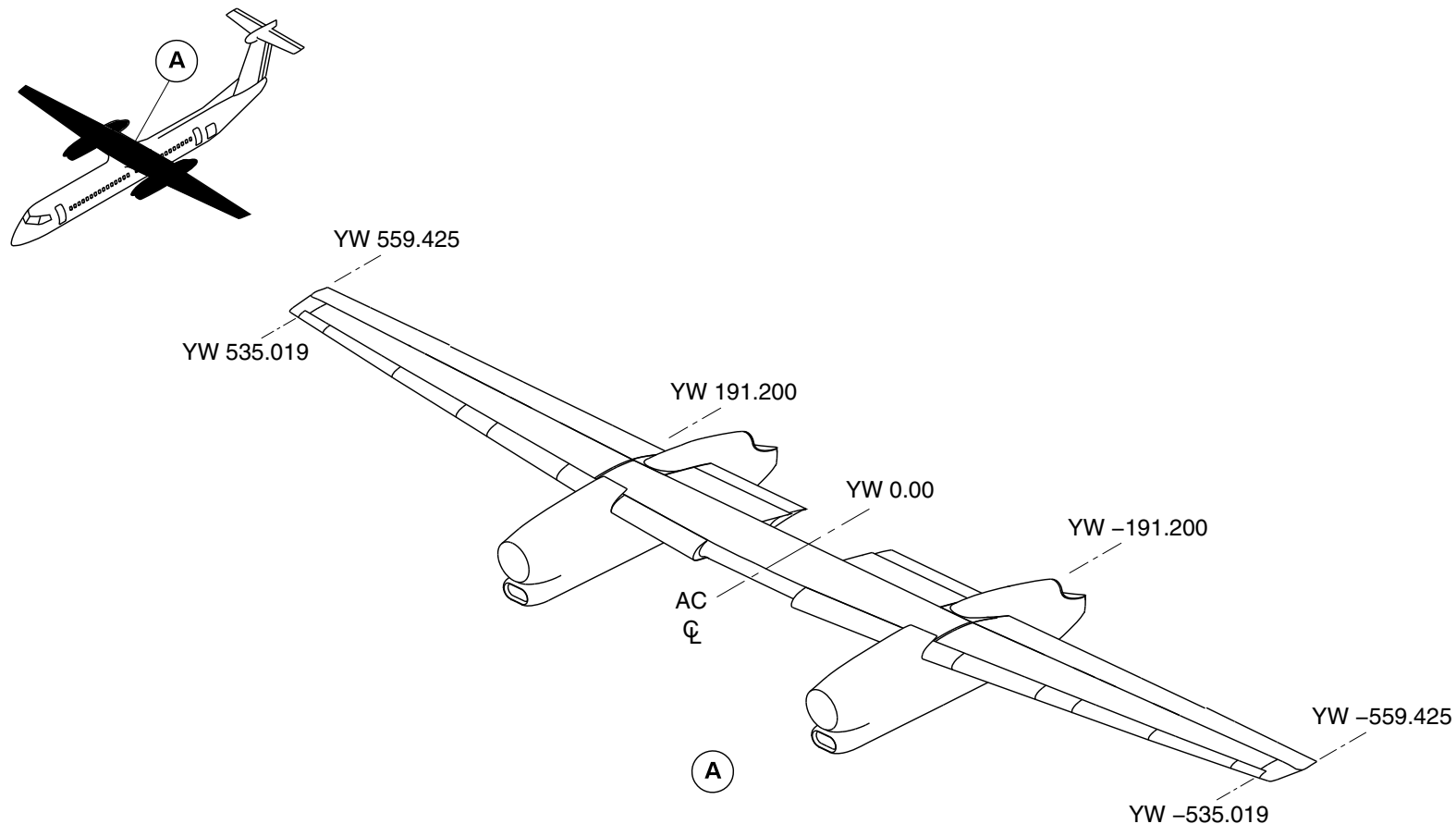
[Refer to Figures 11 and 12.](#)

There are two hydraulically powered roll spoilers on each wing. The roll spoilers operate with the ailerons to give lateral control of the aircraft in flight. The inboard and outboard spoilers are located forward of the outboard flaps and are hinged to the upper surface of the wing. The spoiler Power Control Units (PCUs) attached to the panels are supplied with hydraulic pressure for extending or retracting the panels.



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Wing Structure Locator
Figure 1

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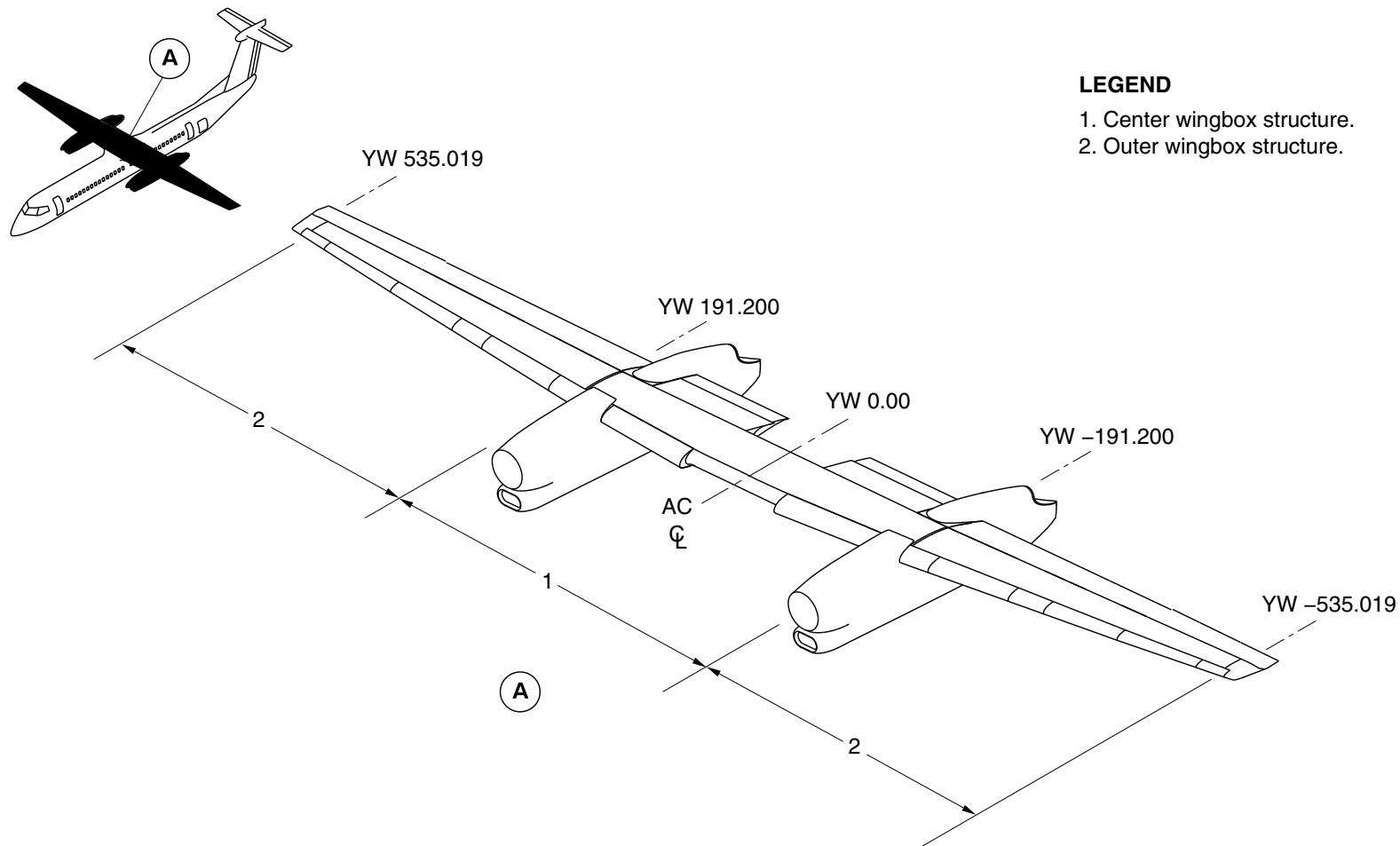
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LEGEND

1. Center wingbox structure.
2. Outer wingbox structure.

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Center and Outer Wing Structures
Figure 2

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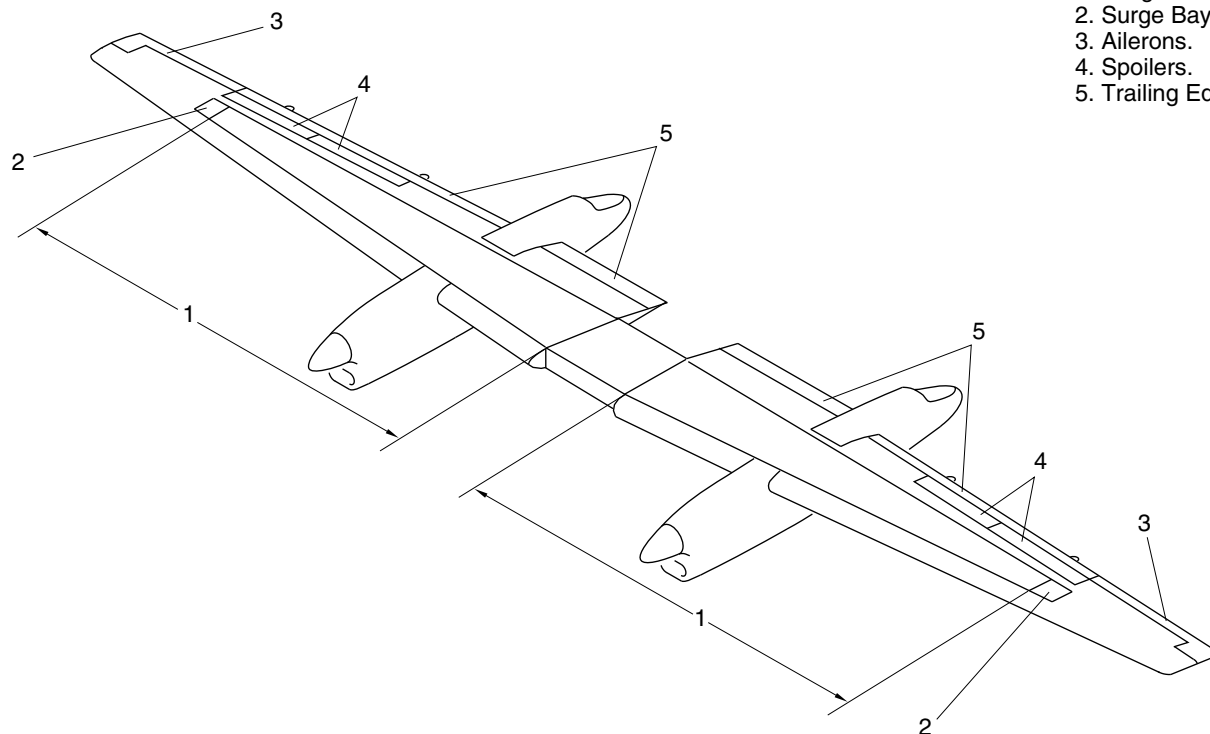


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LEGEND

- 1. Integral Fuel Tanks.
- 2. Surge Bay.
- 3. Ailerons.
- 4. Spoilers.
- 5. Trailing Edge Flaps.



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CENTER AND OUTER WING DETAIL
Figure 3

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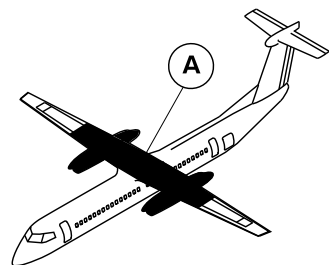
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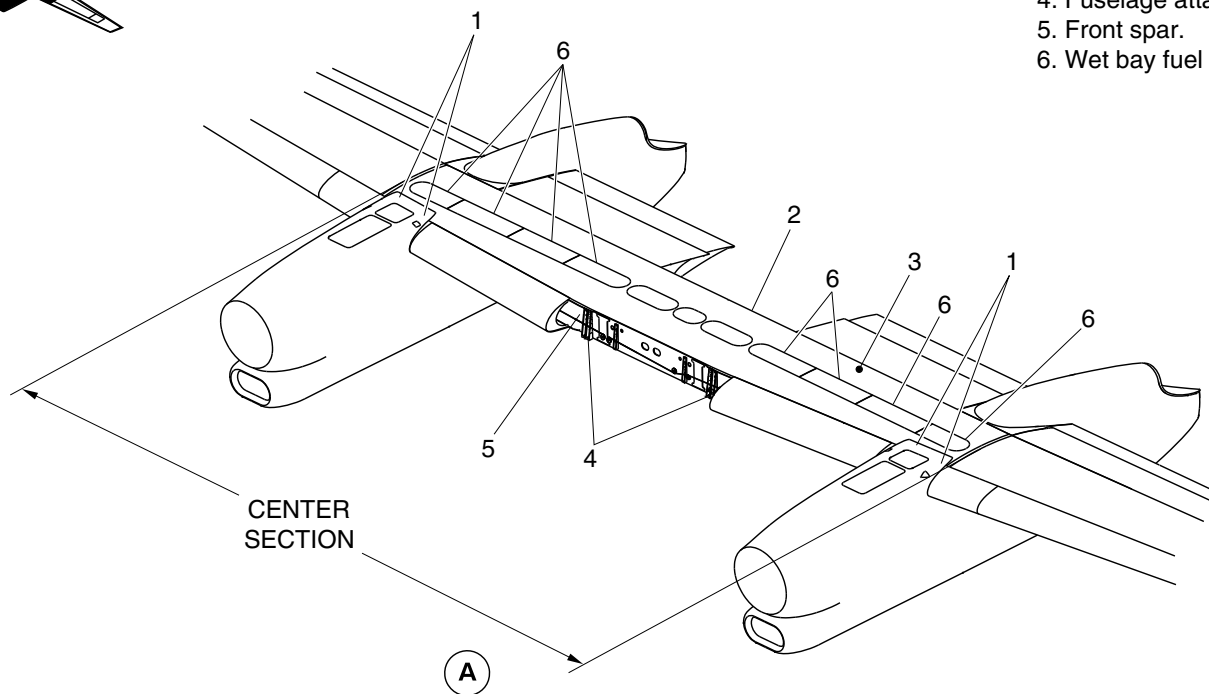
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LEGEND

1. Nacelle attachment fitting.
2. Rear spar.
3. Upper skin panel.
4. Fuselage attachment fitting.
5. Front spar.
6. Wet bay fuel access panel.



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Center Wing Section Detail
Figure 4

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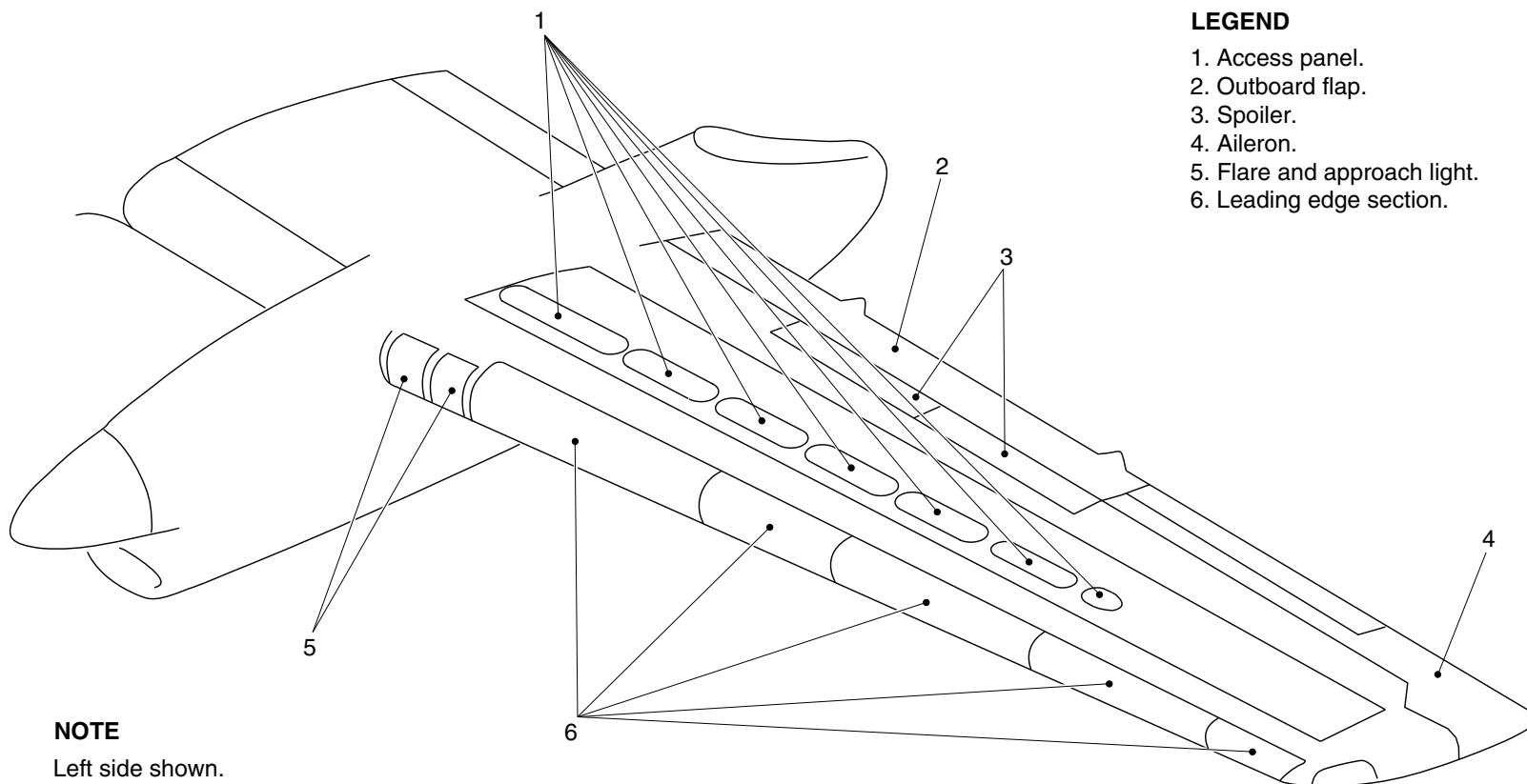
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LEGEND

- 1. Access panel.
- 2. Outboard flap.
- 3. Spoiler.
- 4. Aileron.
- 5. Flare and approach light.
- 6. Leading edge section.

NOTE

Left side shown.

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Outer Wing Section Detail
Figure 5

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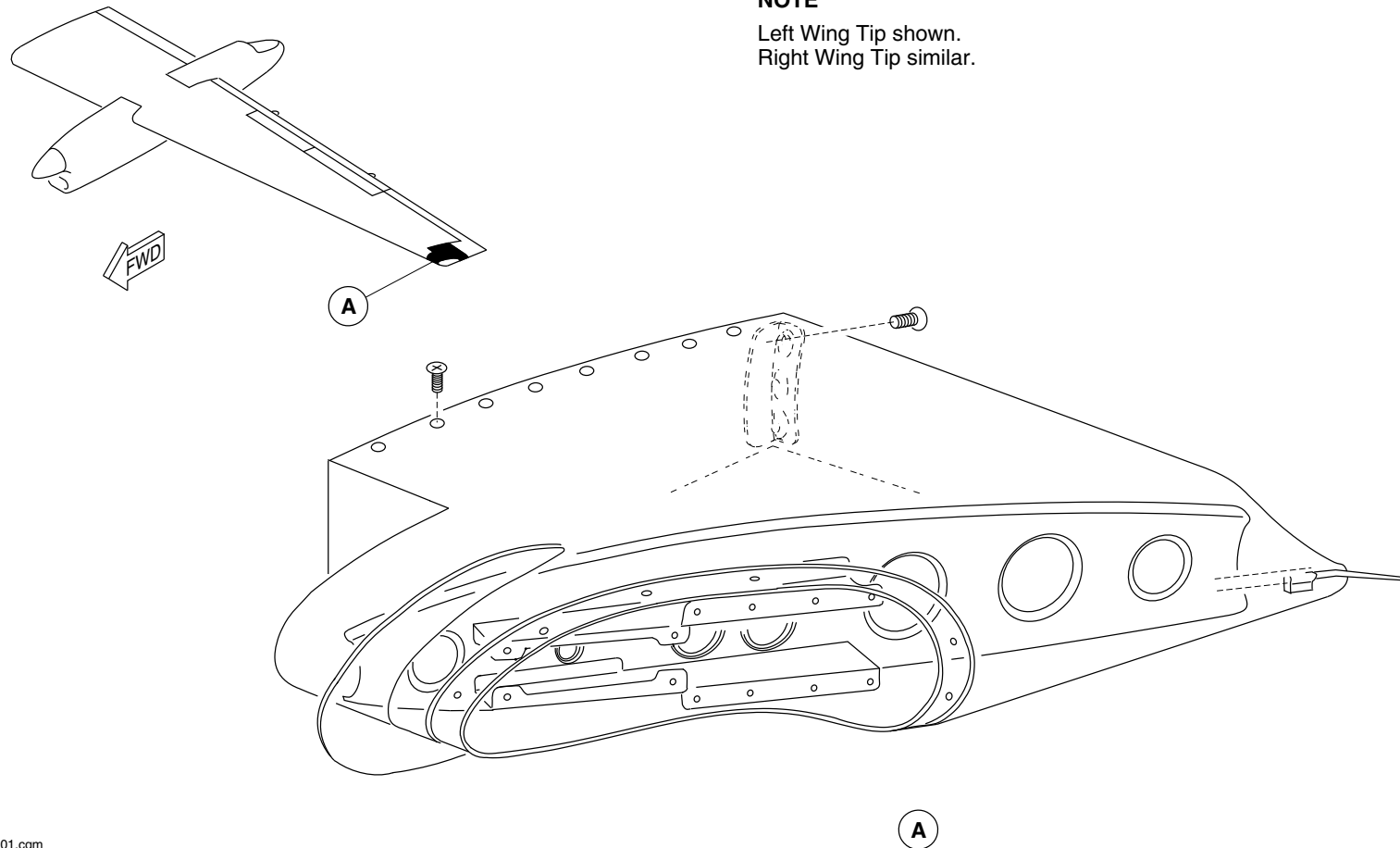


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NOTE

Left Wing Tip shown.
Right Wing Tip similar.



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WING TIP LOCATOR
Figure 6

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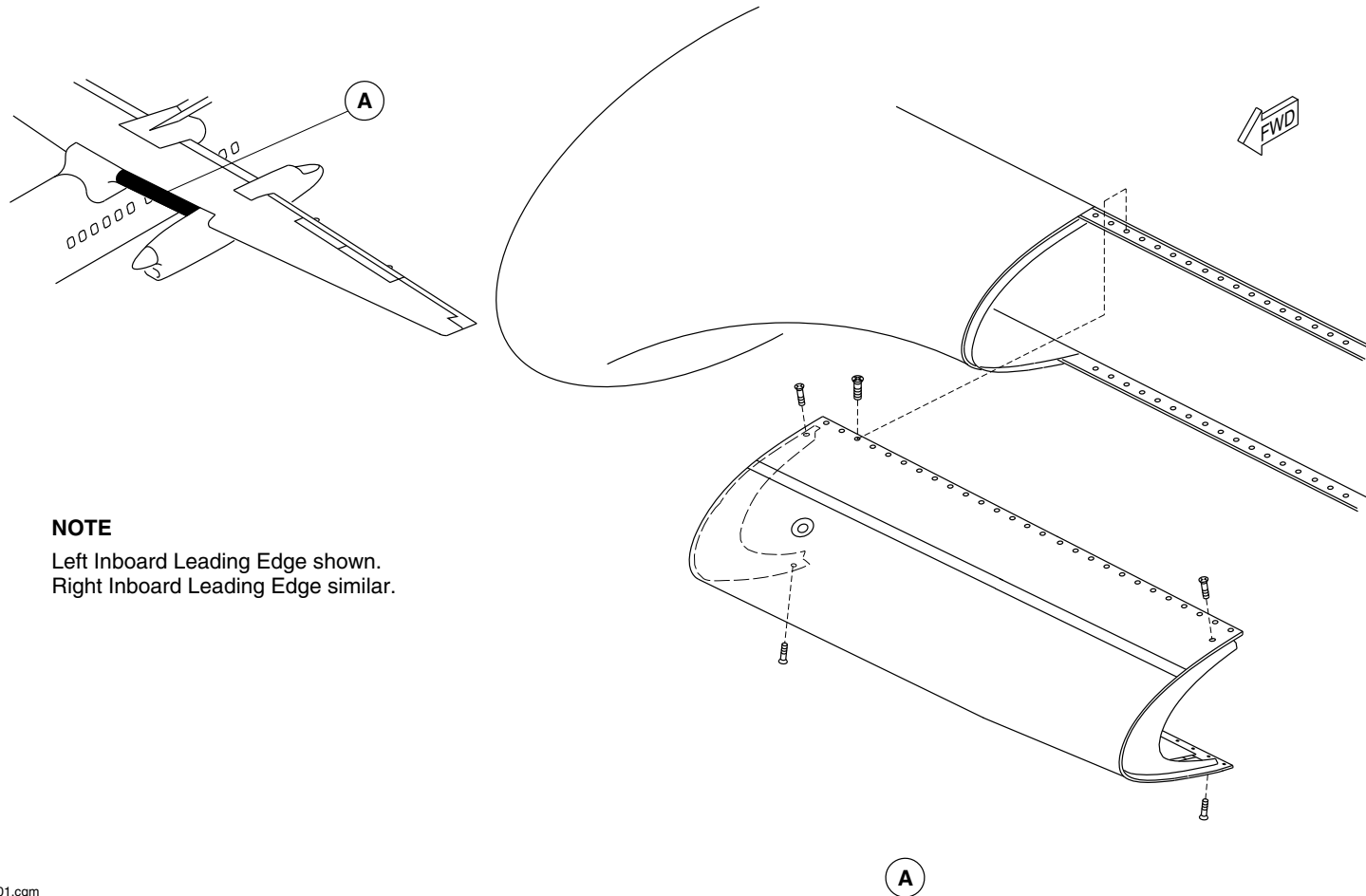
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CENTRE WING LEADING EDGE LOCATOR
Figure 7

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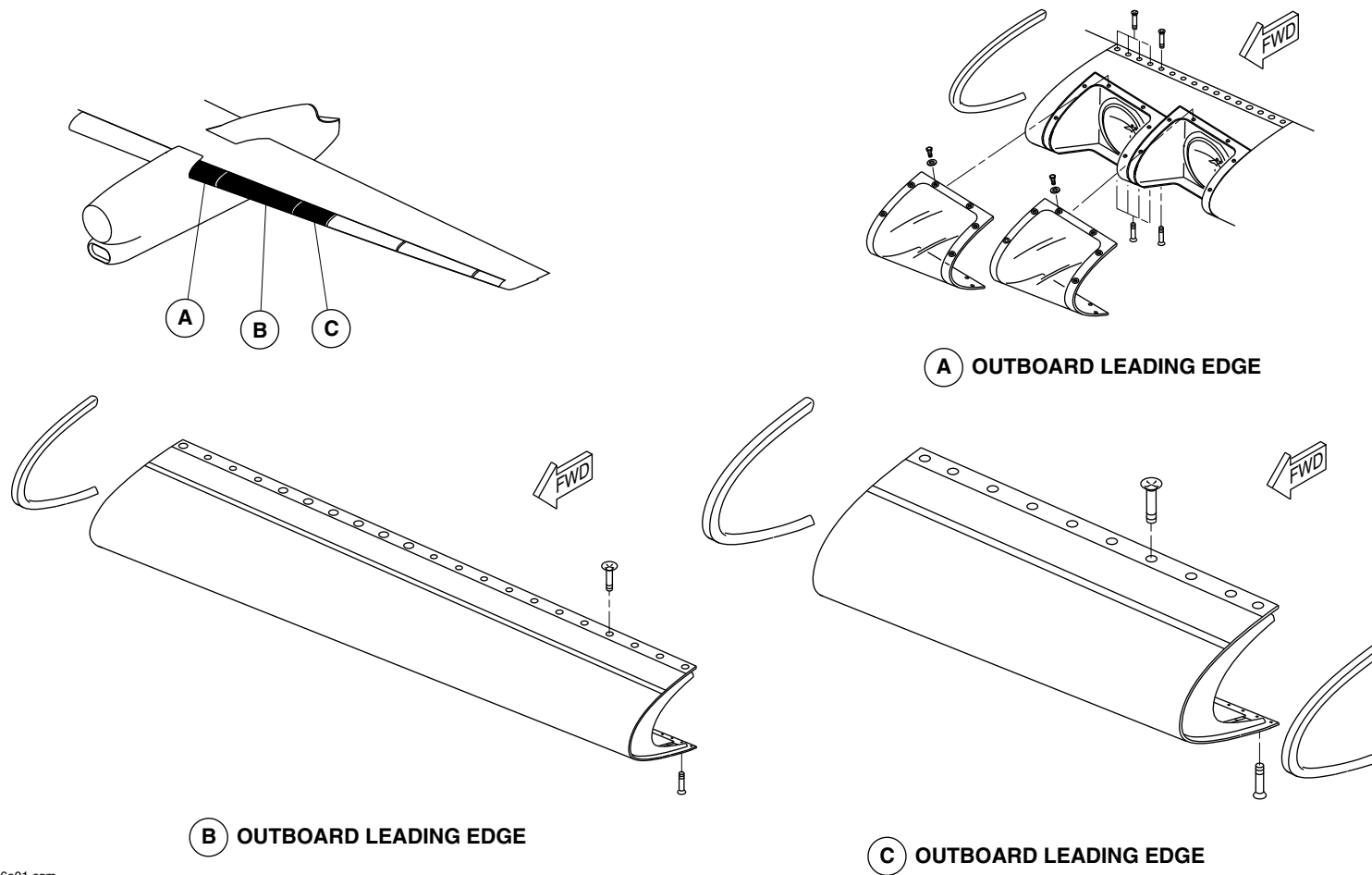
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OUTER WING LEADING EDGE LOCATOR
Figure 8

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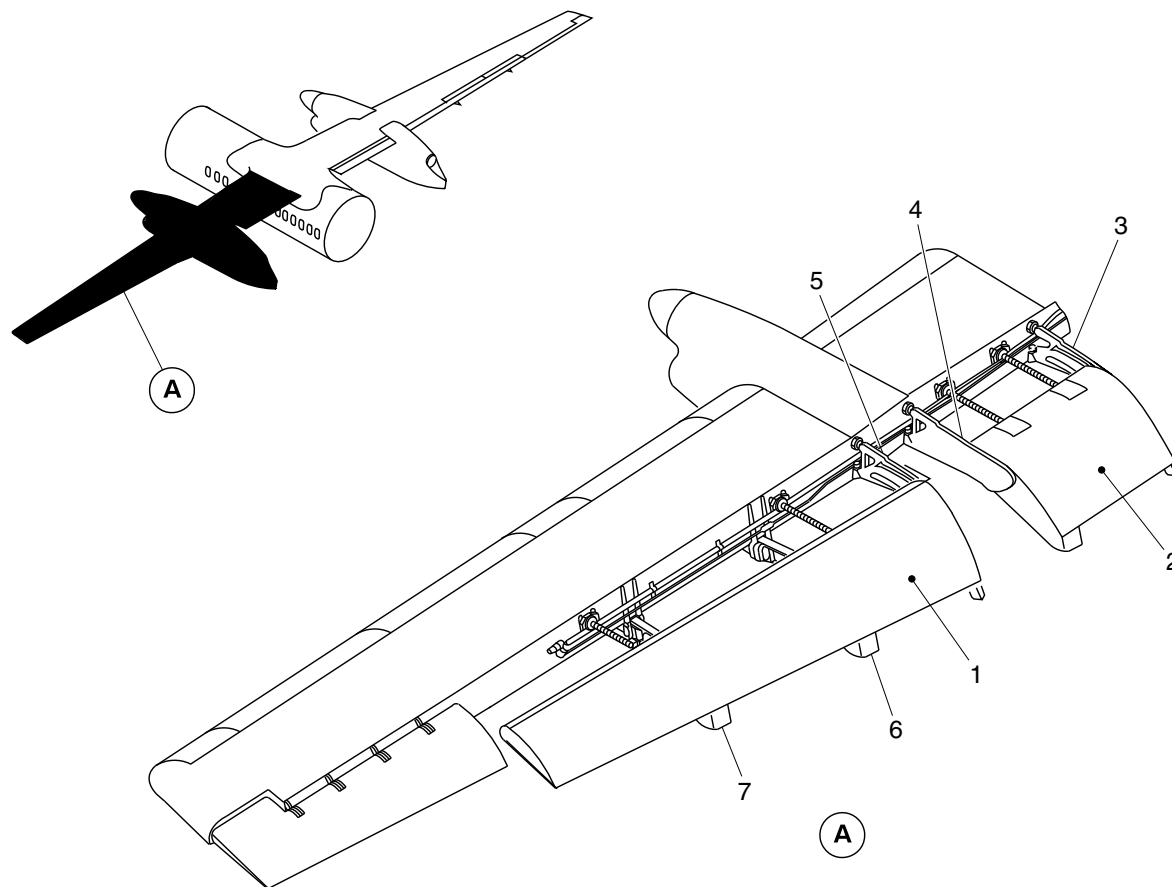
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LEGEND

1. Outboard flap.
2. Inboard flap.
3. Flap track no. 1.
4. Flap track no. 2.
5. Flap track no. 3.
6. Flap track no. 4.
7. Flap track no. 5.

NOTE

Left side shown.
Right side similar.

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Inboard and Outboard Flaps Locator
Figure 9

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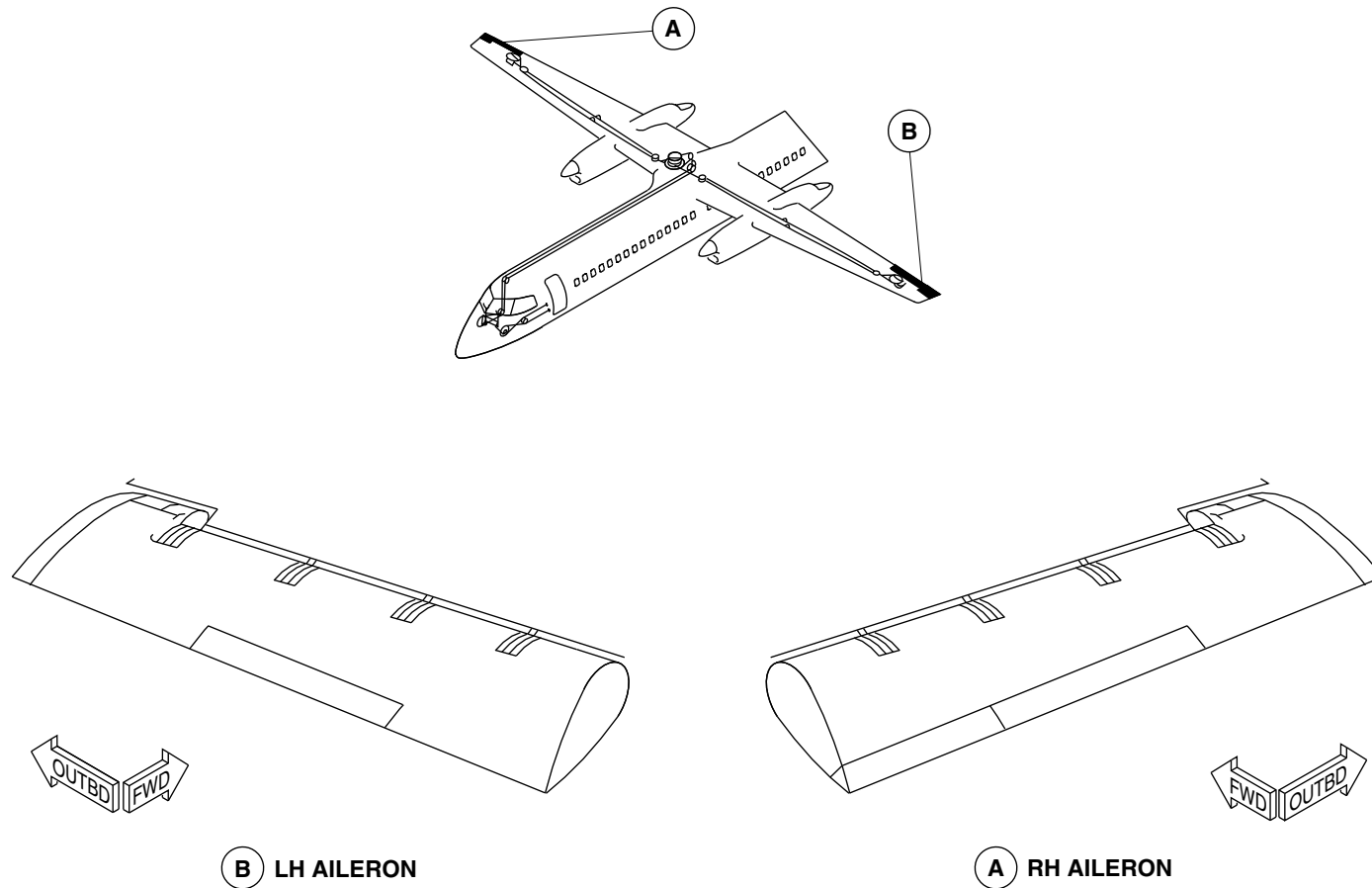
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AILERONS LOCATOR
Figure 10

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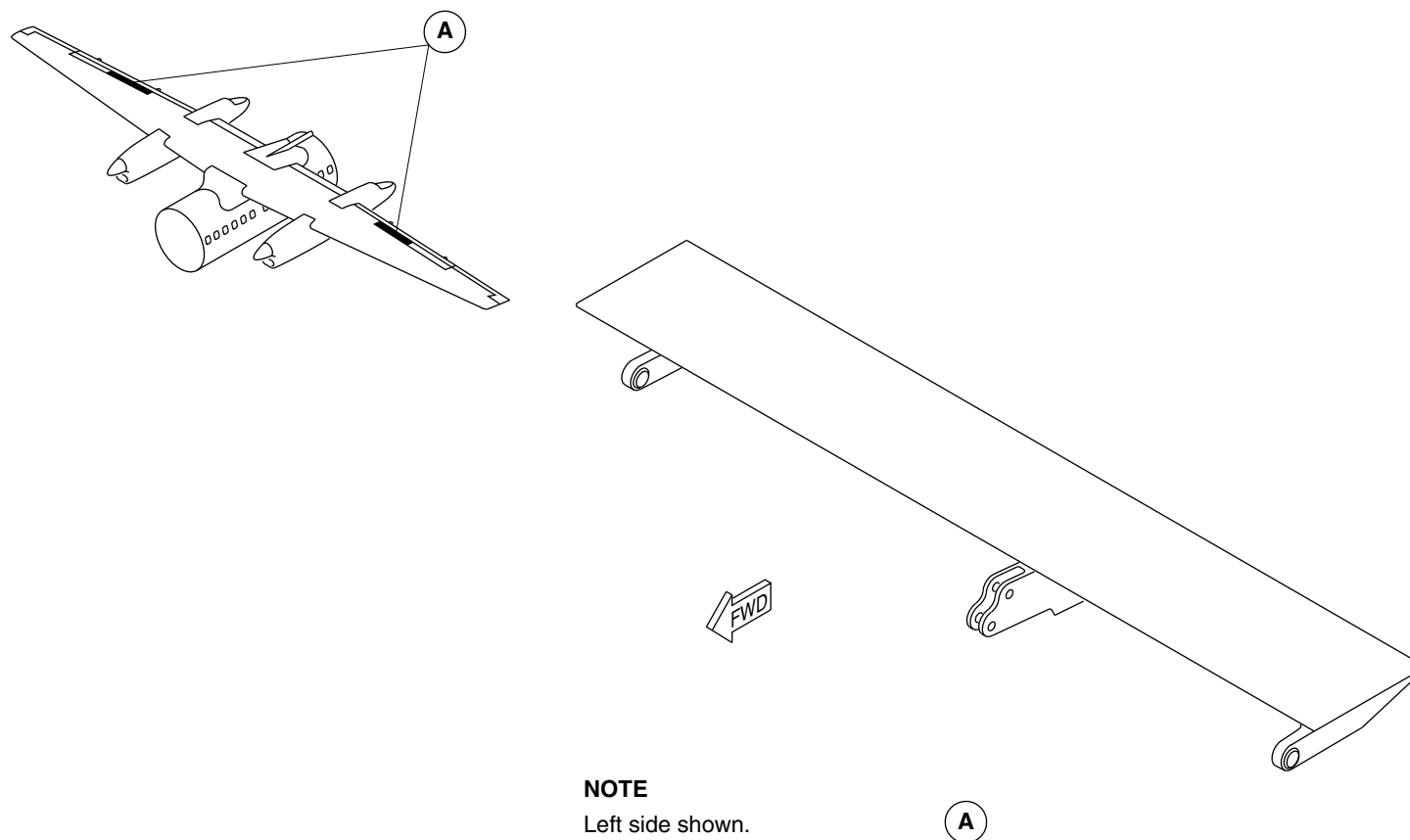
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NOTE

Left side shown.
Right side similar.

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INBOARD SPOILER LOCATOR
Figure 11

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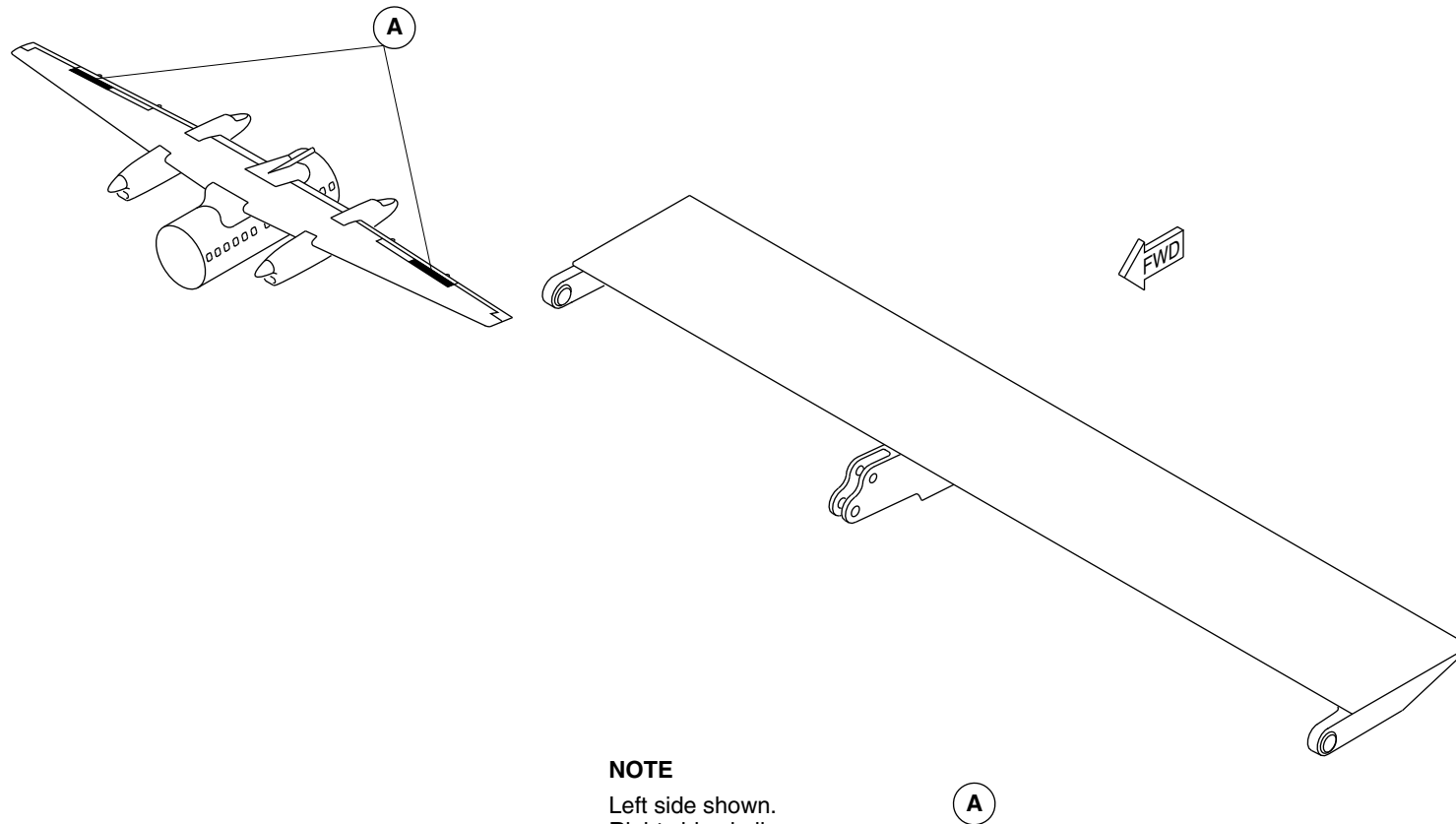
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NOTE

Left side shown.
Right side similar.

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OUTBOARD SPOILER LOCATOR
Figure 12

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CENTER WING AND WING RIBS

Introduction

The center wing has attaches to the upper fuselage. It includes the dry bay and nacelle support structures. The inboard flaps also attach to the aft end of the center wing. It is also is used for some of the fuel storage, and includes the fuel collector bay. This gives the minimum displacement of the center of gravity during fuel burn.

General Description

1, Figure 2, Figure 7, and 8.

The center wing section extends outward to station Y 191.2, the outboard side of the nacelles.

The center wing ribs are located at station YW 42.0 (LH and RH), YW 155.2 (LH and RH).

The skin assemblies use metal bonding techniques to attach stringers to the skins and to improve fatigue resistance. The leading edges are made of composite material with integral lightweight pneumatic deicing boots. Composite shrouds are fitted to the rear spar, ahead of the flaps.

The Center section includes:

- Center Wing Ribs (57-10-19 and 57-10-20)
- Center Wing Access Panels (57-11-00)

- Center Wing Fairings (57-12-00)
- Center Wing Leading Edge (57-13-00)

Detailed Description

The center wing section has a straight center section of constant cord tapering by 3.87 degrees from wing station Y 00.00 to Y 191.0 left and right. The front and rear machined spars are joined by machined ribs and upper and lower skins to form the wingbox. The spars supply mounting structure for the fuselage and nacelles, and also have jacking pads.

3, and 4

The wing structure is attached to fittings on the fuselage section with tension bolts. The wing box has composite shrouds for the trailing edge flap assembly and metal composite leading edges.

The front spar has three machined aluminum sections. The center section extends from station Y 32.0 LH to Y 32.0 RH. The outboard sections extend from Y 32.0 to Y 191.0. The rear spar is a one piece aluminum section extending from Y 191.2 LH to Y 191.2 RH. The rear spar fitting provides attachment of the #1 flap track assembly.

The front and rear spar attachment fittings and strut attachment fittings for the wing to fuselage are made from corrosion resistant steel. The spar caps are integral of the machined spar assembly.

The ribs are machined from aluminum plate.

The upper skin panel is a one piece machined section from Y 42.0 LH to 42.0 RH, formed from aluminum. The upper skin machined pockets vary from 0.210 to 0.255 in. (5.33 to 6.48 mm) in thickness. Machined Z and T stringers add stiffness to the upper skin, and are attached to the skin by countersunk rivets and Hi-Lite fasteners.

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Refer to Figure 5.

Access cut-out surround structure wing is from station Y 42.0 LH to 42.0 RH and is integral of the machined upper skin. It has a constant machined thickness of 0.190 in. (4.83 mm). Gang channels integrated with dome nut plates are attached to the lower surface flange for attachment of the access panels.

Refer to Figure 6.

The lower skin is a one piece aluminum machined section from Y 42.0 LH to 42.0 RH. Machined Z stringers add stiffness to the lower skin, and are attached to the skin by countersunk rivets and Hi-Lite fasteners.

The internal wing panel surface and structure is protected with anodic coating, and integral fuel tank epoxy primer. The exterior skins are anodized, epoxy primed and painted with enamel top coat for added protection.

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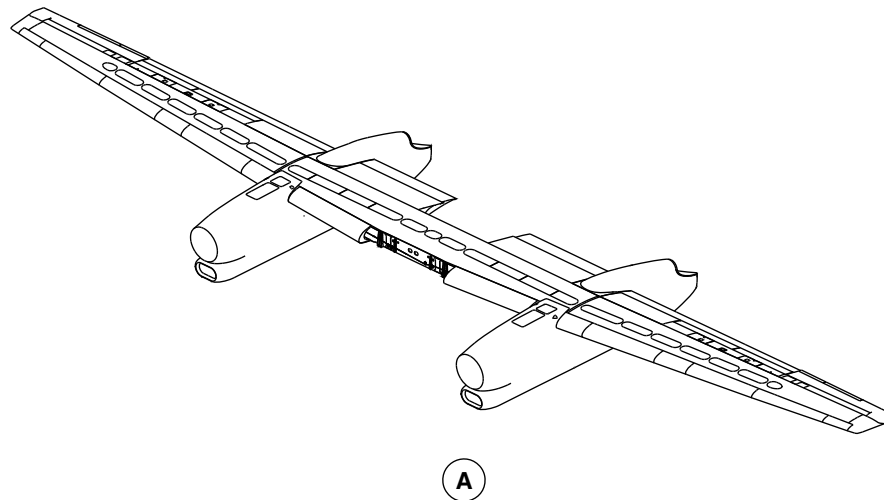
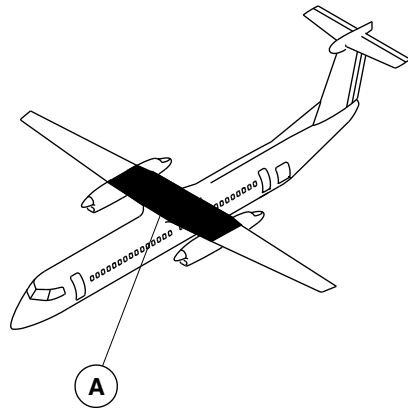
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CENTER WING SECTION LOCATOR
Figure 1

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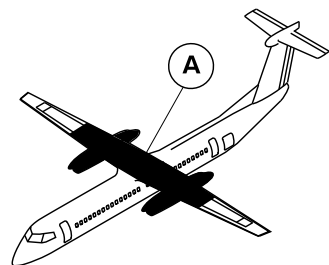
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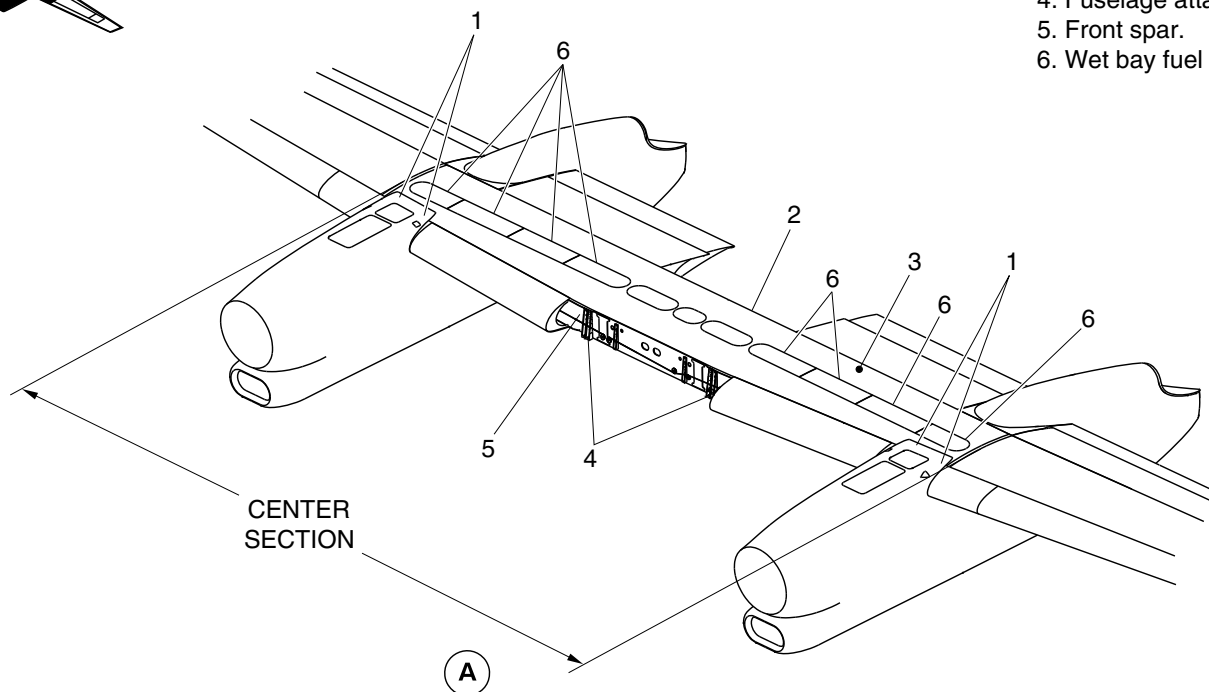
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LEGEND

1. Nacelle attachment fitting.
2. Rear spar.
3. Upper skin panel.
4. Fuselage attachment fitting.
5. Front spar.
6. Wet bay fuel access panel.



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Center Wing Section Detail
Figure 2

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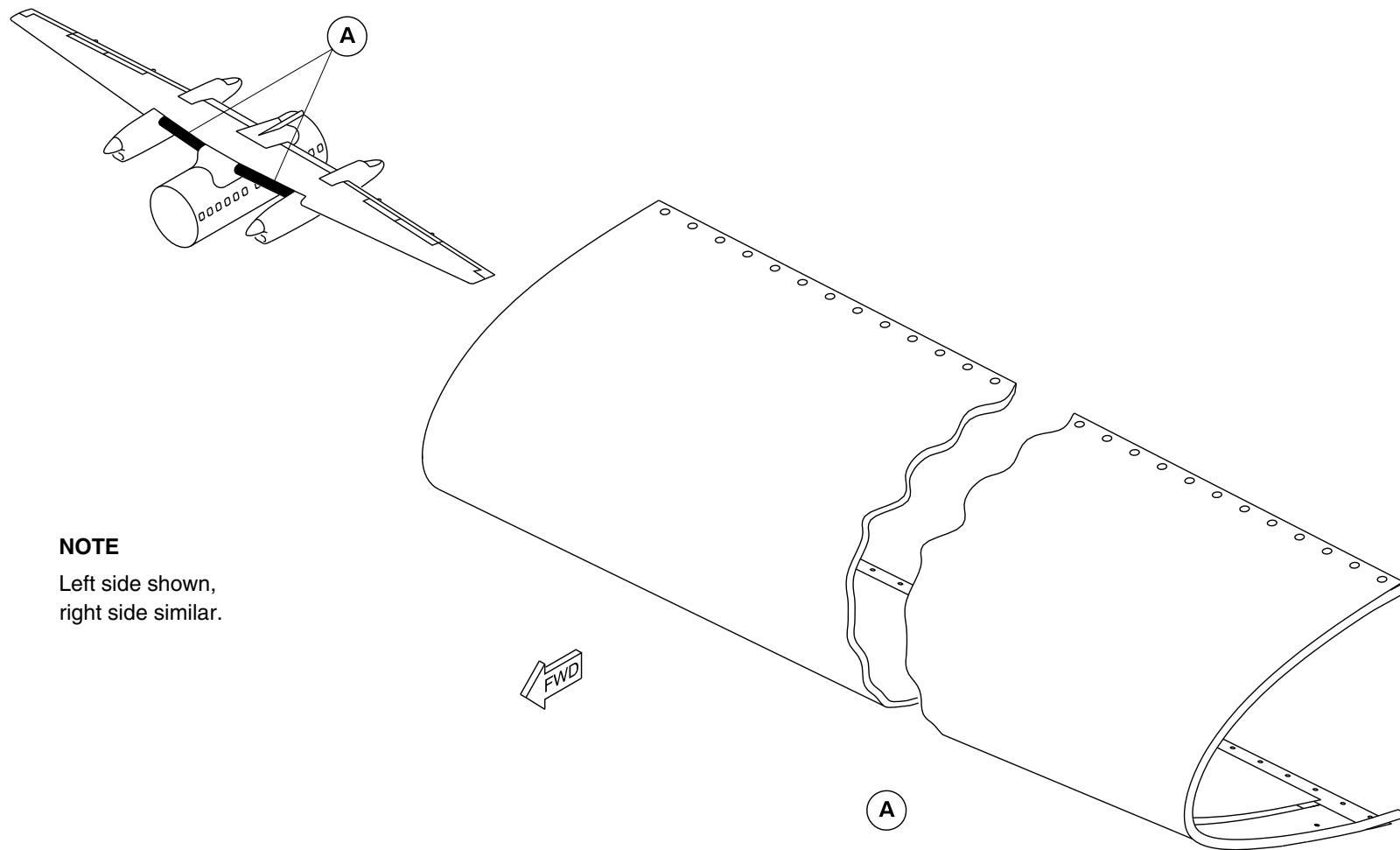
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Center Wing Leading Edge Locator
Figure 3

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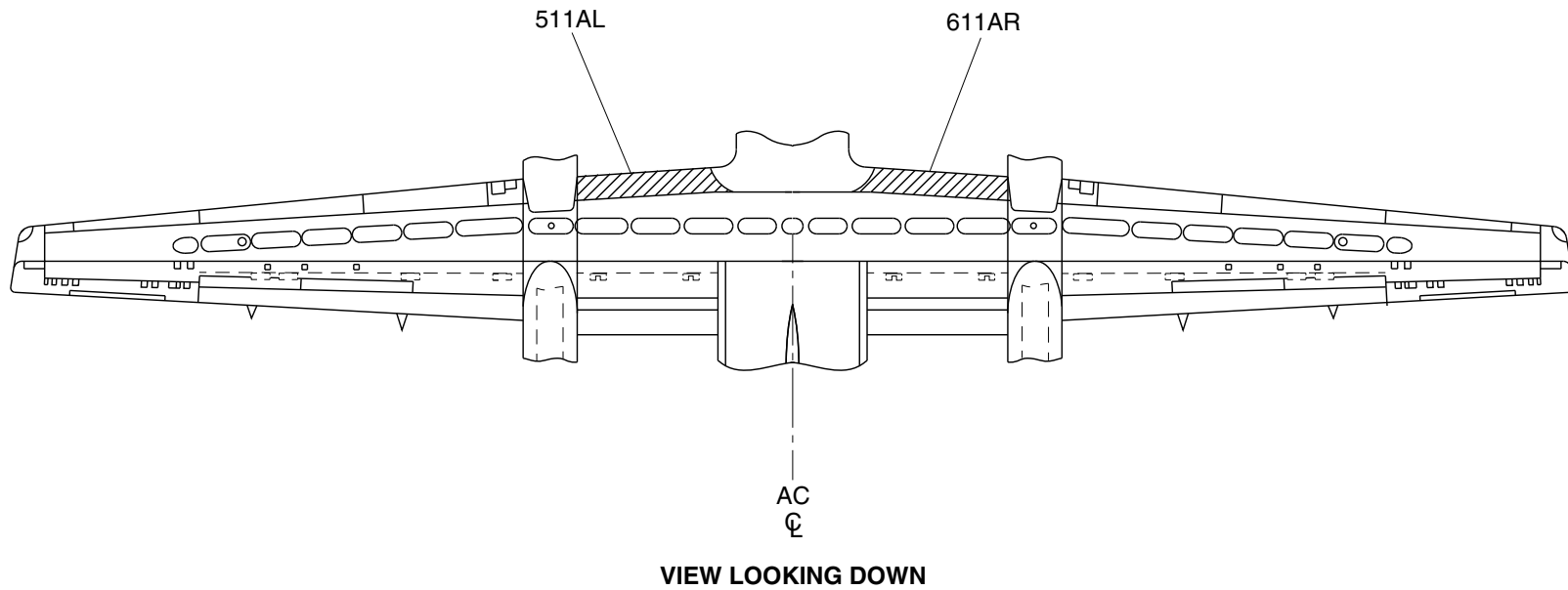
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Center Wing Leading Edge Detail
Figure 4

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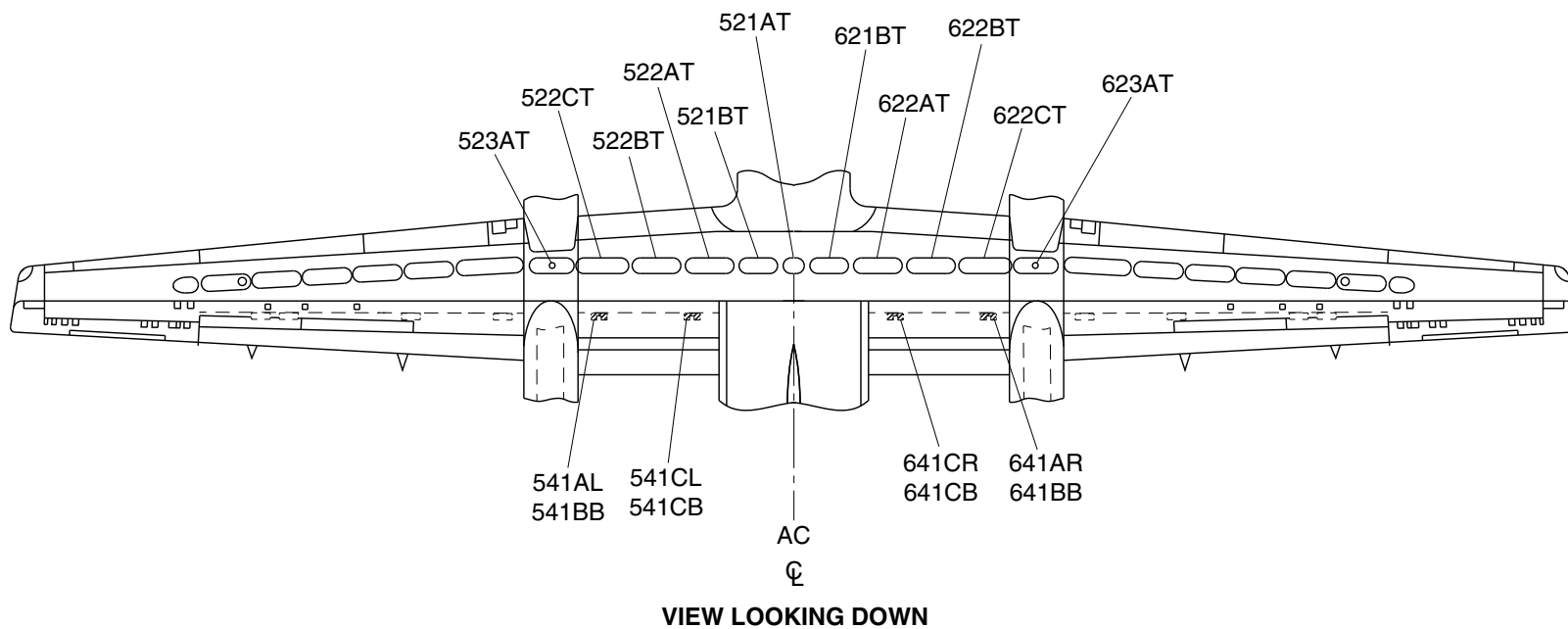
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Center Wing Access Panel Page 1
Figure 5

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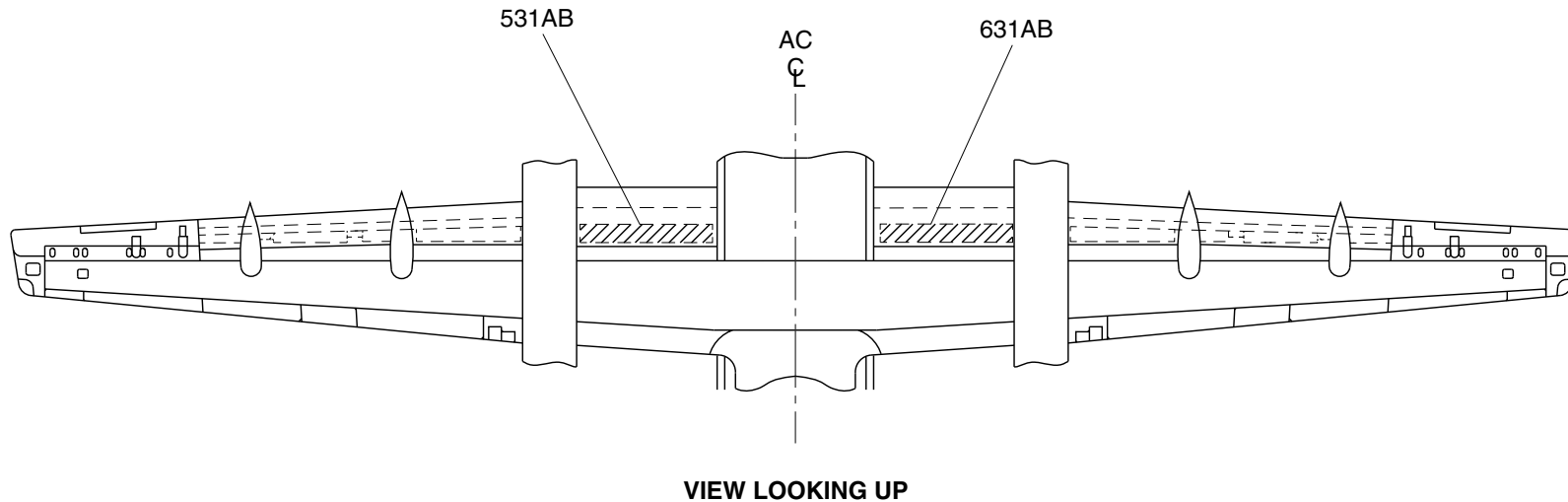
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Center Wing Access Panels Page 2
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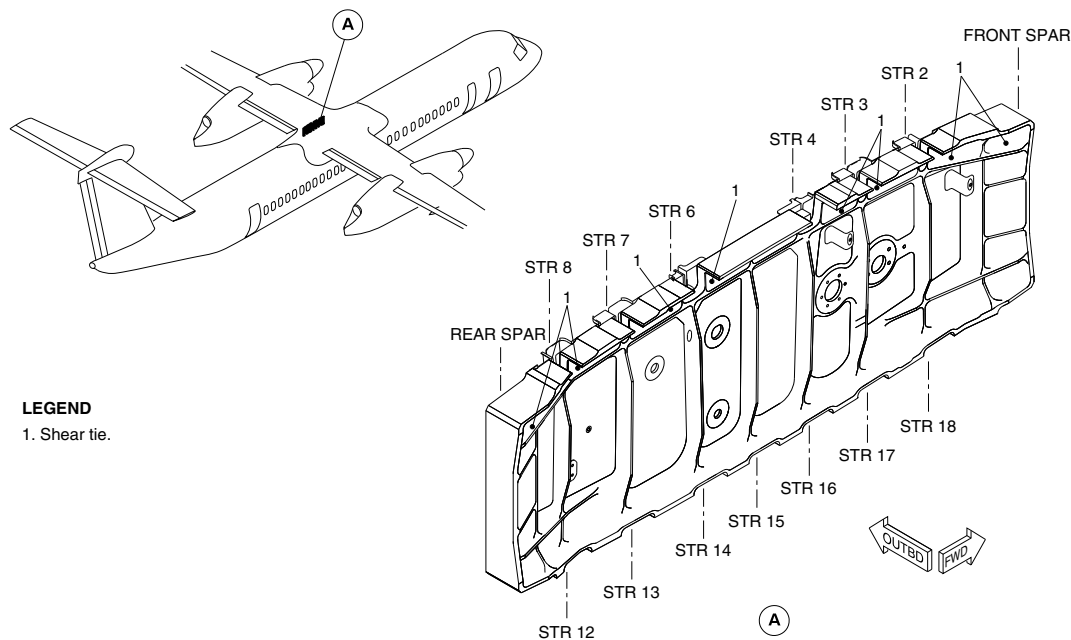
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LEGEND
1. Shear tie.

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Center Wing-Rib (STA. YW 42.00)
Figure 7

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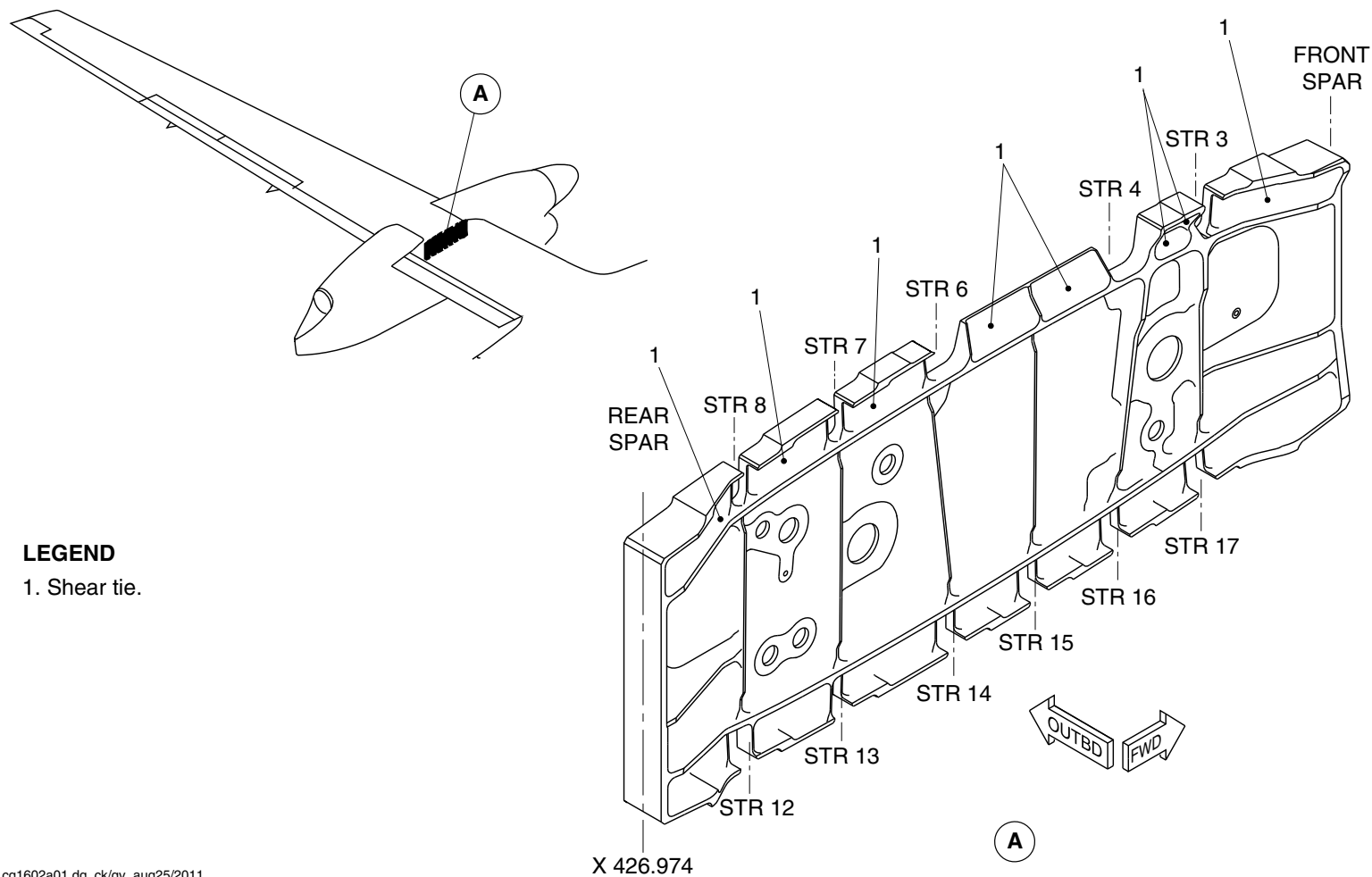
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AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



cg1602a01.dg, ck/gv, aug25/2011

Center Wing-Rib (STA. YW 155.20)
Figure 8

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OUTER WING

Introduction

The outer wingbox structure has attachments for ailerons, spoilers and trailing edge flaps. It is also used for some of the fuel storage, and includes the fuel surge bay.

General Description

The outer wing structure extends outward from the outboard side of the nacelles to the tip rib.

The skin assemblies use metal bonding techniques to attach stringers to the skins and to improve fatigue resistance. The leading edges are made of composite material with integral lightweight pneumatic deicing boots. Composite shrouds are fitted to the rear spar, ahead of the flaps and ailerons.

The outer section includes:

- Outer Wing Access Panels (57-21-00)
- Outer Wing Fuel Access Panels (57-21-01)
- Outer Wing Fairings (57-22-00)
- Flap Track Fixed Fairings (57-22-01)
- Outer Wing Leading Edge (57-23-00)
- Outer Wing Leading Edge (57-23-01)

Detailed Description

[Refer to Figure 1.](#)

The outer wing has a constant tapered cord from wing station Y 191.2 to the tip rib at Y 535.019, and is the same for both left and right. The wing dihedral of the outboard wing is 2.5 degrees. The front and rear machined spars are joined by machined ribs and upper and lower skins to form the wingbox.

The spars supply mounting structure for:

- composite leading edges
- composite shroud assemblies
- flap actuator attach brackets
- fuel components
- hydraulic components
- electrical components
- aileron attachment fittings

The front and rear spar attachment fittings for the wing to fuselage are made from corrosion resistant steel. The spar caps are integral of the machined spar assembly.

The ribs are machined from aluminum plate.

[Refer to Figure 2.](#)

The upper skin panel is a one piece machined section from Y 191.2 to Y 425.019 LH/RH, formed from aluminum. The upper skin varies from 0.100 to 0.195 in. (2.54 to 4.95 mm) with machined pockets vary from 0.065 to 0.140 in. (1.65 to 3.56 mm) in thickness.

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Machined Z and T stringers add stiffness to the upper skin, and are attached to the skin by countersunk rivets and Hi-Lite fasteners.

[Refer to Figures 3 and 4.](#)

Access cut-out surround structure from wing station Y 191.2 to Y 443.019 and is integral of the machined upper skin. It has a constant machined thickness of 0.150 in. (3.85 mm) . Gang channels integrated with dome nut plates are attached to the lower surface flange for attachment of the access covers.

The lower skin is a one piece aluminum machined section with same dimensions as upper skin. The lower skin is 0.100 in. (2.54 mm). Machined Z stringers add stiffness to the lower skin, and are attached to the skin by countersunk rivets and Hi-Lite fasteners.

The internal wing panel surface and structure is protected with anodic coating, and integral fuel tank epoxy primer. The exterior skins are anodized, epoxy primed and painted with enamel top coat for added protection.

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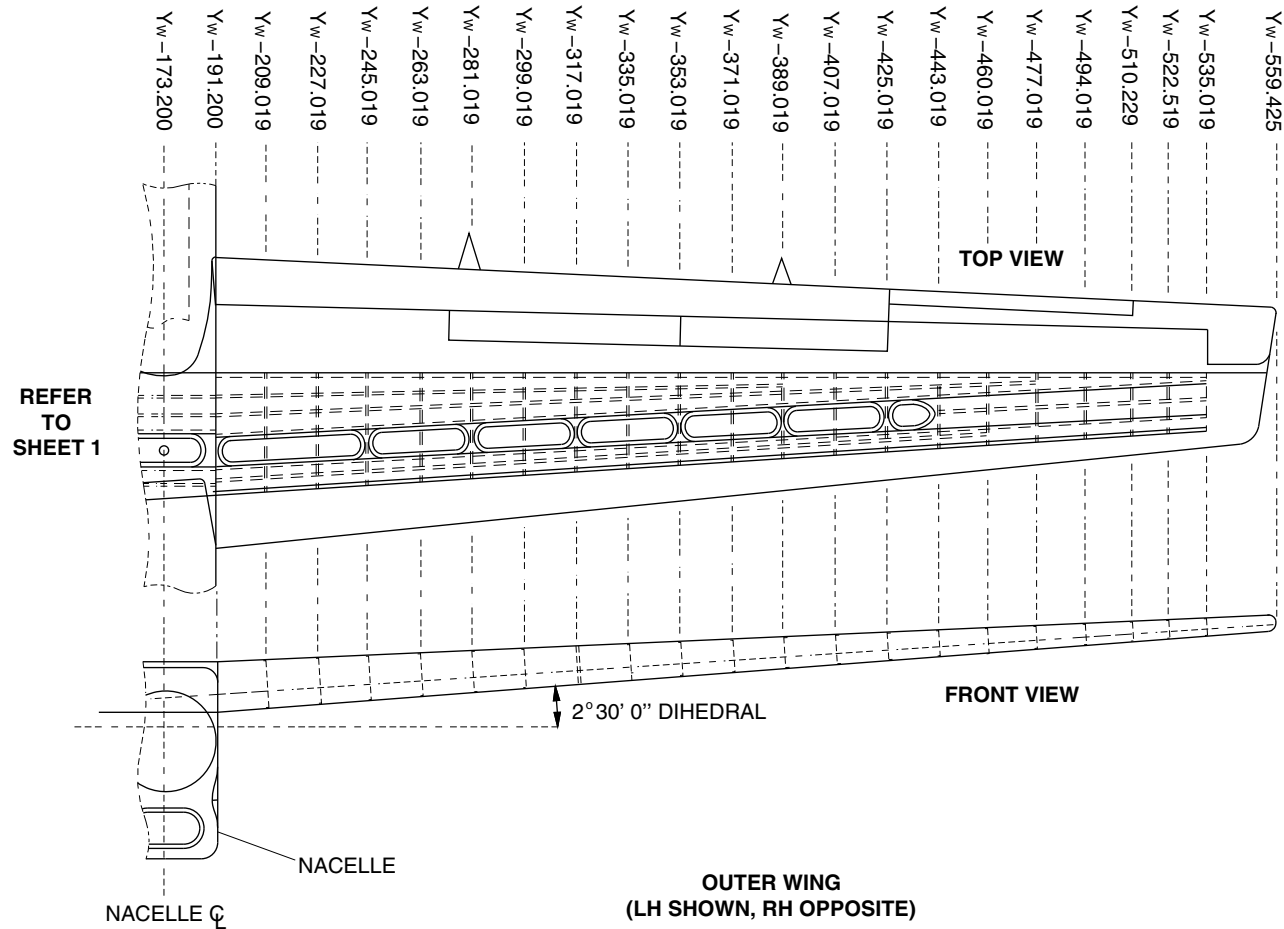
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OUTER WING STATIONS
Figure 1

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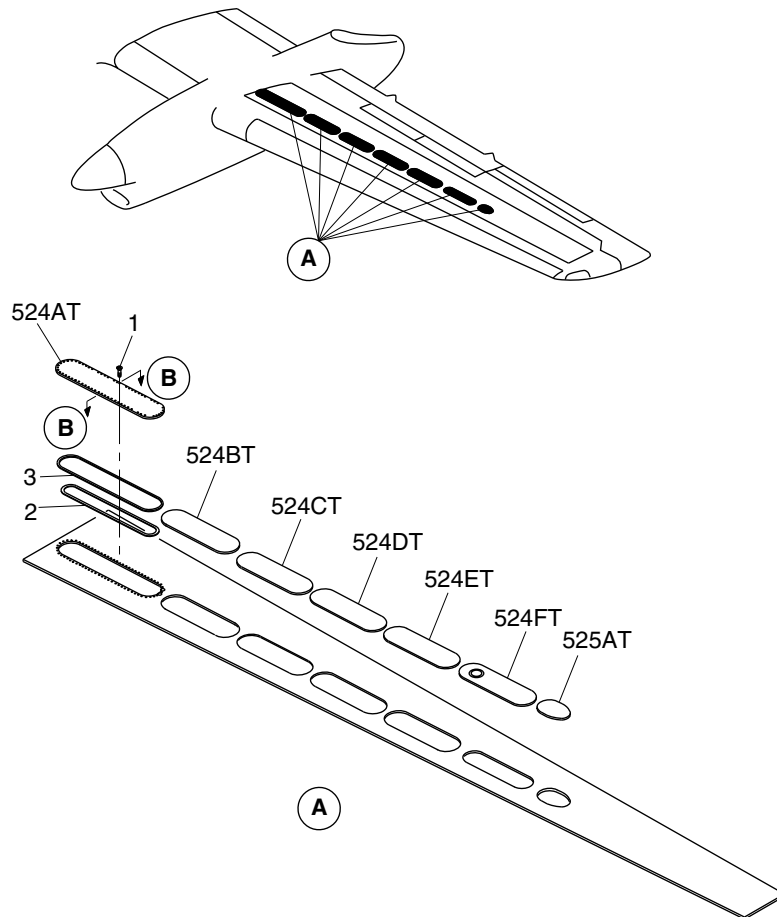
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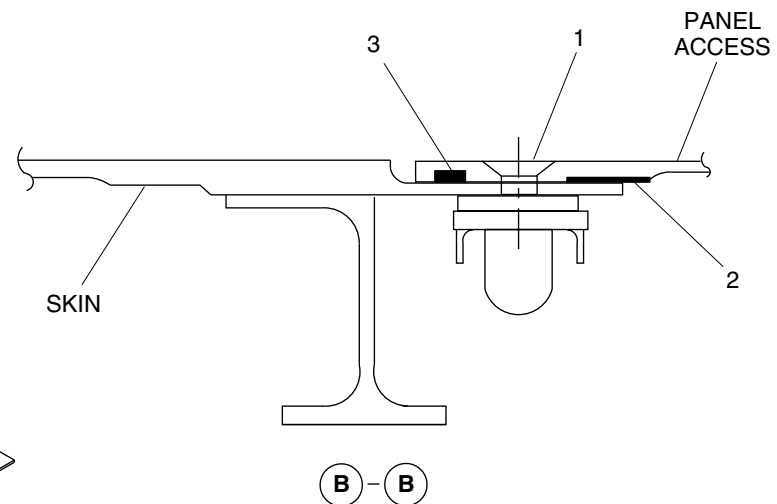
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LEGEND

- 1. Bolt.
- 2. Inner Ring Seal.
- 3. Outer Ring Seal.



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OUTER WING ACCESS PANELS PAGE 1
Figure 2

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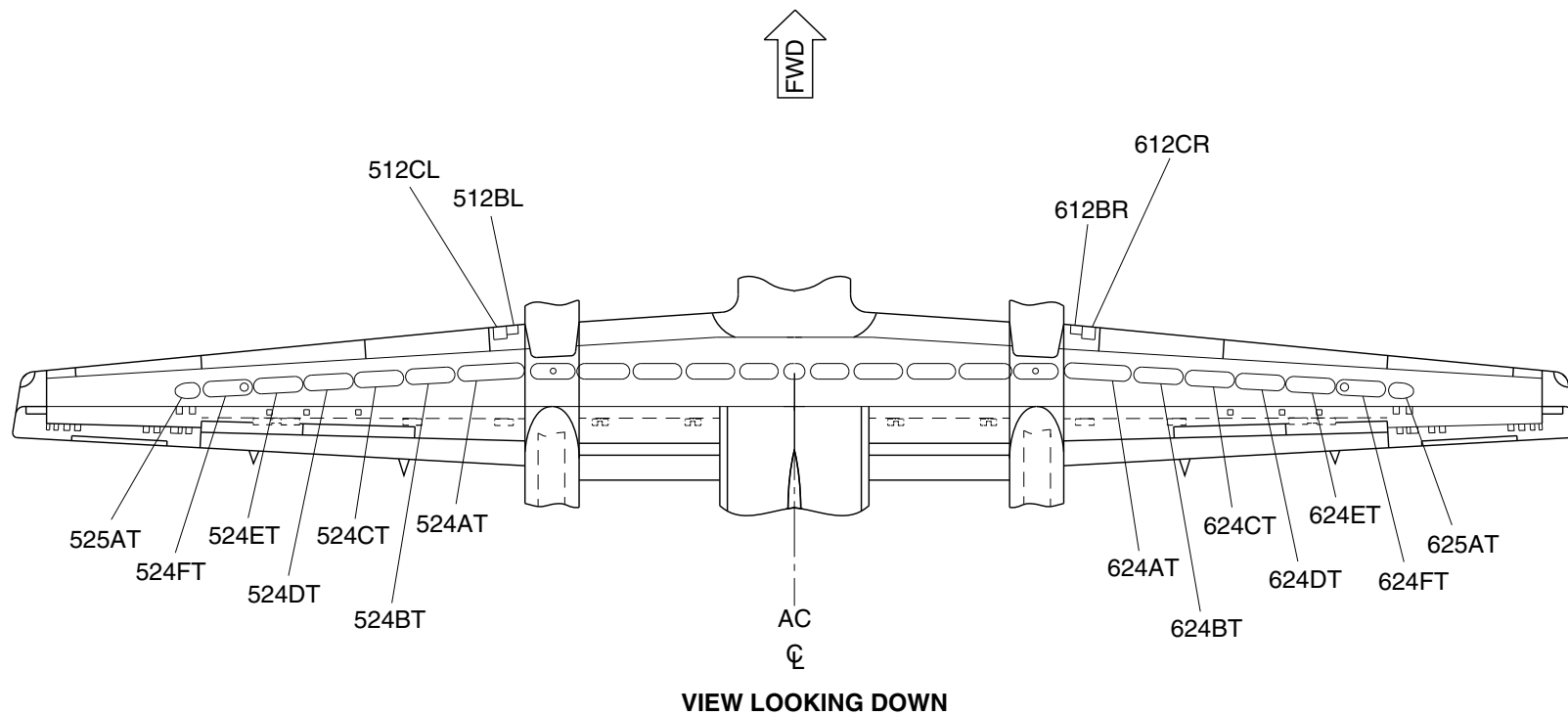
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fsg73a01.dg, ck, jun06/2011

Outer Wing Access Panels Page 2
Figure 3

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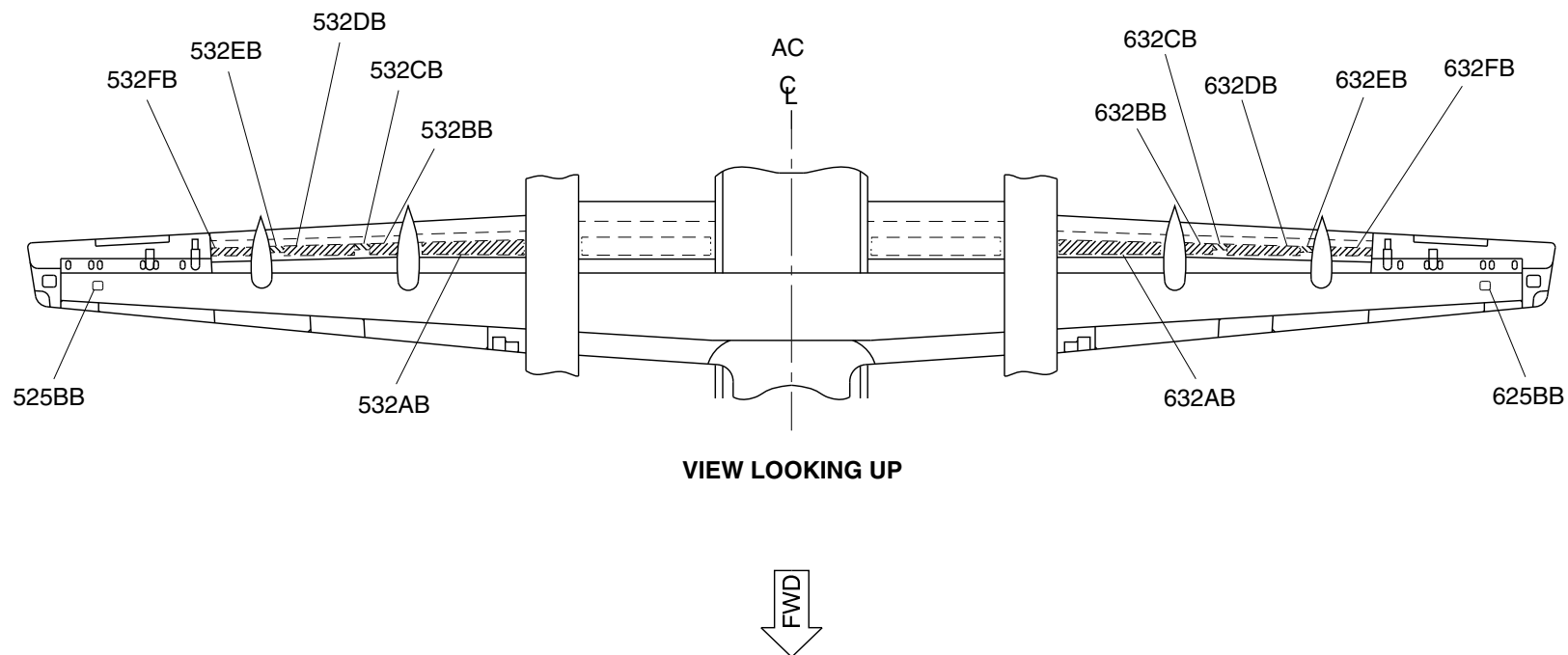
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fsf99a01.dg, ck, jun06/2011

Outer Wing Access Panels Page 3
Figure 4

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57-30-00-001

WING TIP

Introduction

The wing tip encloses the outboard end of the wing structure and gives a smooth profile to reduce drag. It also supplies attachment points for the wing tip position lights.

General Description

The wing tip includes:

- Wing Tip Access Panels (57-31-00)
- Wing Tip Fairings (57-32-00)

Detailed Description Wing Tip Access Panels (57-31-00)

[Refer to Figures 1 and 2.](#)

The wing tip has the access panels that follow:

- 528AL, 628AR — left and right side lens cover for the position lights; gives access to the primary and secondary wing tip position lights and related wiring harnesses
- 528CB, 628CB — left and right side access panels on the bottom side of the wing tip fairing; gives access to the wing tip structure

- 528BL, 628BR — left and right side wing tip fairing; the entire wing tip fairing can be removed to give access to electrical wiring harnesses and to the #4 aileron hinge.

Wing Tip Fairings (57-32-00)

[Refer to Figures 3 and 4.](#)

The wing tip fairing is located between YW 535.019 and YW 559.958. It is attached by screws to the wing box structure, to the aileron shroud and to the outer wing leading edge.

The fairing has an external skin assembly which is made up of the top skin, the bottom skin and the leading edge skin. The skin assembly is a composite structure using nine different laminated layers of E-glass, Kevlar and honeycomb. The leading edge skin is enclosed by a closing rib assembly where it meets the outer wing leading edge.

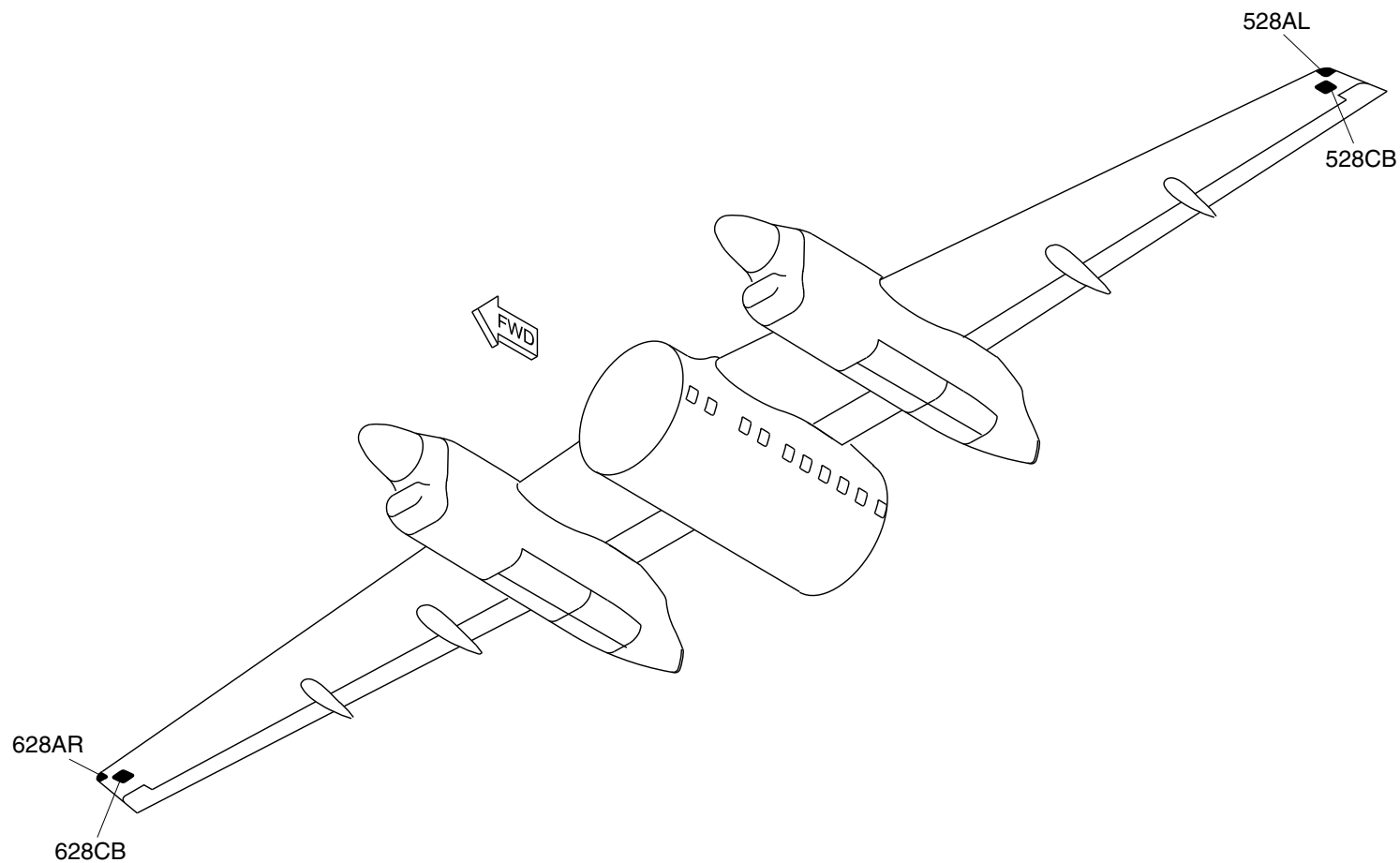
The forward part of the fairing has a spar assembly which is an extension of the wing front spar. A canted rib assembly extends fore and aft on an angle from the leading edge skin, through the spar, to the rear of the fairing. The rear part of the fairing is enclosed by a closing member assembly where it meets the wing structure.

At the outboard end of the fairing there is a flange for the attachment of the position light lens. The canted rib has two brackets where the primary and secondary position lights are attached. There is an access panel on the bottom skin. A static discharge wick is attached to the outboard, aft corner of the fairing.



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fsf92a01.dg, ck, apr28/2011

Wing Tip Access Panels
Figure 1

PSM 1-84-2A
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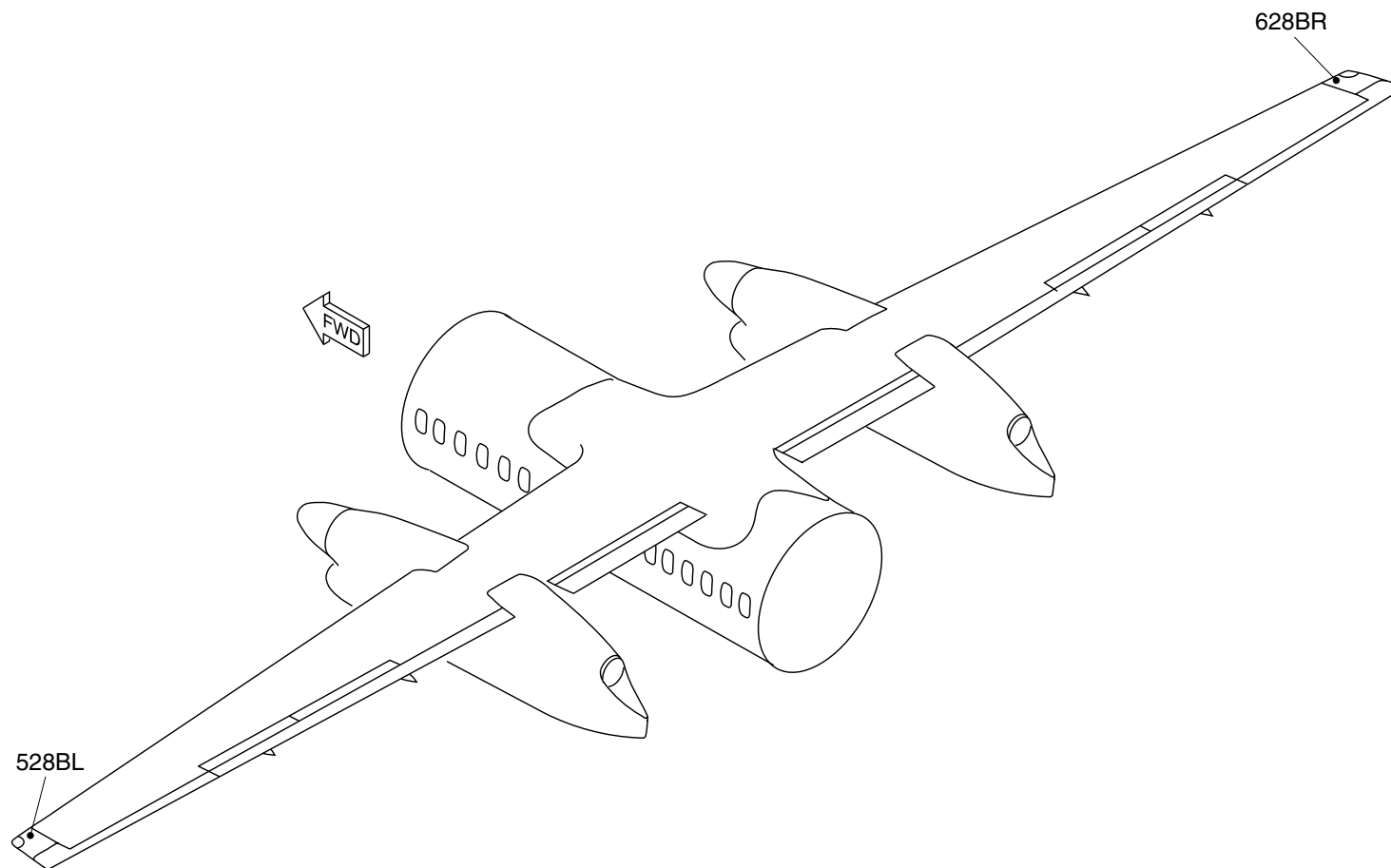
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fsf93a01.dg, ck, apr28/2011

Wing Tip Fairings
Figure 2

PSM 1-84-2A
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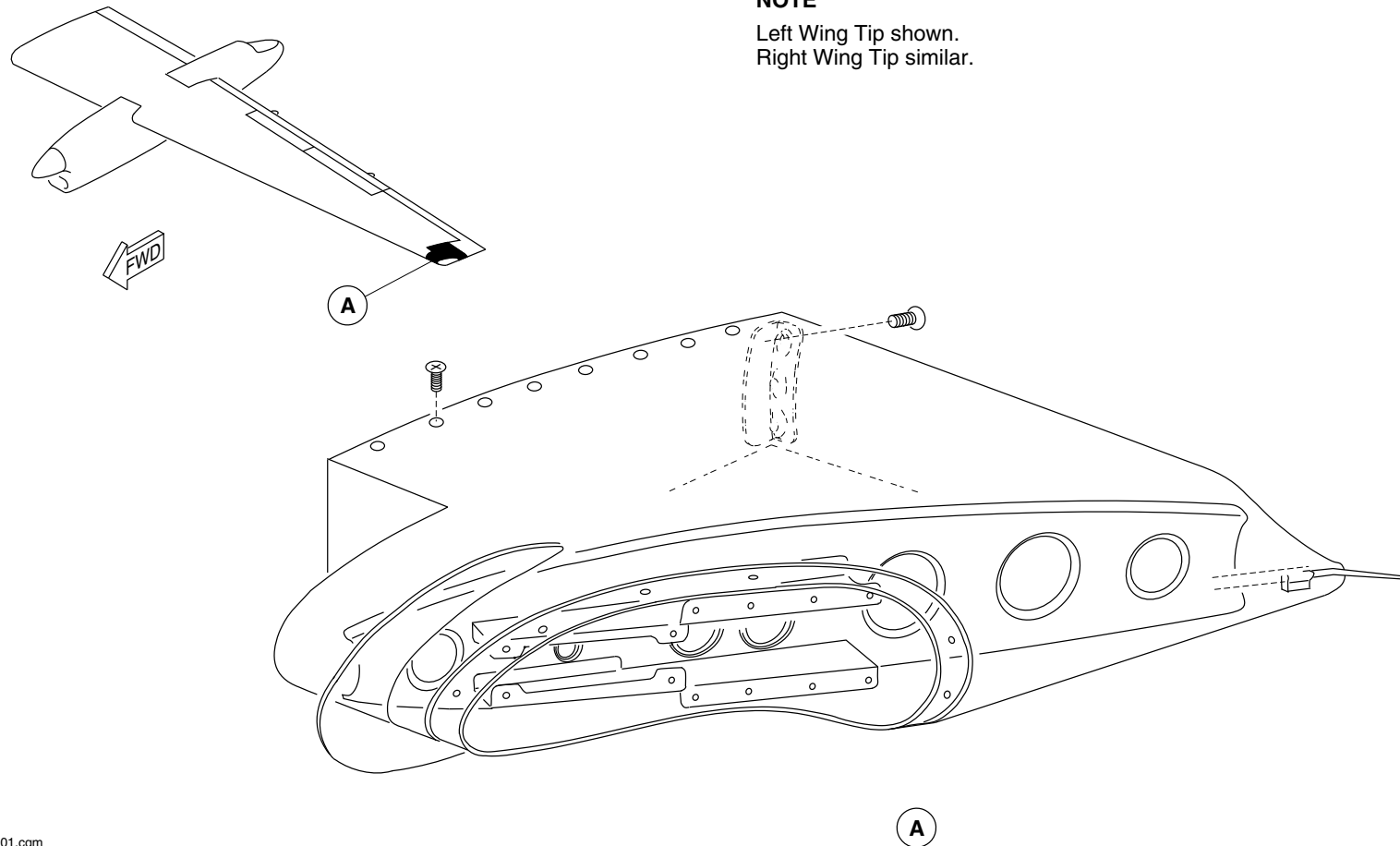


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AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

NOTE

Left Wing Tip shown.
Right Wing Tip similar.



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WING TIP LOCATOR
Figure 3

PSM 1-84-2A
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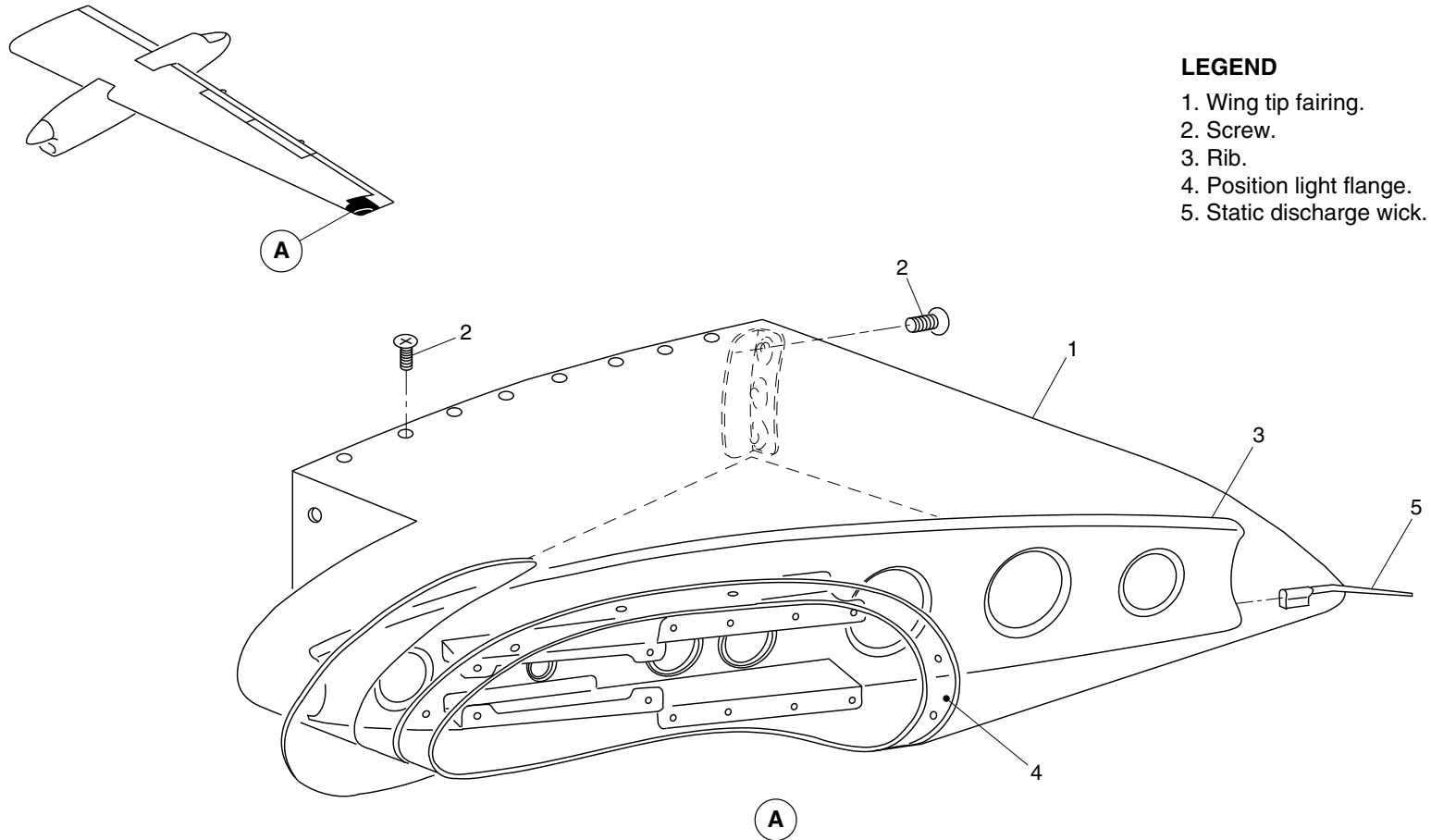
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AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



LEGEND

- 1. Wing tip fairing.
- 2. Screw.
- 3. Rib.
- 4. Position light flange.
- 5. Static discharge wick.

fsq19a01.dg, ck, apr29/2011

Wing Tip Detail
Figure 4

PSM 1-84-2A
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TRAILING EDGE DEVICES/FLAPS

Introduction

The wing flaps increase wing lift to reduce the stalling speed.

General Description

Refer to Figures 1 and 2.

Each wing has an inboard and an outboard flap surface. The inboard flap is installed between the fuselage structure and the engine nacelle inboard structure. The outboard flap is installed between the engine nacelle outboard structure and the aileron. The inboard flap has a constant chord and the outboard flap is tapered.

The inboard flap is a single slotted, high lift, Fowler action type flap. The flap has a constant chord cross-section of approximately 39% of the total wing chord. The outboard flap is also a single slotted, high lift Fowler action type flap. The outboard flap has a tapered chord cross-section of approximately 39% of the total wing chord.

The wing flaps includes:

- Flap Access Panels (57-51-00)
- Flap Shrouds (57-53-00)
- Flap Tracks (57-54-00).

Detailed Description

Refer to Figures 3 and 4.

The flap surfaces are electronically controlled and hydraulically operated. Each wing has five flap tracks. The flap tracks control the incidence angle of the flaps during flap movement.

The flaps have five possible positions:

- 0 degrees
- 5 degrees
- 10 degrees
- 15 degrees
- 35 degrees.

Flap Access Panels (57-51-00)

Refer to Figures 5 and 6.

There are upper and lower flap access panels on both wings. The panels are fastened to the flap structure with screws. They can be removed to gain access to the components that follow:

- flap actuators
- ballscrew jacks
- flap tracks
- flap transmission shafts
- hydraulic lines
- electrical harnesses



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- flap and spoiler LVDTs.

Flap Shrouds (57-53-00)

Refer to Figures 7 and 8.

The inboard upper shroud closure panel assembly is located between the fuselage and the nacelle. It is attached by screws to the upper cap flange of the rear spar and by struts also connected to the rear spar. A spigot on the upper shroud fits into a hole in the nacelle to support the outboard part of the shroud. The upper shroud inboard location is attached to the flap track No. 1 flange. The closure panel is attached to the upper shroud at the aft end. It is also attached to the flap track no. 1 flange and the nacelle. In the fully retracted position, the leading edge of the flap aligns with the upper flap shroud on the wing to give an aerodynamically smooth wing surface.

Flap Tracks (57-54-00)

Refer to Figures 9 , 10 , 11 , 12 , 13 , 14 and 15.

There are five flap tracks on each wing. Flap tracks #1 and #2 are cam type tracks, which support the inboard flap section. Flap track #1 is located on the side of the fuselage while flap track #2 is located on the inboard side of the nacelle. Flap tracks #3, #4 and #5 support the outboard flap section. Flap track #3 is a cam type track and is located on the outboard side of the nacelle. Flap tracks #4 and #5 are cantilever type tracks attached to the wing rear spar extending aft from the bottom of the wing surface.

The inboard flaps are installed with rollers at each end, which engage in tracks #1 and #2. The rollers give support for the flap and allow for smooth extension and retraction of the flap.

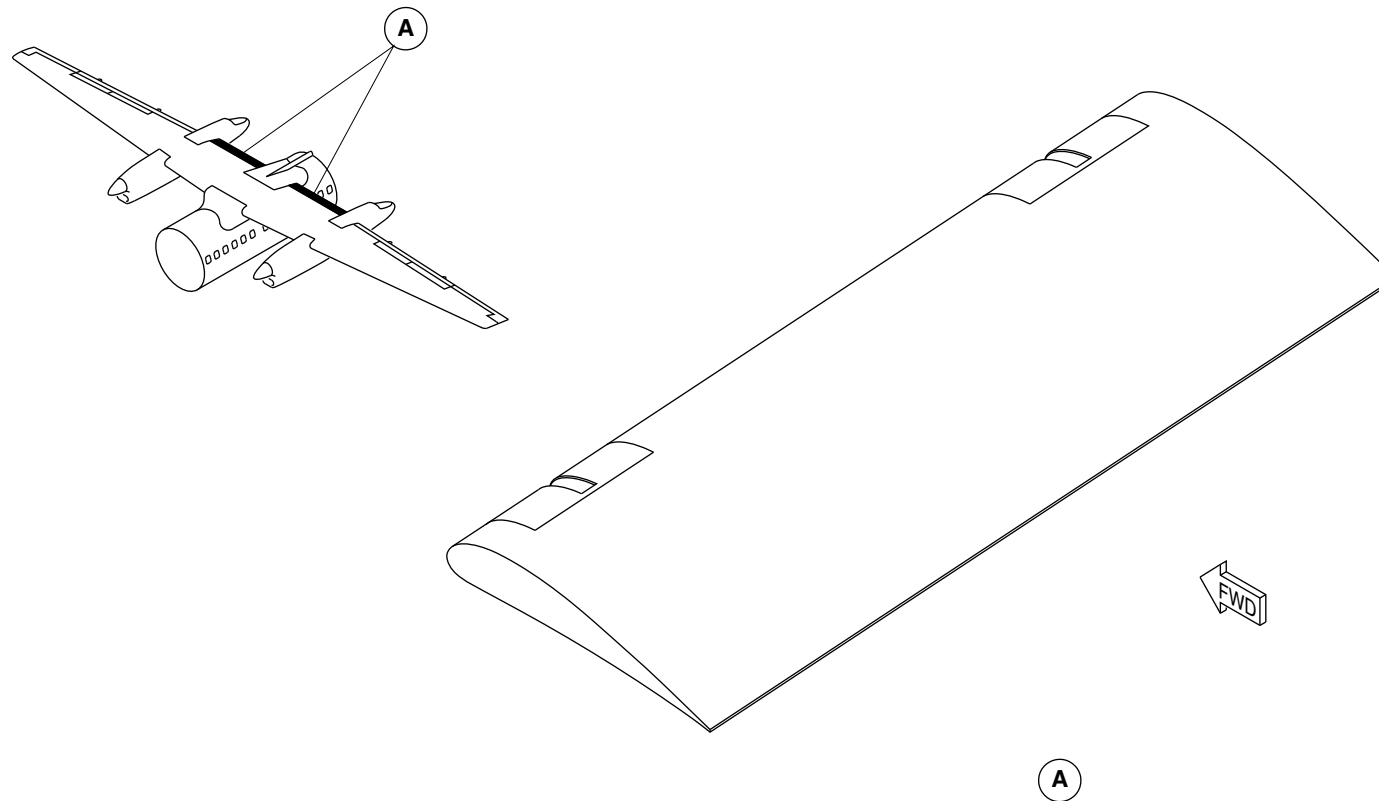
The outboard flaps are installed on the wing by tracks #3, #4 and #5. The outboard flaps have rollers, which engage in track #3 and roller carriage assemblies, which engage in tracks #4 and #5. The roller carriage assemblies use four different types of rollers to support the flaps. Deadweight rollers are used for support when the aircraft is on the ground. The three remaining rollers are used during flight. Sideload rollers prevent lateral movement of the flaps and “0 to 16 degrees” rollers support the flaps to the 15 degree detent position. “16 to 35 degrees” rollers support the flaps from the 15 degree detent position to full extension of 35 degrees.

If a roller fails, the outboard flap is retained to tracks #3 and #5 by failsafe cables and the inboard flap is retained to tracks #1 and #2 by failsafe fittings. Rubbing pads prevent excessive side movement of the flaps in the tracks.



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NOTE

Left Side Shown.
Right Side Similar.

INBOARD FLAPS LOCATOR
Figure 1

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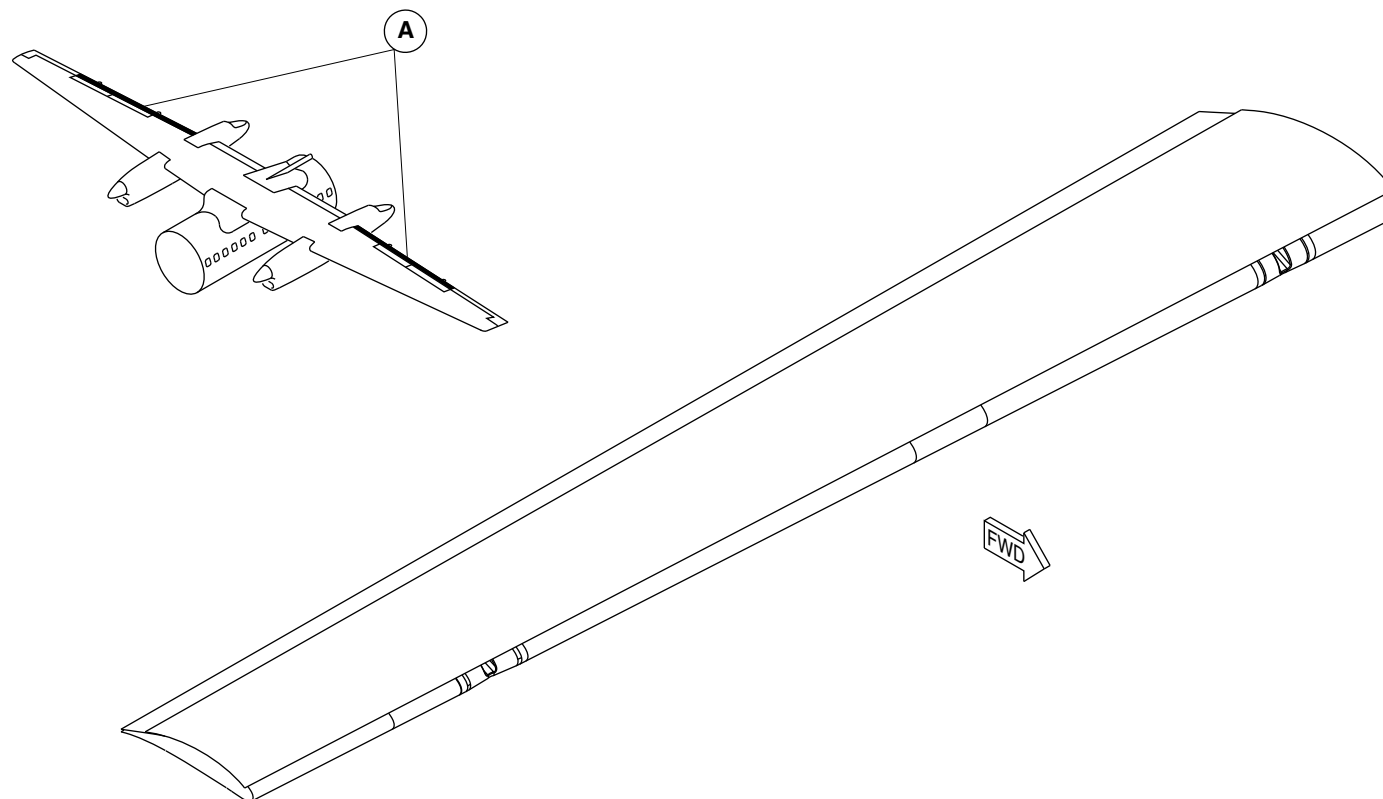
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NOTE

Right Side Shown.
Left Side Similar.

OUTBOARD FLAPS LOCATOR
Figure 2

PSM 1-84-2A
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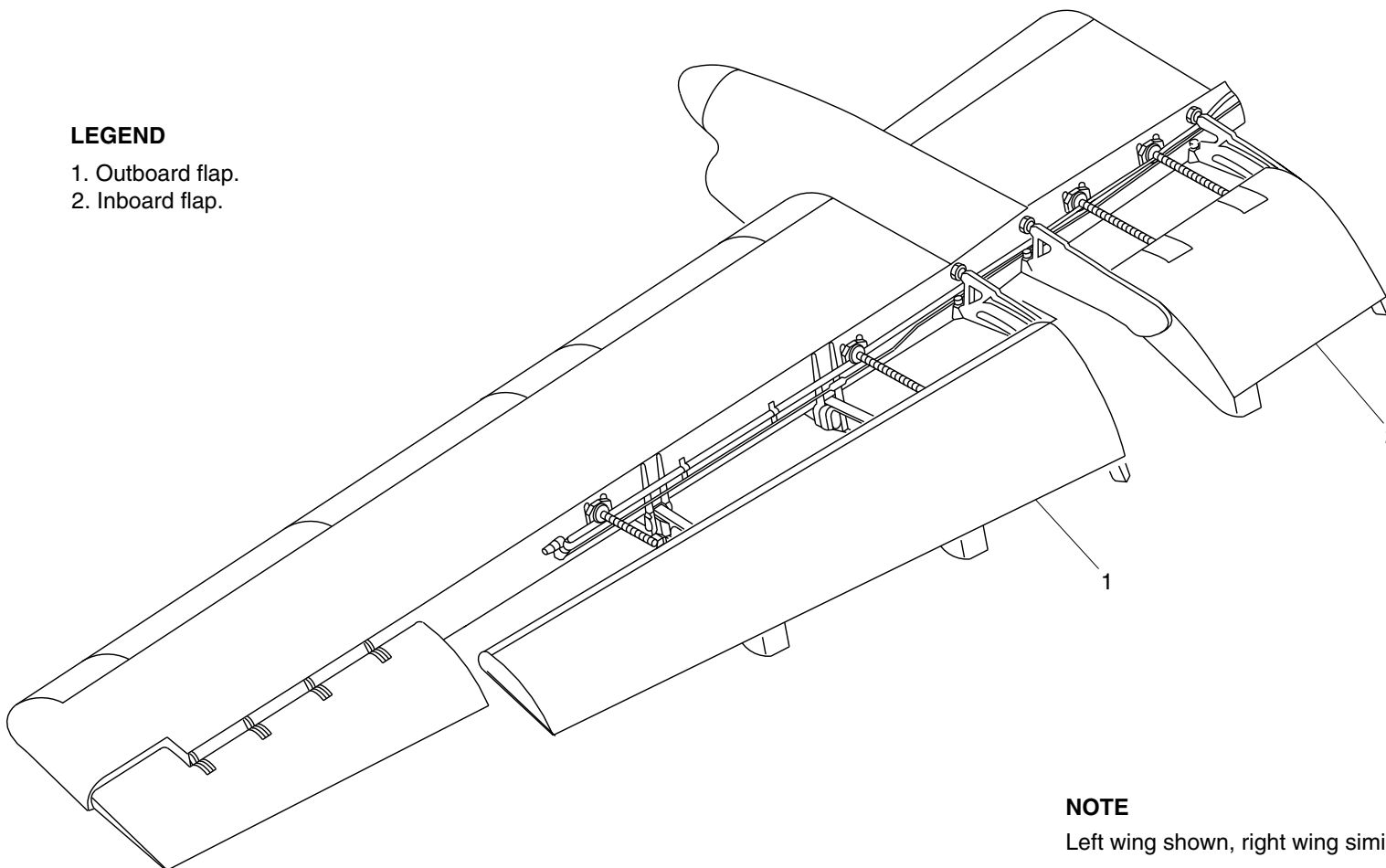


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LEGEND

- 1. Outboard flap.
- 2. Inboard flap.



NOTE

Left wing shown, right wing similar.

fs525a01.dg, rc, jun28/2011

WING FLAPS LOCATOR
Figure 3

PSM 1-84-2A
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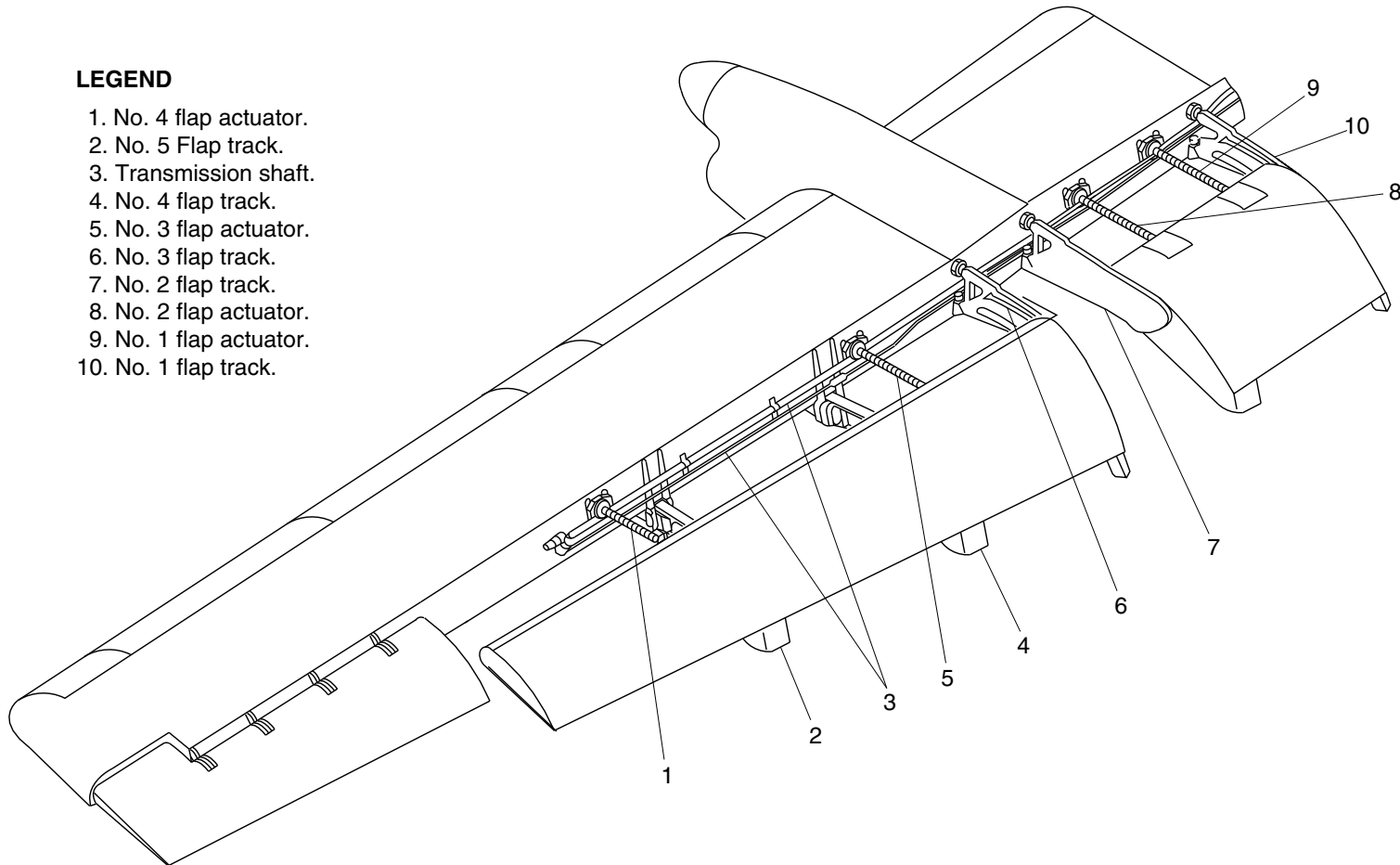


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LEGEND

1. No. 4 flap actuator.
2. No. 5 Flap track.
3. Transmission shaft.
4. No. 4 flap track.
5. No. 3 flap actuator.
6. No. 3 flap track.
7. No. 2 flap track.
8. No. 2 flap actuator.
9. No. 1 flap actuator.
10. No. 1 flap track.



fs542a01.dg, rc, jun28/2011

WING FLAPS DETAIL
Figure 4

PSM 1-84-2A
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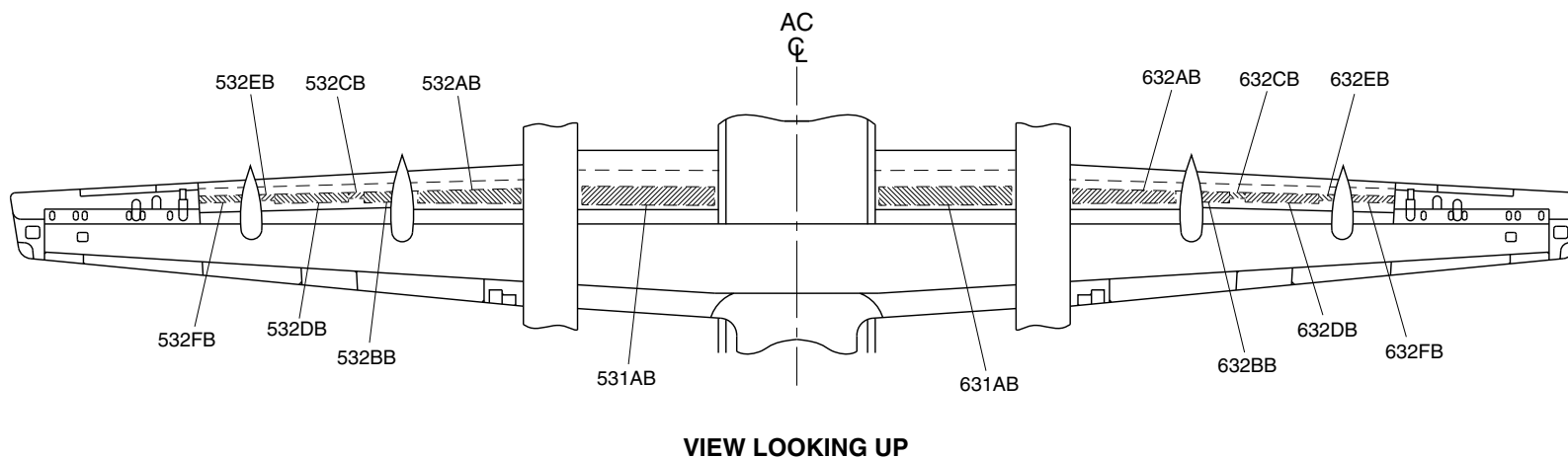
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fsf94a01.dg, rc, jun28/2011

Lower Flap Access Panels
Figure 5

PSM 1-84-2A
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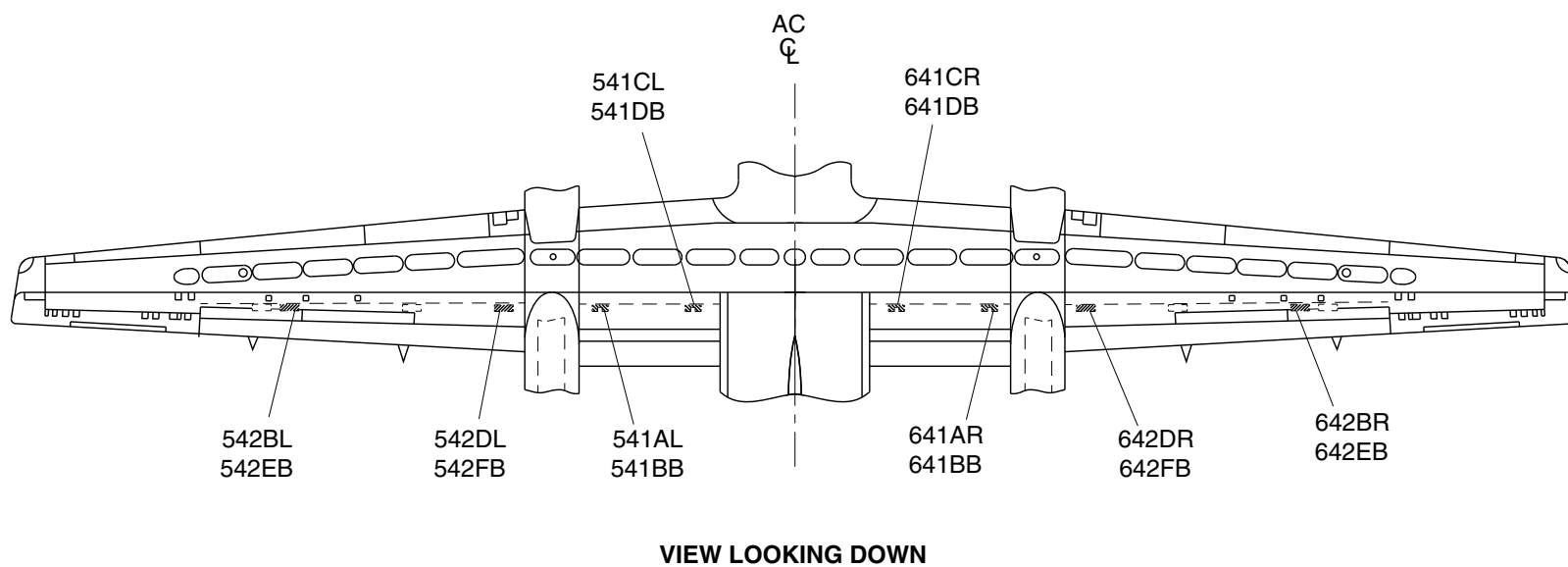
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VIEW LOOKING DOWN

fsf95a01.dg, rc, jun28/2011

Upper Flap Access Panels
Figure 6

PSM 1-84-2A
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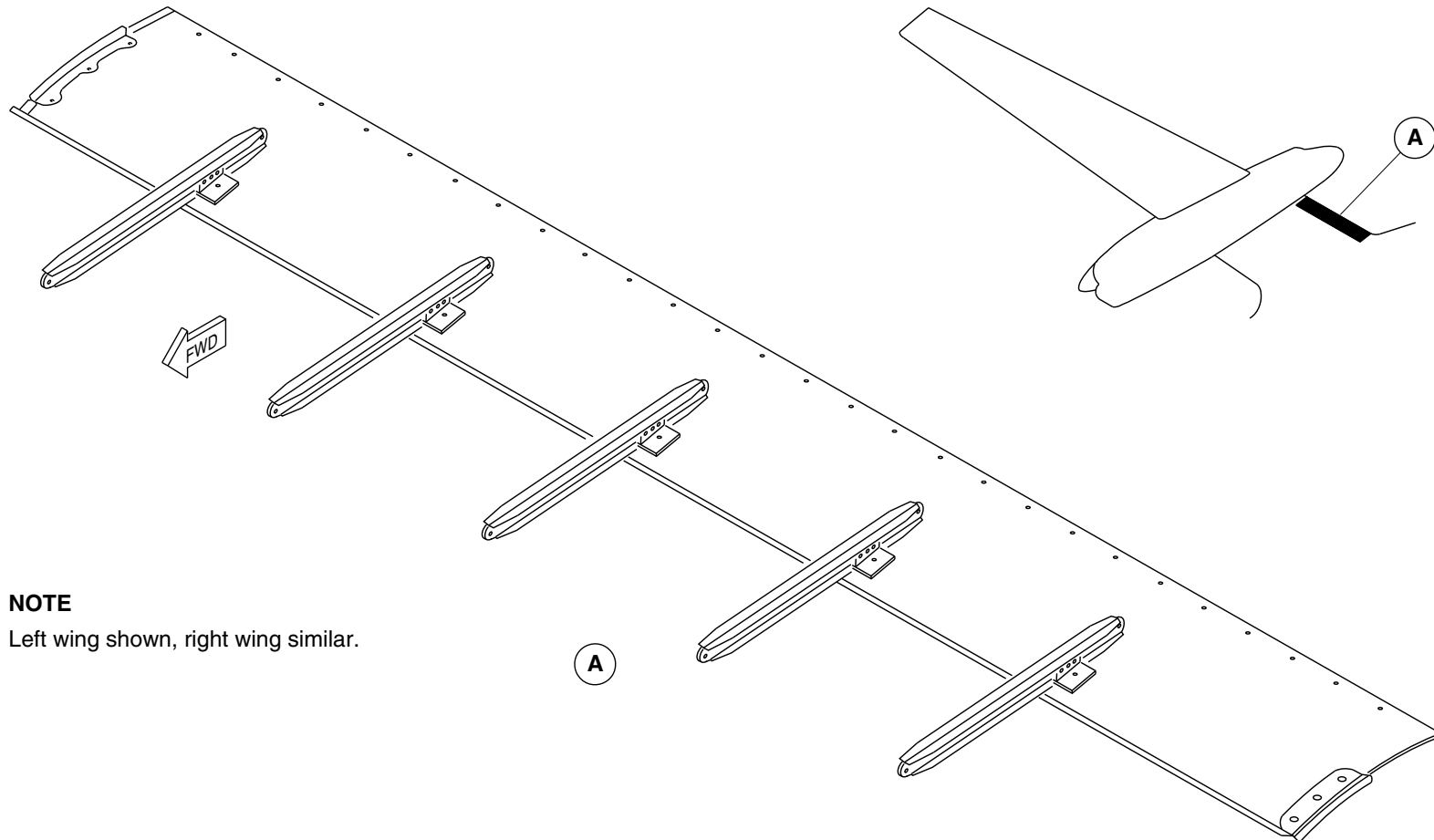
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NOTE

Left wing shown, right wing similar.

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Inboard Flap Closure Panels
Figure 7

PSM 1-84-2A
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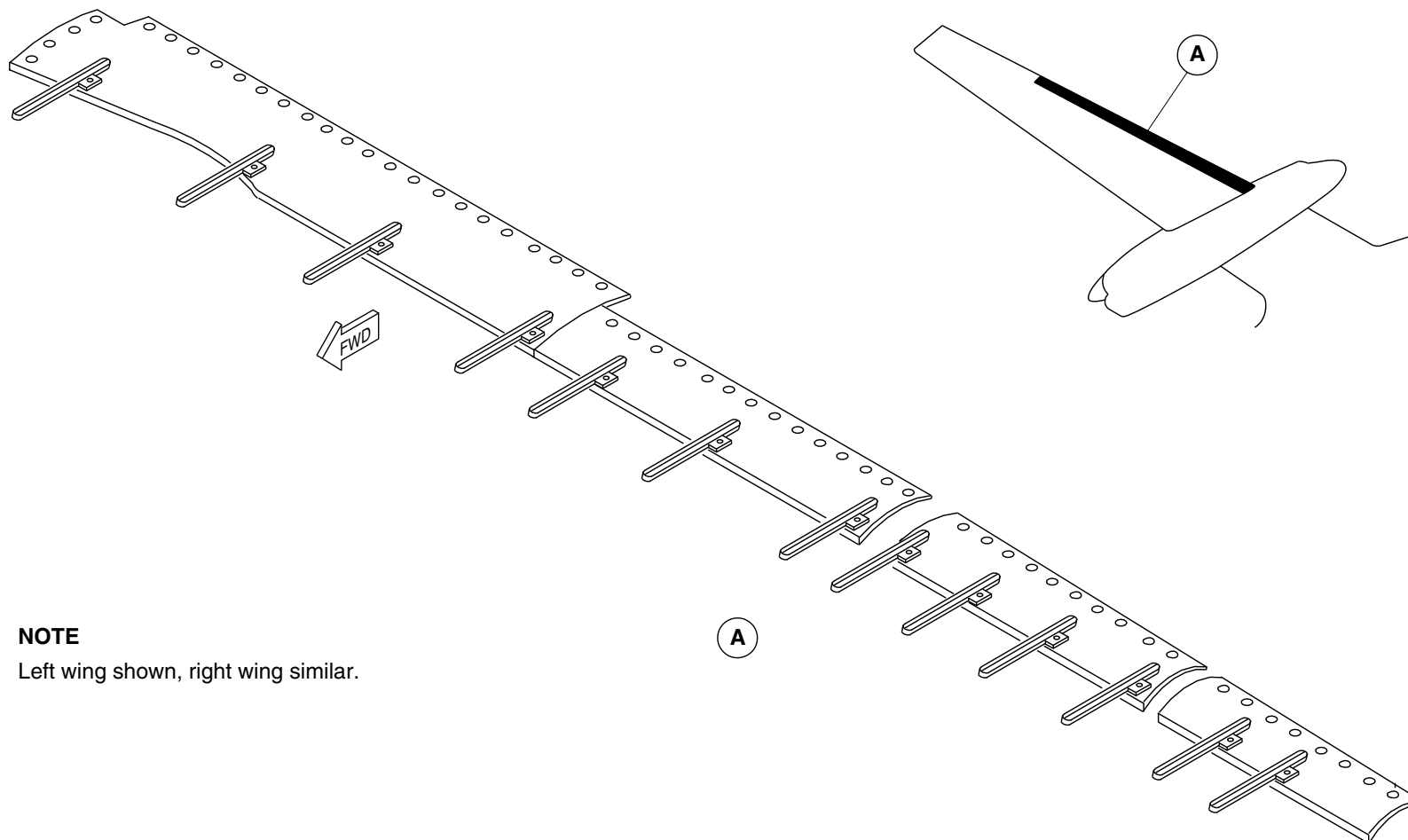
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NOTE

Left wing shown, right wing similar.

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Outboard Flap Closure Panels
Figure 8

PSM 1-84-2A
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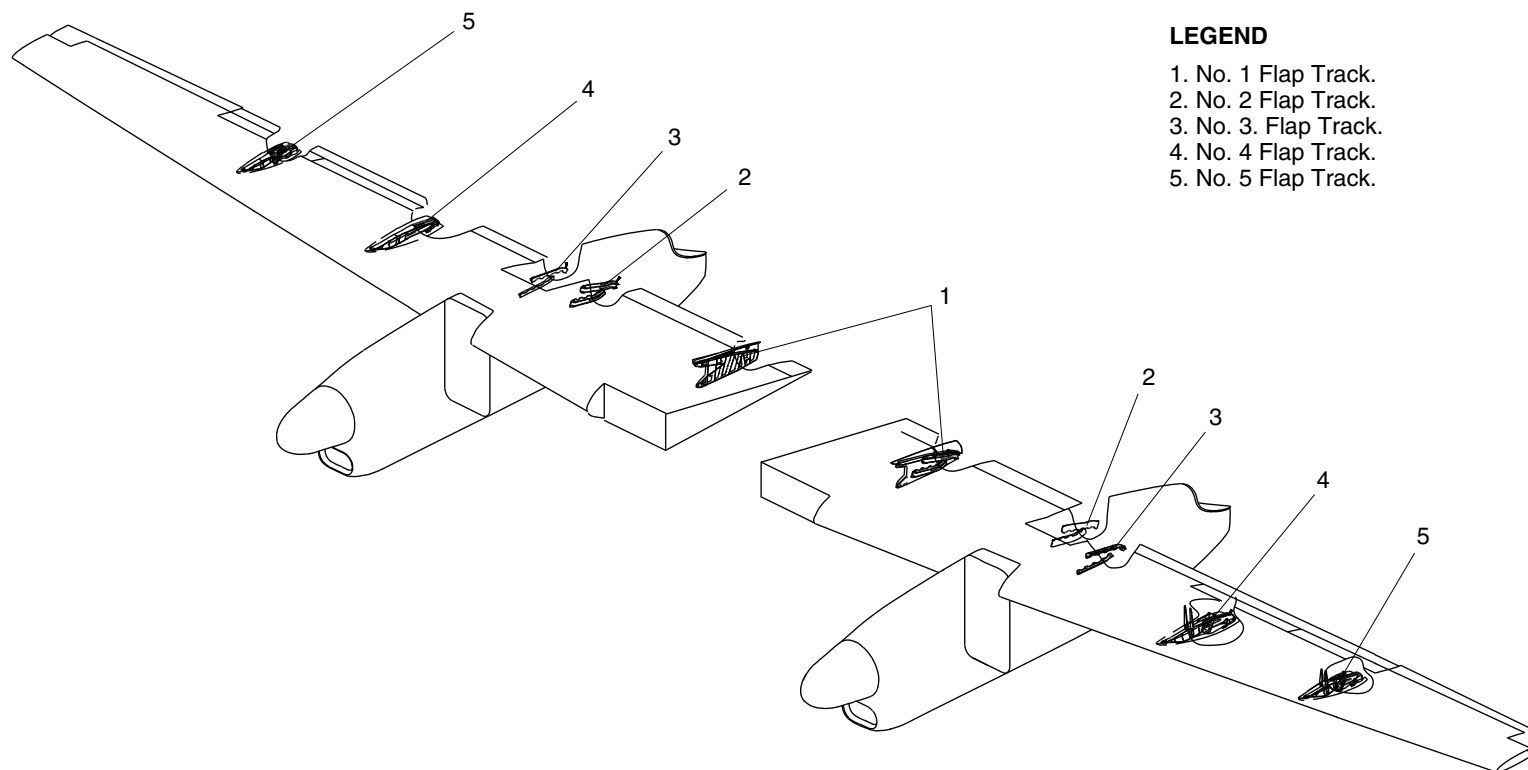
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LEGEND

- 1. No. 1 Flap Track.
- 2. No. 2 Flap Track.
- 3. No. 3. Flap Track.
- 4. No. 4 Flap Track.
- 5. No. 5 Flap Track.

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FLAP TRACKS LOCATOR
Figure 9

PSM 1-84-2A
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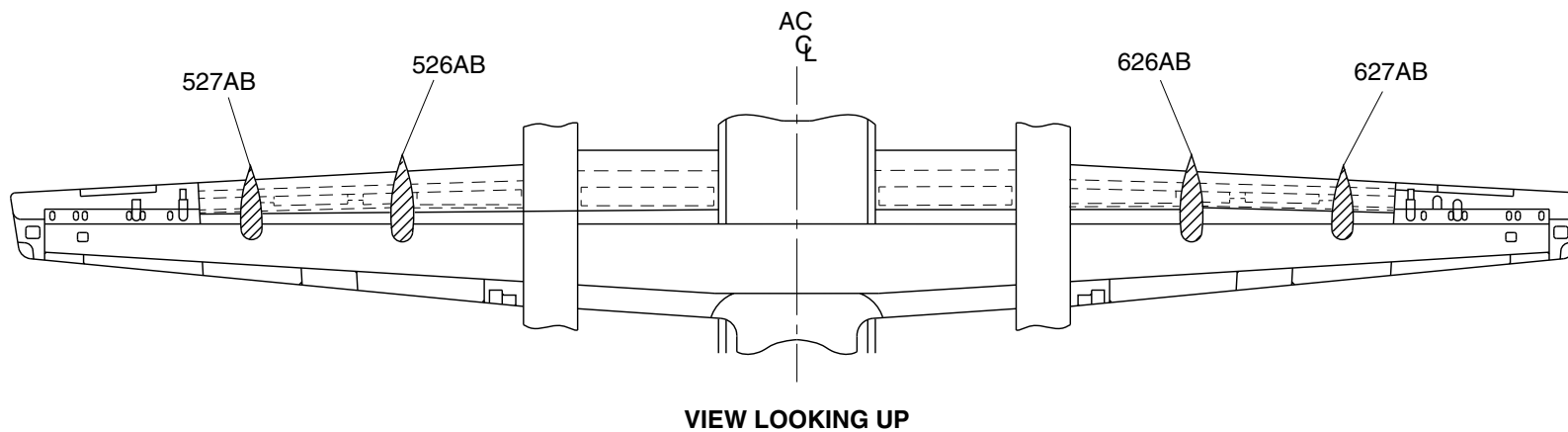
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fsf96a01.dg, rc, jun28/2011

No. 4 and No. 5 Flap Tracks Locator
Figure 10

PSM 1-84-2A
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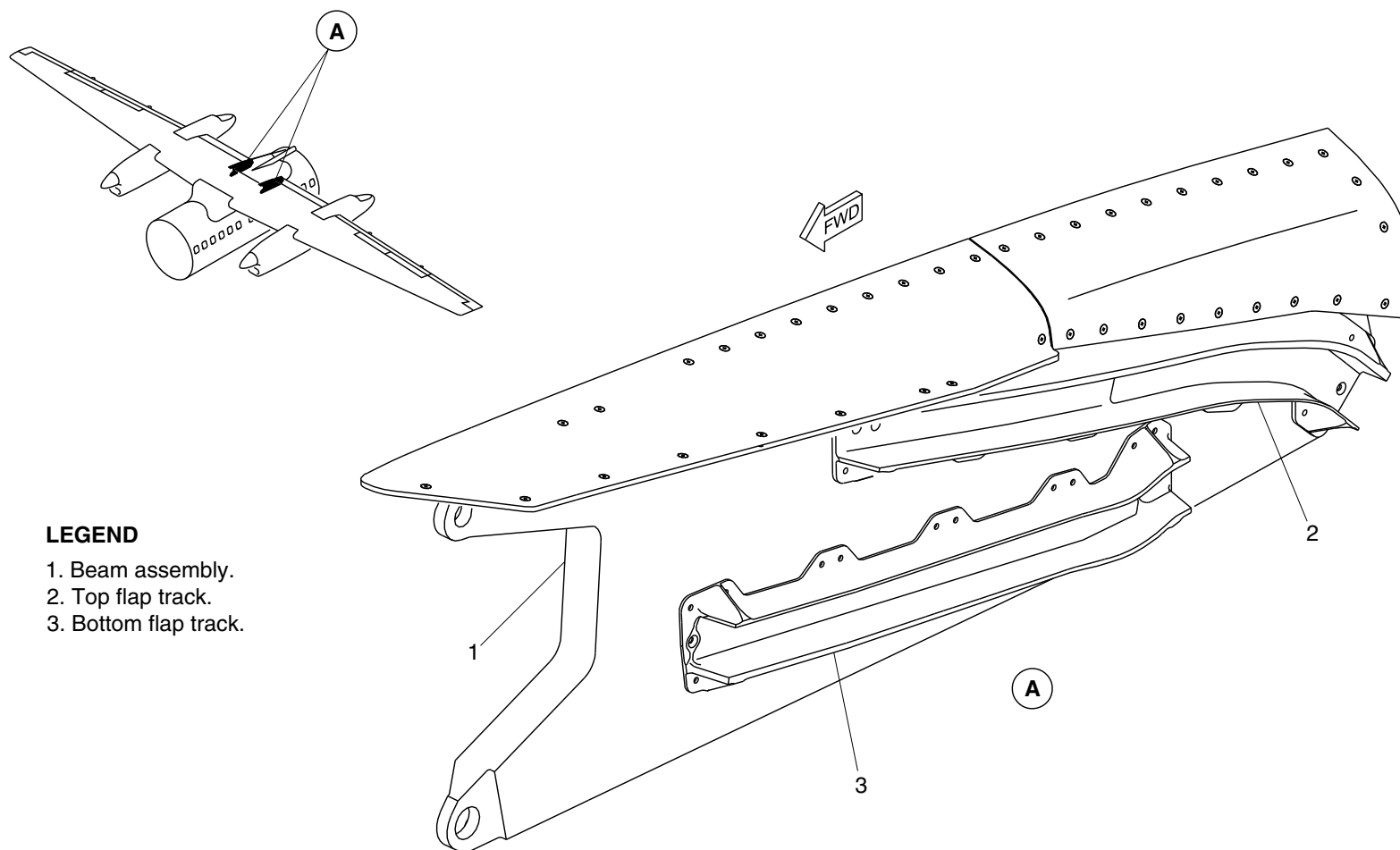
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LEGEND

- 1. Beam assembly.
- 2. Top flap track.
- 3. Bottom flap track.

fsp99a01.dg, rc, may05/2011

No. 1 Flap Track Details
Figure 11

PSM 1-84-2A
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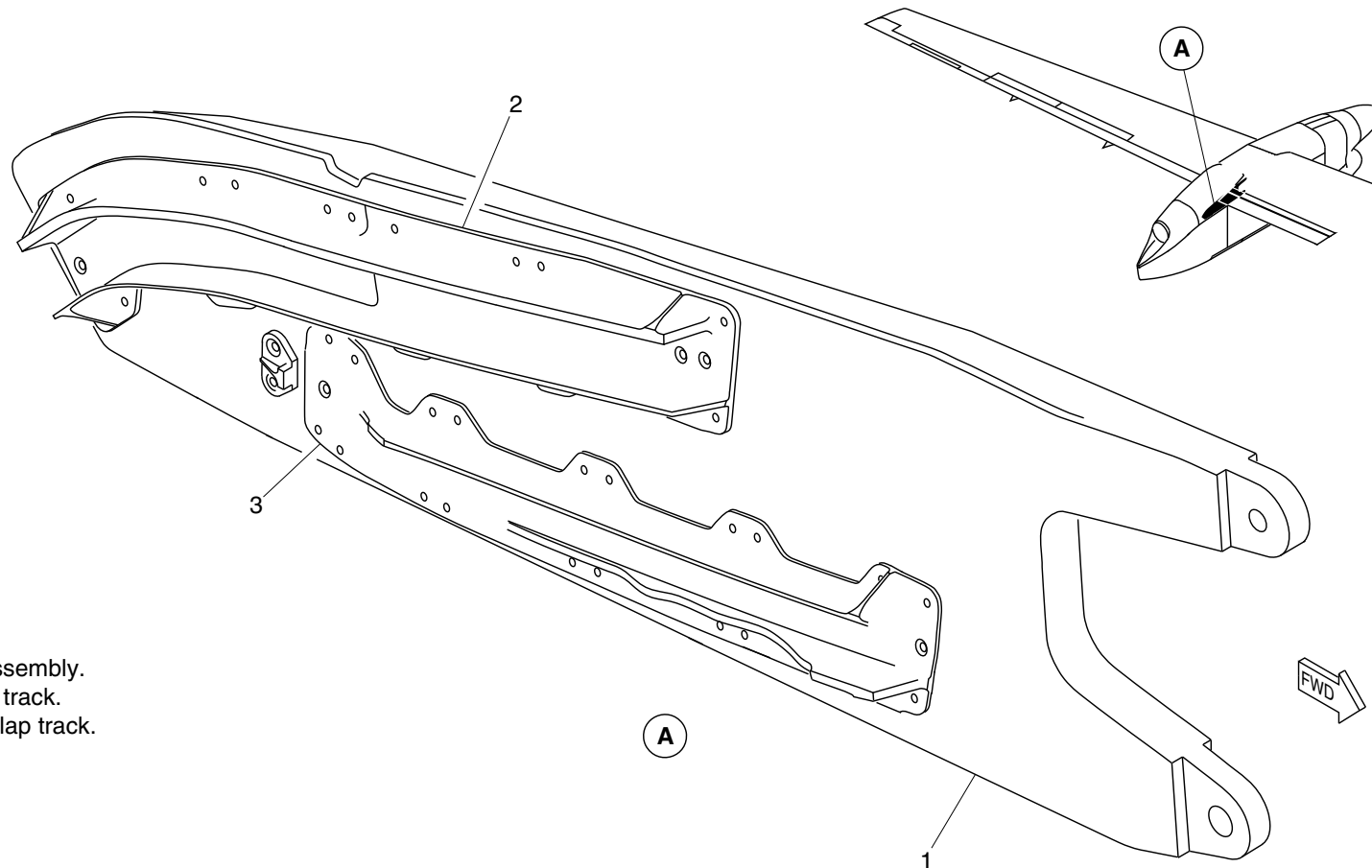
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LEGEND

- 1. Beam assembly.
- 2. Top flap track.
- 3. Bottom flap track.

fsq36a01.dg, rc, jun28/2011

No. 2 FLap Track Details
Figure 12

PSM 1-84-2A
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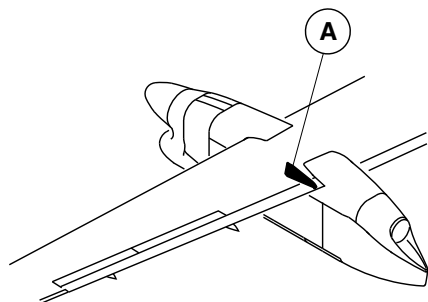
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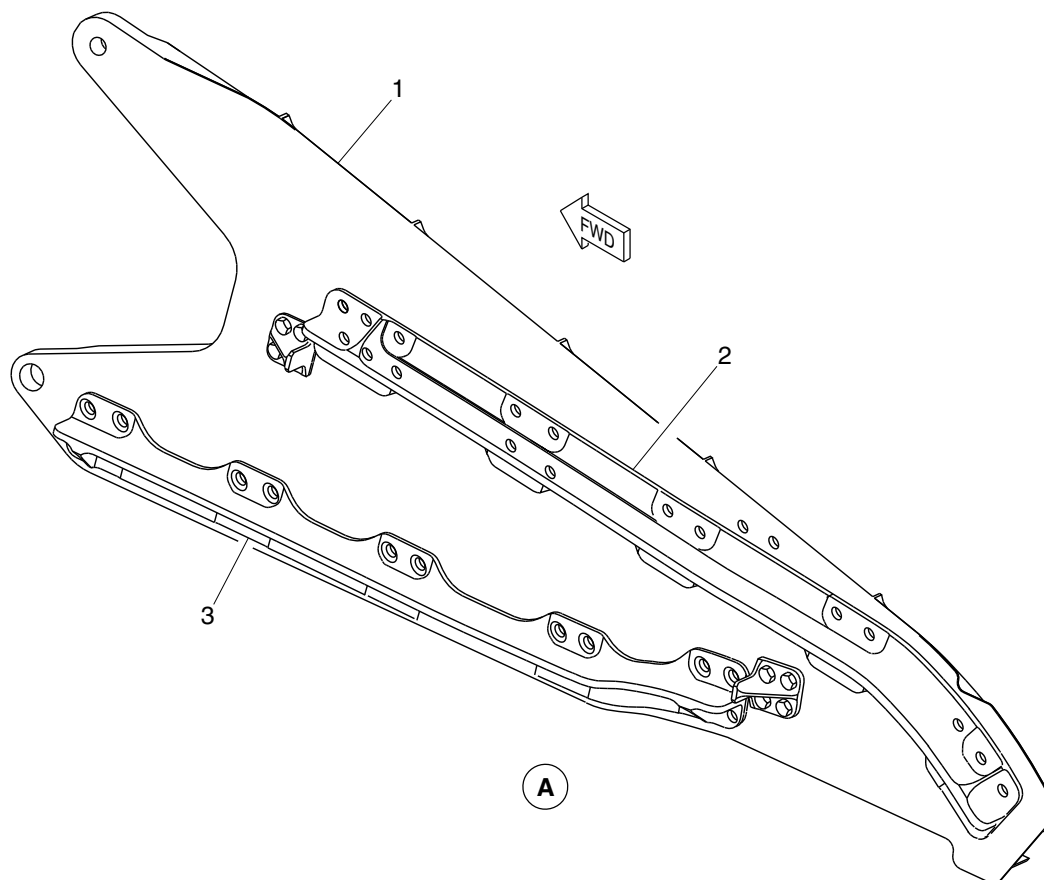
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AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



LEGEND

- 1. Beam assembly.
- 2. Top flap track.
- 3. Bottom flap track.



fsq22a01.dg, rc, may05/2011

No. 3 Flap Track Details
Figure 13

PSM 1-84-2A
EFFECTIVITY:
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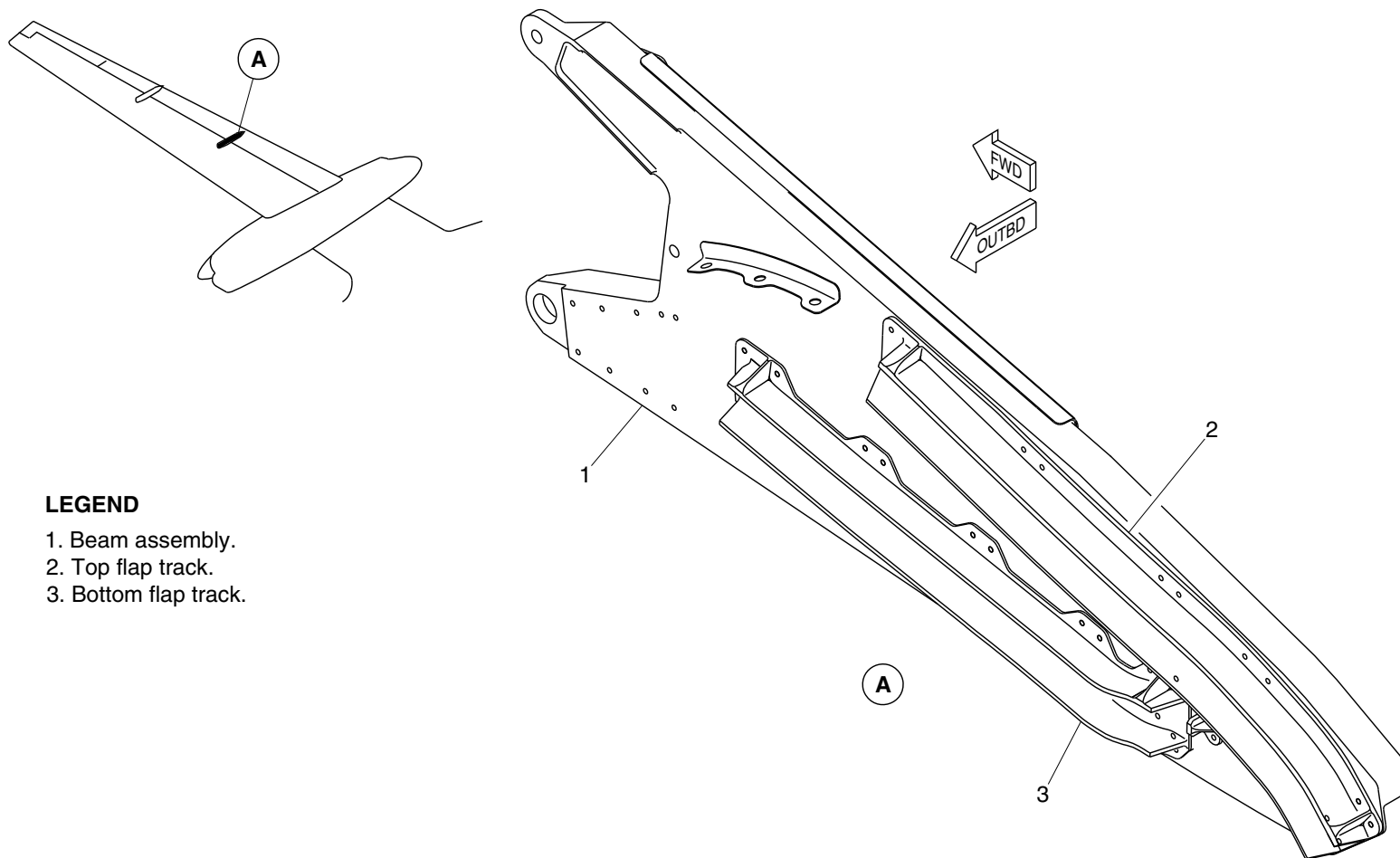
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DE HAVILLAND AIRCRAFT
OF CANADA LIMITED

AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION



LEGEND

- 1. Beam assembly.
- 2. Top flap track.
- 3. Bottom flap track.

fsq24a01.dg, rc, apr28/2011

No. 4 Flap Track details
Figure 14

PSM 1-84-2A
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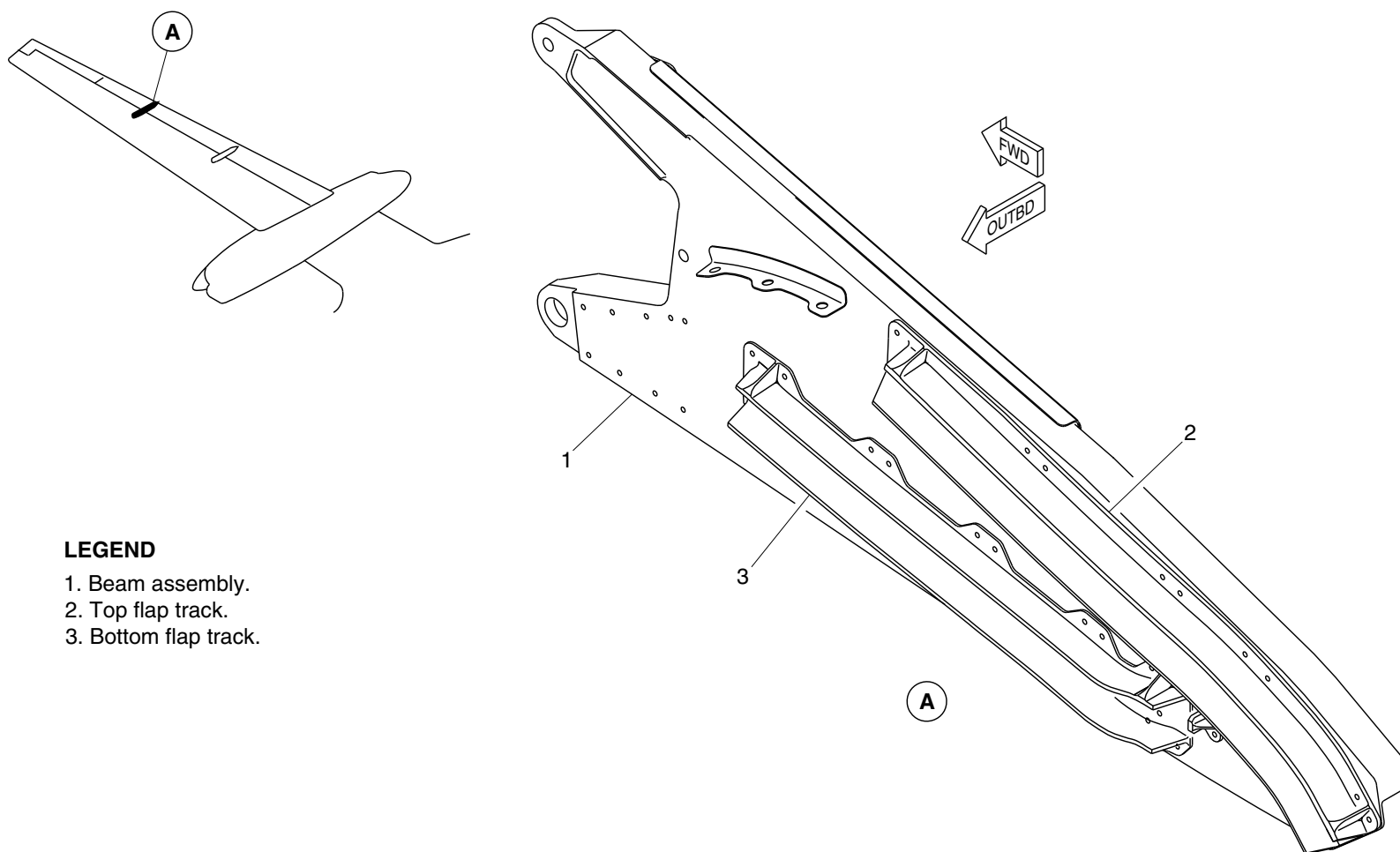
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LEGEND

- 1. Beam assembly.
- 2. Top flap track.
- 3. Bottom flap track.

fsq20a01.dg, rc, may05/2011

No. 5 Flap Track Details
Figure 15

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AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

**ON A/C ALL

57-60-00-001

AILERONS

Introduction

The aileron surfaces give roll (lateral) control of the aircraft in flight.

General Description

[Refer to Figure 1.](#)

There are two aileron control surfaces. One is installed on the outboard end of the left wing and the other is installed on the outboard end of the right wing.

The Aileron Surfaces include:

- Aileron Access Panels (57-61-00)
- Aileron Shrouds.

Detailed Description

Each wing has an aileron with a span of 135 in. (3.4 m), outboard of wing station Yw 425.669. The aileron is connected to the wing through 4 hinges. All the hinges transfer loads in the X and Z directions, and hinge #2 (at Y 477.039) also transfers load in the Y direction. Aileron movement is defined by the control system and is translated to the aileron by a push rod connected to the aileron actuator bracket. The aileron actuator bracket is located at the front spar, at the inboard (No.1) hinge position.

The aileron has the components that follow:

- Aileron box
- Leading edge
- Trailing edge
- Aileron tip
- Gear tab
- Trim tab (right hand aileron only).

The aileron box, trailing edge, gear and trim tabs are made of aluminum. The leading edge and aileron tip are of composite construction.

The aileron box is a metallic structure that has a front spar, rear spar, horn spar, reinforced top and bottom skins, stiffeners and ribs. The ribs are located in the hinges, actuator and horn areas.

The aileron has horn and leading edge mass balance.

Access Panels

[Refer to Figures 2 and 3.](#)

There are access panels on the lower and upper aileron surfaces.

Shrouds

[Refer to Figures 4 and 5.](#)

Aileron shrouds cover the aileron and gear tab connection assembly. The right aileron has an added shroud for the ground adjustable trim tab.

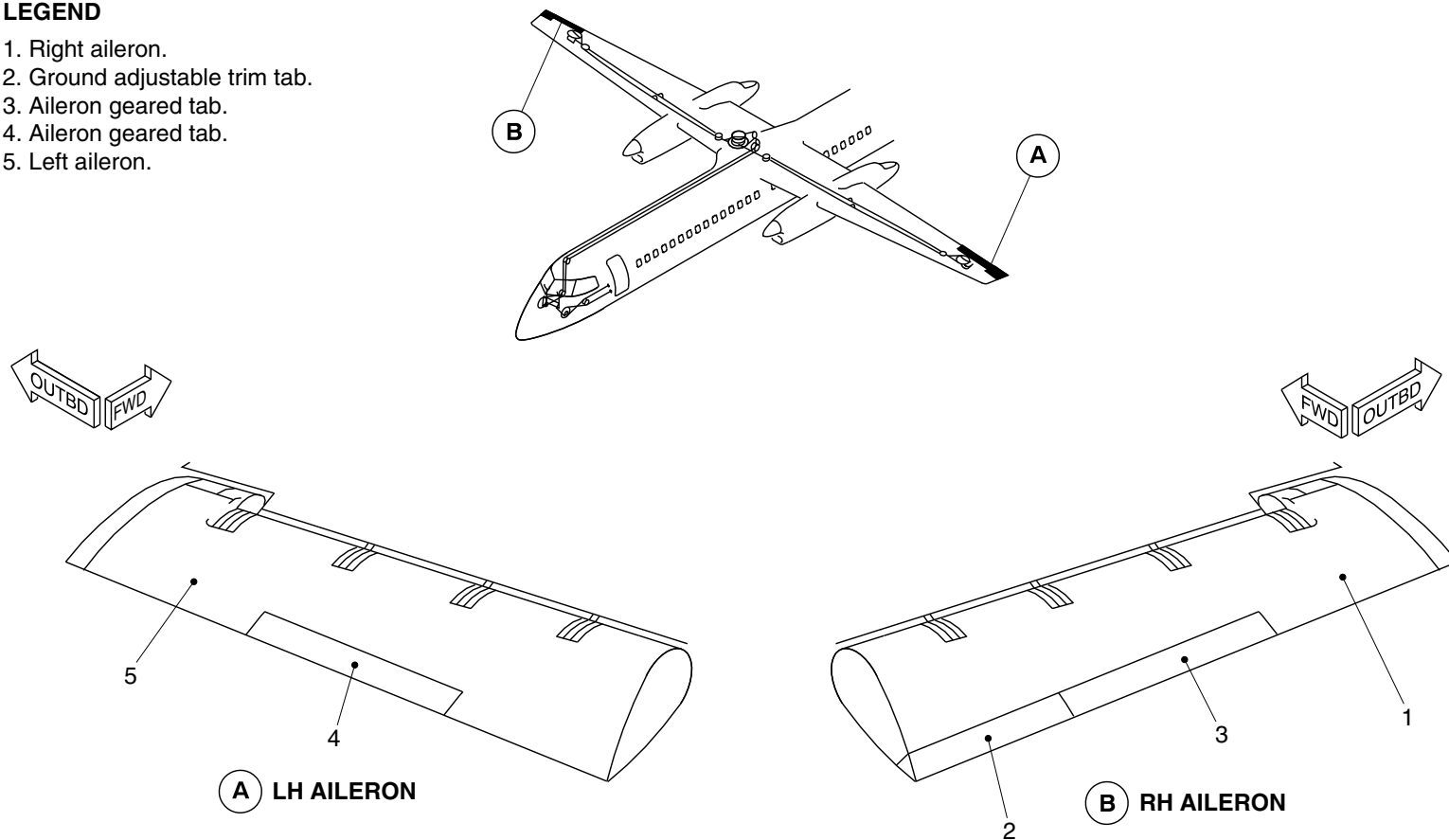


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AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

LEGEND

1. Right aileron.
2. Ground adjustable trim tab.
3. Aileron geared tab.
4. Aileron geared tab.
5. Left aileron.



fs171a01.dg, ms, jul08/2011

AILERON LOCATOR
Figure 1

PSM 1-84-2A
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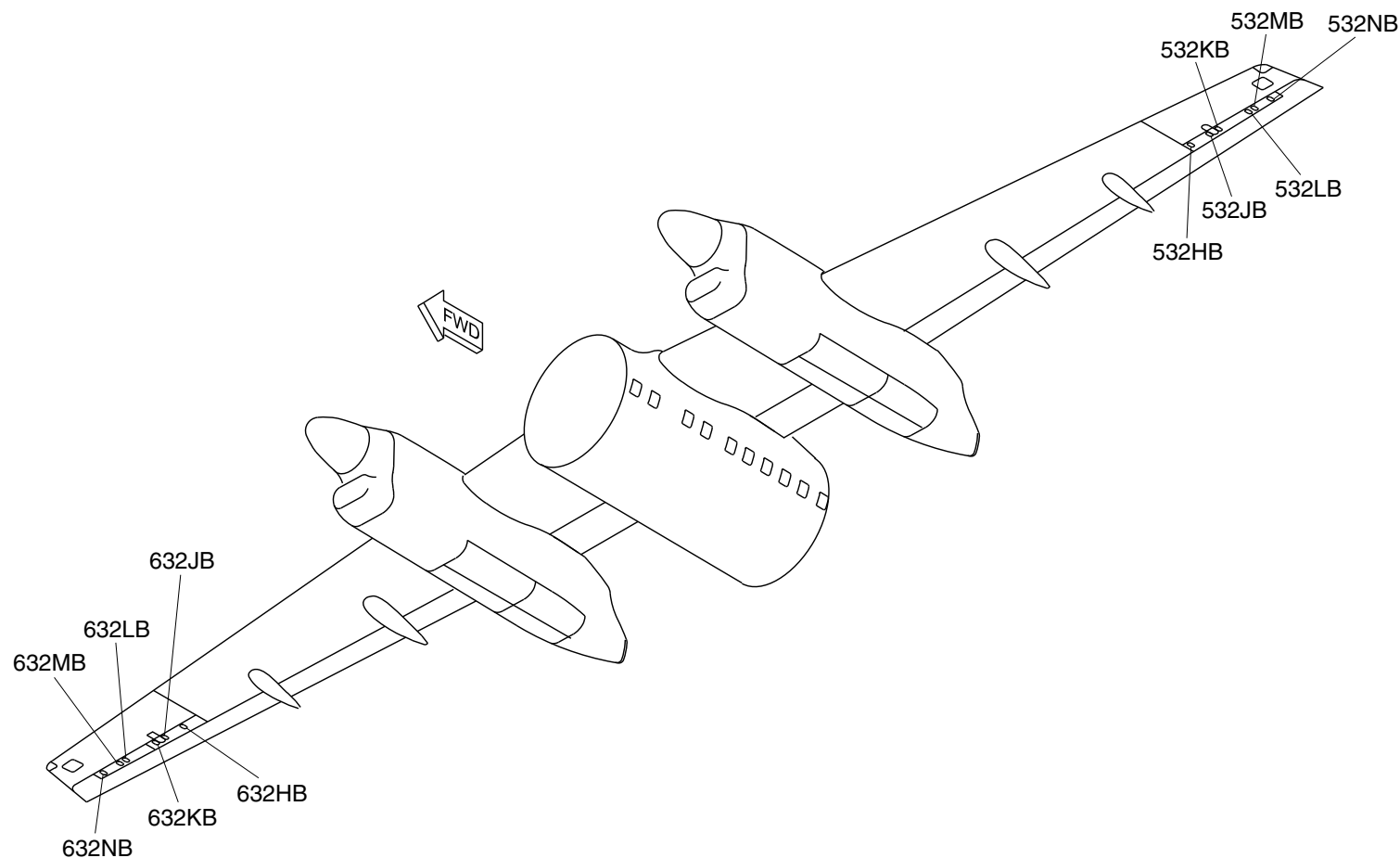
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LOWER AILERON ACCESS PANELS
Figure 2

PSM 1-84-2A
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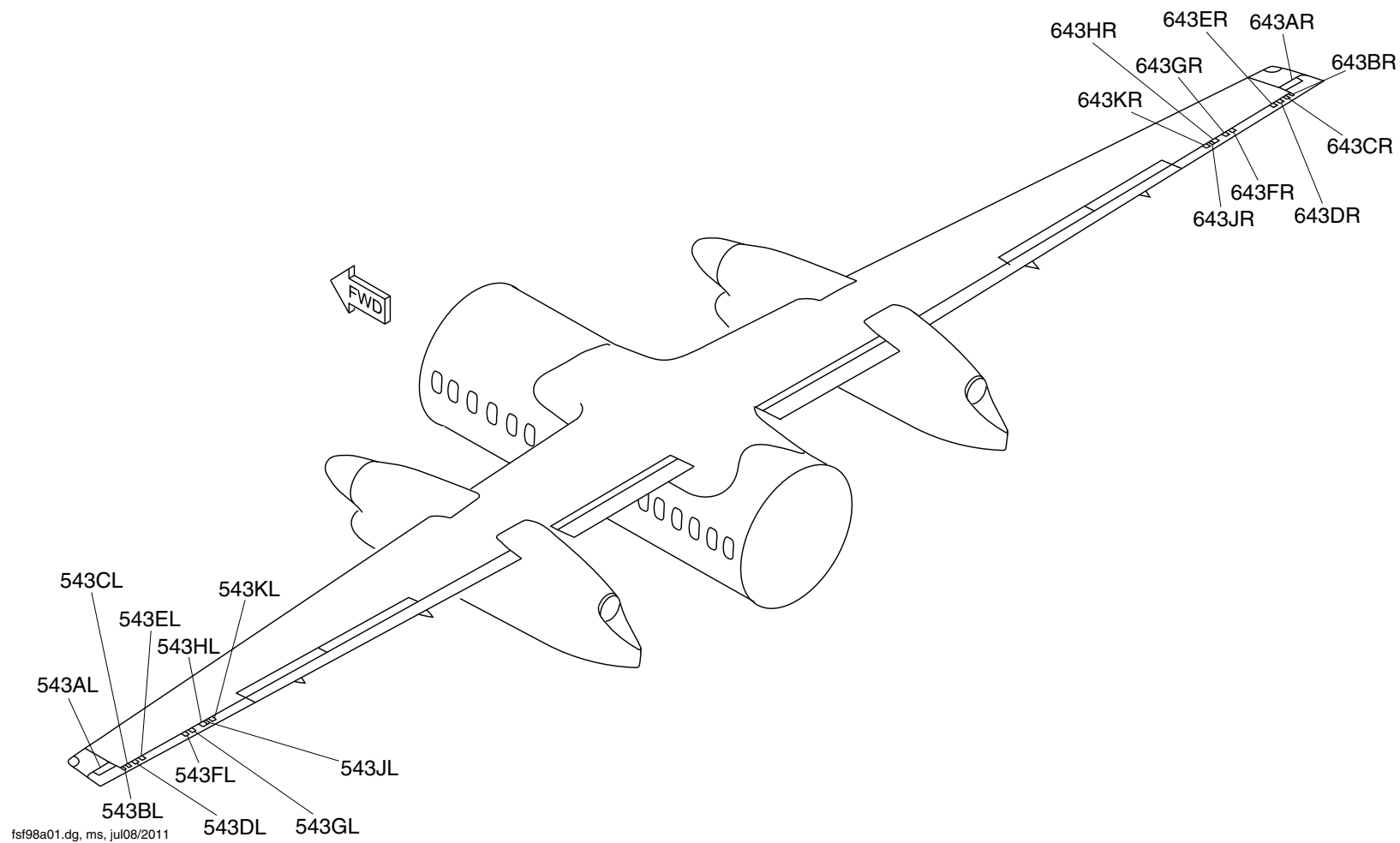
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UPPER AILERON ACCESS PANELS
Figure 3

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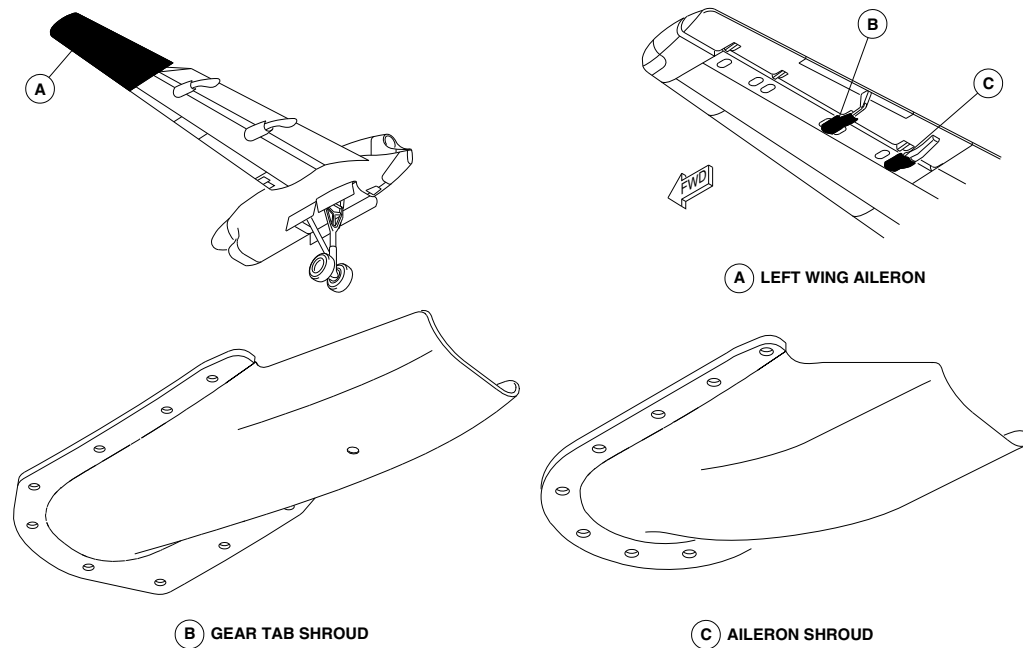
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LEFT AILERON SHROUDS
Figure 4

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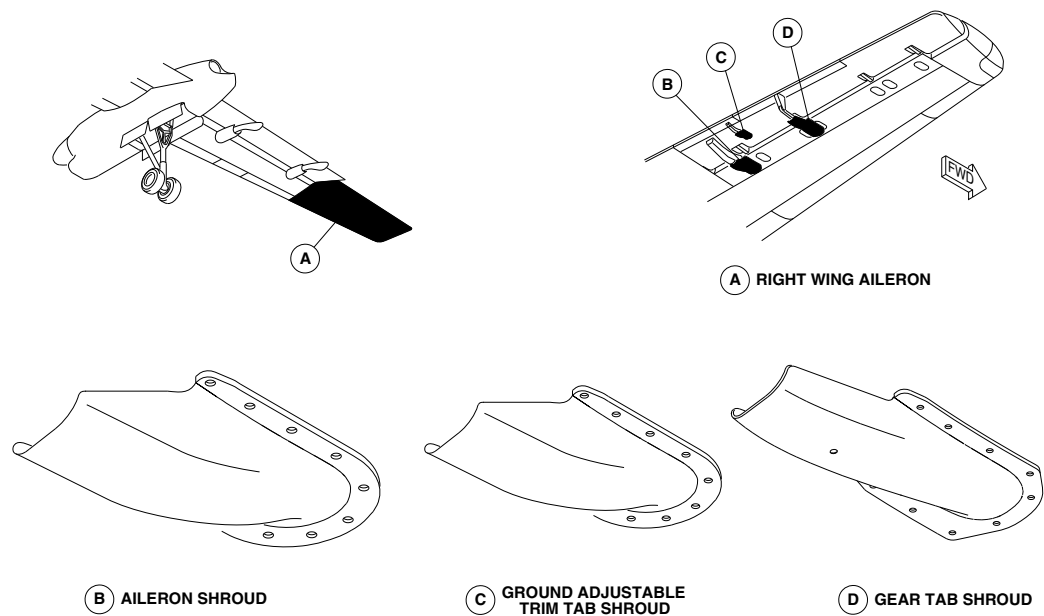
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RIGHT AILERON SHROUDS
Figure 5

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AIRCRAFT MAINTENANCE MANUAL – SYSTEM DESCRIPTION SECTION

**ON A/C ALL

57-70-00-001

SPOILERS

Introduction

The roll spoilers are a secondary flight control system. They operate with the aileron control system to give lateral control of the aircraft in flight. The roll spoilers also have a ground mode which decreases the lift after the aircraft has touched down.

General Description

Refer to Figures 1 and 2.

Each wing has inboard and outboard roll spoilers. The hydraulically powered roll spoilers operate with the ailerons to give lateral control of the aircraft in flight. Handwheel movement operates a cable system connected to pushrods, levers, clutches and quadrants, which supply a mechanical input to hydraulic actuators to extend or retract the spoiler panels. Roll spoilers move in conjunction with and in proportion to the upgoing aileron.

The No.1 hydraulic system supplies power to operate the inboard spoilers and the No.2 hydraulic system powers the outboard spoilers.

There are three modes of spoiler operation; Flight Mode, Ground Mode, and Taxi Mode (refer to SDS 27-60-00).

Detailed Description

Refer to Figures 3 , 4 , 5 and 6.

The spoilers are located on the upper surface of each wing forward of the outboard flaps. They are attached by three hinge fittings on the aft face of the rear wing spar. A spoiler actuator link connects the middle hinge attachment to the actuator on the spoiler Power Control Unit (PCU). The spoiler panels fair with the wing top skin when retracted and extend upwards up to a maximum of 75 degrees when operated.

The inboard spoiler is located between Sta. Y273.019 and Sta. Y352.744.

The outboard spoiler is located between Sta. Y353.254 and Sta. Y424.669.

Spoiler Panels

Four spoiler panels are installed on the upper surface of the wing, forward of the outboard flaps. The panels are identified as inboard and outboard and are operated hydromechanically using control wheel inputs in conjunction with the ailerons. The inboard and outboard spoilers are hinged to the upper surface of the wing. The Power Control Units (PCUs) attached to the inboard panels are supplied with hydraulic pressure from No.1 hydraulic system. The PCUs attached to the outboard panels are supplied by No.2 hydraulic system.

PSM 1-84-2A

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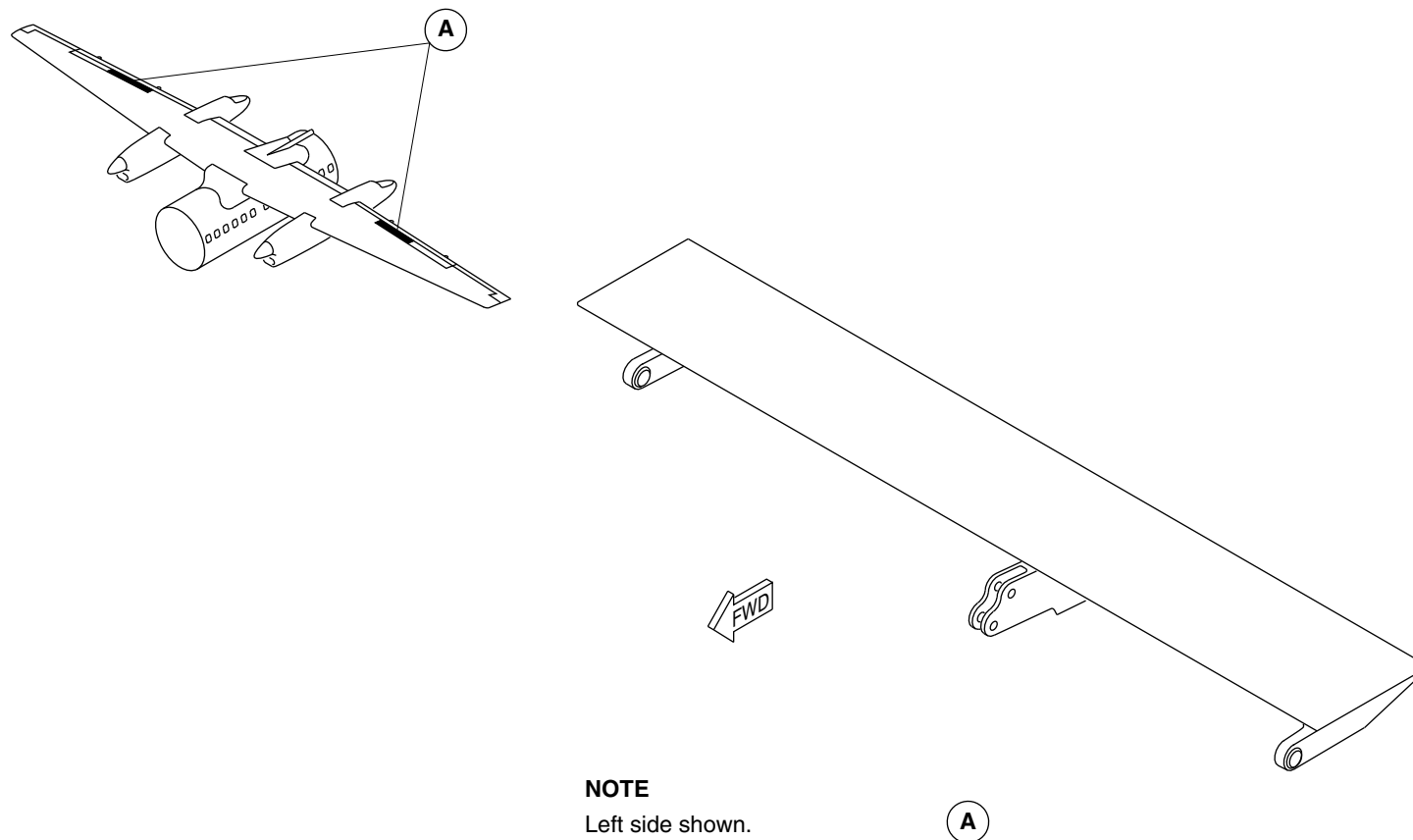
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INBOARD SPOILERS LOCATOR
Figure 1

PSM 1-84-2A
EFFECTIVITY:
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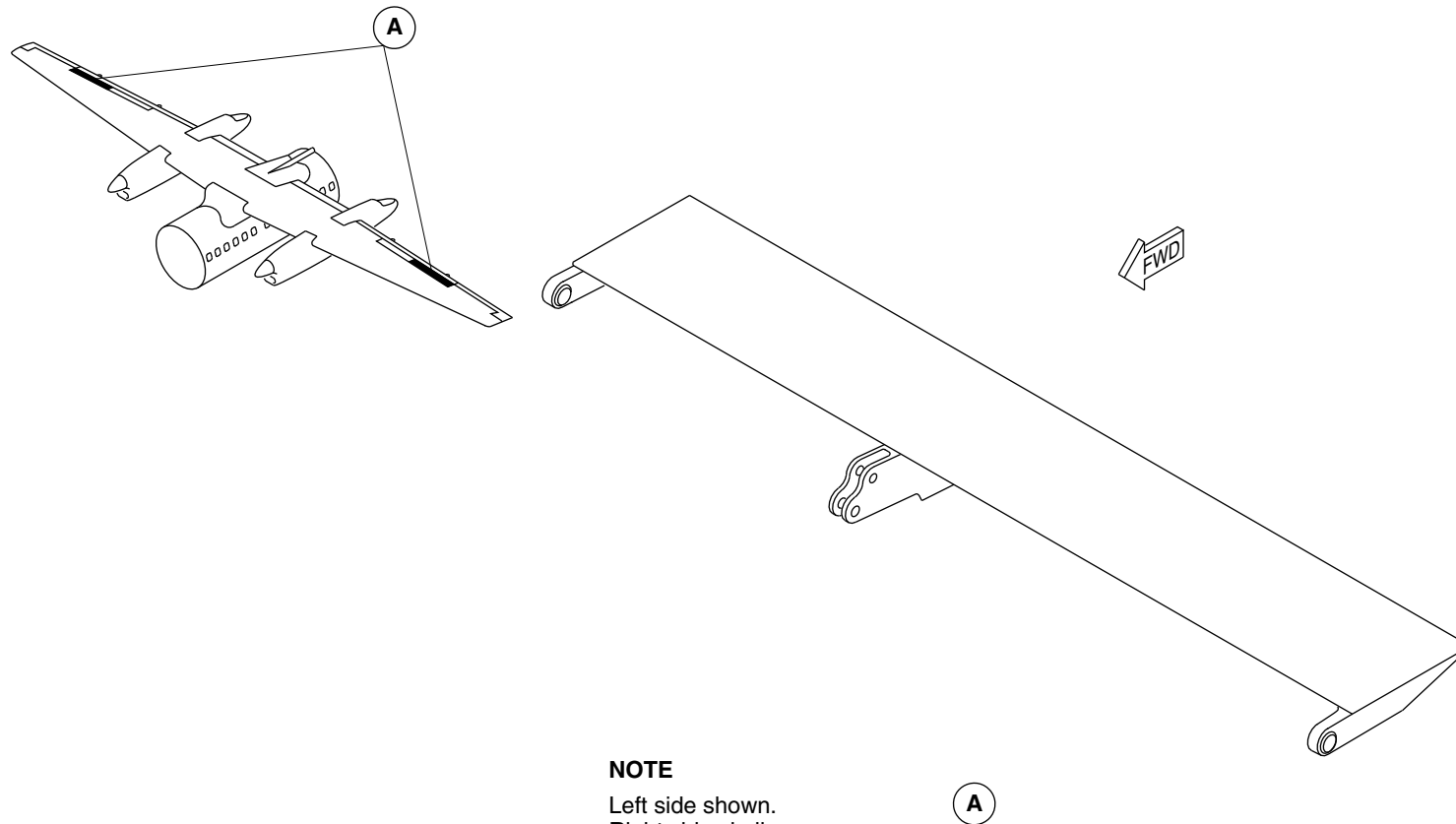
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NOTE

Left side shown.
Right side similar.

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OUTBOARD SPOILERS LOCATOR
Figure 2

PSM 1-84-2A
EFFECTIVITY:
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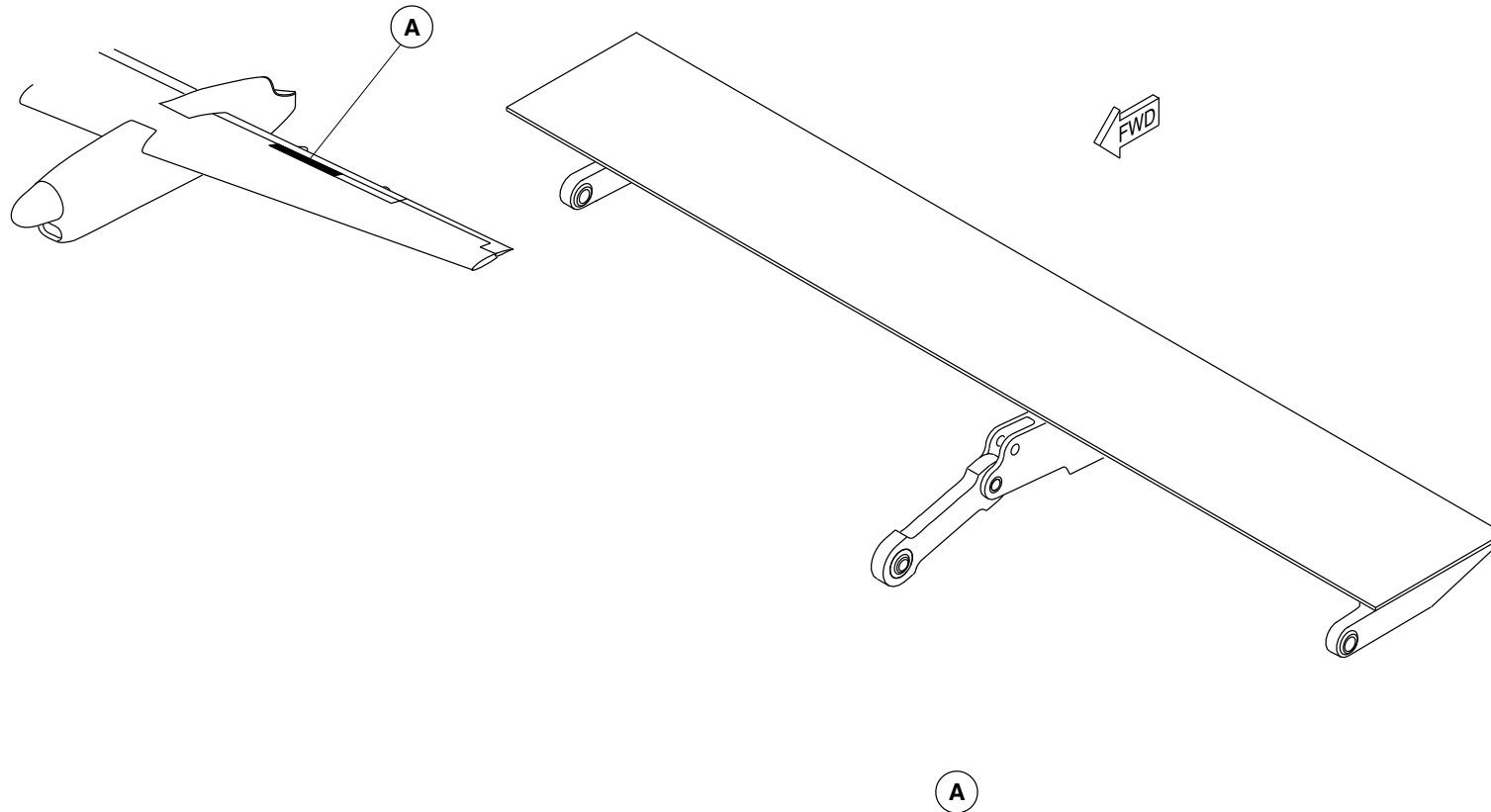
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INBOARD SPOILER PANEL LOCATOR
Figure 3

PSM 1-84-2A
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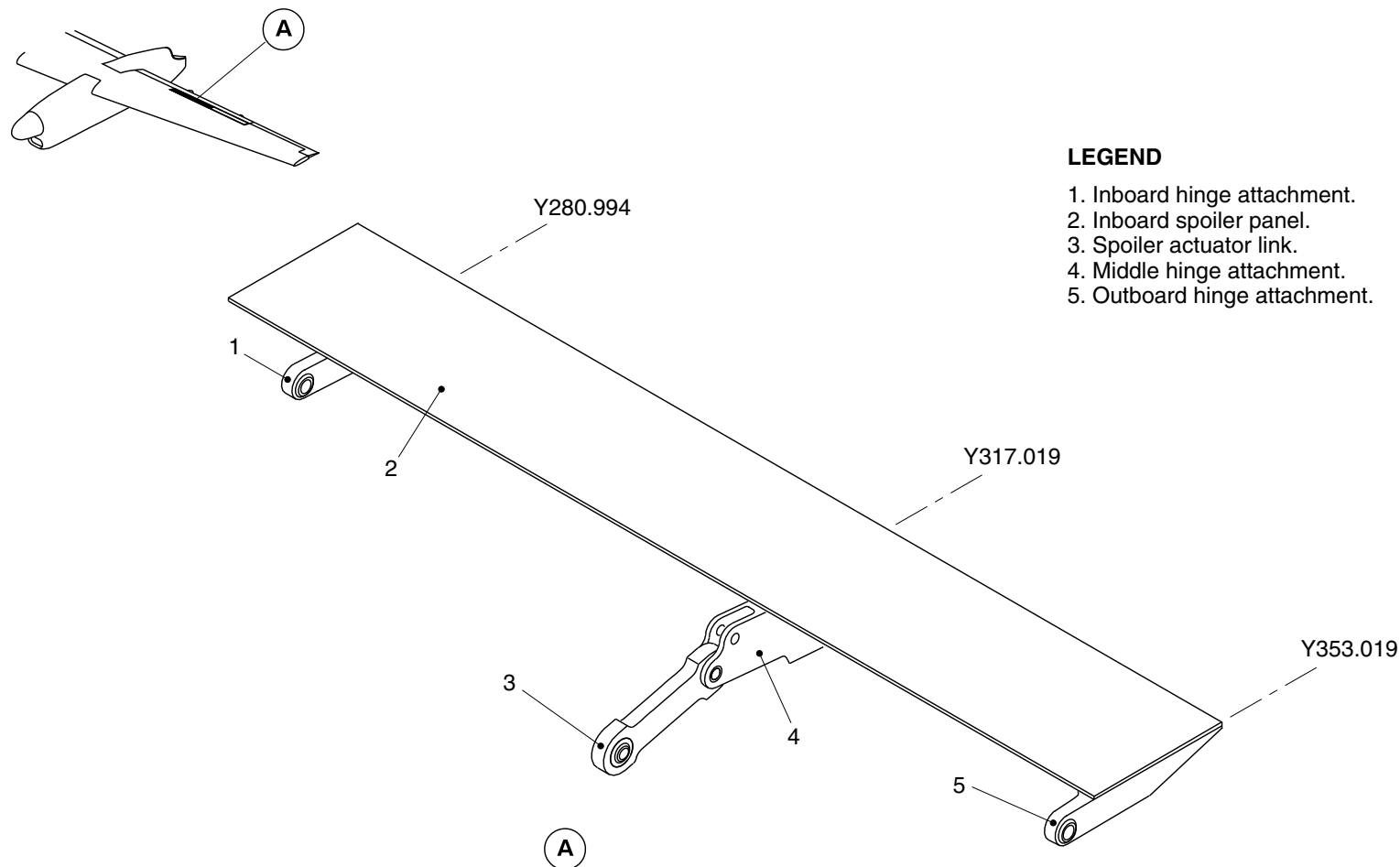
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LEGEND

1. Inboard hinge attachment.
2. Inboard spoiler panel.
3. Spoiler actuator link.
4. Middle hinge attachment.
5. Outboard hinge attachment.

fsq13a01.dg, ck, may17/2011

Inboard Spoiler Panel Detail
Figure 4

PSM 1-84-2A
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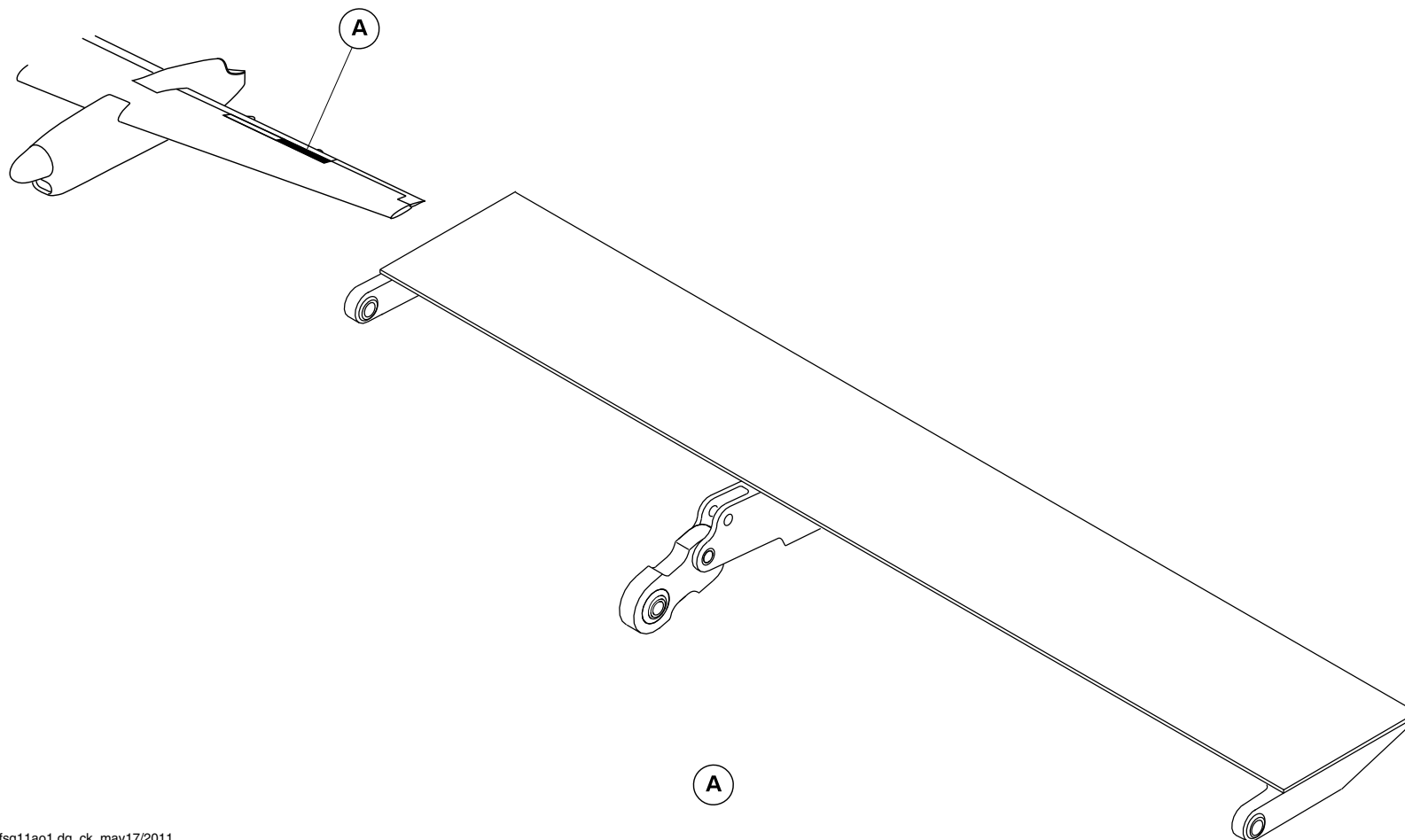
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Outboard Spoiler Panel Locator
Figure 5

PSM 1-84-2A
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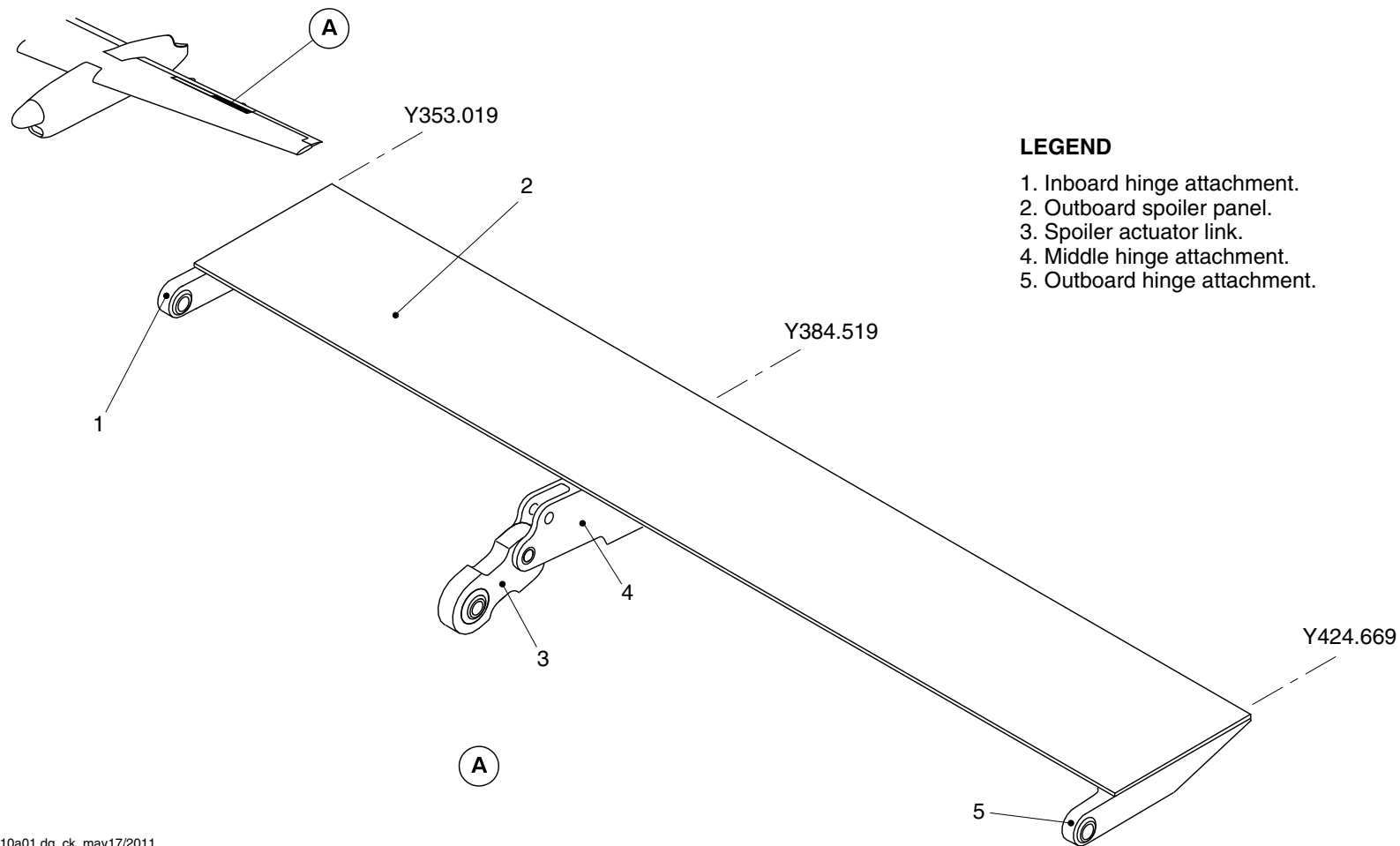
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Outboard Spoiler Panel Detail
Figure 6

PSM 1-84-2A
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