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PASSENGER WINDOW - CORROSION PREVENTION

1. General

Refer to the section in the Table 201 for corrosion prevention instructions for the frames of the passenger cabin windows.

Table 201/56-00-37-993-801 Specific Corrosion Problems - Passenger Windows

AREA	PROBLEM	INDEX
Passenger Windows	Corrosion on the passenger cabin window frames.	56–21–37

FLIGHT COMPARTMENT WINDOWS - INSPECTION/CHECK

1. General

A. This procedure contains the following tasks:

(1) Inspection of the Flight Deck Windows for damage.

B. The Flight Deck Window inspection is for damage that has an effect on the structural, visual and operational functions of the windshield.

C. Flight Deck Window inspection methods/tools for measurement of damage depths and material thickness.

TASK 56-11-00-200-803

2. Inspect the Flight Compartment Windows

A. General Flight Deck Windows Vocabulary

(1) Window Components

(a) Aerodynamic Smoother (Aero-Smoother): Sealant applied during installation to fill the space between the window and airplane structure. Also used as a component of the pre-molded (moisture) seal on some windows.

(b) Edge Seal: Seal around the edge of the window assembly used to prevent moisture penetration into the interlayer material.

(c) Fail-Safe Interlayer: Interlayer that will hold the pressure loads if there is a failure of a structural pane.

(d) Fail-Safe Pane: An acrylic pane that will hold the pressure loads if there is a failure of the primary structural pane.

(e) Interlayer: A flexible transparent layer that bonds glass or acrylic panes together. It can be a structural component for pressure fail-safety and bird impact resistance.

(f) Laminate: Assembly of interlayer materials and glass or acrylic panes bonded together by application of heat and pressure.

(g) Metal Insert: A thin piece of metal around the periphery of the window used to transfer fail-safe pressure or bird impact loads from the interlayer to the window installation fasteners.

(h) Moisture Seal: A combination of the edge seal, Z-seal, and the aerodynamic smoother applied to the window installation.

(i) Pane: One layer of glass or acrylic in a window.

(j) Phenolic edge filler: A material that is a support for the window edge around the periphery of the window.

(k) Pressure Seal: A rubber gasket that makes a pressure seal between the window and the fuselage.

(l) Spacer tube: A metal bushing used to prevent clamp up of the window edge from the fasteners.

(m) Stretched Acrylic: Made from cast acrylic and used as a primary and fail-safe structural pane.

(n) Structural Pane: A glass or acrylic pane that holds the pressure loads of the window.

(o) Urethane: A type of interlayer material.

(p) Vinyl (Polyvinyl Butyral or PVB): A type of interlayer material.

(q) Z-Seal: A z-shaped piece of metal that is bonded to the window edge. The seal is a barrier used to prevent external moisture penetration into the window laminate.

(2) Window Vision Terms (Figure 601)

(a) Clear View Area (Daylight Opening or DLO), zone I and zone II: The transparent area of the window for external vision.

(b) Critical Vision Area, zone I: The area of primary vision through the window that does not include the Non-Critical Vision Area.

(c) Decreased Visual Quality: A reduction of vision through the clear view area, which can cause interference with the flight crew visual operations of the aircraft in the air or on the ground. Damage to the window can result in decreased visual quality.

(d) Non-Critical Vision Area, zone II: A 2.0 in. (5.1 cm) band around the periphery of the window measured into the clear view area.

(e) Tong Marks: Small dimples or indentations that are sometimes on the surface of the No. 1, or No. 3 window non-structural outer glass panes and cause local distortion in the clear view area. These are a by-product of the manufacturing procedure.

(f) Visual Quality: The property of the window that allows visual operation of the aircraft in the air or on the ground.

(3) Electrical Components

(a) Bus Bar: Two thin electrical conductors put on opposite edges of the window, and used to transmit electrical current from the power wires to the conductive heating film.

(b) Conductive Heating Film (Coating): A transparent metallic film located on a glass pane used to heat the window for anti-ice and anti-fog function when electrical current is applied.

(c) Power Terminal: The location where the wire bundle that supplies power for the window heat is connected to the window.

(d) Power Wire: A braided wire in the window laminate that connects the power terminals for the window heat to the bus bars.

(e) Sensor Terminal: The location where the wire bundle that supplies temperature sensor input is connected to the window.

(f) Sensor Wires: Thin solid or braided wire in the window laminate that connects the sensor terminals for the window heat to the temperature sensors embedded in the window.

(g) Solder Joint: Solder or a bonding application used to attach the power wire to the bus bar in the window laminate.

(h) Temperature Sensor: A sensor embedded in the window that has resistance that changes with temperature. The WHCU uses the embedded sensor to control power to the window and regulate temperature.

(i) Thermal Switch (Hockey Puck Sensor): A bi-metallic switch that removes or applies electrical power to control the window temperature.

(j) Window Heat Control Unit (WHCU): A device that constantly monitors window temperature through the temperature sensors and controls the power to the window

B. Flight Deck Windows Damage Description

(1) Arcing: An electrical arc is a discharge or short circuit across a discontinuity in a wire, bus bar, conductive heating film, or other internal window components. Arcs usually occur near the window bus bars, and are typically the result of moisture ingress. The heat from an arc can cause dark brown or black burn marks on the bus bar and in the interlayer or the fracture of a glass pane. It is also possible to see small bubbles in the interlayer at the location of an arc.

Arcs in the heating film away from the bus bar can occur as a jagged line and is also known as a line arc (Example: Figure 608) (“lightning bolt pattern”).

(2) Crack: A crack is a break or discontinuity of the material. A list of descriptions of cracks by material follows.

(a) Glass Panes: Cracks in a glass pane will always grow to an edge or adjacent crack in the window. (A line arc can be confused with a crack but one end typically stops in the center area of the window.)

1) Non-Structural Pane - Cracks will look equivalent to smooth fissure perpendicular to the surface and through the entire thickness of the pane. There are usually many cracks across the glass surface (spider web pattern) of the pane. Cracks will not significantly decrease visual quality. (Example: Figure 604).

2) Structural Pane – The pane will break into many small irregularly shaped pieces, typically no larger than 0.5 in. (12.7 mm) maximum dimension. Visual quality is significantly decreased. (Example: Figure 604).

(b) Interlayers:

1) Urethane – Cracks can occur in urethane interlayer around the outboard edge of the window and at bolt hole locations. The cracks are usually in a network that does not run parallel to the edges of the window and are usually in random directions (also referred to as crackling). Urethane interlayer cracks have a maximum width of approximately 0.02 inches and frequently occur with white or yellow discoloration. See also moisture ingression. (Examples: Figure 609).

2) Vinyl – Cracks that can occur in the vinyl interlayer around the perimeter of the window and follow or extend from the edges of internal features, for example, the metal inserts, or bolt holes. The cracks usually appear as thick or broken lines perpendicular to the window panes. Cracks along the edges of the metal insert extend from the edge of the metal insert either outboard towards the face play or inboard toward the main structural glass ply, and run parallel to the edge of the metal insert.

(3) Scratch: The linear removal or displacement of material from the surface of a pane.

(4) Chips: The removal of material from the surface of a glass or acrylic pane, usually from the impact with a hard object. The descriptions that follow are a list of different types of chips.

(a) External chips:

1) Shell type chips are in the surface or edge of the pane. These chips have a circular or curved shape with many fine lines or ridges that follow the outline of the edge of the chip that give it almost the same shape of a shell. The width of the chip is more than its depth.

2) “V” shaped chips have the shape of a sharp narrow "V". Depth of the chip is equal to or larger than the width.

(b) Internal chips:

1) Peel Chips - Chips that occur on the internal surface of glass panes. Chipped areas have a curved, rough grained shape, and are easily seen in reflected light. The chipped area can have small glass flakes, usually white. The view through the window will distort through the rough surface of the chip. Usually the chips start very small but can continue to grow with the continued use of the airplane. (Example: Figure 607.

(5) Delamination: Delamination is the separation of a pane or panes from the interlayer internal to the window. Delamination looks like an air bubble that starts from the edge, is flat, smooth, and has a circular edge. Delaminations can have an edge with smooth finger-like projections. The delamination will cause a reflection of light when you look at it from an angle to the surface of the window. A delamination can distort vision through the delaminated area.

(6) Moisture Ingression: A cloudy white or yellow haze internal to the window usually around the periphery. It can follow wires internal to the window, along the bus bar and also in areas of delamination. Long term exposure to moisture can lead to electrical arcing of the heating system internal to the window.

(7) External aerodynamic smoother - Erosion and Cracking: External aerodynamic smoother will degrade with time because of wind, rain and UV exposure. Erosion or cracks of the aerodynamic smoother will let moisture penetrate into the window laminate. Repair and maintenance of external aerodynamic smoother is necessary to get as much window life as possible.

(8) Bubbles: Small isolated or irregular shaped voids in the interlayer internal to the window not at the window edge. Bubbles can be the result of a damaged window heat control system. Multiple bubbles together in a small group, or black or dark brown bubbles are an indication of a damaged window heat control system.

(9) Haze: A white or light blue cloudiness between the panes of glass, which does not have a distinct boundary. Haze is most likely to appear along inboard and outboard edges where the window is not fully heated by the window heat system (Figure 611). Haze is most likely to appear during cold weather operation and will dissipate during warm weather.

C. General Flight Deck Window Inspection Methods/Tools

(1) The use of optical micrometers has been standard in the industry for many years.

(2) There have been improvements to this type of equipment and different companies that make it for use on aircraft.

(3) The use of the optical micrometer is best for determining damage depths (scratches, craze, etc.). It can be used for thickness measurements, if parts are off of the aircraft, for best results.

(4) Boeing has no objection to operators/repair stations using ultrasonic or other means to measure damage or material thickness provided operators/repair stations have the necessary skill and expertise with this type of equipment to ensure accurate findings.

(5) The optical micrometer is primary for use in determining depths of scratches/damage, etc. This can be done on-aircraft with the right skill level of the mechanics doing the task. Also, it is not as useful as on-aircraft measurement of pane thickness (inner or outer).

D. References

Reference	Title
12-16-02 P/B 301	FLIGHT COMPARTMENT WINDOWS - SERVICING
30-41-00 P/B 501	CONTROL CABIN WINDOW ANTI-ICING SYSTEM - ADJUSTMENT/TEST
56-11-00 P/B 801	FLIGHT COMPARTMENT WINDOWS - REPAIRS
56-11-11 P/B 401	NO. 1 WINDOW - REMOVAL/INSTALLATION

(Continued)

Reference	Title
56-11-21 P/B 401	WINDOW NO. 3 - REMOVAL/INSTALLATION
56-11-21-300-801	Repair Scratched or Crazed No. 3 Windows (P/B 801)

E. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2039	Micrometer, Optical (Min Depth .02 inch and Accuracy +/-.0005 Inch) Part #: 8400K Supplier: 65956 Part #: MODEL 966A1 Supplier: 0ZYB5 Part #: MODEL 966A1 Supplier: 88277 Opt Part #: 8400PCK Supplier: 65956
COM-4786	Processor/Printer - Optical Micrometer (used with 8400K only) Part #: DP-1VR Supplier: 65956
COM-13454	Roughness and Contour Measurement Tool Part #: HOMMEL-ETAMIC T1000 Supplier: C6026 Part #: SURFTEST SJ-210 Supplier: 01EP7
STD-597	Micrometer - Depth, 0.0 to 6.0 in (0.0 to 152.4 mm)

F. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

G. Prepare to Check the Flight Deck Windows

SUBTASK 56-11-00-860-013

WARNING: DO NOT TOUCH THE WINDOW UNLESS THE CIRCUIT BREAKERS ARE OPEN, AND THE WINDOW HEAT SWITCHES ARE OFF. ELECTRICAL SHOCK CAN CAUSE INJURIES TO PERSONNEL.

(1) Put the window heat switches in the OFF positions.

SUBTASK 56-11-00-860-014

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
AKS 001-022			
D	1	C00226	WINDOW HEAT CONTROL RIGHT FRONT AC
D	2	C00225	WINDOW HEAT CONTROL LEFT SIDE AC
E	1	C00224	WINDOW HEAT CONTROL LEFT FRONT AC
E	2	C00227	WINDOW HEAT CONTROL RIGHT SIDE AC

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
AKS ALL			
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE
B	9	C00228	WINDOW HEAT POWER LEFT FRONT

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	8	C00394	WINDOW HEAT POWER RIGHT FRONT
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

SUBTASK 56-11-00-110-002

(3) Clean the windshields if necessary: FLIGHT COMPARTMENT WINDOWS - SERVICING, PAGEBLOCK 12-16-02/301

NOTE: Clean windshields are necessary to do the inspection.

H. Windshield (No. 1 window) - Inspection/Check

(Figure 602 or Figure 603 or Figure 604 or Figure 605 or Figure 606 or Figure 607 or Figure 608 or Figure 609 or Figure 610)

SUBTASK 56-11-00-210-002

(1) Examine the windshield for chips in the glass panes (Example: Figure 606):

NOTE: Chips in structural glass panes can decrease structural capability. Chips can also decrease the visual quality of a windshield.

(a) Replace the windshield for one or more of the subsequent list of damages (NO. 1 WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-11-11/401).

1) Chips: A chip or group of chips on the surface of a structural pane that are more than 0.015 in. (0.381 mm) in depth are a cause for the removal of the windshield.

2) A chip or group of chips that decreases the visual quality on a pane of the windshield is a cause for the removal of the windshield.

3) The outer glass pane is non-structural. Unless chips decrease the visual quality, they are permitted.

SUBTASK 56-11-00-210-003

(2) Examine the windshield for delamination:

(a) Replace the windshield if the delamination decreases the visual quality (NO. 1 WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-11-11/401).

NOTE: Delamination can result in moisture ingress which can cause arcing and pane cracks. The recommended limit for delamination in a windshield is 2.0 in. (50.8 mm) from the edge of the windshield frame.

SUBTASK 56-11-00-210-004

(3) Examine the windshield for arcing (Example: Figure 608:

(a) Examine the windshield for signs of arcing near the bus bar.

(b) Examine the windshield for line arcs.

(c) Replace the windshield if there are indications of arcing (NO. 1 WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-11-11/401).

SUBTASK 56-11-00-210-005

(4) Examine the windshield for bubbles:

(a) Multiple bubbles together in a small group, or black or dark brown bubbles are a typical indication of a damaged window heat control system.

1) Do a check of the heater control system for that windshield, if necessary. (CONTROL CABIN WINDOW ANTI-ICING SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 30-41-00/501).

(b) Replace the windshield if the bubbles decrease the visual quality or bubbles are black or dark brown in color (NO. 1 WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-11-11/401).

NOTE: Tong Marks can be found on the non-structural outer glass panes and are not a cause for a removal.

SUBTASK 56-11-00-210-006

(5) Examine windshield for scratches:

(a) The inner glass pane is structural. Replace the windshield if the inner glass pane has a scratch with a depth more than 0.015 in. (0.381 mm).

1) Use optical micrometer, COM-2039 or equivalent to measure the depth of the scratches. It is necessary to use the optical micrometer processor/printer, COM-4786 with the optical micrometer, COM-2039.

2) Use roughness and contour measurement tool, COM-13454 as an alternative to measure the depth of the scratches.

a) Make sure the depth of the scratches is no more than 0.0075 in. (0.1905 mm) if the roughness and contour measurement tool, COM-13454 is used.

NOTE: The roughness and contour measurement tool, COM-13454 is not able to reach the bottom of the scratches in glass material. The maximum allowable scratch depth is divided by two.

(b) A scratch or group of scratches that decreases the visual quality on a pane of the windshield is a cause for the removal of the windshield.

(c) The outer glass pane is non-structural. Unless scratches decrease the visual quality, they are permitted.

SUBTASK 56-11-00-210-007

(6) Examine the windshield for cracks in the vinyl interlayer:

(a) Examine the vinyl interlayer for cracks along the edges of the metal insert.

(b) Examine the vinyl interlayer for cracks that extend out from the bolt holes.

(c) Replace the windshield if you find cracks in the vinyl interlayer (Examples: Figure 610).

NOTE: Cracks in the urethane interlayer do not decrease the windshield structural capability and are not a cause for a windshield removal unless they decrease the visual quality.

NOTE: Vinyl cracks that extend out from the bolt holes are permitted unless they are:

- Cracks that extend into the daylight opening beyond the edge of the metal insert.
- Cracks that turn and are parallel to the edge of the metal insert.
- Cracks that extend from one bolt hole to an adjacent bolt hole.

SUBTASK 56-11-00-210-008

(7) Examine the windshield for cracks (Example: Figure 604:

(a) Replace the windshield if cracks are found in any glass pane (NO. 1 WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-11-11/401).

NOTE: A crack in the outer pane can cause the window anti-ice system to not operate and it can cause unsatisfactory vision.

If the flight crew agrees that the vision through the window is satisfactory, a limited dispatch can occur. The limits of the MMEL Electrically Heated Windshields (Ref MMEL section 30-11) must be followed.

A dispatch with cracks in the inner structural glass panes is not allowed. The windshield must be replaced before flight can occur.

SUBTASK 56-11-00-210-009

(8) Examine the external aerodynamic smoother (sealant) and the pre-molded seal for deterioration and cracks.

CAUTION: DO NOT LET THE AERODYNAMIC SMOOTHER BECOME DAMAGED. THE AERODYNAMIC SMOOTHER IS A PART OF THE MOISTURE SEAL. MOISTURE CAN CAUSE DAMAGE TO THE WINDOW.

(a) It is recommended to repair the aerodynamic smoother (sealant) and pre-molded seal if cracked, eroded, or loose (FLIGHT COMPARTMENT WINDOWS - REPAIRS, PAGEBLOCK 56-11-00/801).

SUBTASK 56-11-00-210-040

(9) Examine the windshield for haze (Figure 611).

(a) If the haze decreases the visual quality of the windshield, you may do one of the two steps (Method 1 or Method 2):

1) Method 1:

a) Replace the windshield (NO. 1 WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-11-11/401

2) Method 2:

a) You can turn the window heat on to remove the haze from the windshield.

NOTE: The windshields are most likely to exhibit haze during extended cold weather conditions, or extended periods of aircraft being out of operation. Running windshield heat for an extended period of time (> 8 hours) will likely clear up the majority of visible haze.

<1> If the haze does not clear and decreases the visual quality, replace the windshield.

I. No. 3 window (Acrylic) - Inspection/Check

(Figure 603)

SUBTASK 56-11-00-210-018

(1) Examine the No. 3 window for chips in the acrylic panes.

(a) Replace or repair the stretched acrylic window panes if limits are larger than the following (WINDOW NO. 3 - REMOVAL/INSTALLATION, PAGEBLOCK 56-11-21/401):

1) Chips: A chip or group of chips on the surface of a structural pane that are more than0.01 in. (0.25 mm) in depth are a cause for the removal of the window.

2) A chip or group of chips that decreases the visual quality on a pane of the window is a cause for the removal of the window.

SUBTASK 56-11-00-210-039

Figure 603

(2) Examine the window for erosion along the forward edge.

(a) Replace the window if the erosion is more than 0.25 in. (6.35 mm) wide.

(b) Replace the window if the erosion is more than 0.05 in. (1.27 mm) deep.

SUBTASK 56-11-00-210-019

(3) Examine the window for in-plane cracks (Figure 605).

(a) Replace or repair the window for one or more of the subsequent list of damages WINDOW NO. 3 - REMOVAL/INSTALLATION, PAGEBLOCK 56-11-21/401.

(b) Examine the periphery of the window for visible in-plane cracks:

1) Replace the window if an in-plane crack extends more than 0.400 in. (10.160 mm) from the window edge.

(c) Examine the rabbet edge of the window:

1) Replace or repair the rabbet edge if an in-plane crack extends more than 0.05 in. (1.27 mm) from the rabbet edge.

SUBTASK 56-11-00-210-020

(4) Examine the window for scratches.

(a) Replace the window for one or more of the subsequent list of damages WINDOW NO. 3 - REMOVAL/INSTALLATION, PAGEBLOCK 56-11-21/401.

Table 601/56-11-00-993-801 Acrylic Scratch Depths

	Outer Pane		Inner Pane	
Scratch Depth	Maximum Length of Each Scratch	Maximum Cumulative Length of All Scratches	Maximum Length of Each Scrath	Maximum Length of All Scratches
0.050 in. (1.270 mm)	Not Allowed	Not Allowed	Not Allowed	N/A
0.020 in. (0.508 mm)	1.0 in. (25.4 mm)	5.0 in. (127.0 mm)	Not Allowed	N/A
0.010 in. (0.254 mm)	3.0 in. (76.2 mm)	9.0 in. (228.6 mm)	3.0 in. (76.2 mm)	9.0 in. (228.6 mm)
0.005 in. (0.127 mm)	4.0 in. (101.6 mm)	10.0 in. (254.0 mm)	4.0 in. (101.6 mm)	10.0 in. (254.0 mm)

(b) Polish the window to decrease the severity of the scratches.(TASK 56-11-21-300-801)

SUBTASK 56-11-00-210-021

(5) Examine the No. 3 window aerodynamic smoother.

(a) It is recommended to repair the aerodynamic smoother if cracked, eroded or loose(FLIGHT COMPARTMENT WINDOWS - REPAIRS, PAGEBLOCK 56-11-00/801).

J. Flight Deck Window Inspection Methods/Tools for Measurement of Damage Depths and Material Thickness

SUBTASK 56-11-00-200-014

(1) Put the micrometer over the scratch or defect to be measured.

NOTE: The tripod base is most effective on flat surfaces or slightly curved transparent material

NOTE: The micrometer light provides a kit that will pinpoint the location to be checked. The area covered varies (approximately 0.0625 in. (1.5875 mm) in diameter.

SUBTASK 56-11-00-200-015

(2) Use the depth micrometer 0.0 to 6.0 in (0.0 to 152.4 mm), STD-597, and do the detailed dimensional inspection of the windows as follows:

(a) Use the standard eyepiece unless width measurements are being made.

NOTE: The area in the focal plane will be in focus. The areas above and below the focal plane will be out of focus or be completely blank. The image being viewed will be inverted since the micrometer does not have prismatic correction.

NOTE: It is recommended that readings be made without eyeglasses.

SUBTASK 56-11-00-210-042

(3) All readings must be made by the same person, the same conditions.

NOTE: If the readings of a measurement are made by two persons, the measurements computed must be within 0.0002 in. (0.0051 mm) of each other.

SUBTASK 56-11-00-200-016

(4) Use the three scales to read the measurements as follows:

(a) Hundred-thousands (0.1) - indicated by the number on the barrel.

(b) Thousands (0.001) - indicated on the lower part of the rotating thimble.

(c) Ten-thousands (0.0001) - indicated on the vernier of the non-rotating part of the thimble.

(d) Do the depth measurement as follows:

1) Measure the distance to the near surface and record the measurement.

2) Measure the distance to the far surface and record the measurement.

3) Subtract the distance to the near surface from the distance to the far surface to get the depth measurement.

SUBTASK 56-11-00-210-043

(5) When you measure transparent materials for thickness, multiply the reading by 1.5 for the index of refraction.

NOTE: The index of refraction for glass and acrylic are almost the same. Use 1.5 refraction index for the two materials. Bubbles inside transparent materials are air space or voids are not subject to the 1.5 index of refraction.

SUBTASK 56-11-00-200-017

(6) Measure the width of a bubble or inclusion as follows:

(a) Install the reticle eyepiece and 10x objective.

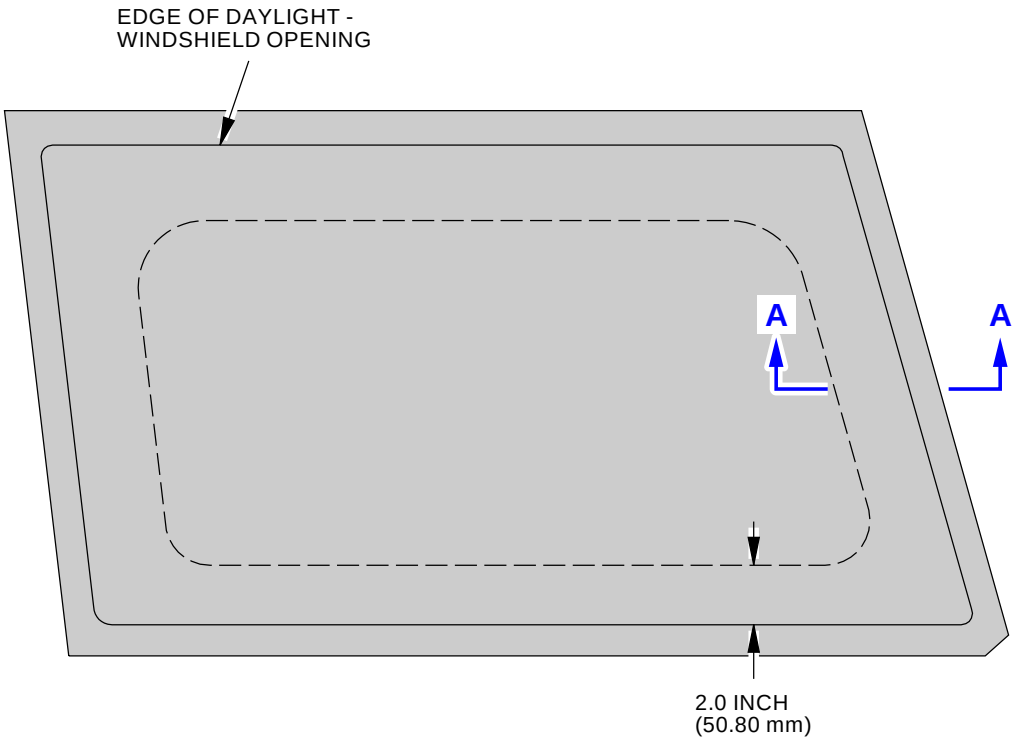
(b) Focus on the widest portion of the bubble or void and read the comparator scale in the eyepiece.

SUBTASK 56-11-00-020-008

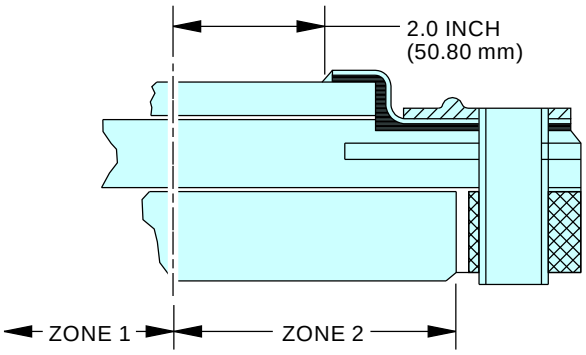
(7) Remove all the tools and equipment form the work area.

(a) Make sure the area is clean.

END OF TASK



**WINDSHIELD
(EXAMPLE)**

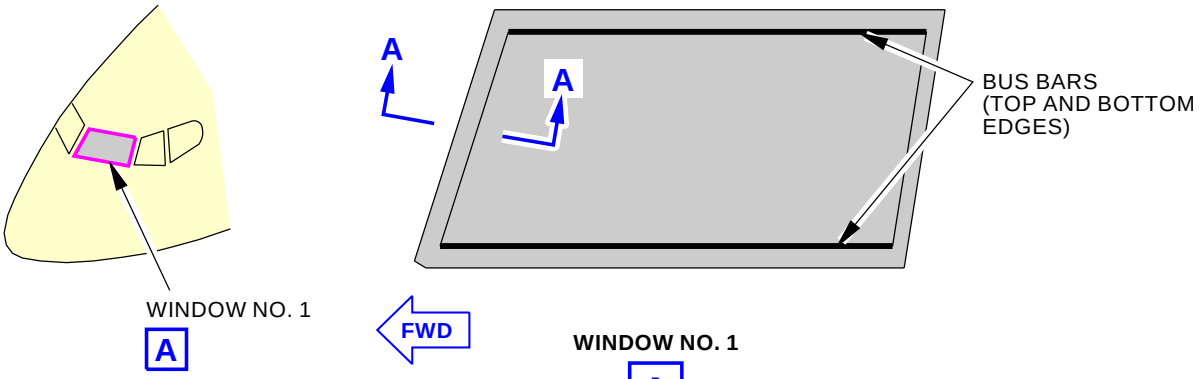


(EXAMPLE)

A-A

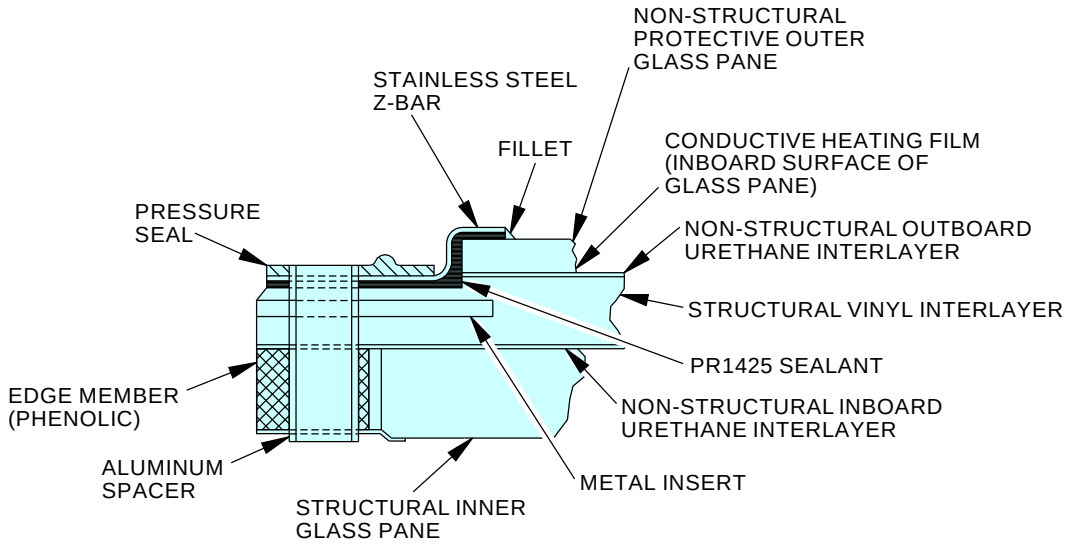
2122138 S0000457202_V2

**Flight Compartment Window Vision Terms
Figure 601/56-11-00-990-825**



WINDOW NO. 1

A

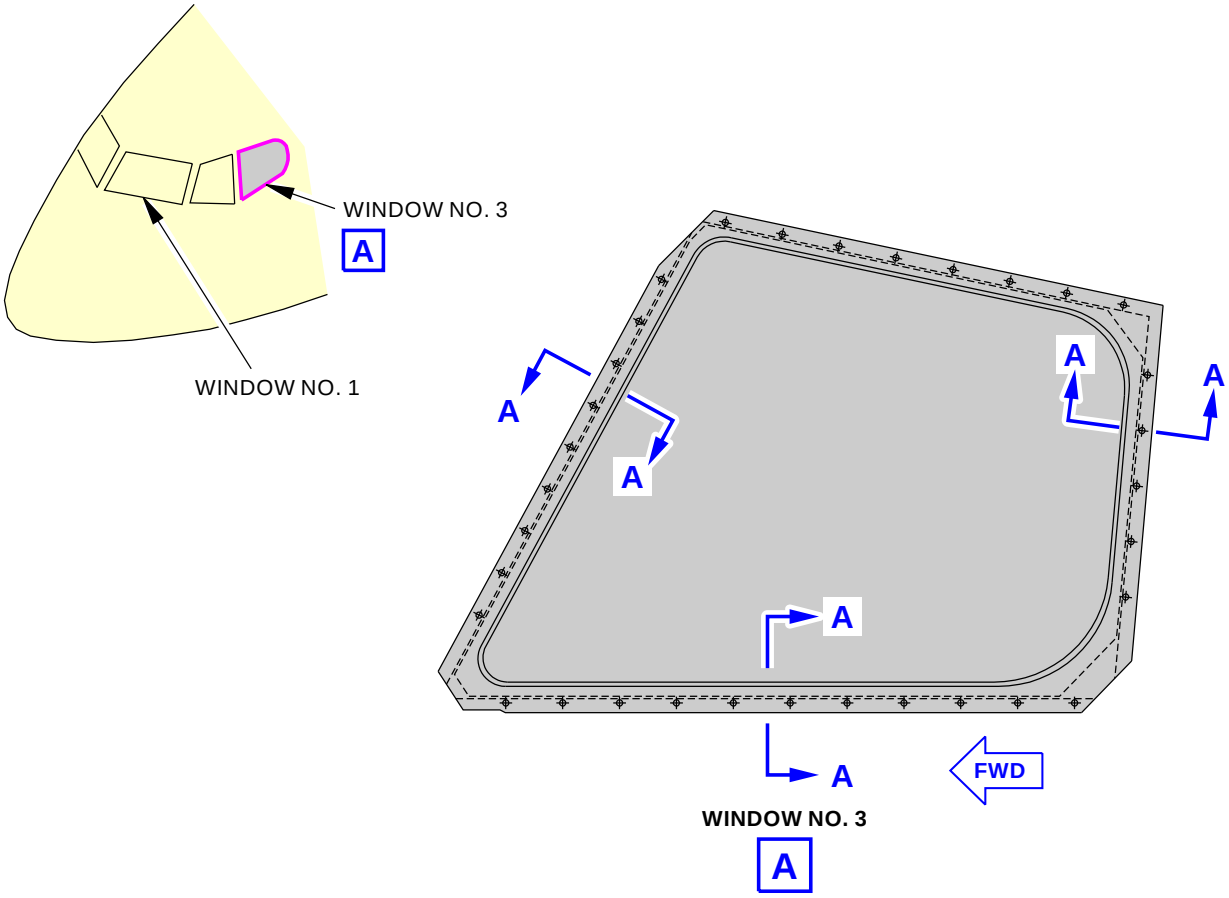


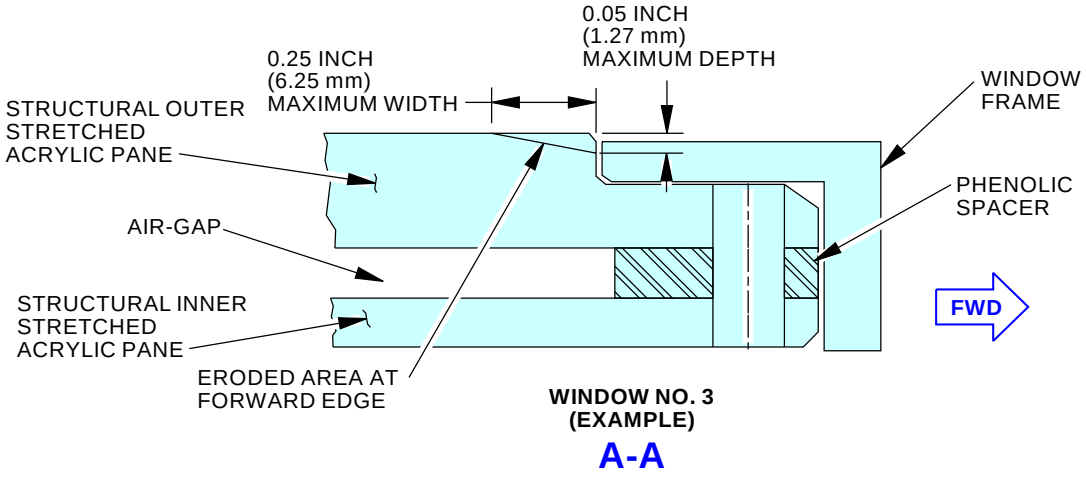
WINDOW NO. 1
(TYPICAL)

A-A

1333632 S0000235902_V2

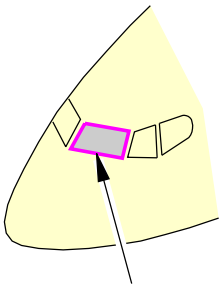
Flight Compartment Windshield
Figure 602/56-11-00-990-806





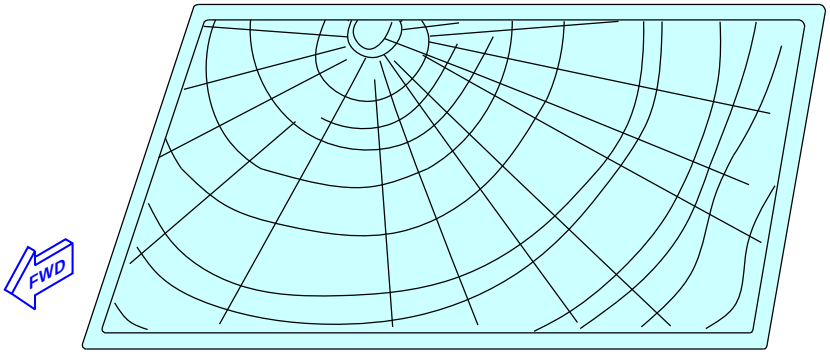
1333743 S0000235909_V3

Flight Compartment No. 3 Window - Cross Sections
Figure 603/56-11-00-990-809



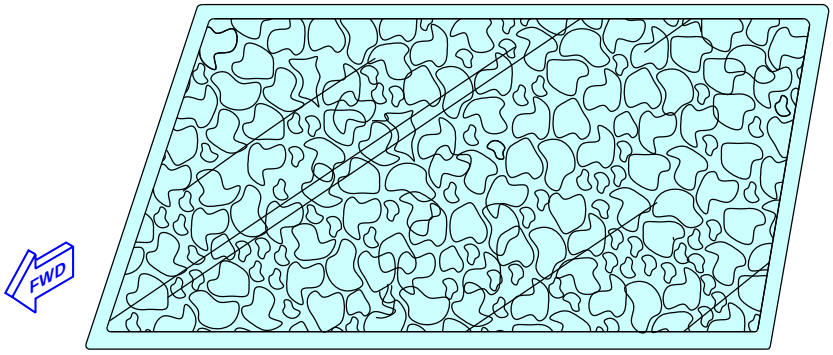
GLASS PANE CRACKS
WINDOW NO. 1

A



GLASS PANE CRACKS
(NON-STRUCTURAL)

A

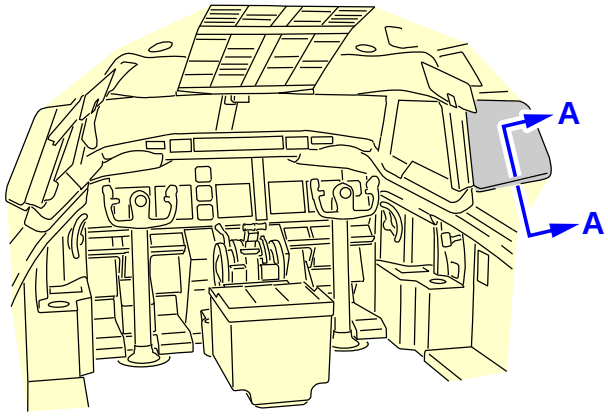


GLASS PANE CRACKS
(STRUCTURAL)

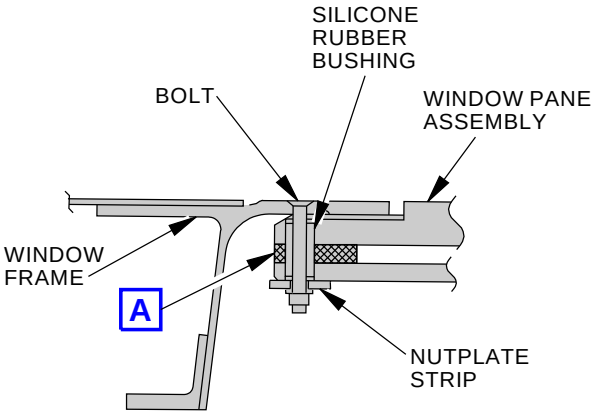
A

1331300 S0000235142_V2

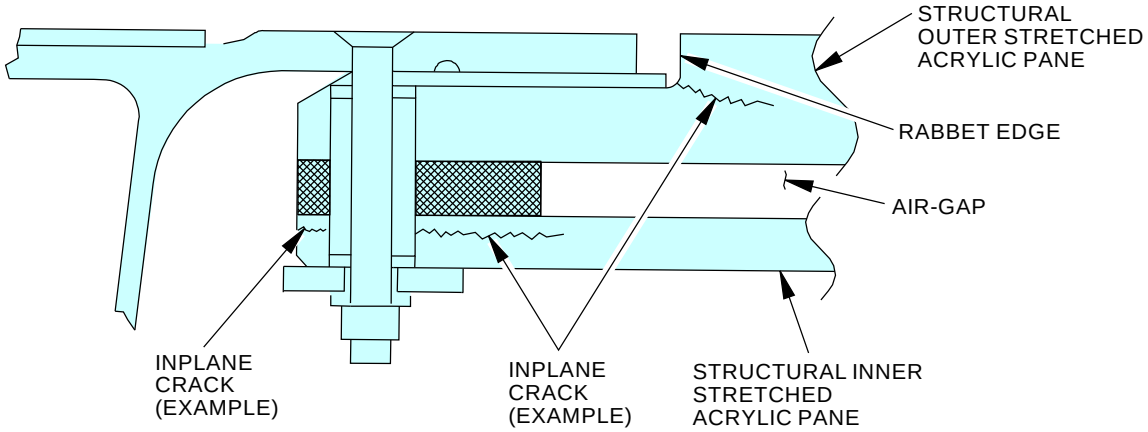
Glass Pane Cracks
Figure 604/56-11-00-990-812



FLIGHT COMPARTMENT



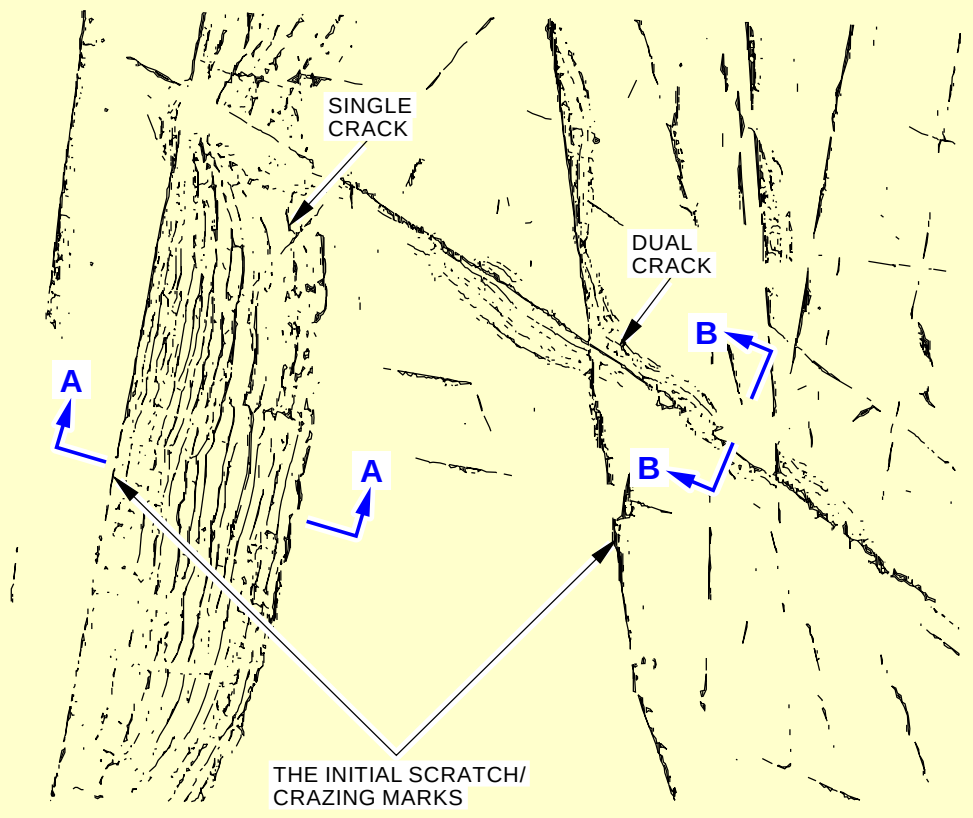
A-A



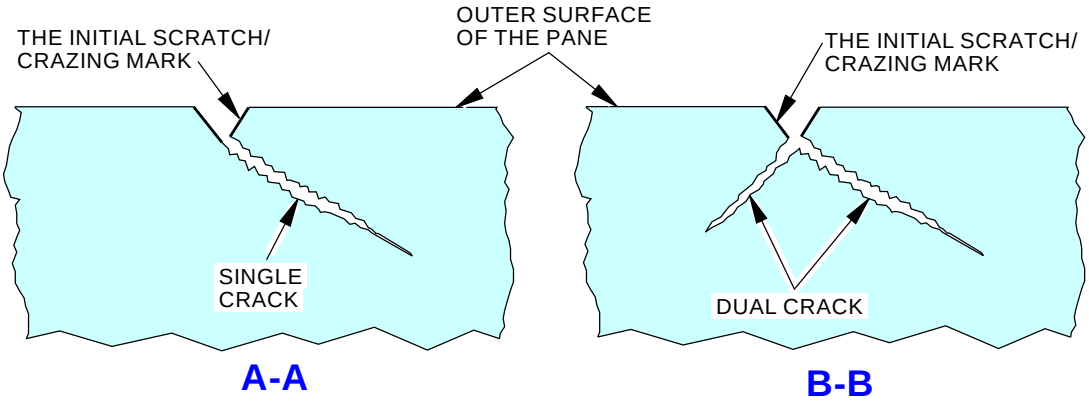
A

1333931 S0000236122_V2

Flight Compartment No. 3 Window - Acrylic Cracks
Figure 605/56-11-00-990-813 (Sheet 1 of 2)



VIEW OF WINDOW SURFACE

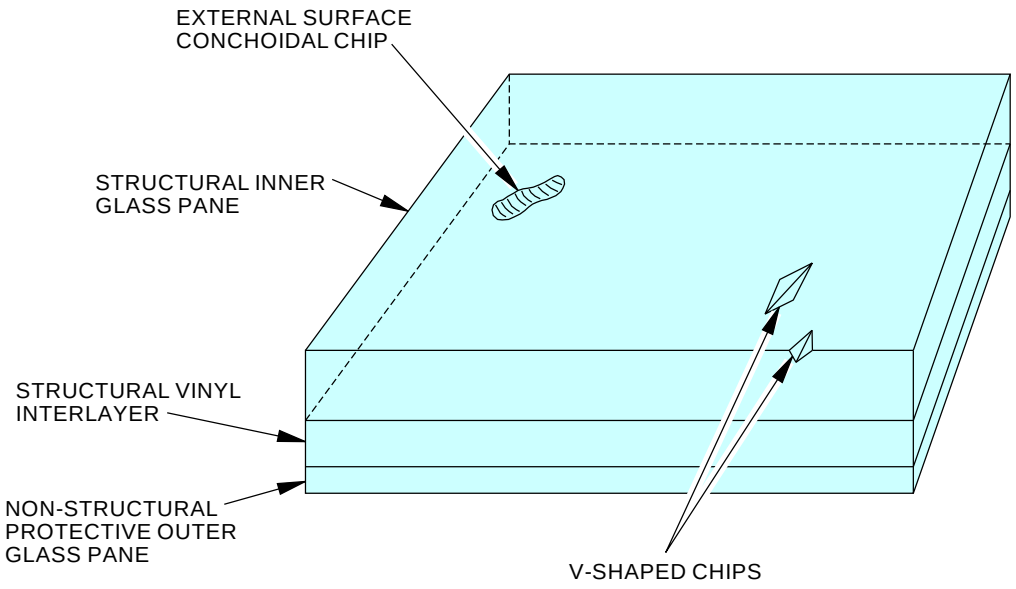


NOTE:

NOT TO SCALE.
THESE SECTION VIEWS AND ILLUSTRATIONS SHOW CRACKS THAT ARE LARGER THAN THE ACTUAL CRACKS, TO SHOW THE PROPERTIES OF CRACKS WHICH DEVELOP.

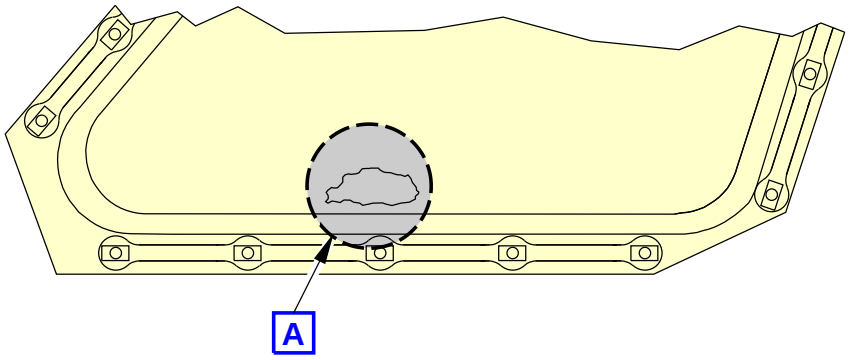
G29029 S0006581408_V2

Flight Compartment No. 3 Window - Acrylic Cracks
Figure 605/56-11-00-990-813 (Sheet 2 of 2)

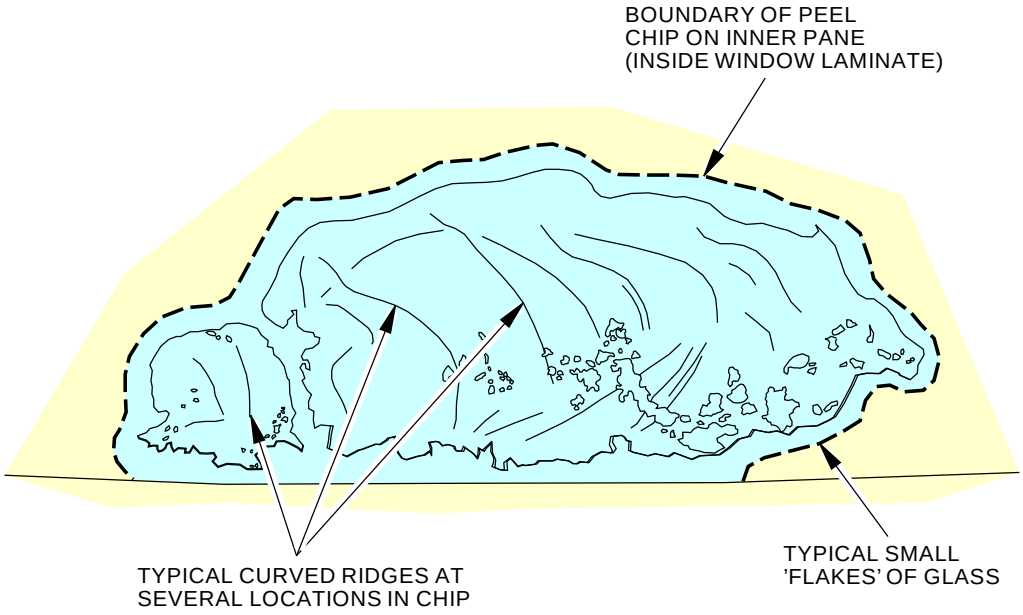


G08514 S0006581367_V3

Glass Pane Chips
Figure 606/56-11-00-990-815

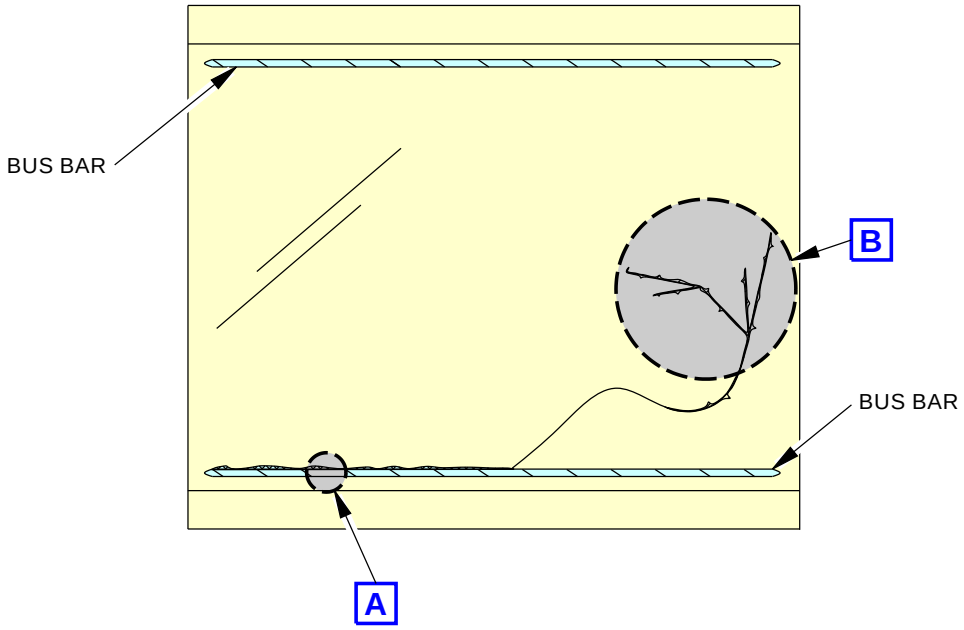


(TYPICAL)

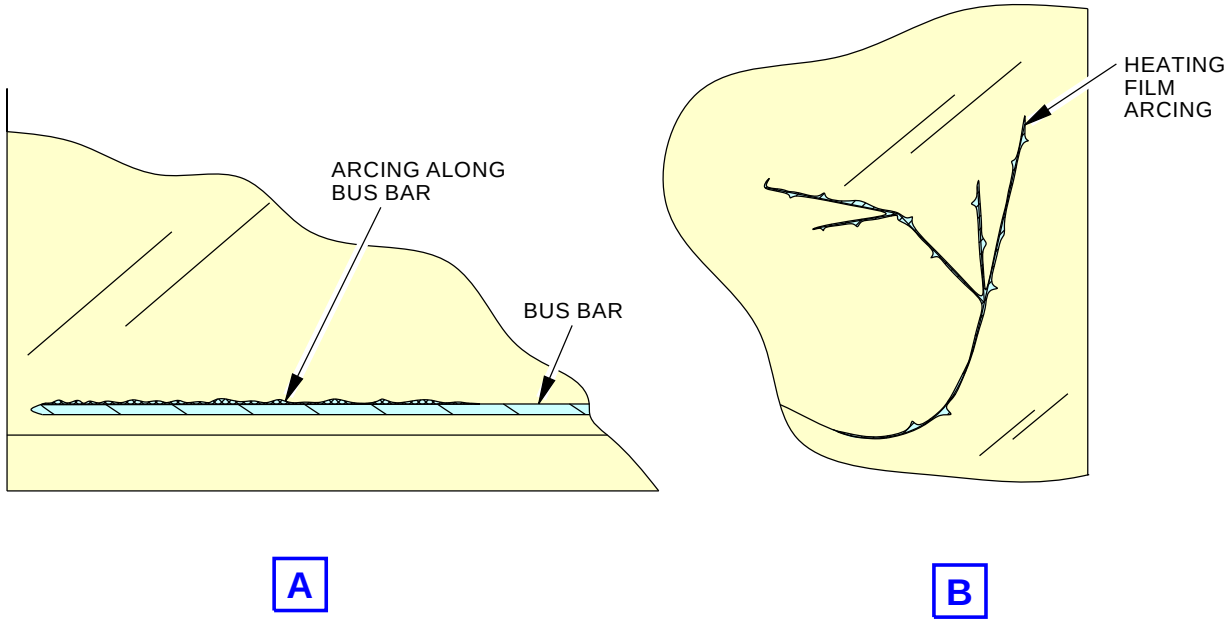


1335413 S0000236706_V2

Peel Chip
Figure 607/56-11-00-990-816

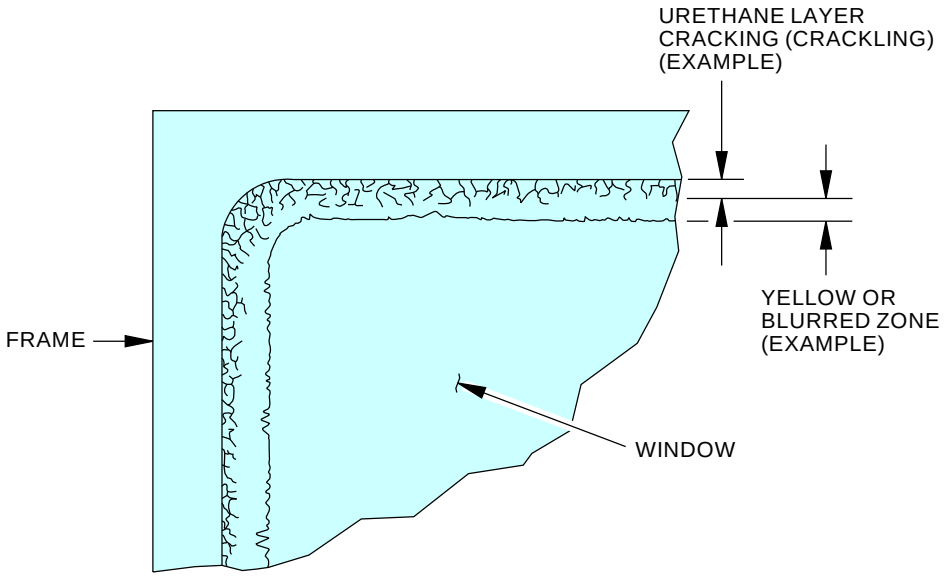


WINDOW HEAT ARCING



1348379 S0000240983_V2

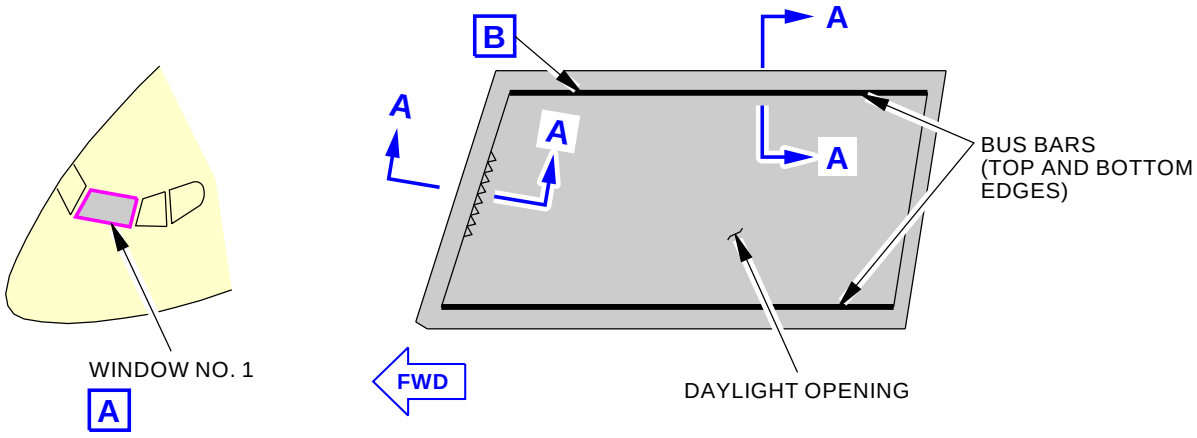
Window Heat Arcing
Figure 608/56-11-00-990-817



URETHANE INTERLAYER CRACKS

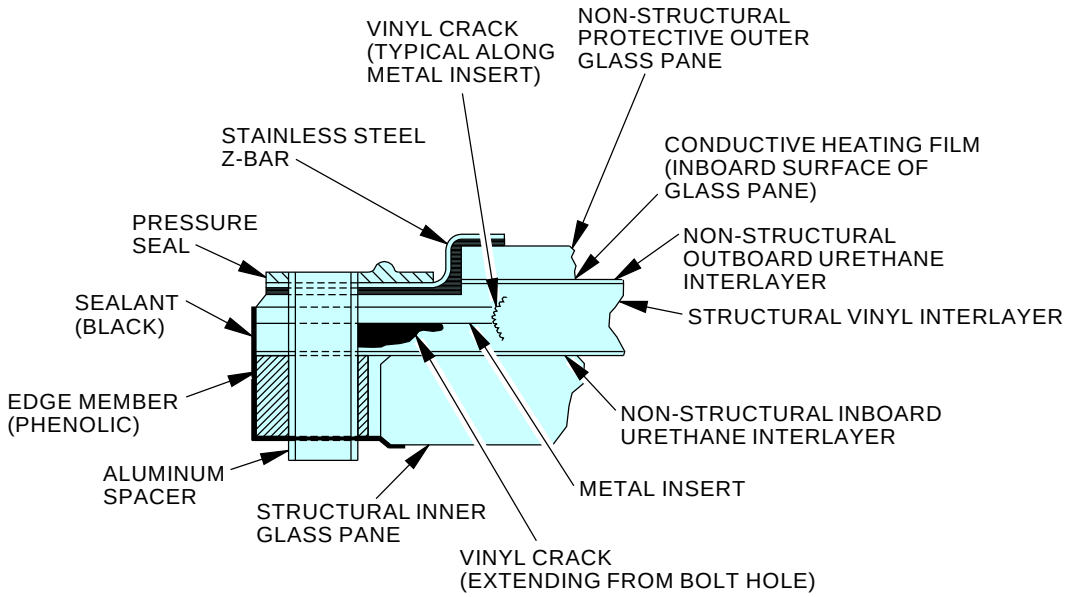
1348373 S0000240984_V2

Urethane Interlayer Cracks
Figure 609/56-11-00-990-818



WINDOW NO. 1

A

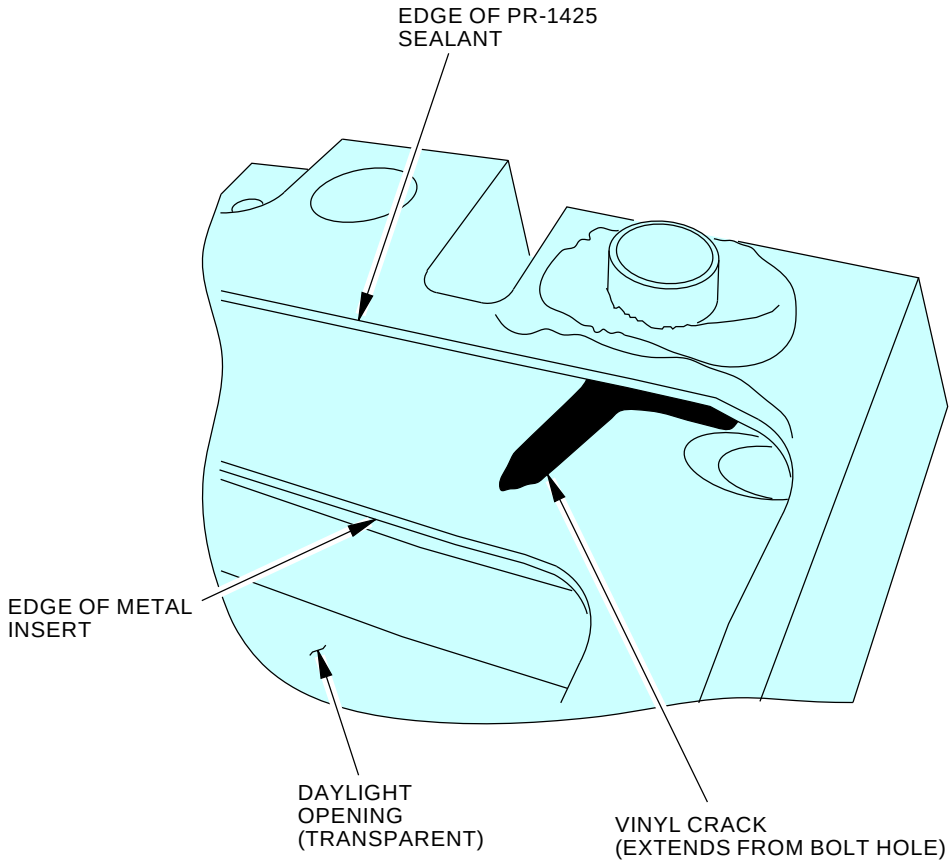


WINDOW NO. 1 VINYL CRACK (EXAMPLE)

A-A

1336225 S0000235218_V3

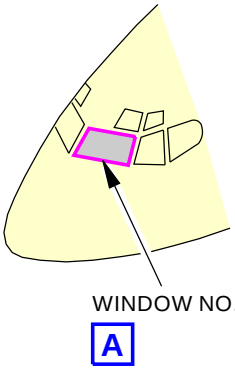
Windshield Structural Vinyl Interlayer Cracks
Figure 610/56-11-00-990-819 (Sheet 1 of 2)

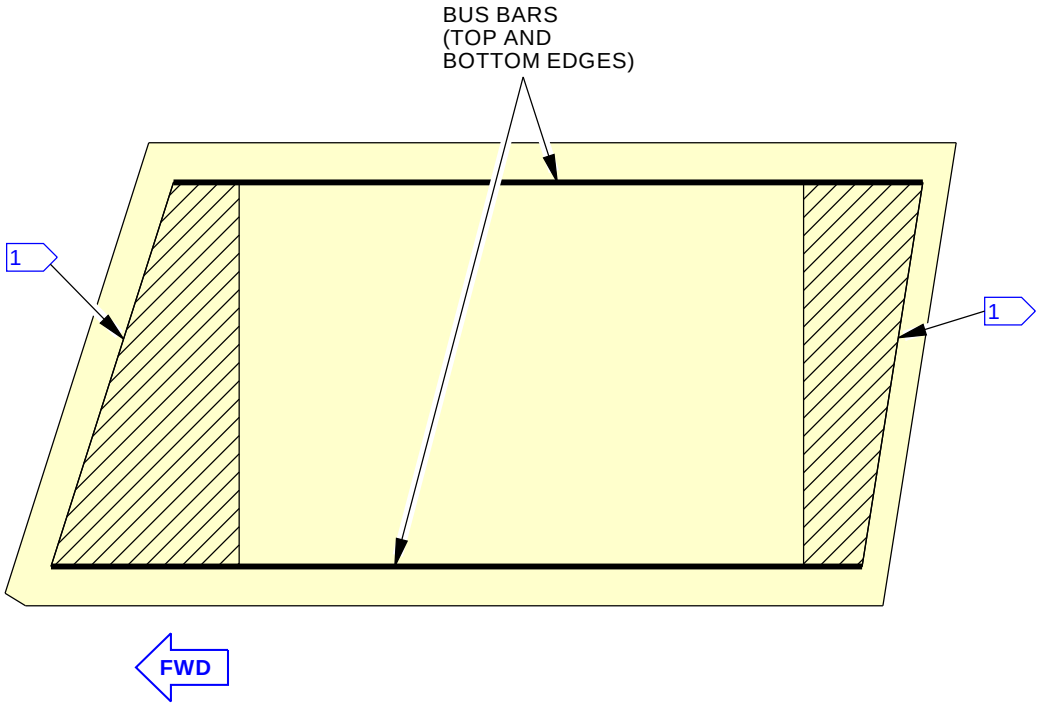


B

1337794 S0000237326_V3

Windshield Structural Vinyl Interlayer Cracks
Figure 610/56-11-00-990-819 (Sheet 2 of 2)





WINDOW NO. 1
(EXAMPLE)

A

1 POTENTIAL WINDOW HAZE IN THIS AREA.

2370892 S0000542675_V3

Windshield No.1 Haze
Figure 611/56-11-00-990-826

FLIGHT COMPARTMENT WINDOWS - REPAIRS

1. General

A. This procedure has this task:

(1) The repair of the aerodynamic smoother for the flight compartment windows.

B. There is aerodynamic smoother (sealant) around all flight compartment windows. The aerodynamic smoother can erode and have cracks.

TASK 56-11-00-300-801

2. Flight Compartment Windows - Repair of Aerodynamic Smoother

(Figure 801, Figure 802)

A. References

Reference	Title
51-31-00-160-801	Prepare For Sealing (P/B 201)

B. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant

C. Consumable Materials

Reference	Description	Specification
A00103	Sealant - Windshield And Window - PR-1425	
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A01056	Sealant - Aerodynamic - PR 1829	
A50084	Sealant - P/S 860 Class B-1/6 Quick Repair Fuel Tank Sealant	AMS-S-83318 Class B
A50454	Tape - Masking, General Purpose, Scotch 234 (Alternate to Scotch Flatback Masking Tape 250)	
B00083	Solvent - VM&P Naphthas	ASTM D-3735 Type III
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00039	Cord - Fibrous, Nylon (100 Lb Strength)	MIL-C-5040 Type IA
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, Scotch 425	AMS-T-23397 / L-T-80

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the Repair

SUBTASK 56-11-00-860-001

WARNING: THE WINDOW HEAT SYSTEM MUST BE DISARMED WHEN YOU REPAIR THE WINDOWS. IF THE WINDOW POWER IS ON, YOU CAN GET AN ELECTRICAL SHOCK WHEN YOU TOUCH THE WINDOW. THE SHOCK CAN CAUSE INJURY TO PERSONS.

(1) Move these switches on the P5 panel to the OFF position and attach DO-NOT-OPERATE tags:

(a) WINDOW HEAT L SIDE

(b) WINDOW HEAT L FWD

(c) WINDOW HEAT R SIDE

(d) WINDOW HEAT R FWD

SUBTASK 56-11-00-020-001

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
B	1	C00055	ANTI-ICE & RAIN WSHLD WIPER RIGHT
B	3	C00054	ANTI-ICE & RAIN WSHLD WIPER LEFT
AKS 001-022			
D	1	C00226	WINDOW HEAT CONTROL RIGHT FRONT AC
D	2	C00225	WINDOW HEAT CONTROL LEFT SIDE AC
E	1	C00224	WINDOW HEAT CONTROL LEFT FRONT AC
E	2	C00227	WINDOW HEAT CONTROL RIGHT SIDE AC

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
AKS ALL			
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE
B	9	C00228	WINDOW HEAT POWER LEFT FRONT

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	8	C00394	WINDOW HEAT POWER RIGHT FRONT
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

F. Repair the Aerodynamic Smoother (Sealant) and Pre-molded Seal

NOTE: This repair is applicable to the aerodynamic smoother (sealant) and Pre-molded seal.

SUBTASK 56-11-00-120-001

CAUTION: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REMOVE AND APPLY THE SEALANT. IF YOU DO NOT OBEY THE INSTRUCTIONS, DAMAGE TO THE AIRPLANE SURFACE CAN OCCUR.

CAUTION: YOU MUST USE PLASTIC TOOLS WHEN YOU REMOVE THE SEALANT. IF YOU DO NOT USE PLASTIC TOOLS, YOU CAN CAUSE DAMAGE TO THE WINDOW.

(1) Remove aerodynamic smoother in areas where the following conditions exists (Prepare For Sealing, TASK 51-31-00-160-801):

(a) Cracks

(b) Erosion

(c) Aerodynamic smoother is not bonded to the window.

SUBTASK 56-11-00-110-001

CAUTION: USE A DAMP CHEESECLOTH ONLY. IF THERE IS TOO MUCH SOLVENT ON THE CHEESECLOTH, IT COULD GO INTO THE WINDSHIELD LAMINATIONS. THIS CAN CAUSE DAMAGE TO THE WINDOW.

(2) Clean the adjacent window and frame with cotton wiper, G00034 and solvent, B00083.

SUBTASK 56-11-00-950-001

(3) Apply Scotch Flatback Masking Tape 250, G00270 (preferred) or Scotch General Purpose Masking Tape 234, A50454 (alternate) on the glass window and window frame where you will apply the new aerodynamic smoother.

(4) Install a new nylon cord, G00039 in the bottom of the gap between the fuselage and the window.

NOTE: In production the cord must be longer than the distance around the edge of the window. The ends of the cord must overlap approximately 0.5 in. (12.7 mm) with the ends in the upper aft corner.

Above practice is to better aid in common location of the cord and ease of removal of the cord (sealant) during window replacement.

Operators may deviate from this standard practice and not overlap the ends of the cord and/or position the ends of the cord other than in the upper aft corner, as they see fit.

SUBTASK 56-11-00-390-004

(5) Use one of the aerodynamic smoother sealants that follow (in sequence of preference):

(a) PR-1425 sealant, A00103 (preferred)

(b) sealant, A00247 (PRO-SEAL 870 Class B)

(c) PR 1829 sealant, A01056

NOTE: For the No. 1 and No. 2 window moisture seal repair, it is permissible to use P/S 860 B-1/6 sealant, A50084.

SUBTASK 56-11-00-390-002

(6) Mix the sealant to the manufacturer's instructions.

SUBTASK 56-11-00-390-003

(7) Use a sealant gun, STD-449 to apply the aerodynamic smoother sealant you have chosen between the frame and the glass window.

NOTE: When you apply the aerodynamic smoother sealant with the sealant gun, STD-449 you should push the sealant gun, STD-449. This will keep you from trapping air underneath the aerodynamic sealant.

(a) Apply more aerodynamic sealant than is necessary.

SUBTASK 56-11-00-860-002

(8) Smooth the aerodynamic smoother sealant to the shape that is shown in (Figure 801).

SUBTASK 56-11-00-950-002

(9) Remove the Scotch Flatback Masking Tape 250, G00270 (preferred) or Scotch General Purpose Masking Tape 234, A50454 (alternate) before the aerodynamic smoother sealant starts to get hard.

SUBTASK 56-11-00-860-003

(10) Let the aerodynamic smoother sealant cure (Figure 802).

SUBTASK 56-11-00-950-003

(11) If you must send the airplane before the sealant fully cures, do the step that follows:

(a) Apply Scotch 425 Aluminum Foil Tape, G00291 on the top of the aerodynamic smoother.

SUBTASK 56-11-00-950-004

(12) Remove the Scotch 425 Aluminum Foil Tape, G00291 after the aerodynamic smoother has fully cured.

G. Put the Airplane Back to Its Usual Condition

SUBTASK 56-11-00-840-001

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
B	1	C00055	ANTI-ICE & RAIN WSHLD WIPER RIGHT
B	3	C00054	ANTI-ICE & RAIN WSHLD WIPER LEFT
AKS 001-022			
D	1	C00226	WINDOW HEAT CONTROL RIGHT FRONT AC
D	2	C00225	WINDOW HEAT CONTROL LEFT SIDE AC
E	1	C00224	WINDOW HEAT CONTROL LEFT FRONT AC
E	2	C00227	WINDOW HEAT CONTROL RIGHT SIDE AC

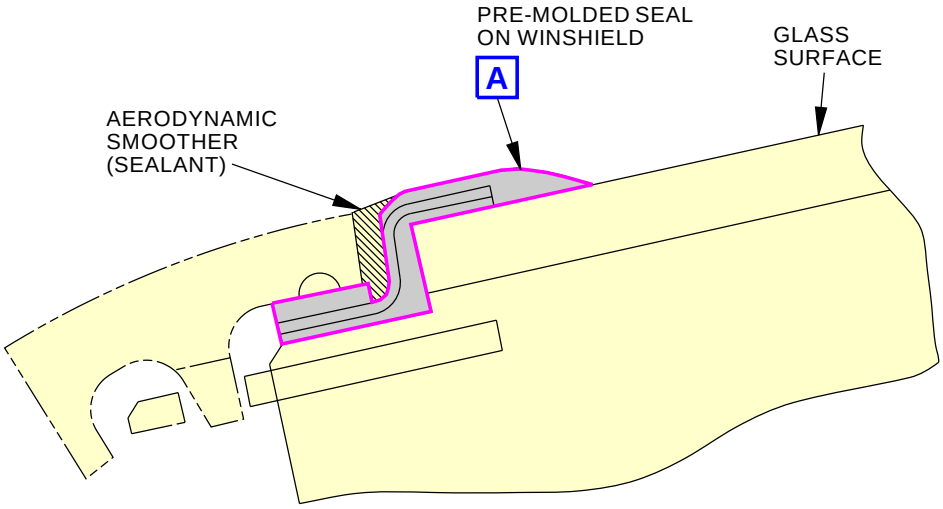
F/O Electrical System Panel, P6-11

Row	Col	Number	Name
AKS ALL			
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE
B	9	C00228	WINDOW HEAT POWER LEFT FRONT

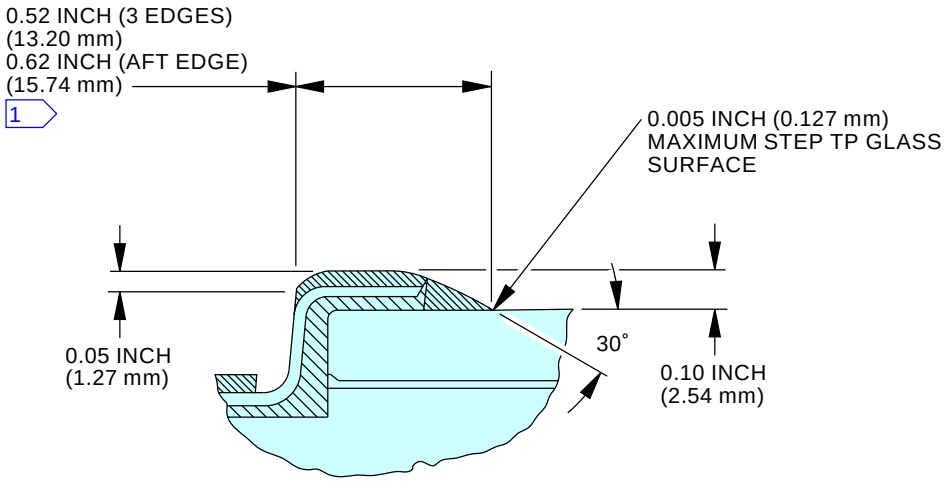
F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	8	C00394	WINDOW HEAT POWER RIGHT FRONT
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

——— END OF TASK ———



SEALANT SHAPE WINDOW NO. 1



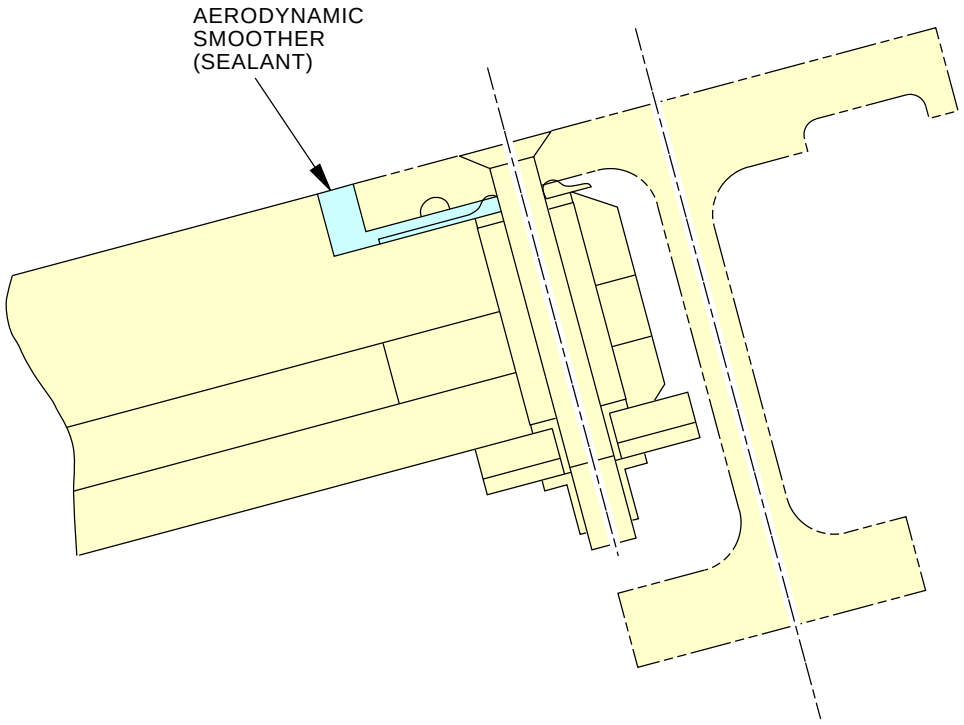
PRE-MOLDED SEAL ON WINSHIELD

A

1 SHOWN DIMENSIONS WILL VARY IN CORNERS TO PROVIDE SMOOTH TRANSITION BETWEEN EDGES.

G08304 S0006581372_V4

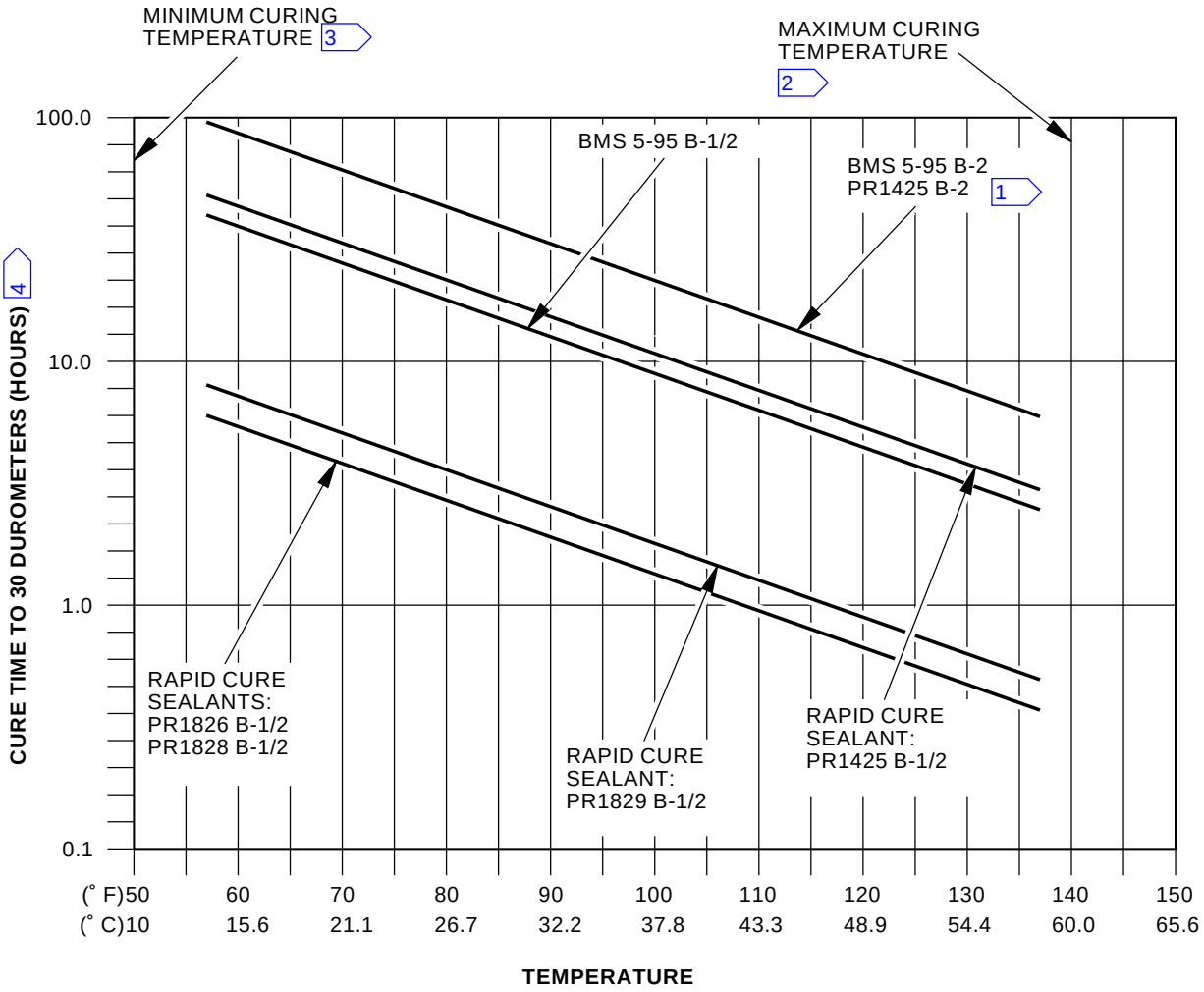
Aerodynamic Smoother Application
Figure 801/56-11-00-990-801 (Sheet 1 of 2)



SEALANT SHAPE - WINDOW NO. 3

J99212 S0000190421_V2

Aerodynamic Smoother Application
Figure 801/56-11-00-990-801 (Sheet 2 of 2)



1 FOR SHOP HANDLING AND FLY AWAY

2 DO NOT CURE SEALANT ABOVE 140˚ F(60˚ C)

3 DO NOT CURE SEALANT BELOW 50˚ F (10˚ C)

4 REX A DUROMETER READING OF 30

G08328 S0006581373_V3

Sealant Cure Times
Figure 802/56-11-00-990-802

NO. 1 WINDOW - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Removal of the No. 1 Window

(2) Installation of the No. 1 Window

TASK 56-11-11-000-801

2. No. 1 Window Removal

A. References

Reference	Title
22-11-34-000-801	DFCS Mode Control Panel Removal (P/B 401)
25-11-21-000-801	Flight Compartment Forward Ceiling Panel Removal (P/B 201)
30-42-31-000-801	Windshield Wiper Arm Removal (P/B 201)
31-62-12-000-801	EFIS Control Panel Removal (P/B 401)
WDM 31-62-11	Wiring Diagram Manual
WDM 31-62-21	Wiring Diagram Manual

B. Consumable Materials

Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G02173	Paper - Wrapping, Chemically Neutral (Non-Corrosive)	MIL-DTL-17667 (Supersedes MIL-P-17667)

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 56-11-11-862-001

WARNING: REMOVE POWER FROM THE WINDOW HEAT SYSTEM BEFORE YOU INSTALL THE WINDOWS. POWER CAN CAUSE ELECTRICAL SHOCKS WHEN YOU TOUCH THE WINDOW. ELECTRICAL SHOCK CAN CAUSE INJURIES TO PERSONNEL.

(1) Move these switches on the P5-9 pilot's overhead panel to the OFF position and attach DO-NOT-CLOSE tags:

(a) WINDOW HEAT L FWD

(b) WINDOW HEAT R FWD

(c) WINDOW HEAT L SIDE

(d) WINDOW HEAT R SIDE

SUBTASK 56-11-11-865-001

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
B	1	C00055	ANTI-ICE & RAIN WSHLD WIPER RIGHT
B	3	C00054	ANTI-ICE & RAIN WSHLD WIPER LEFT
AKS 001-022			
D	1	C00226	WINDOW HEAT CONTROL RIGHT FRONT AC
D	2	C00225	WINDOW HEAT CONTROL LEFT SIDE AC
E	1	C00224	WINDOW HEAT CONTROL LEFT FRONT AC
E	2	C00227	WINDOW HEAT CONTROL RIGHT SIDE AC

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
AKS ALL			
A	9	C00308	CONTROL CABIN LIGHTING MAP & KIT
A	10	C00309	CONTROL CABIN LIGHTING OBS READING

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE
B	9	C00228	WINDOW HEAT POWER LEFT FRONT

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	8	C00394	WINDOW HEAT POWER RIGHT FRONT
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

SUBTASK 56-11-11-950-006

(3) Install a protective wrapping paper, G02173, cover with Scotch Flatback Masking Tape 250, G00270 to the two sides of the window assembly.

(a) Minimize the use of Scotch Flatback Masking Tape 250, G00270 to the edge of the window.

SUBTASK 56-11-11-010-001

(4) Do this task: Flight Compartment Forward Ceiling Panel Removal, TASK 25-11-21-000-801.

SUBTASK 56-11-11-020-010

(5) Remove the center post cover screws.

SUBTASK 56-11-11-020-011

(6) Disconnect the following drain tubes:

(a) Left Drain Tube (if installed - non HUD airplanes)

(b) Center Drain Tube

(c) Right Drain Tube

SUBTASK 56-11-11-020-012

(7) Remove the screws that attach the window sill cover to the frame.

SUBTASK 56-11-11-020-013

(8) Remove the window sill cover.

SUBTASK 56-11-11-020-014

(9) Remove the glareshield as follows:

(a) Do this task: DFCS Mode Control Panel Removal, TASK 22-11-34-000-801.

(b) Do this task: EFIS Control Panel Removal, TASK 31-62-12-000-801.

(c) Remove the lower glareshield covers.

(d) If necessary, disconnect the chart lights and headphone jacks.

(e) Remove the glareshield from the support frame as follows:

1) Remove the quarter-turn fasteners [2] from the glareshield.

2) Remove the glareshield from the support frame.

3) Disconnect the electrical connectors from the left and right side of the support frame and attach covers to the connectors and receptacles.

4) Disconnect the quick-disconnect strap jumper assembly on the support frame.

5) Disconnect the EFIS control panel electrical connectors (D3993 and D3995) and ground wires (GD701-DC and GD703-DC), from the support frame (WDM 31-62-11, WDM 31-62-21).

(f) Remove the bolts that attach the left and right support frame attach brackets to the window sill.

(g) Remove the glareshield support bracket.

(h) Remove the demist outlet and outboard glareshield support bracket as follows:

1) Remove the demist outlet attach screws.

2) Move the demist outlet to gain access to the window screws.

3) Remove the bolts that attach the outboard glareshield support bracket.

CAUTION: DO NOT DISCONNECT THE WIRING TO THE CENTER INSTRUMENT PANEL.

(i) Remove the fasteners from the center engine instrument panel.

NOTE: This will provide clearance for the glareshield.

(j) Move the panel down and as far aft as possible.

(k) Remove the glareshield brackets or clips, as required.

1) Support the glareshield.

2) Remove the four screws from each of the two inboard glareshield support frame brackets.

3) Lift the aft edge of the glareshield.

4) Disconnect the antifogging ducts from the nozzles.

5) Remove the glareshield from the cockpit.

SUBTASK 56-11-11-010-004

(10) If necessary, disconnect the sunshade support rod above the window drain tube clamps at the window post on the airplane centerline.

NOTE: You must move the drain tubes to one side to permit the removal of the window.

SUBTASK 56-11-11-020-018

(11) Disconnect the electrical wires to the power terminals and the sensor terminals.

(a) Remove the screw and ring lug that attach the wire to the terminal.

NOTE: Shipside wiring is attached with a screw and ring lug to the terminal.

(b) Disconnect the electrical wire.

SUBTASK 56-11-11-020-030

(12) Remove the screw [29], lock washer [28], washer [27], bonding jumper [26], from terminal [14] (two places).

SUBTASK 56-11-11-020-019

(13) Do this task: Windshield Wiper Arm Removal, TASK 30-42-31-000-801.

SUBTASK 56-11-11-020-020

(14) Remove the aerodynamic smoother from the free end of the nylon cord in the top aft corner of the window.

SUBTASK 56-11-11-020-021

(15) Pull the nylon cord from the window to remove the aerodynamic smoother.

NOTE: Pull the cord parallel to the window frame. This will help stop the cord from breaking before it is fully removed.

E. Remove the No. 1 window.

SUBTASK 56-11-11-020-022

(1) Remove the following components:

NOTE: Make a note of all the parts and their locations to make the installation easier. Refer to the IPC for new parts and their location.

(a) window bolts [8], [9], [13], [17], [19], and [25],

(b) the nutplate strips [2], [3], [4] and [5],

(c) nuts [10] and [18],

(d) spacer [21],

(e) washers [11], [15] and [16],

(f) o-rings [12] and [23].

SUBTASK 56-11-11-020-023

(2) Open an adjacent sliding window and remove the retaining angle bolts from the doubler, the retaining angle and the window frame post.

NOTE: Keep the retaining angle bolts and the retaining angle with the doubler for installation.

NOTE: The retaining angle cannot be removed until the windshield is out of the window frame.

SUBTASK 56-11-11-020-024

WARNING: MAKE SURE NOT TO DROP THE WINDOW. THE WINDOW IS HEAVY. IF YOU DROP IT YOU CAN CAUSE DAMAGE TO THE WINDOW AND THE AIRPLANE AND INJURY TO PERSONS.

(3) Apply hand pressure to the outer side of the window to break the pressure seal.

NOTE: This procedure requires two persons, one on the inside and one on the outside of the airplane.

NOTE: Always apply pressure to the largest area possible. You can tap the window with a rubber mallet and nonmetallic block if it is particularly difficult to remove. Do not permit the window to fall free when you break the pressure seal. Remove the spacers and the silicone rubber molded-in-position seal with the window assembly.

SUBTASK 56-11-11-020-025

(4) Remove the window.

END OF TASK

TASK 56-11-11-400-801

3. No. 1 Window Installation

A. General

(1) This procedure is for the installation of the No. 1 window.

B. References

Reference	Title
05-51-91-790-801	Cabin Pressure Leak Test (P/B 201)
12-16-02 P/B 301	FLIGHT COMPARTMENT WINDOWS - SERVICING
22-11-34-400-801	DFCS Mode Control Panel Installation (P/B 401)
25-11-21-400-801	Flight Compartment Forward Ceiling Panel Installation (P/B 201)
30-41-00-710-801	Window Heat System - Operational Test (P/B 501)
30-41-21-000-801	Check the Electrical Resistance of the Window Heat Film (P/B 501)
30-41-21-760-802	Check the Electrical Resistance of the Window Heat Film (P/B 501)
30-42-31-400-801	Windshield Wiper Arm Installation (P/B 201)
31-62-12-400-801	EFIS Control Panel Installation (P/B 401)
56-11-00-200-803	Inspect the Flight Compartment Windows (P/B 601)
56-11-00-300-801	Flight Compartment Windows - Repair of Aerodynamic Smoother (P/B 801)
WDM 30-41-11	Wiring Diagram Manual
WDM 31-62-11	Wiring Diagram Manual
WDM 31-62-21	Wiring Diagram Manual

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-1550	Bonding Meters - Approved, Intrinsically Safe (Approved for use in Class I, Divisions I & II hazardous (classified) locations. Outside these hazardous locations, COM-614 can be used in lieu of COM-1550). Part #: C15292 (MODEL T477W) Supplier: 01014 Part #: M1 Supplier: 3AD17 Opt Part #: M1B Supplier: 3AD17
STD-449	Gun - Sealant
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic
STD-3911	Brush - Bristle, Medium Nylon

D. Consumable Materials

Reference	Description	Specification
A00103	Sealant - Windshield And Window - PR-1425	
A00230	Compound - Electrical Insulating Coating	BMS5-37
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00708	Sealant - Fast Curing, 2-Part - PR-1828	AMS 3277

(Continued)

Reference	Description	Specification
A01056	Sealant - Aerodynamic - PR 1829	
A50048	Sealant - PR-1436-G Sprayable Corrosion Inhibitive Sealant	MIL-S-81733
A50052	Sealant - PR-1826 Class B Rapid Curing Fuel Tank Sealant	SAE AMS3277 Class B
A50084	Sealant - P/S 860 Class B-1/6 Quick Repair Fuel Tank Sealant	AMS-S-83318 Class B
A50205	Adhesive - PR-142 Adhesion Promoter (One-Part Compound)	
B00083	Solvent - VM&P Naphthas	ASTM D-3735 Type III
B50073	Alcohol - Isopropyl	ASTM D 770
B50095	Solvent	BAC5750
B50225	Solvent - Citra-Safe (Deodorized)	
B50226	Solvent - Citra-Safe	
C50005	Coating - Chemical Conversion - Alodine 1200S	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00039	Cord - Fibrous, Nylon (100 Lb Strength)	MIL-C-5040 Type IA
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, Scotch 425	AMS-T-23397 / L-T-80
G02173	Paper - Wrapping, Chemically Neutral (Non-Corrosive)	MIL-DTL-17667 (Supersedes MIL-P-17667)
G50072	Gasket - Knitted Aluminum Alloy Wire Mesh - Tecknit 20-21112	
G50360	Seal - Closed Cell Silicone Foam Rubber, Hydraulic Fluid Resistant (with Adhesive)	BMS1-68 Grade A Form III

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Prepare to Install the Window.

SUBTASK 56-11-11-210-014

(1) Do a Visual inspection of the serviceable Window No.1 (Inspect the Flight Compartment Windows, TASK 56-11-00-200-803).

SUBTASK 56-11-11-420-009

(2) Put the new bolts and nuts in groups for the installation.

NOTE: It is recommended that new hardware be installed. If new hardware is not available, the old hardware can be installed if in good condition. Before you can use the old hardware, examine the condition and clean off any contamination.

SUBTASK 56-11-11-210-010

(3) Examine the leveling compound for the window and repair it if necessary (TASK 56-11-00-300-801).

NOTE: The spacer will compress the leveling compound on the structure around the end of the spacer. You do not have to repair the compound on subsequent window installations.

SUBTASK 56-11-11-210-011

(4) Do a visual check of the window post and the window sill for cracks and corrosion.

SUBTASK 56-11-11-210-012

(5) Examine the windshield for its electrical resistance.

(a) For windshields that are new, examine the corner of the windshield near the bus bar terminal for the window resistance code.

1) Record the window resistance code.

NOTE: The window resistance code is located on a clear decal with black markings. This code may be covered when the window is installed. It is necessary to know this code when you connect the window heat wiring.

NOTE: For windshields that are new, the window resistance check is not necessary.

(b) When a used windshield is installed, do this task: Check the Electrical Resistance of the Window Heat Film, TASK 30-41-21-000-801 or Check the Electrical Resistance of the Window Heat Film, TASK 30-41-21-760-802

1) Record the window resistance code.

NOTE: It is possible for the window resistance to change with time.

(c) For new windshields that do not have the resistance code on the corner of the windshield, do this task: Check the Electrical Resistance of the Window Heat Film, TASK 30-41-21-000-801 or Check the Electrical Resistance of the Window Heat Film, TASK 30-41-21-760-802.

1) Record the window resistance code.

NOTE: This code is necessary to determine the terminal board tap that matches the resistance measured on the connector terminal.

SUBTASK 56-11-11-950-001

(6) Cover the window with protective wrapping paper, G02173 and Scotch Flatback Masking Tape 250, G00270 or equivalent. Install the protective cover on the two sides of the window assembly.

NOTE: Do not attach Scotch Flatback Masking Tape 250, G00270 to the glass or plastic surfaces.

NOTE: If the protective tape is cut or torn, check the windshield for damage and apply new protective tape. You must align the tape with the edges of the glass panes.

SUBTASK 56-11-11-110-001

WARNING: BE VERY CAREFUL WHEN YOU USE THE ALIPHATIC NAPHTHA. ALIPHATIC NAPHTHA IS FLAMMABLE AND CAN CAUSE INJURY TO PERSONS AND DAMAGE TO EQUIPMENT.

(7) Use a clean cotton wiper, G00034 and solvent, B00083 to clean these surfaces:

NOTE: Do not let the solvent, B00083 dry on the surfaces. Clean the surfaces until there is no remaining film. Be careful to not cause damage, or change the shape of the mating surfaces.

(a) The mating surfaces of the pressure seal.

(b) The window frame.

(c) The window frame post.

SUBTASK 56-11-11-420-010

CAUTION: DO NOT INSTALL MAGNETIC OR HIGH PERMEABILITY MATERIALS IN A 20-INCH RADIUS FROM THE CENTER OF THE MAGNETIC COMPASS.

(8) Install the retaining angle and doubler loosely in position with one or two retaining angle bolts.

NOTE: These bolts must be the same as those removed. This will make sure the bolt ends do not come out to where it is possible they can touch the edge of the window glass (Figure 401).

SUBTASK 56-11-11-400-003

(9) Examine the seal, G50360 on the window. If the seal, G50360 replacement is necessary, do these steps:

NOTE: If the seal, G50360 is not available, install the window without the tape for no more than 24 months. Without the tape, the flight deck noise and moisture can increase.

(a) Remove the used seal, G50360 from the window.

(b) To clean the window, do this: FLIGHT COMPARTMENT WINDOWS - SERVICING, PAGEBLOCK 12-16-02/301.

(c) To install a new seal, G50360 to the window, do these steps:

1) Clean the surface of the window with solvent, B50095 to the area on where to install the seal, G50360. Use of citra-safe solvent, B50225 or citra-safe solvent, B50226 is not permitted. Keep the surface of the window clean before seal, G50360 installation.

NOTE: Do not let the solvents get in contact with the plastics, control cables, lubricated areas, plastic decals, paints or markings that are non–Skydrol–resistant. If the solvents get in contact with such surfaces, the parts must be rejected.

2) Remove the seal, G50360 from the roll.

3) Turn the surface of the seal, G50360 with adhesive down and cut the seal, G50360 into length. Cut only the length of seal, G50360 necessary for installation.

NOTE: The recommended dimensions for the seal, G50360 are thickness: 0.25 in. (6.35 mm), width: 0.75 in. (19.05 mm) and length: 32.5 in. (825.5 mm).

NOTE: Do not let the surface of the seal, G50360 with adhesive gets contamination with dust, dirt, lint, or grease.

4) For seal, G50360 with protective linings on the adhesive, do these steps:

a) Cut the seal, G50360 into length. Keep the other tapes for storage until its time for installation.

b) Pull the protective lining off the adhesive gradually.

5) Set the seal, G50360 at the bottom of the window, above the mating surface of the lower nut plate strip.

6) Carefully push from the center of the seal, G50360 to the edges to release the air from the seal, G50360.

7) Remove the wrinkles from the surface of the seal, G50360 and seal the edges with a roller or polyethylene.

8) Make sure to put a puncture in the seal, G50360 with a pin to remove air below the seal, G50360.

NOTE: Air can be below the tape and window surface.

a) Make sure to not put a scratch on the surface of the window where the seal, G50360 is installed.

9) Carefully push the air out with your fingers from the edge of the bubble to the puncture hole.

10) If it is necessary to remove the seal, G50360 again, make sure to clean off the adhesive on the metal surface.

a) Do the steps to clean the surface of the window, to remove and install the seal, G50360 again.

G. Install the No. 1 Window.

SUBTASK 56-11-11-420-018

(1) Install the No. 1 window as follows:

(a) Install the windshield with the nutplate strips in the window frame and the window frame post.

(b) Do a check of the minimum clearance between the outer edge of the window and the fuselage outer skin.

1) The minimum clearance is 0.0400 in. (1.0160 mm) to 0.1400 in. (3.5560 mm) between the outer edge of the windshield and the fuselage outer skin(Figure 401).

SUBTASK 56-11-11-420-020

CAUTION: YOU MUST KEEP THE MINIMUM DIMENSION BETWEEN THE RETAINING ANGLE BOLTS AND THE WINDOW PANE. YOU CAN CAUSE A CRACK IN THE INNER PANE OF THE WINDOW IF YOU DO NOT KEEP THE CORRECT DIMENSION.

(2) Put the nutplate strip assembly [2] in its position at the top of the windshield.

NOTE: When you install the bolts, temporarily tighten all of the bolts around the window with your fingers. Do not use a tool to tighten the bolts yet.

(a) Install bolt [9] to the nutplate strip assembly [2] in 24 locations (Figure 401).

1) First install the bolt in the forward corner near reference point A.

(b) Install the washer [15], the seal washer [16], the nut [10] and the bolt [17] to the top aft corner (Figure 401, View E-E).

(c) Install the spacer [21], the O-ring [12], the washer [11], the bolt [25] and the nut [10] (Figure 401, View D).

SUBTASK 56-11-11-420-021

(3) Put the nutplate strip assembly [3] in its position on the bottom of the windshield.

(a) Install the clip [24], the washer [23], the bolt [22] and the nut [10] to the nutplate strip assembly [3] (Figure 401, View E).

(b) Install the bolt [8], seal washer [16], washer [15] and the nut [18] to the bottom aft corner of the windshield (Figure 401, View F).

1) Make sure the cut edge of the washers [15] and [16] after installation is parallel to the edge of the windshield.

NOTE: The washer [15] must be a minimum of 0.02 inch (0.51 mm) away from the edge of the glass. It must not touch the glass during the fastener installation.

(c) Install bolt [19], O-ring [12], washer [15] and nut [18] in the windshield (Figure 401, View F).

SUBTASK 56-11-11-410-001

(4) Put the nutplate strip assembly [4] in its position on the bottom of the windshield.

(a) Install the bolt [8] into the nutplate strip assembly [4] at the forward corner of the windshield.

(b) Install the bolt [8], the O-ring [20], the washer [15] and the nut [18] into the nutplate strip assembly [4].

SUBTASK 56-11-11-420-022

(5) Put the nutplate strip assembly [5] in its position on the windshield.

(a) Install the bolt [9] in the nutplate strip assembly [5] in 8 locations (Figure 401, View B-B).

SUBTASK 56-11-11-220-003

(6) After you install the windshield, you must measure the dimensions as follows between the outer edge of the windshield and the fuselage outer skin (Figure 401):

(a) You must also get a dimension of 0.0400 in. (1.0160 mm) to 0.1400 in. (3.5560 mm) between the outer edge of the windshield and the fuselage outer skin along all 4 sides.

SUBTASK 56-11-11-420-024

(7) Install all the retaining angle bolts.

NOTE: To install the retaining angle bolts that attach the retaining angle on the aft window frame, open the adjacent sliding window. Install these bolts first before you tighten the bolts that are finger tight. This will let you move the bolt to align the window correctly for the installation of the other bolts.

(a) Tighten all the retaining angle bolts slowly while you adjust the window in the frame.

NOTE: You must tighten the bolts in the range of 22.50 ±2.50 in-lb (2.54 ±0.28 N·m). You must make sure to keep the minimum dimension between the bolt ends and the window pane (Figure 401).

SUBTASK 56-11-11-420-028

CAUTION: YOU MUST KEEP THE MINIMUM DIMENSION BETWEEN THE RETAINING ANGLE BOLTS AND THE WINDOW PANE. YOU CAN CAUSE A CRACK IN THE INNER PANE OF THE WINDOW IF YOU DO NOT KEEP THE CORRECT DIMENSION.

(8) Tighten all the bolts in the sequence shown (Figure 402).

NOTE: First tighten all the bolts in the corners. Tighten the 3/16 inch diameter bolts to 20 to 25 pound-inches (2.3-2.8 newton-meters). Tighten the 1/4 inch diameter bolts to 50 to 70 pound-inches (5.6-7.9 newton-meters).

SUBTASK 56-11-11-860-004

(9) Make sure that the window is installed correctly, do the cabin pressure leak test (Cabin Pressure Leak Test, TASK 05-51-91-790-801).

SUBTASK 56-11-11-950-004

(10) Apply Scotch Flatback Masking Tape 250, G00270 on the top of the outer area between the window and the skins.

NOTE: This will prevent the contamination before you install the nylon cord, G00039 and the sealant.

SUBTASK 56-11-11-950-005

(11) Remove the Scotch Flatback Masking Tape 250, G00270 immediately on the top of the area at the outer edge of the window.

NOTE: You can do this with a sharp knife. But the installed Scotch Flatback Masking Tape 250, G00270 must give protection to the edges of the clearance.

AKS ALL; NUMBER 1 WINDOW WITH EXPOSED Z-SEAL

SUBTASK 56-11-11-420-025

(12) Install the nylon cord, G00039 into the clearance around the window.

NOTE: The two ends must touch in the top aft corner of the window frame. They must make an overlap of approximately 0.5 inch.

AKS ALL

SUBTASK 56-11-11-390-001

(13) Use one of the aerodynamic smoothers that follow (in sequence of preference):

(a) PR-1425 sealant, A00103 (Preferred)

(b) sealant, A00247 (PRO-SEAL 870 Class B) (Alternative)

(c) PR 1829 sealant, A01056 (Rapid Cure) (Alternative)

(d) PR-1828 sealant, A00708 (Alternative)

(e) PR-1826 sealant, A50052 (Alternative)

(f) P/S 860 B-1/6 sealant, A50084 (Alternative)

SUBTASK 56-11-11-420-026

(14) Before you apply the sealant, do a check of the resistance between the cres zee seal and the skin with an intrinsically safe approved bonding meter, COM-1550 (Figure 401).

(a) If you measure the resistance between the cres zee seal and the skin to be 1 ohm or less, do the steps that follow:

AKS ALL; NUMBER 1 WINDOW WITH PRE-MOLDED AEROSEAL

1) Clean the gap surfaces of the structure and the pre-molded seal on the windshield with alcohol, B50073.

AKS ALL; NUMBER 1 WINDOW WITH PRE-MOLDED AEROSEAL (Continued)

2) Prime the gap surfaces with PR-142 adhesion promoter, A50205.

3) Install the nylon cord, G00039 into the clearance around the window.

NOTE: The two ends must touch in the top aft corner of the window frame. They must make an overlap of approximately 0.5 inch.

AKS ALL

CAUTION: THE SMOOTHER IS AVAILABLE WITH SEVERAL WORK LIVES TO FIT MANY DIFFERENT JOBS. YOU MUST APPLY THE SMOOTHER DURING THE WORK LIFE THAT YOU CHOOSE.

4) Slowly put the sealant in the clearance with a sealant gun, STD-449 or hardwood or plastic fillet smoothing spatula, STD-810 until the area is fully filled.

AKS ALL; NUMBER 1 WINDOW WITH PRE-MOLDED AEROSEAL

NOTE: Do not permit air to be caught in the sealant. The sealant shall not overlap the pre-molded seal more than 0.06 in. (1.52 mm).

AKS ALL; NUMBER 1 WINDOW WITH EXPOSED Z-SEAL

NOTE: Do not permit air to be caught in the sealant. Apply the sealant on the top of the bumper strip or Z-seal to overlap glass surface of the window 0.15 ± 0.03 inch (3.8 +/- 0.76 mm).

AKS ALL

a) If you must send the airplane before the sealant is fully cured, install Scotch 425 Aluminum Foil Tape, G00291 on the top of the sealant.

NOTE: Remove the Scotch 425 Aluminum Foil Tape, G00291 when the sealant is fully cured.

AKS ALL; NUMBER 1 WINDOW WITH PRE-MOLDED AEROSEAL

5) Remove the unwanted sealant while it is wet, until the sealant is level with the Scotch Flatback Masking Tape 250, G00270.

6) Allow the sealant to cure.

7) Clean the first coat of sealant with alcohol, B50073.

8) Prime the gap surfaces with PR-142 adhesion promoter, A50205.

9) Apply a second coat of the sealant.

NOTE: The second coat of sealant is to compensate for shrinkage of initial sealant.

AKS ALL

10) Remove the unwanted sealant while it is wet, until the sealant is level with the Scotch Flatback Masking Tape 250, G00270.

11) Remove the Scotch Flatback Masking Tape 250, G00270 from the edges of the clearance and protective cover from the external surface of the window.

NOTE: You can make the material that lifts at the edges of the clearance smooth with a tool.

(b) If you measure the resistance between the cres zee seal and the skin to be greater than 1 ohm with an intrinsically safe approved bonding meter, COM-1550, install the wire mesh Tecknit 20-21112 gasket, G50072 [6] as follows:

NOTE: The installation of the wire mesh Tecknit 20-21112 gasket, G50072 [6] will ground the Z-seal to the skin and will help prevent large static build-up to the window. The wire mesh Tecknit 20-21112 gasket, G50072 [6] installation will give a low resistance value.

1) Remove the finish from the edge of the structure at the midpoint on each of the four sides of the window frame.

2) Install the wire mesh Tecknit 20-21112 gasket, G50072 [6] in the four locations along the window perimeter (Figure 401).

NOTE: Any one of the four locations may be omitted if installation is difficult due to window fit up.

3) Apply Alodine 1200S coating, C50005 to the surface from where you removed the finish.

AKS ALL; NUMBER 1 WINDOW WITH PRE-MOLDED AEROSEAL

4) Clean the gap surfaces of the structure and the pre-molded seal on the windshield with alcohol, B50073.

5) Prime the gap surfaces with PR-142 adhesion promoter, A50205.

AKS ALL

6) Make sure you have installed the nylon cord, G00039 into the clearance around the perimeter of the window.

7) Install the wire mesh Tecknit 20-21112 gasket, G50072 [6] to get it to touch the zee seal and the section of the frame where you applied the Alodine 1200S coating, C50005.

CAUTION: THE SMOOTHER IS AVAILABLE WITH SEVERAL WORK LIVES TO FIT MANY DIFFERENT JOBS. YOU MUST APPLY THE SMOOTHER DURING THE WORK LIFE THAT YOU CHOOSE.

8) Slowly put the sealant in the clearance with a sealant gun, STD-449 or a hardwood or plastic fillet smoothing spatula, STD-810 until the area is fully filled.

AKS ALL; NUMBER 1 WINDOW WITH PRE-MOLDED AEROSEAL

NOTE: Do not permit air to be caught in the sealant. The sealant shall not overlap the pre-molded seal more than 0.06 in. (1.52 mm).

AKS ALL; NUMBER 1 WINDOW WITH EXPOSED Z-SEAL

NOTE: Do not permit air to be caught in the sealant. Apply the sealant on the top of the bumper strip or Z-seal, to overlap glass surface of the window 0.15 ± 0.03 inch.

AKS ALL

NOTE: If sealant is not readily available, use PR-1436-G sealant, A50048 as an alternative substitute.

a) If you must send the airplane before the sealant is fully cured, install Scotch 425 Aluminum Foil Tape, G00291 on the top of the sealant.

NOTE: Use PR 1829 sealant, A01056 if rapid cure is required for dispatch.

NOTE: Remove the Scotch 425 Aluminum Foil Tape, G00291 when the sealant is fully cured. The use of Scotch 425 Aluminum Foil Tape, G00291 is not intended for long term use but only until the sealant is cured.

AKS ALL; NUMBER 1 WINDOW WITH PRE-MOLDED AEROSEAL

9) Remove the unwanted sealant while it is wet, until the sealant is level with the Scotch Flatback Masking Tape 250, G00270.

10) Allow the sealant to cure.

11) Clean the first coat of sealant with alcohol, B50073.

12) Prime the gap surfaces with PR-142 adhesion promoter, A50205.

13) Apply a second coat of the sealant.

NOTE: The second coat of sealant is to compensate for shrinkage of initial sealant.

AKS ALL

14) Remove the unwanted sealant while it is wet until the sealant is level with the Scotch Flatback Masking Tape 250, G00270 (Figure 403).

15) Remove the Scotch Flatback Masking Tape 250, G00270 from the edges of the clearance and protective cover from the external surface of the window.

NOTE: You can make the material that lifts at the edges of the clearance smooth with a tool.

H. Put the Airplane to its Usual Condition

SUBTASK 56-11-11-760-002

CAUTION: MAKE SURE THE TRANSFORMER TAPS ATTACHED TO THE LEAD ARE THE SAME AS THE RESISTANCE OF THE WINDOW. IF THE RESISTANCE OF THE WINDOW IS NOT CORRECT, IT CAN CAUSE DAMAGE TO THE ANTI-ICING SYSTEM.

(1) Make sure the resistance of the window is the same as the transformer taps (WDM 30-41-11).

SUBTASK 56-11-11-420-011

(2) Connect the power leads to the bus bar terminals.

(a) Remove all the paint or primer from the electrical contacts before the wire installation.

(b) Connect the electrical wires to the bus bar terminals.

(c) If you use ethylene propylene O-rings on the fasteners adjacent to the bus bar terminals, cut material from the O-ring to supply a minimum clearance.

NOTE: This is not necessary if the non-conductive rubber O-rings are installed on the adjacent windshield fasteners.

(d) Apply one layer of insulating compound, A00230 on the terminals with a medium nylon bristle brush, STD-3911.

CAUTION: MAKE SURE THAT THE INSULATING BOOT IS TIGHT ON THE WINDOW HEAT TERMINAL. IF THE BOOT IS NOT TIGHT, ELECTRICAL ARCING TO THE ADJACENT STRUCTURE CAN OCCUR. THIS CAN CAUSE DAMAGE TO THE EQUIPMENT.

(e) Install the insulating boot on the terminal connection.

SUBTASK 56-11-11-400-002

(3) Install bonding jumper [26], washer [27], lock washer [28] and screw [29]. (two places).

(a) Tighten screws [29] to 20 in-lb (23 kg-cm).

SUBTASK 56-11-11-420-013

(4) Install the drain pan and the drain tube clamps at the window post on the airplane centerline.

SUBTASK 56-11-11-420-014

(5) Install the sunshade support rod at the top of the window. Connect headphone jacks and chart lights.

SUBTASK 56-11-11-420-016

(6) Install the glareshield.

(a) Install the glareshield with the aft edge of the glareshield lifted.

(b) Install the glareshield brackets or clips.

1) Attach four screws to each of the two glareshield brackets.

2) Connect the antifogging ducts to the nozzles.

(c) Move the center engine instrument panel up and forward into position.

(d) Attach the fasteners to the center engine instrument panel.

(e) Install the de-mist outlet and outboard glareshield brackets as follows:

1) Install the bolts on the outboard glareshield support bracket.

2) Move the de-mist outlet back into position.

3) Install the de-mist outlet attach screws.

(f) Install the glareshield support frame as follows:

1) Install the glareshield support bracket.

2) Install the bolts to the left and right support frame attach brackets.

3) Connect the EFIS control panel electrical connectors (D3993 and D3995) and ground wires (GD701-DC and GD703-DC) to the support frame (WDM 31-62-11, WDM 31-62-21).

4) Connect the quick-disconnect strap jumper assembly to the support frame.

5) Remove covers from connectors and receptacles and connect the electrical connectors to the left and right side of the support frame.

AKS ALL; AIRPLANES WITH TAPE ON GLARESHIELD

6) Remove the backing from the double-sided adhesive tape that is on the glareshield Figure 404.

AKS ALL

7) Attach the glareshield to the support frame.

8) Install the quarter-turn fasteners [2] to the glareshield.

(g) Connect the chart light and headphone jacks.

1) Test the lights that had been disconnected.

(h) Install the lower glareshield covers.

(i) Do this task: EFIS Control Panel Installation, TASK 31-62-12-400-801.

(j) Do this task: DFCS Mode Control Panel Installation, TASK 22-11-34-400-801.

SUBTASK 56-11-11-420-029

(7) Reconnect the following drain tubes:

(a) Left Drain Tube (if installed - non HUD airplanes)

(b) Center Drain Tube

(c) Right Drain Tube

1) Make sure that the panduit strap head is rotated forward and not lobed aft.

NOTE: This will prevent visibility from the pilot's side.

SUBTASK 56-11-11-420-017

(8) Do this task: Flight Compartment Forward Ceiling Panel Installation, TASK 25-11-21-400-801.

SUBTASK 56-11-11-950-003

(9) Remove the protective covers from the surface of the window.

SUBTASK 56-11-11-800-006

(10) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
B	1	C00055	ANTI-ICE & RAIN WSHLD WIPER RIGHT
B	3	C00054	ANTI-ICE & RAIN WSHLD WIPER LEFT
AKS 001-022			
D	1	C00226	WINDOW HEAT CONTROL RIGHT FRONT AC
D	2	C00225	WINDOW HEAT CONTROL LEFT SIDE AC
E	1	C00224	WINDOW HEAT CONTROL LEFT FRONT AC
E	2	C00227	WINDOW HEAT CONTROL RIGHT SIDE AC

F/O Electrical System Panel, P6-3

Row	Col	Number	Name
AKS ALL			
A	9	C00308	CONTROL CABIN LIGHTING MAP & KIT
A	10	C00309	CONTROL CABIN LIGHTING OBS READING

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE
B	9	C00228	WINDOW HEAT POWER LEFT FRONT

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	8	C00394	WINDOW HEAT POWER RIGHT FRONT
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

SUBTASK 56-11-11-800-007

(11) Remove the DO-NOT-CLOSE tags from these switches on the pilot's overhead panel:

(a) WINDOW HEAT L FWD

(b) WINDOW HEAT R FWD

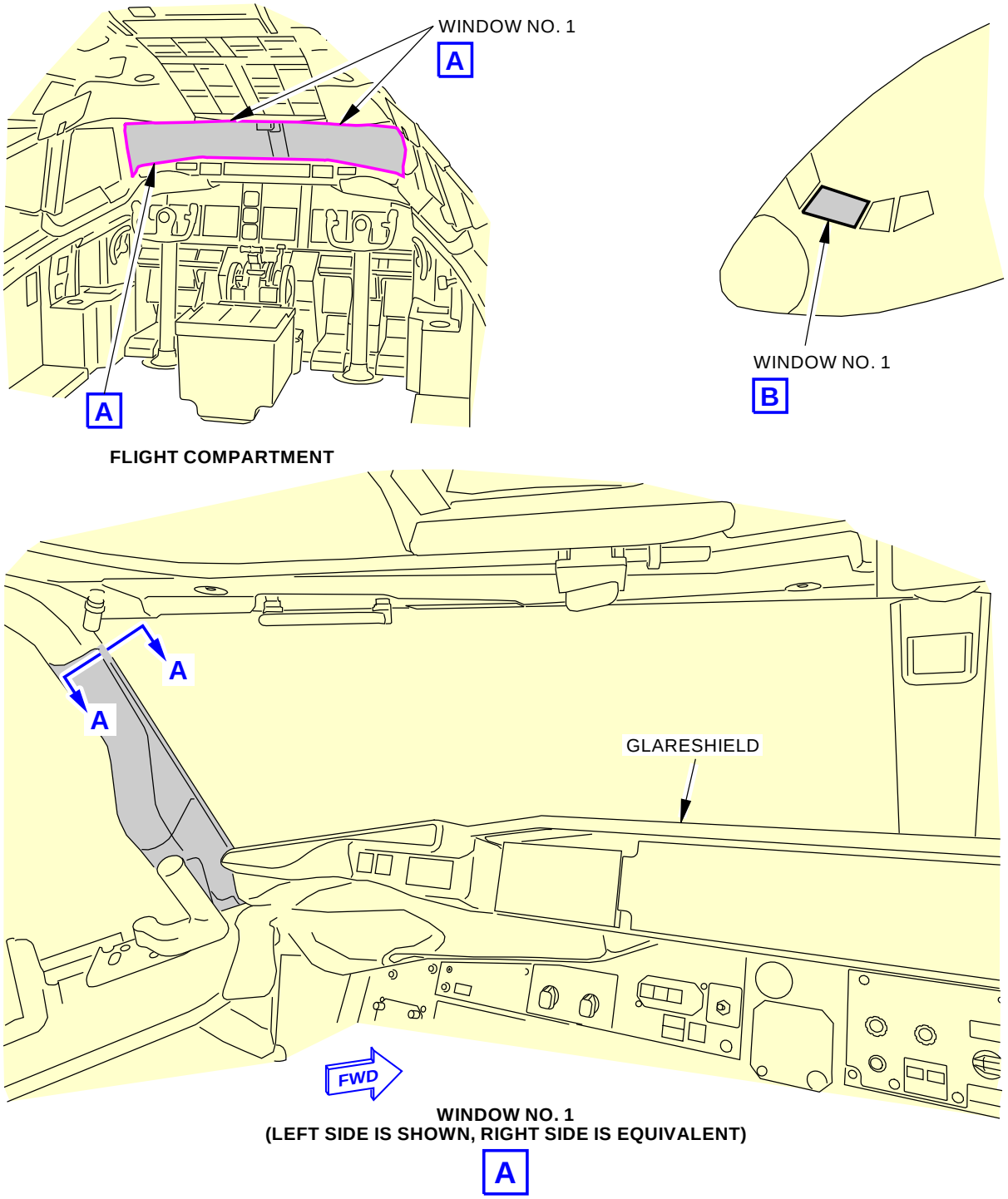
SUBTASK 56-11-11-710-001

(12) Do this task: Window Heat System - Operational Test, TASK 30-41-00-710-801.

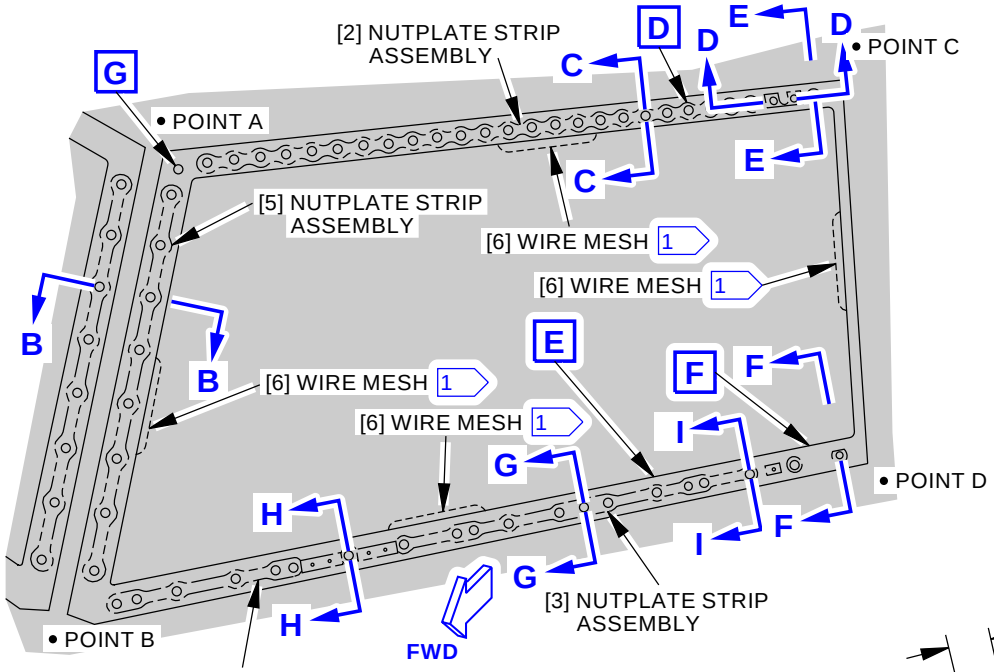
SUBTASK 56-11-11-820-001

(13) Do this task: Windshield Wiper Arm Installation, TASK 30-42-31-400-801.

——— END OF TASK ———

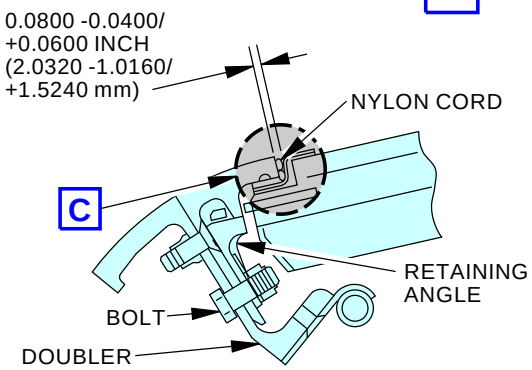


Window No. 1 Installation
Figure 401/56-11-11-990-802 (Sheet 1 of 8)

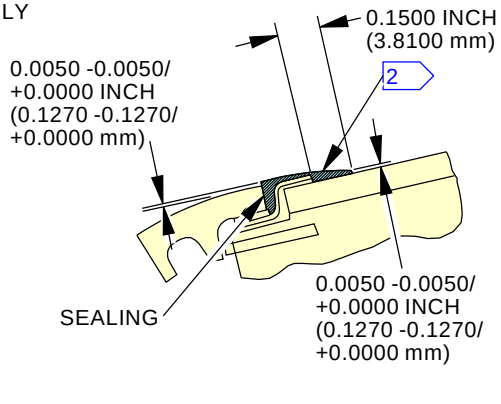


WINDOW NO. 1

B

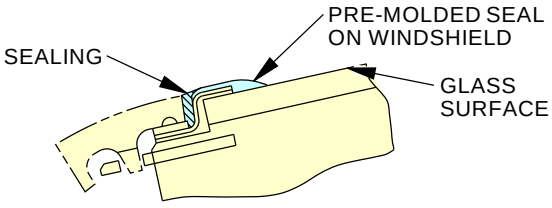


A-A



(WINDOWS WITH EXPOSED Z-SEAL)

C



(WINDOWS WITH PRE-MOLDED SEAL)

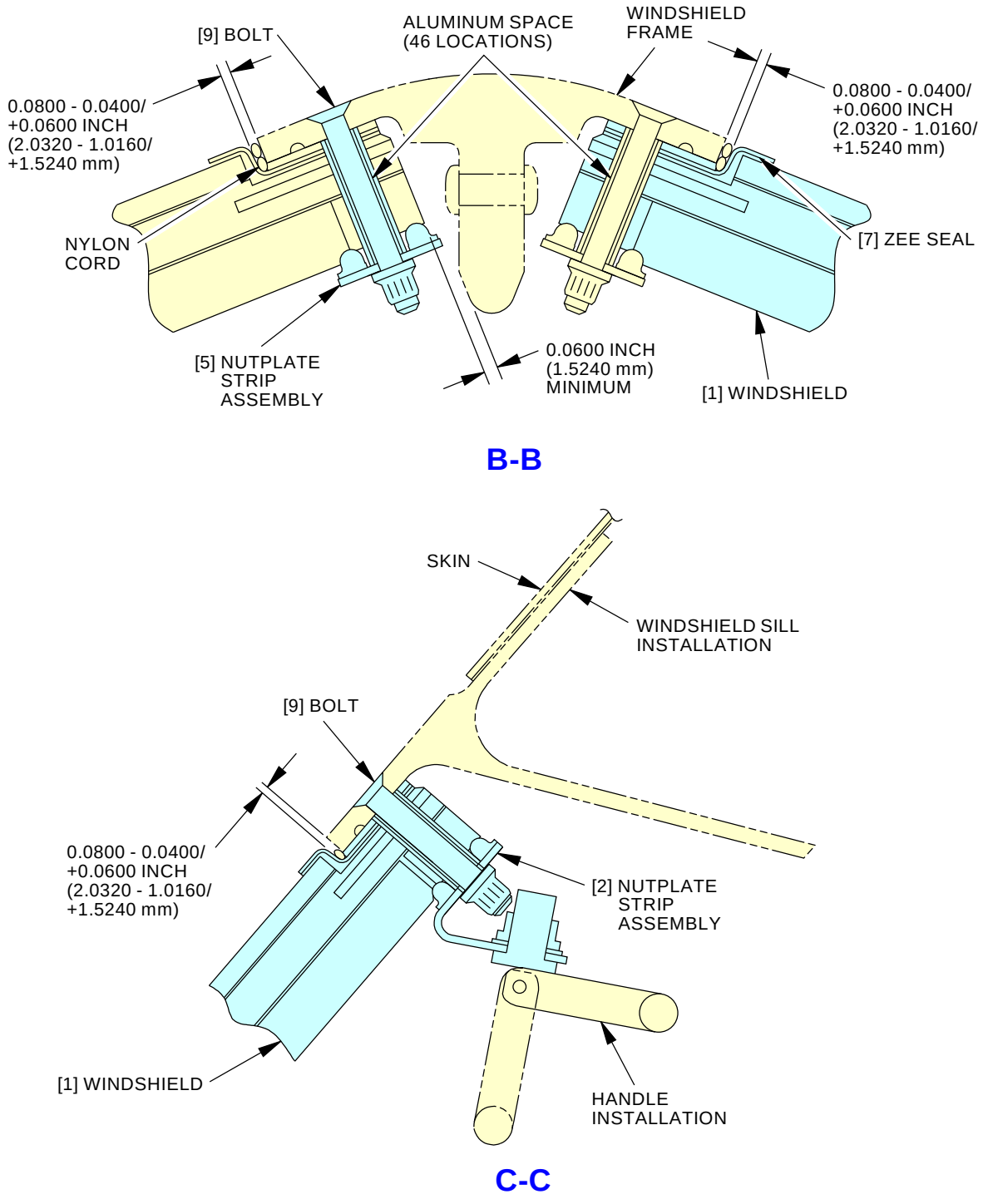
C

1 IF RESISTANCE IS GREATER THAT ONE OHM THEN INSTALL WIRE MESH.

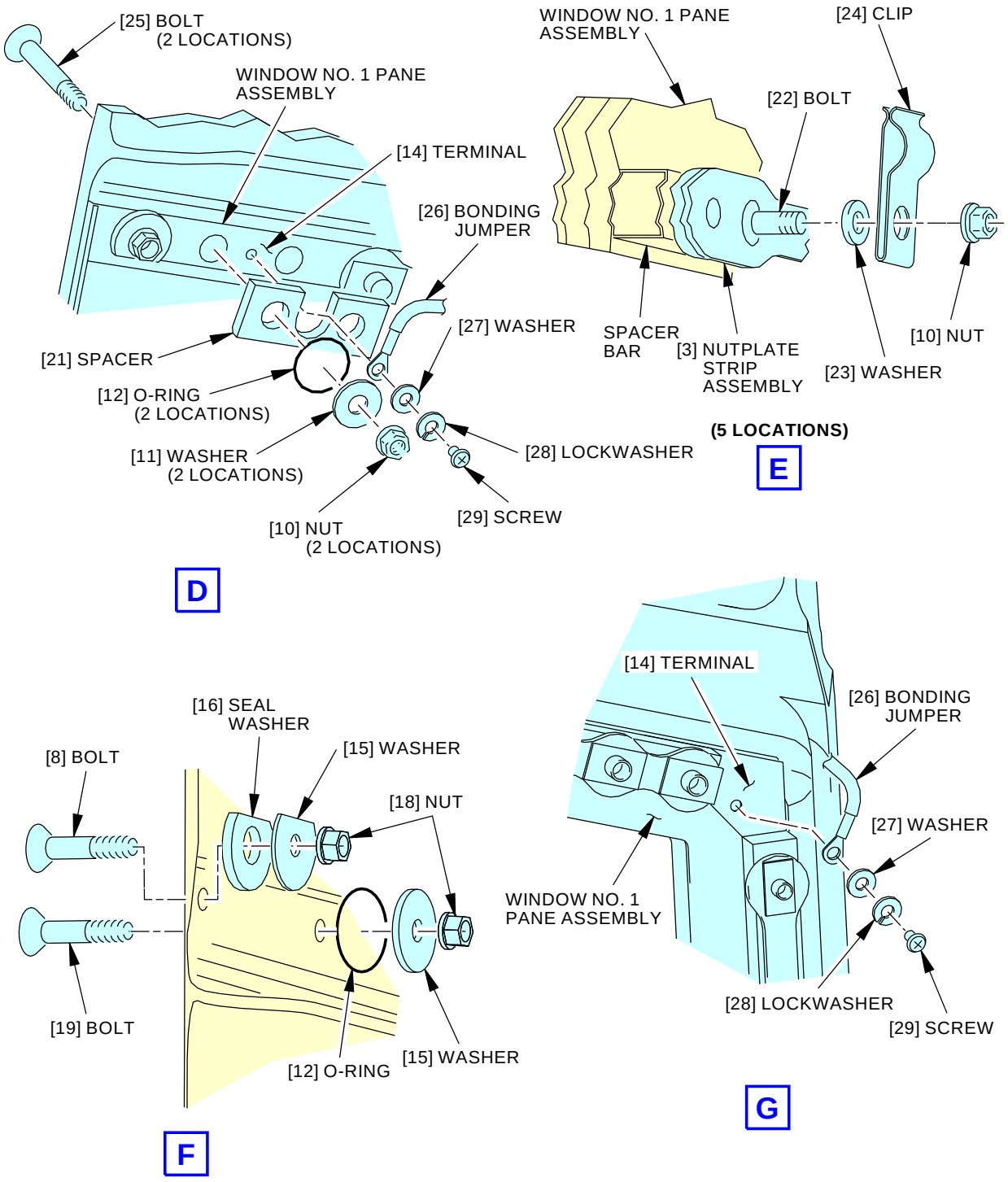
2 CAUTION: MUST BE FLAT AND SMOOTH TO WITHIN ±0.010 INCH (±0.254 mm).

G30716 S0006581380_V6

Window No. 1 Installation
Figure 401/56-11-11-990-802 (Sheet 2 of 8)

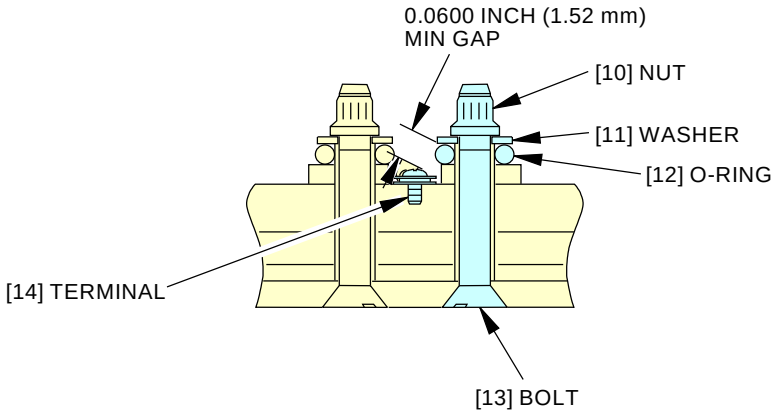


Window No. 1 Installation
Figure 401/56-11-11-990-802 (Sheet 3 of 8)

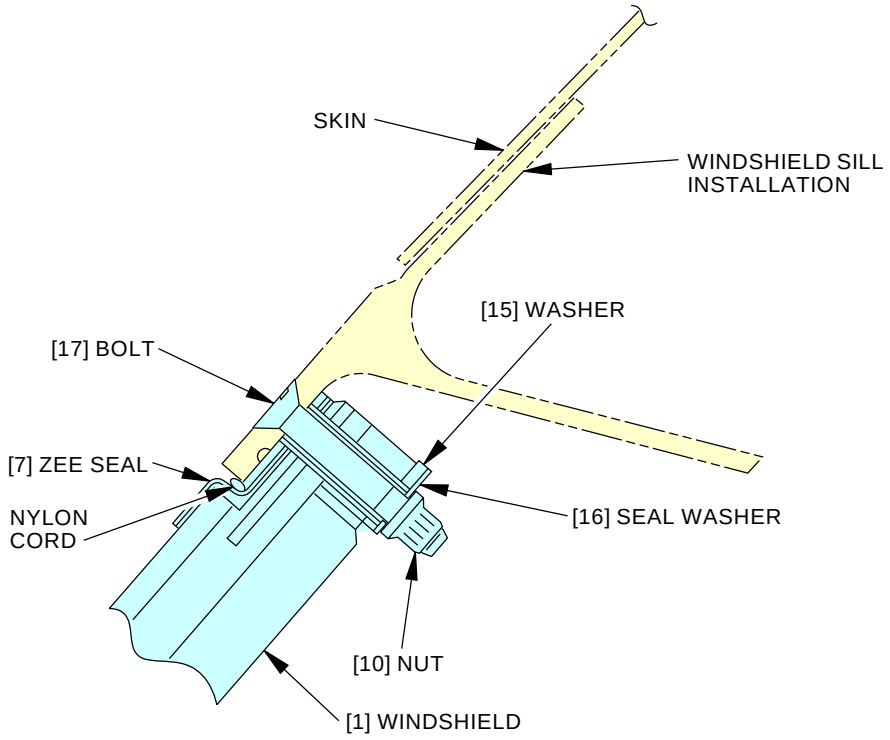


G29450 S0006581384_V1

Window No. 1 Installation
Figure 401/56-11-11-990-802 (Sheet 4 of 8)



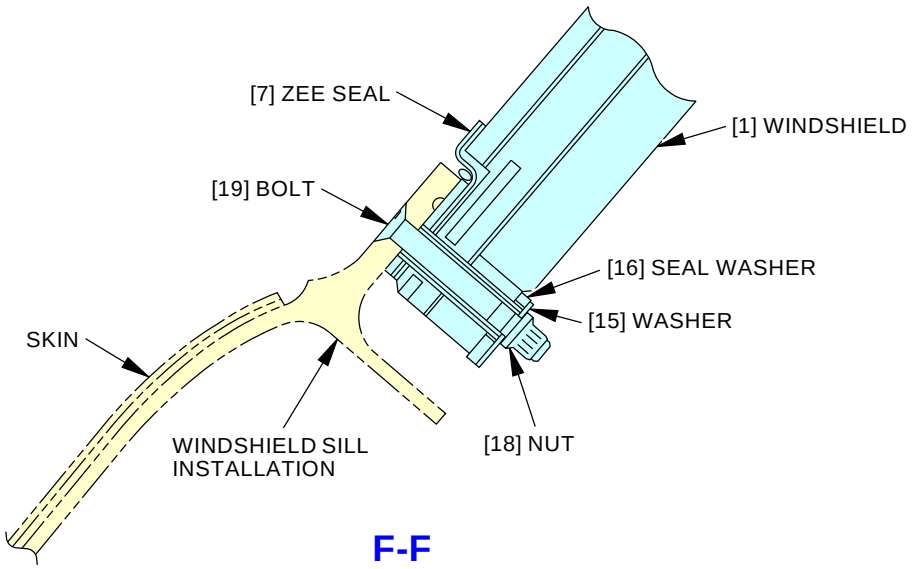
D-D

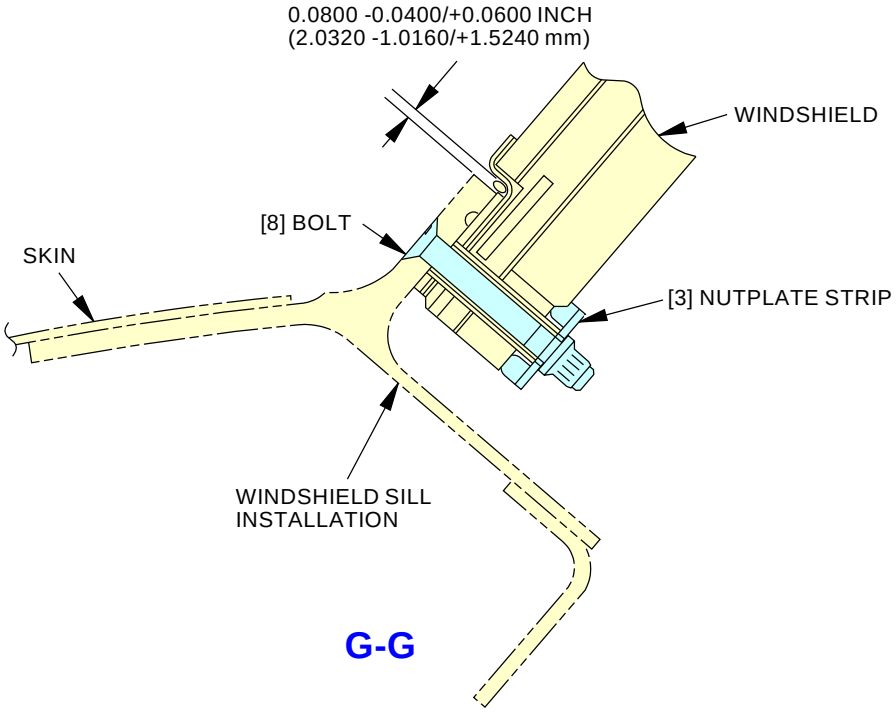


E-E

G32864 S0006581385_V3

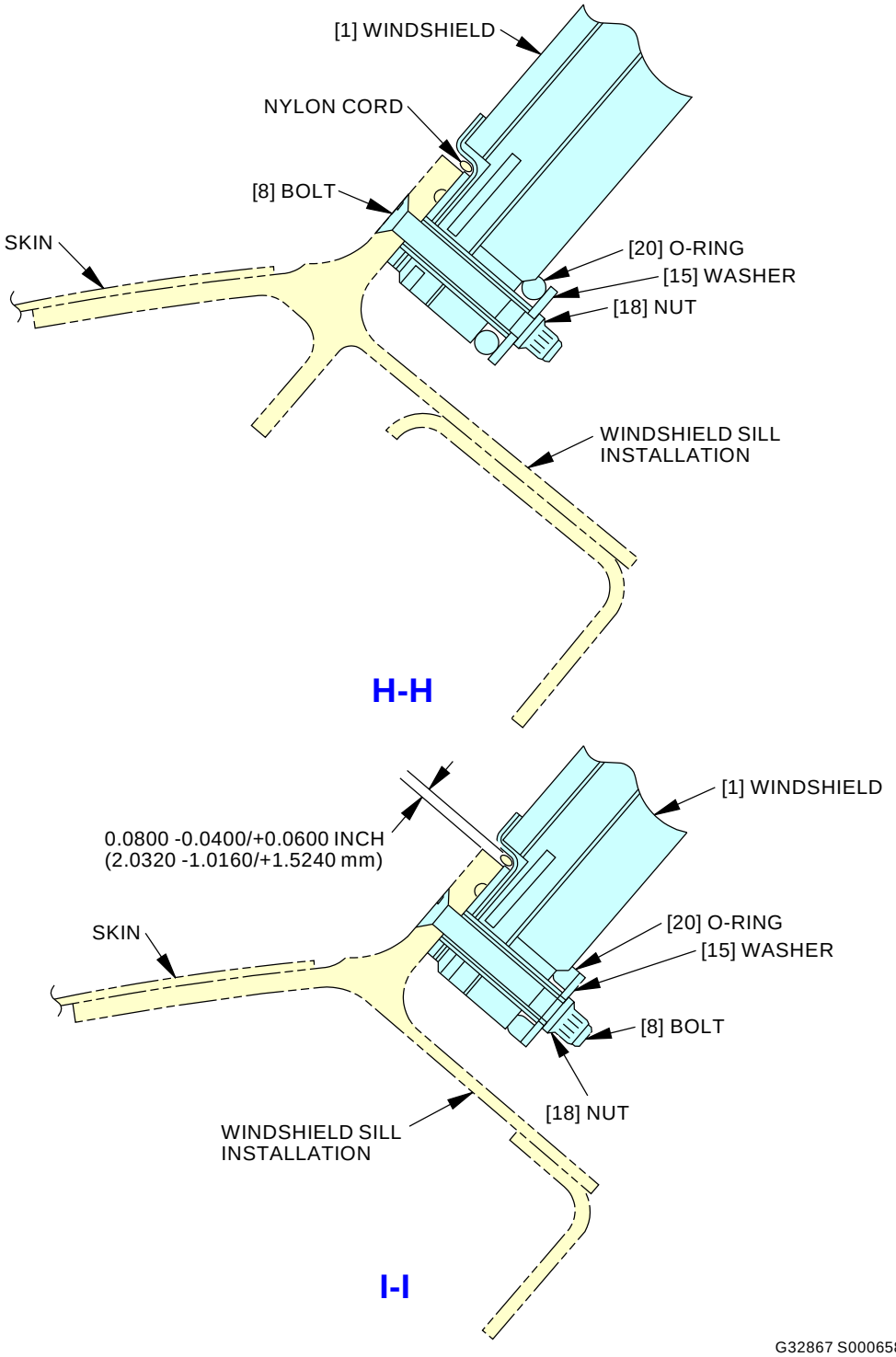
Window No. 1 Installation
Figure 401/56-11-11-990-802 (Sheet 5 of 8)



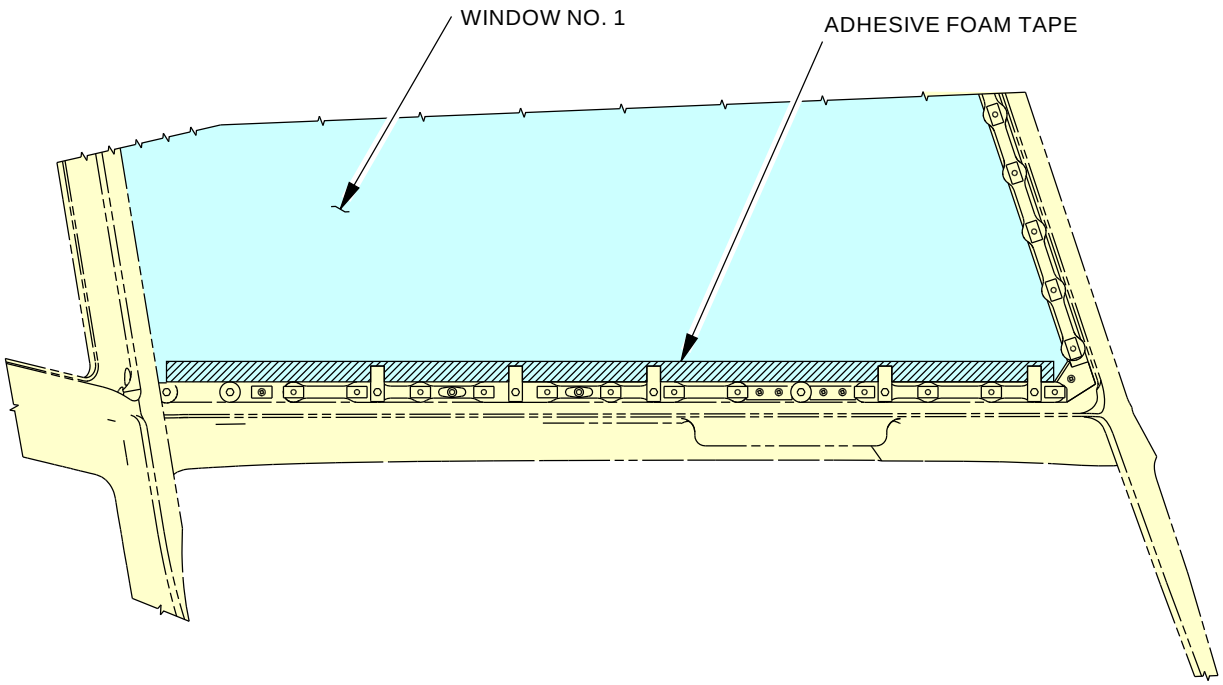


G32866 S0006581386_V3

Window No. 1 Installation
Figure 401/56-11-11-990-802 (Sheet 6 of 8)



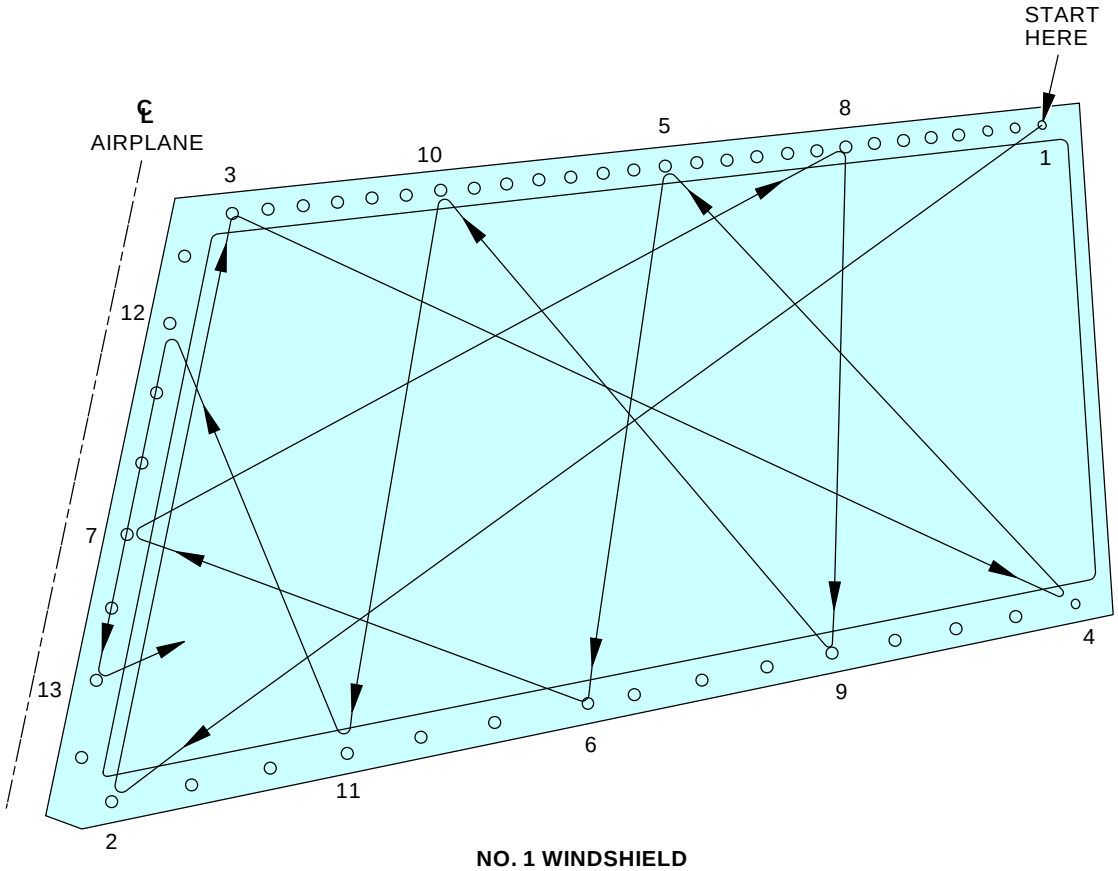
Window No. 1 Installation
Figure 401/56-11-11-990-802 (Sheet 7 of 8)



H

2343449 S0000533303_V2

Window No. 1 Installation
Figure 401/56-11-11-990-802 (Sheet 8 of 8)



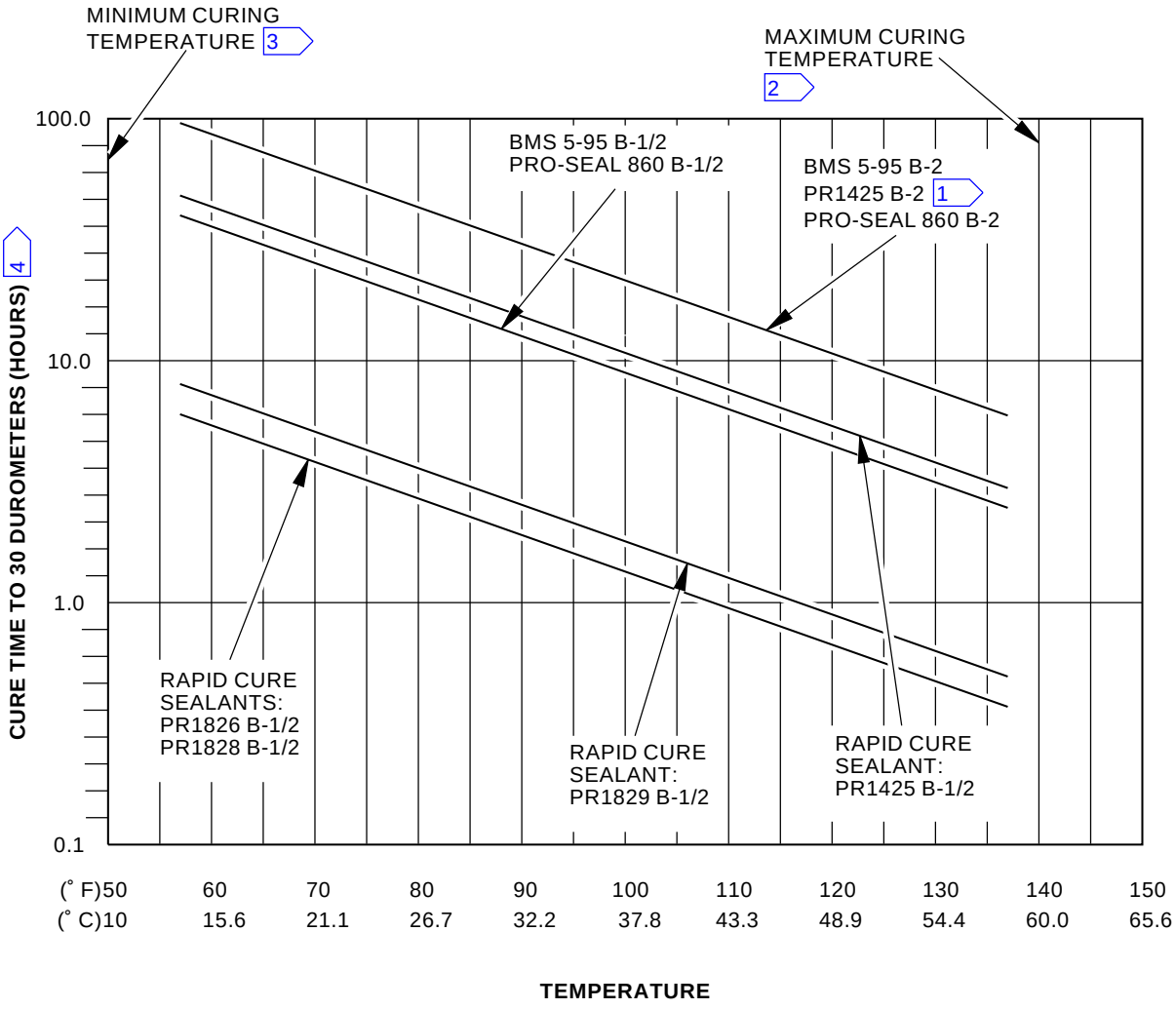
NO. 1 WINDSHIELD
(VIEW FROM OUTSIDE)
(LEFT SIDE IS SHOWN, RIGHT SIDE IS OPPOSITE)

NOTE:

THIS IS AN EXAMPLE OF HOW YOU CAN TIGHTEN THE FASTENERS FOR THE WINDOW. ANY PATTERN THAT IS ALMOST THE SAME IS PERMITTED. FIRST ATTACH THE WINDOW AT AS MANY POINTS THAT ARE OPPOSITE ON THE WINDOW. DO THIS AS EARLY IN THE FASTENER TORQUE SEQUENCE AS POSSIBLE.
CONTINUE IN THIS PATTERN. ALWAYS GO TO A FASTENER THAT IS IN THE MIDDLE OF TWO INSTALLED FASTENERS. YOU MUST GO TO A SIDE OTHER THAN THE SIDE ON WHICH A FASTENER WAS JUST TIGHTENED.

G32869 S0006581388_V4

Window No. 1 Retaining Bolt Torque Sequence
Figure 402/56-11-11-990-803



1 FOR SHOP HANDLING AND FLY AWAY

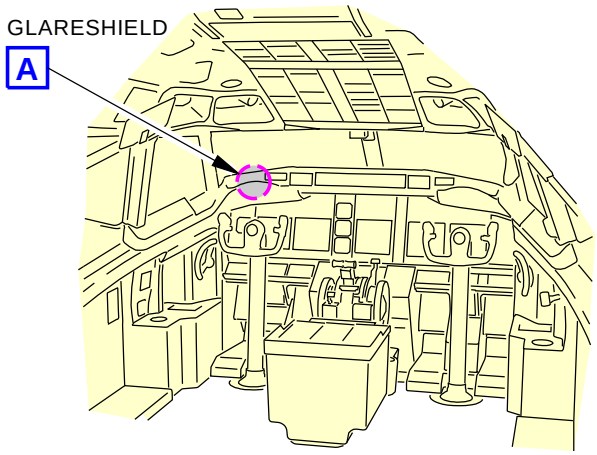
2 DO NOT CURE SEALANT ABOVE 140˚ F(60˚ C)

3 DO NOT CURE SEALANT BELOW 50˚ F (10˚ C)

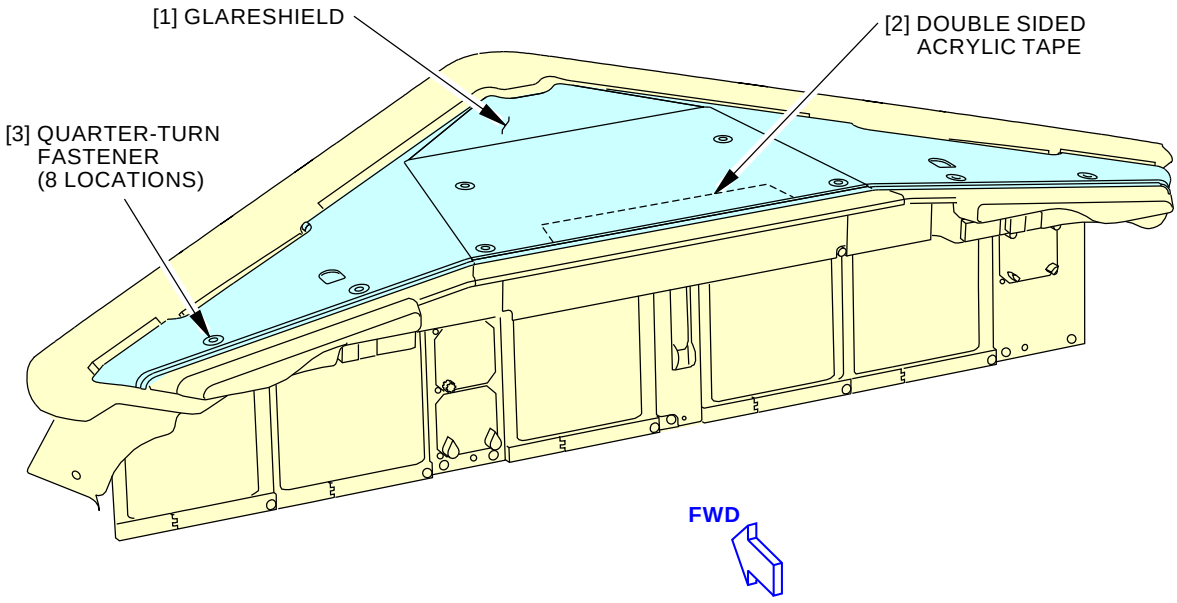
4 REX A DUROMETER READING OF 30

G33620 S0006581389_V4

Sealant Cure Times
Figure 403/56-11-11-990-804



FLIGHT COMPARTMENT



GLARESHIELD

A

1924919 S0000363699_V2

Glareshield Installation
Figure 404/56-11-11-990-808

WINDOW NO. 3 - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) Preparation for the removal of the No. 3 window.

(2) Removal of the No. 3 window.

(3) Preparation for the installation of the No. 3 window.

(4) Installation of the No. 3 window.

(5) Put the airplane back to its usual condition.

TASK 56-11-21-840-801

2. Prepare for the No. 3 Window Removal

A. Consumable Materials

Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G02173	Paper - Wrapping, Chemically Neutral (Non-Corrosive)	MIL-DTL-17667 (Supersedes MIL-P-17667)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 56-11-21-010-001

(1) Remove the screws [3] and the interior liner [2].

SUBTASK 56-11-21-200-005

(2) Install the protective wrapping paper, G02173 to the two sides of the window with the Scotch Flatback Masking Tape 250, G00270.

NOTE: Do not attach tape to the acrylic surfaces.

——— END OF TASK ———

TASK 56-11-21-000-801

3. No. 3 Window Removal

A. Tools/Equipment

Reference	Description
STD-1166	Block - Wood, 1 to 3 Inch Thick, More Than 6 Inch Length
STD-3906	Mallet - Rubber

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 56-11-21-000-001

(1) Remove the nylon cord from around the window (Figure 401), as follows:

(a) Carefully remove some aerodynamic sealant at the top aft corner of the window to get access to the nylon cord.

(b) Pull the outboard end of the nylon cord away from the corner of the window.

(c) Fold the nylon cord and slowly pull it completely away from the window.

SUBTASK 56-11-21-020-001

(2) Remove the items that follow:

(a) The window retaining bolts [5]

(b) The nutplate strip [6]

(c) The support clip [8].

SUBTASK 56-11-21-020-002

CAUTION: DO NOT PERMIT THE WINDOW TO FALL FREE WHEN YOU BREAK THE PRESSURE SEAL. IF YOU DO NOT SUPPORT THE WINDOW YOU MAY CAUSE DAMAGE TO THE WINDOW OR FLIGHT DECK INSTRUMENTS.

(3) Do the steps that follow to break the pressure seal:

(a) Apply hand pressure to the outer surface of the window.

NOTE: Always apply pressure to the largest area possible.

(b) If the pressure seal will not break, do the step that follows:

1) Place wood block, STD-1166 (nonmetallic block) against the window and lightly hit the block with a rubber mallet, STD-3906.

SUBTASK 56-11-21-020-004

(4) Remove all the aerodynamic smoother from the window frame.

——— END OF TASK ———

TASK 56-11-21-400-801

4. Prepare to Install the No. 3 Window

A. Consumable Materials

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	ASTM D-3735 Type III
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G02173	Paper - Wrapping, Chemically Neutral (Non-Corrosive)	MIL-DTL-17667 (Supersedes MIL-P-17667)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 56-11-21-840-001

(1) Prepare the window frame on the fuselage, as follows:

(a) Install the nutplate strips [6] in all positions where a nutplate strip is missing or damaged.

(b) Clean these faying surfaces with a cotton wiper, G00034 that is moist with solvent, B00083:

1) The rubber pressure seal.

2) The window frame.

3) The window center post.

(c) Dry the parts with a clean cotton wiper, G00034 before the solvent, B00083 dries.

SUBTASK 56-11-21-210-003

(2) Make sure that the silicone rubber bushings [4] are in the bolt holes in the window (Acrylic Windows).

SUBTASK 56-11-21-210-004

(3) Do a visual check of the window post and sill for cracks and corrosion.

SUBTASK 56-11-21-840-002

(4) Prepare the window pane assembly [1], as follows:

(a) Use Scotch Flatback Masking Tape 250, G00270 to apply a protective wrapping paper, G02173 cover to both window surfaces.

NOTE: Attach the tape to the surfaces only near the edge of the pane.

——— END OF TASK ———

TASK 56-11-21-400-802

5. No. 3 Window Installation

(Figure 401)

A. References

Reference	Title
05-51-91-790-801	Cabin Pressure Leak Test (P/B 201)

B. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

C. Consumable Materials

Reference	Description	Specification
A00103	Sealant - Windshield And Window - PR-1425	
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A01056	Sealant - Aerodynamic - PR 1829	
B50095	Solvent	BAC5750
B50225	Solvent - Citra-Safe (Deodorized)	
B50226	Solvent - Citra-Safe	
C00528	Compound - Corrosion Preventive, Petroleum Hot Application (Soft Film)	MIL-C-11796 Class III

(Continued)

Reference	Description	Specification
G00039	Cord - Fibrous, Nylon (100 Lb Strength)	MIL-C-5040 Type IA
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, Scotch 425	AMS-T-23397 / L-T-80
G02092	Tape - Flexible Foam Sound Damping And Sealing Tape	BMS8-283

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Procedure

SUBTASK 56-11-21-420-001

(1) Install the window pane assembly [1] in the frame as follows:

NOTE: The glass window with the cres z-seal has a corrosion resistant steel (CRES) zee fitting around the outside edge of the window assembly, with the pressure seal attached to the zee fitting.

(a) Apply corrosion preventive compound, C00528 to the retaining bolts [5] shanks.

(b) Install the retaining bolts [5].

(c) Install the following items:

1) The nutplate strip [6]

2) The support clip [8].

CAUTION: DO NOT APPLY MORE THAN THE MAXIMUM SPECIFIED TORQUE WHEN YOU TIGHTEN THE PARTS. DAMAGE TO THE PARTS CAN OCCUR IF YOU APPLY TOO MUCH TORQUE.

(d) Tighten each bolt 20 in-lb (2 N·m) to 25 in-lb (3 N·m) in the sequence shown in (Figure 401).

SUBTASK 56-11-21-410-006

(Figure 403)

(2) Examine the tape, G02092 on the flight deck structure. If the tape, G02092 replacement is necessary, do these steps:

NOTE: If the tape, G02092 is not available, install the window without the tape for no more than 24 months. Without the tape, the flight deck noise and moisture can increase.

(a) Remove the used tape, G02092 from the flight deck structure.

(b) To install a new tape, G02092 to the flight deck structure, do these steps:

1) Clean the surface of the flight deck structure with solvent, B50095 to the area on where to install the tape, G02092. Use of citra-safe solvent, B50225 or citra-safe solvent, B50226 is not permitted. Keep the surface of the flight deck structure clean before tape, G02092 installation.

NOTE: Do not let the solvents get in contact with the plastics, control cables, lubricated areas, plastic decals, paints or markings that are non–Skydrol–resistant. If the solvents get in contact with such surfaces, the parts must be rejected.

2) Remove the tape, G02092 from the roll.

3) Turn the surface of the tape, G02092 with adhesive down and cut the tape, G02092 into length. Cut only the length of tape, G02092 necessary for installation.

NOTE: The recommended dimensions for the tape, G02092 are thickness: 0.125 in. (3.18 mm), width: 1.5 in. (38.1 mm) and length: 20.55 in. (522.0 mm).

NOTE: Do not let the surface of the tape, G02092 with adhesive gets contamination with dust, dirt, lint, or grease.

4) For tape, G02092 with protective linings on the adhesive, do these steps:

a) Cut the tape, G02092 into length. Keep the other tapes for storage until its time for installation.

b) Pull the protective lining off the adhesive gradually.

5) Set the tape, G02092 on the flight deck structure as shown in Figure 403.

6) Carefully push from the center of the tape, G02092 to the edges to release the air from the tape, G02092.

7) Remove the wrinkles from the surface of the tape, G02092 and seal the edges with a roller or polyethylene.

8) Make sure to put a puncture in the tape, G02092 with a pin to remove air below the tape, G02092.

NOTE: Air can be below the tape and flight deck structure.

a) Make sure to not put a scratch on the surface of the flight deck structure where the tape, G02092 is installed.

9) Carefully push the air out with your fingers from the edge of the bubble to the puncture hole.

10) If it is necessary to remove the tape, G02092 again, make sure to clean off the adhesive on the metal surface.

a) Do the steps to clean the surface of the flight deck structure, to remove and install the tape, G02092 again.

SUBTASK 56-11-21-780-001

(3) Make sure that the window is installed correctly, do the cabin pressure leak test (Cabin Pressure Leak Test, TASK 05-51-91-790-801).

SUBTASK 56-11-21-420-011

(4) Tighten each bolt again after the cabin pressure leak test.

SUBTASK 56-11-21-950-001

(5) Apply a strip of Scotch Flatback Masking Tape 250, G00270 over the gap between the fuselage and window.

SUBTASK 56-11-21-950-002

(6) Cut out a strip of Scotch Flatback Masking Tape 250, G00270 directly over the gap between the fuselage and the window.

SUBTASK 56-11-21-410-004

(7) Install a new nylon cord, G00039 in the bottom of the gap between the fuselage and the window.

NOTE: The cord must be longer than the distance around the edge of the window. The ends of the cord must overlap approximately 0.5 in. (12.7 mm) with the ends in the upper aft corner.

SUBTASK 56-11-21-390-003

(8) Apply the aerodynamic smoother:

(a) sealant, A00247 (PRO-SEAL 870 Class B) (preferred)

(b) PR-1425 sealant, A00103

(c) PR 1829 sealant, A01056 (Rapid Cure)

SUBTASK 56-11-21-390-005

(9) Mix the sealant to the manufacturer's instructions.

SUBTASK 56-11-21-390-002

(10) Use a sealant gun, STD-449 or hardwood or plastic fillet smoothing spatula, STD-810 to apply sealant.

NOTE: When you apply the sealant make sure you push the sealant gun, STD-449 to avoid trapped air under the sealant.

NOTE: Use PR 1829 sealant, A01056 if rapid cure is required for dispatch.

(a) Apply more aerodynamic sealant than is necessary.

SUBTASK 56-11-21-020-005

CAUTION: WHEN YOU APPLY THE SMOOTHER, BE CAREFUL THAT YOU DO NOT MAKE SCRATCHES ON THE METAL, ACRYLIC OR GLASS SURFACES. ALSO, DO NOT MAKE THE METAL, ACRYLIC OR THE GLASS SURFACES ROUGH WHEN YOU APPLY THE SMOOTHER.

(11) Remove excess sealant until it is level with the masking tape.

NOTE: Excess sealant should be removed while still wet.

SUBTASK 56-11-21-950-003

(12) Remove the Scotch Flatback Masking Tape 250, G00270.

NOTE: You can smooth the sealant that lifts up at the edges of the gap between the fuselage and the window.

SUBTASK 56-11-21-410-003

(13) If you must send the airplane before the sealant is fully cured, install Scotch 425 Aluminum Foil Tape, G00291 on the top of the sealant.

NOTE: Remove the Scotch 425 Aluminum Foil Tape, G00291 when the sealant is fully cured. The use of Scotch 425 Aluminum Foil Tape, G00291 is not intended for long term use but only until the sealant is cured.

END OF TASK

TASK 56-11-21-840-802

6. Put the Airplane Back to its Usual Condition.

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Put the Airplane Back to Its Usual Condition

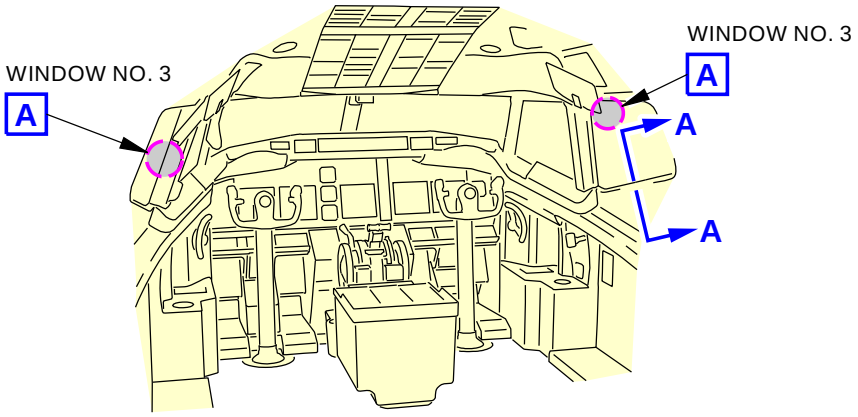
SUBTASK 56-11-21-950-005

(1) Remove the plastic layer from the inner surface of the window.

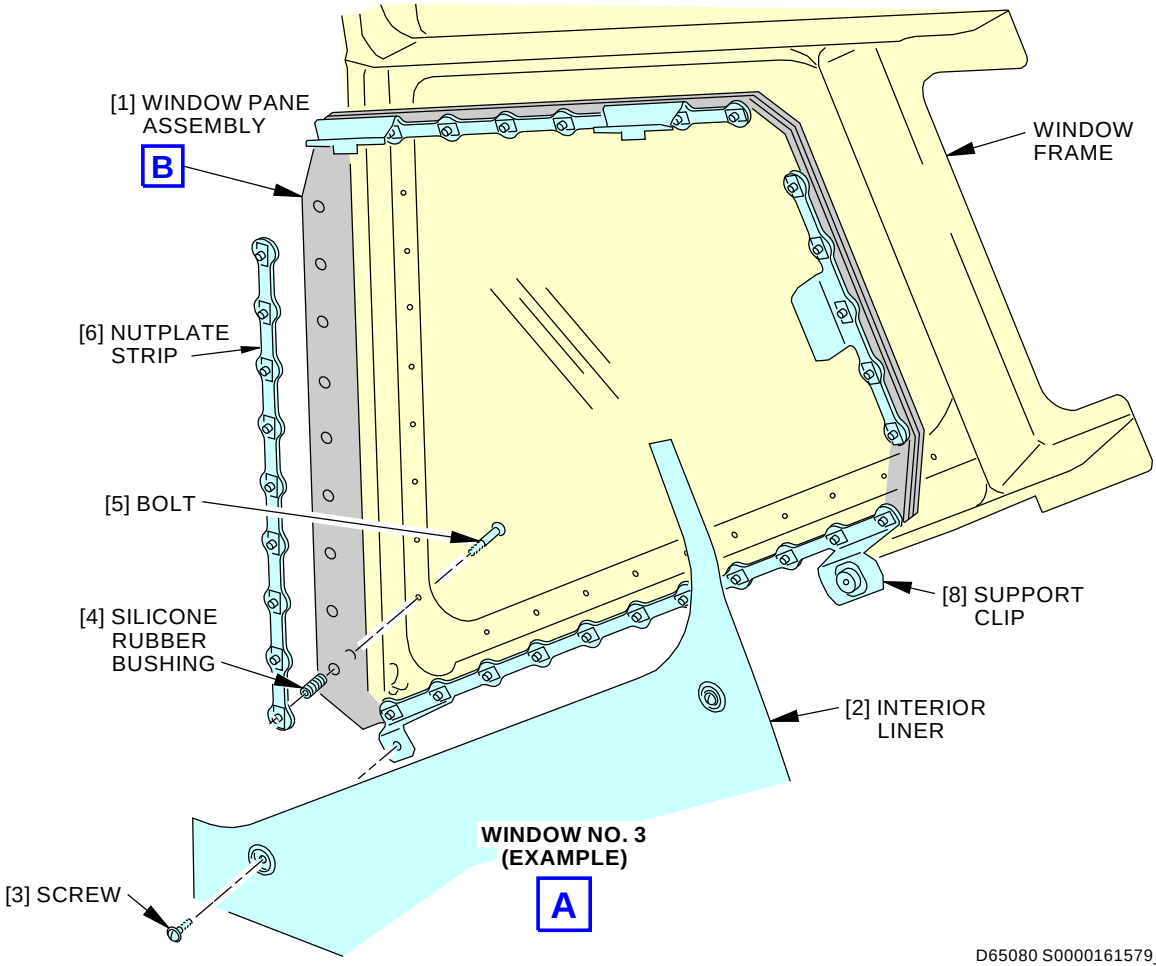
SUBTASK 56-11-21-410-005

(2) Install the interior liner [2] and the screws [3].

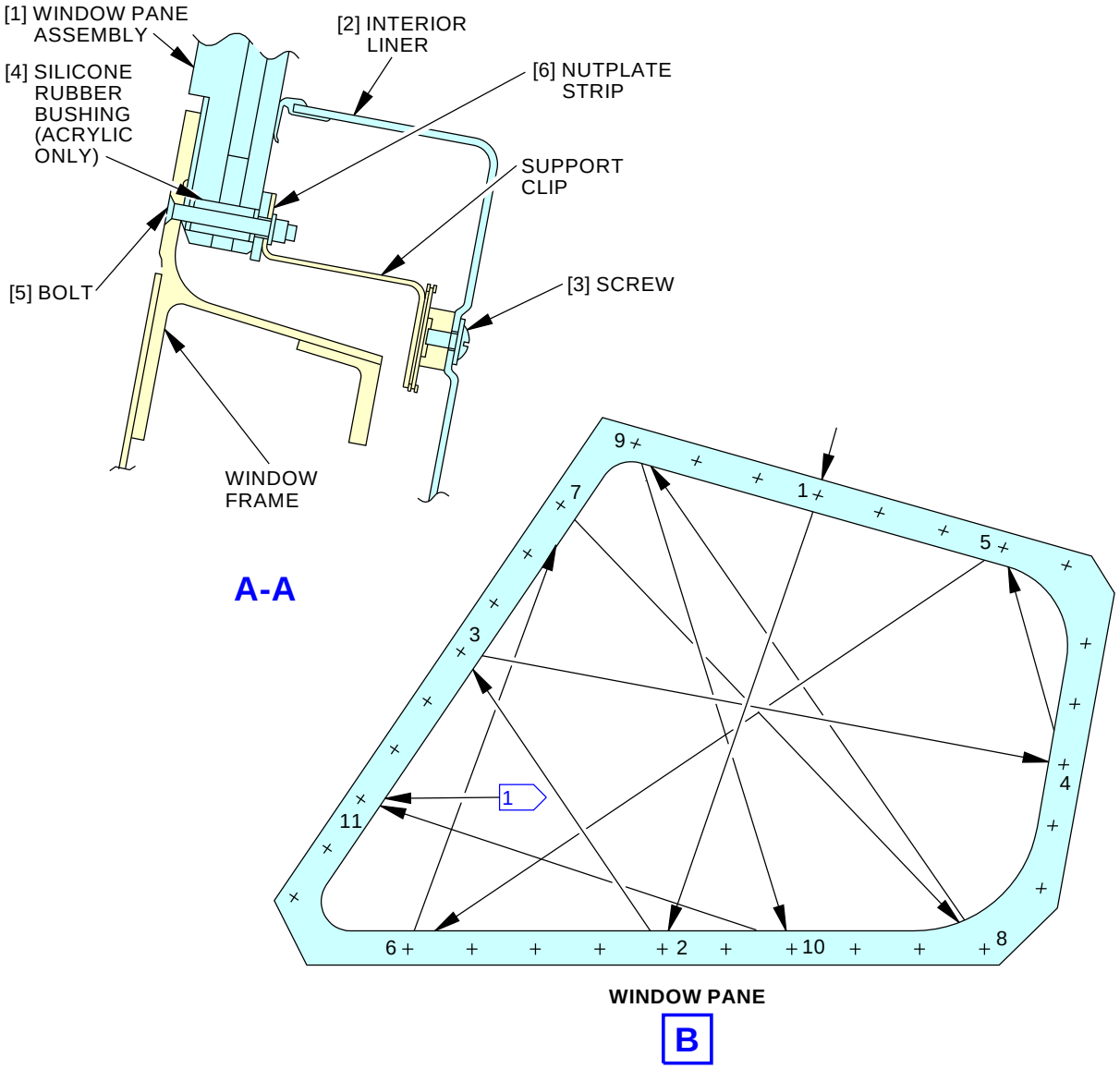
——— END OF TASK ———



FLIGHT COMPARTMENT



No. 3 Window Installation
Figure 401/56-11-21-990-801 (Sheet 1 of 2)



NOTE:

THIS IS AN EXAMPLE OF HOW YOU CAN TIGHTEN THE FASTENERS FOR THE WINDOW ANY PATTERN THAT IS ALMOST THE SAME IS PERMITTED. FIRST ATTACH THE WINDOW AT AS AS MANY POINTS THAT ARE OPPOSITE ON THE WINDOW. DO THIS AS EARLY IN THE FASTENER TORQUE SEQUENCE AS POSSIBLE

1 CONTINUE IN THIS PATTERN. ALWAYS GO TO A FASTENER THAT IS IN THE MIDDLE OF TWO INSTALLED FASTENERS. YOU MUST GO TO A SIDE OTHER THAN THE SIDE ON WHICH A FASTENER WAS JUST TIGHTENED.

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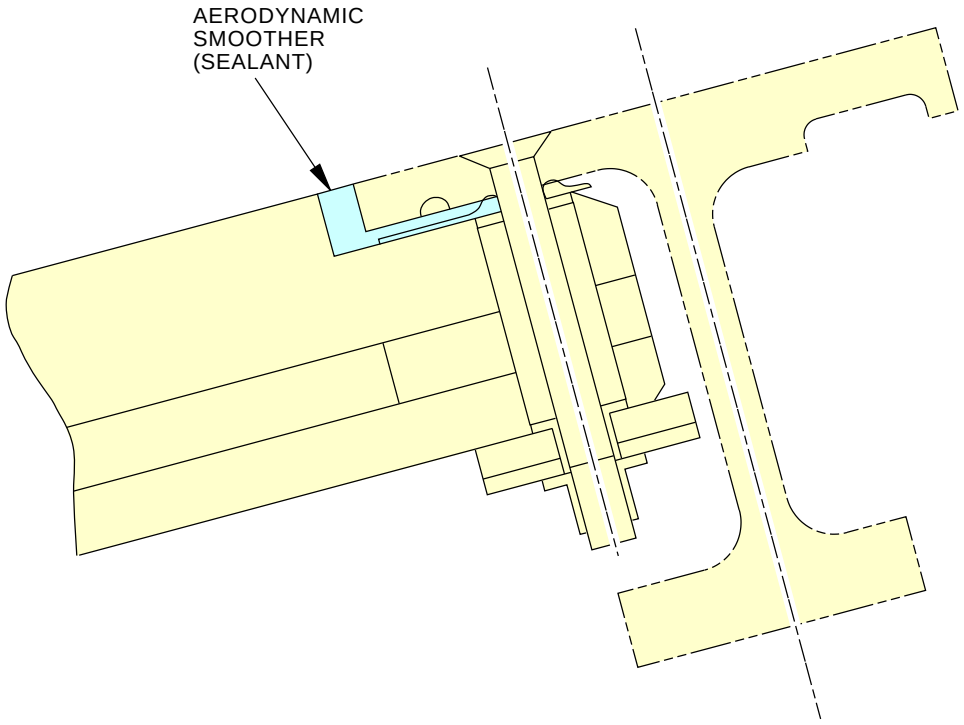
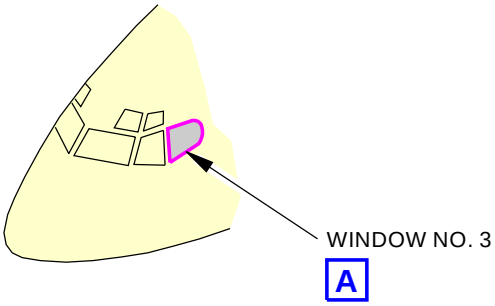
No. 3 Window Installation
Figure 401/56-11-21-990-801 (Sheet 2 of 2)

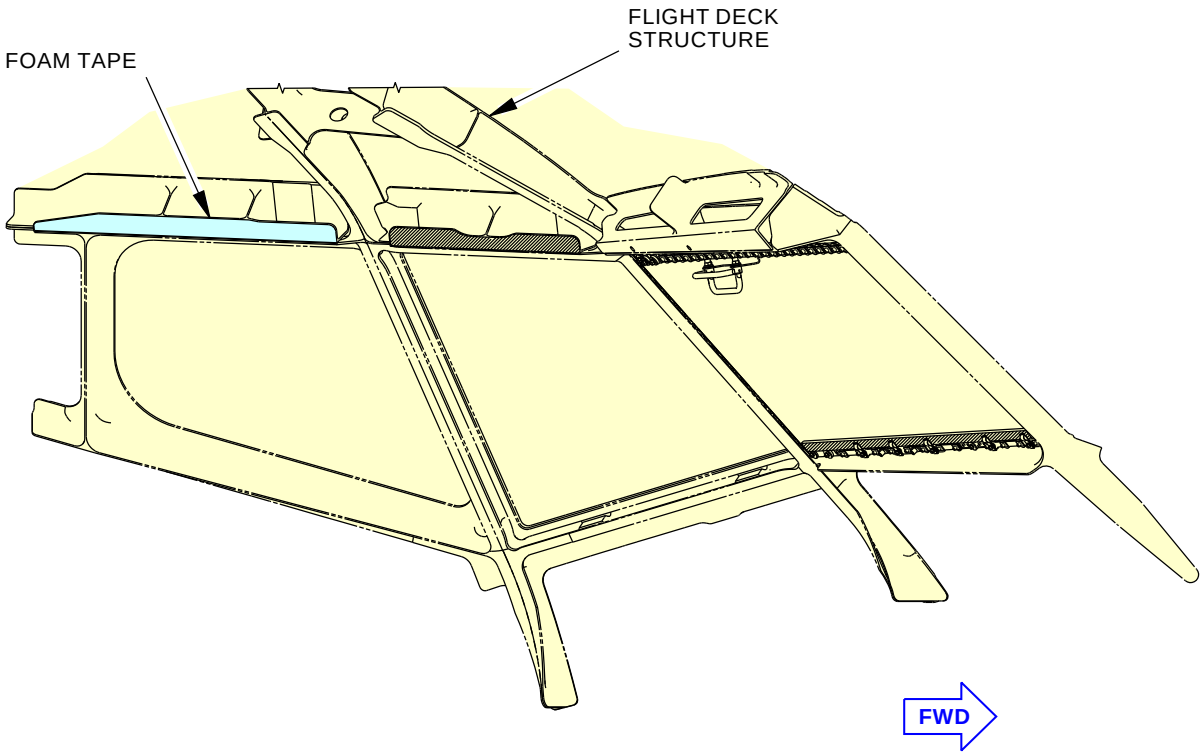


SEALANT SHAPE - WINDOW NO. 3

J99212 S0000190421_V2

Aerodynamic Smoother Application
Figure 402/56-11-21-990-811





WINDOW NO. 3

A

2371097 S0000542699_V3

Figure 403/56-11-21-990-812

NO. 3 WINDOW - REPAIRS

1. General

A. This procedure has these tasks:

(1) The repair of a No. 3 window that has scratches or crazing.

(2) The repair of a No. 3 window that has chips.

(3) The repair of the aerodynamic sealant.

TASK 56-11-21-300-801

2. Repair Scratched or Crazed No. 3 Windows

A. General

(1) Do not use materials that are not approved.

(2) Do not cause damage to the window surface with finger rings or other sharp objects.

B. References

Reference	Title
56-11-00 P/B 601	FLIGHT COMPARTMENT WINDOWS - INSPECTION/CHECK
56-11-00-200-803	Inspect the Flight Compartment Windows (P/B 601)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2039	Micrometer, Optical (Min Depth .02 inch and Accuracy +/-.0005 Inch) Part #: 8400K Supplier: 65956 Part #: MODEL 966A1 Supplier: 0ZYB5 Part #: MODEL 966A1 Supplier: 88277 Opt Part #: 8400PCK Supplier: 65956
COM-4786	Processor/Printer - Optical Micrometer (used with 8400K only) Part #: DP-1VR Supplier: 65956
STD-1207	Sander/Polisher - Orbital, Air Driven

D. Consumable Materials

Reference	Description	Specification
B00137	Abrasive - Garnet Coated Paper	
B00138	Abrasive - Silicon Carbide Coated Cloth	
B00703	Compound - Plastic Polish	P-P-560
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00834	Cloth - Lint-free Cotton	

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Procedure

SUBTASK 56-11-21-220-001

(1) Use an optical micrometer, COM-2039 to measure the depth of scratches or crazing. It is necessary to use the optical micrometer processor/printer, COM-4786 with the micrometer, COM-2039.

(a) Check the maximum depth of scratches or craze (TASK 56-11-00-200-803).

NOTE: If the depth of the scratch or craze is more than 0.050 inch (1.27 mm), you cannot repair the window.

SUBTASK 56-11-21-940-001

(2) Apply masking Scotch Flatback Masking Tape 250, G00270 to the window frame and the seal.

SUBTASK 56-11-21-170-001

(3) Flush loose dirt from the window.

SUBTASK 56-11-21-350-001

(4) Remove small clamshell surface chips, scratches, and surface crazing with abrasive, B00137 paper or abrasive, B00138 cloth.

NOTE: Use a coarse abrasive, B00137 paper for gauges, deep scratches, and bad crazing (usually not more than 100 grit).

NOTE: Do not try to repair only a local part of the surface area. This will cause visual distortion.

SUBTASK 56-11-21-170-002

(5) Flush away the grit and acrylic material with water.

NOTE: Use sufficient water to keep the window surface cool.

SUBTASK 56-11-21-350-002

(6) Rub all the window surface in the horizontal direction. Use a sander/polisher, STD-1207 that operates at approximately 800 cycles per minute.

SUBTASK 56-11-21-350-003

(7) Rub all the window surface in the vertical direction.

NOTE: If you rub with an abrasive, B00137 for 2 to 5 minutes, you will remove approximately 0.005 inches (0.127 mm) of acrylic. Change the abrasive paper frequently.

SUBTASK 56-11-21-350-004

(8) Do this task again until all the surface damage is removed and the surface has a constant thickness.

SUBTASK 56-11-21-350-005

(9) Rub the window with an abrasive, B00137 paper for 2 minutes to make sure all the cracks and crazes are removed.

SUBTASK 56-11-21-140-001

(10) Polish the window with graduations of abrasive materials (coarse to fine). Use 100-600 grit paper and micromesh cloths of 1600-1800 grit.

SUBTASK 56-11-21-140-002

(11) Continue each step until the polish masks are removed (normally 2-3 minutes in each step).

SUBTASK 56-11-21-140-003

(12) Move the sander/polisher, STD-1207 horizontally to polish the window surface.

SUBTASK 56-11-21-140-004

(13) Move the sander/polisher, STD-1207 vertically across the window surface.

SUBTASK 56-11-21-220-002

(14) Examine the window pane thickness (FLIGHT COMPARTMENT WINDOWS - INSPECTION/CHECK, PAGEBLOCK 56-11-00/601):

(a) Make sure that the inner window pane thickness is equal to or more than 0.23 in. (5.84 mm).

(b) Make sure that the outer window pane thickness is equal to or more than 0.38 in. (9.65 mm)

SUBTASK 56-11-21-940-002

(15) Remove the water spray.

SUBTASK 56-11-21-140-005

(16) Polish the window with buffing compound, B00703 and a clean lint-free cloth, G00834 or wool pad.

NOTE: If necessary, use coarse and fine compounds to get a glossy finish. If a rotary buffer is used, the wheel surface speed must be 3200 feet (975 meters) per minute for coarse compound and 4200 feet (1280 meters) per minute for fine compound.

SUBTASK 56-11-21-210-001

(17) Do a check of the window visually for optical quality.

SUBTASK 56-11-21-350-006

(18) If the window has damage, repeat the repair process.

SUBTASK 56-11-21-220-003

(19) Examine the window pane thickness after rework (FLIGHT COMPARTMENT WINDOWS - INSPECTION/CHECK, PAGEBLOCK 56-11-00/601):

(a) Make sure that the inner window pane thickness is equal to or more than 0.23 in. (5.84 mm).

(b) Make sure that the outer window pane thickness is equal to or more than 0.38 in. (9.65 mm)

SUBTASK 56-11-21-140-006

(20) Apply wax to the window surface. Polish the window to a glossy finish.

——— END OF TASK ———

TASK 56-11-21-300-802

3. Repair of Chipped No. 3 Windows

A. References

Reference	Title
56-11-00 P/B 601	FLIGHT COMPARTMENT WINDOWS - INSPECTION/CHECK

B. Consumable Materials

Reference	Description	Specification
B00137	Abrasive - Garnet Coated Paper	

C. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

D. Procedure

SUBTASK 56-11-21-210-002

(1) Inspect the chips to make sure the chips do not have cracks around them.

SUBTASK 56-11-21-350-007

(2) Repair the chips in the window bolt holes, and the large chips in the window surface.

SUBTASK 56-11-21-140-007

(3) Rub with an abrasive, B00137 paper to remove the clamshell chips or erosion at the window edges. Polish to a 62 RHS finish.

SUBTASK 56-11-21-210-008

(4) Examine the window pane thickness after rework (FLIGHT COMPARTMENT WINDOWS - INSPECTION/CHECK, PAGEBLOCK 56-11-00/601):

(a) Make sure that the inner window pane thickness is equal to or more than 0.23 in. (5.84 mm).

(b) Make sure that the outer window pane thickness is equal to or more than 0.38 in. (9.65 mm)

——— END OF TASK ———

TASK 56-11-21-300-803

4. Repair the Aerodynamic Sealant

A. General

(1) The spacer that is on the window assembly will bend the aerodynamic sealant on the structure around the end of the spacer. Do not repair the sealant in this area on subsequent window installations.

(2) In all other areas, repair any aerodynamic sealant that has damage.

(3) The aerodynamic sealant must be flat within 0.00 ±0.03 in. (0.000 ±0.762 mm) around the entire edge of the window. To make sure a large repair will be flat, use a faceplate, with a surface identical to the window, and clamp or bolt it to the window frame. For small repairs, make the aerodynamic sealant smooth with a hand tool.

B. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant
STD-810	Spatula - Fillet Smoothing, Hardwood or Plastic

C. Consumable Materials

Reference	Description	Specification
A00103	Sealant - Windshield And Window - PR-1425	
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A01056	Sealant - Aerodynamic - PR 1829	
B00052	Soap - Liquid - Turco 1526	BAC5507
B00083	Solvent - VM&P Naphthas	ASTM D-3735 Type III
B00137	Abrasive - Garnet Coated Paper	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G02356	Tape - Saint Gobain Rulon J Tape	

D. Procedure

NOTE: This procedure assumes that the size of the repair requires a faceplate as a forming tool. If the area is small enough to repair with a hand tool, the new compound does not have to be completely hard before you install the window.

SUBTASK 56-11-21-140-008

(1) Make sure the window frame is clean.

(a) Use a piece of abrasive, B00137 paper to lightly sand the window frame in the area that touches the aerodynamic sealant.

WARNING: BE VERY CAREFUL WHEN YOU USE THE SOLVENT. IT IS POISONOUS AND FLAMMABLE. DO NOT LET IT STAY ON YOUR SKIN. DO NOT GET IT IN YOUR EYES. DO NOT USE IT NEAR A SOURCE OF HEAT.

(b) Clean the area with a clean cotton wiper, G00034 soaked in solvent, B00083.

(c) Continue to clean the window frame until there is no dirt on the cotton wiper, G00034.

SUBTASK 56-11-21-140-009

(2) Make sure the faceplate is clean.

WARNING: POISONOUS AND FLAMMABLE. DO NOT LET IT STAY ON YOUR SKIN. DO NOT GET IT IN YOUR EYES. DO NOT USE IT NEAR A SOURCE OF HEAT.

(a) Clean the faceplate with a clean cotton wiper, G00034 that is wet with solvent, B00083.

(b) Dry the faceplate with another clean, dry cotton wiper, G00034.

SUBTASK 56-11-21-480-001

(3) Prepare the faceplate.

(a) Put one of these materials on the surface of the faceplate that touches the window frame:

NOTE: This makes the subsequent removal of the faceplate easier.

1) Teflon Rulon J tape, G02356

2) Liquid Turco 1526 soap, B00052

SUBTASK 56-11-21-940-003

(4) Use the manufacturer's instructions to mix the aerodynamic sealant.

SUBTASK 56-11-21-390-004

(5) Use one of the aerodynamic smoothers that follow (in sequence of preference):

(a) sealant, A00247 (PRO-SEAL 870 Class B) (preferred)

(b) PR-1425 sealant, A00103

(c) PR 1829 sealant, A01056

SUBTASK 56-11-21-350-008

(6) Apply the aerodynamic sealant to the window frame.

(a) Put the sealant on the window frame with a hardwood or plastic fillet smoothing spatula, STD-810 or a sealant gun, STD-449.

1) Fill clearances and uneven surfaces with the sealant.

2) Do not let air bubbles stay in the sealant.

3) Make the surface of the sealant smooth.

SUBTASK 56-11-21-350-009

(7) Put the faceplate on the window frame. Press the faceplate gently until it lightly touches the window frame.

CAUTION: TIGHTEN THE FACEPLATE TO THE WINDOW FRAME OR WINDOW FRAME CAN BEND. THIS WILL MAKE AN UNSATISFACTORY AERODYNAMIC SEAL.

(a) Install a bolt in every third or fourth hole. Tighten the bolts enough to hold the faceplate securely.

NOTE: The sealant extrudes from the edge of the repair.

(b) Insert bolts to remove the sealant from the bolt holes.

(c) Use a hardwood or plastic fillet smoothing spatula, STD-810 to remove the sealant from the edges of the repair.

(d) Remove the faceplate after the sealant is dry.

NOTE: The sealant is dry enough when it is no longer tacky.

(e) Remove any unwanted sealant from the window frame.

(f) Fill any areas larger than 0.01 in. (0.25 mm) diameter in the repair with more sealant.

——— END OF TASK ———

NO. 2 OPENABLE WINDOW - MAINTENANCE PRACTICES

1. General

A. This procedure has these tasks:

(1) The replacement of the No. 2 Window Handle Trigger Return Spring.

(2) The replacement of the No. 2 Window Bearing.

(3) The replacement of the No.2 Window Scuff Plate Assembly.

TASK 56-12-11-300-803

2. Replace the No. 2 Window Handle Trigger Return Spring

(Figure 201)

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Procedure

SUBTASK 56-12-11-010-003

(1) Open the window.

NOTE: This will remove the load from the compressed bulb seal off the spring pin through the handle and the bellcrank shaft.

SUBTASK 56-12-11-020-011

(2) Remove the trigger return spring (Figure 201):

(a) Remove the handle spring pin [1].

(b) Remove the handle [7] from the bellcrank shaft.

(c) Remove the lower spring pin [2].

(d) Remove the trigger bolt [4] from the handle [7].

(e) Remove the middle spring pin [3].

(f) Remove the trigger return spring [5] from the handle [7].

SUBTASK 56-12-11-420-008

(3) Install the new trigger return spring (Figure 201):

(a) Put the new trigger return spring [5] in the handle [7].

(b) Align the trigger return spring [5] with the middle spring pin hole.

(c) Install the middle spring pin [3].

(d) Put the trigger bolt [4] in a position opposite the lower spring pin hole.

(e) Install the lower spring pin [2].

(f) Make sure that the trigger has full return when released.

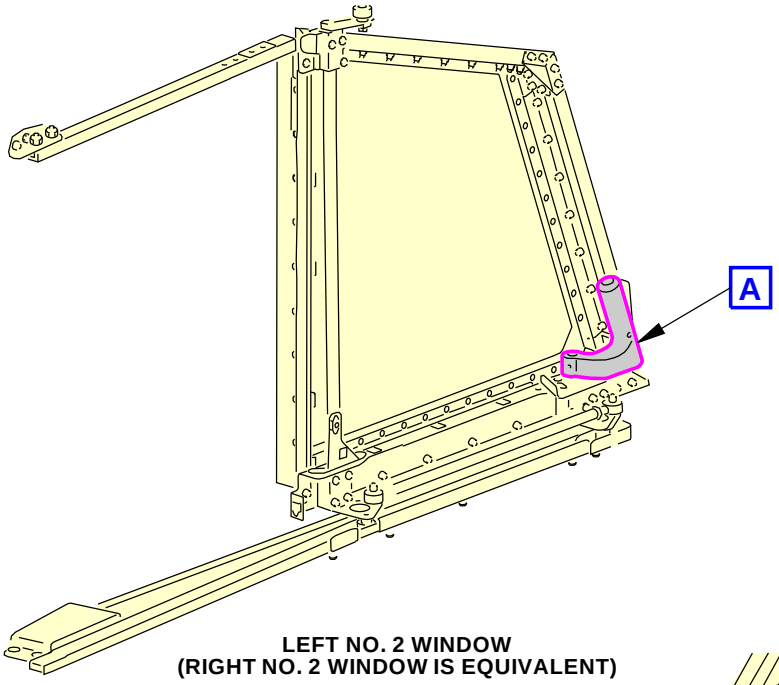
(g) Put the handle [7] on the lower forward bellcrank shaft.

(h) Install the handle spring pin [1] through the handle [7] and the bellcrank shaft.

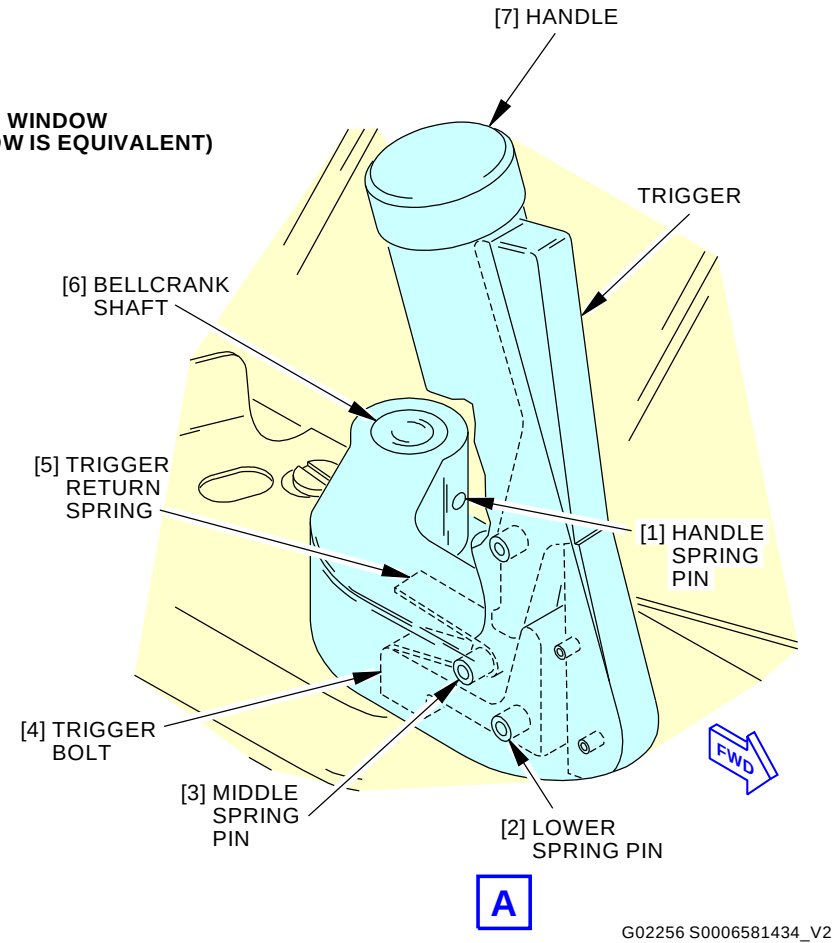
SUBTASK 56-12-11-410-003

(4) Close the window.

END OF TASK



LEFT NO. 2 WINDOW
(RIGHT NO. 2 WINDOW IS EQUIVALENT)



No. 2 Window Handle Trigger Return Spring Replacement
Figure 201/56-12-11-990-801

TASK 56-12-11-300-802

3. Repair the No. 2 Window Bearing

(Figure 202)

A. References

Reference	Title
56-12-11-000-801	No. 2 Openable Window Removal (P/B 401)
56-12-11-400-801	No. 2 Openable Window Installation (P/B 401)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. No. 2 Window Bearing Repair

SUBTASK 56-12-11-010-002

(1) Do this task: No. 2 Openable Window Removal, TASK 56-12-11-000-801.

SUBTASK 56-12-11-020-002

(2) Remove the track roller bearing (Figure 202):

(a) Loosen the setscrew in thebellcrank [21].

(b) Remove the special bolt [24] from the bellcrank [21].

NOTE: Parts can fall when you remove the special bolt.

SUBTASK 56-12-11-420-002

(3) Install the new track roller bearing (Figure 202):

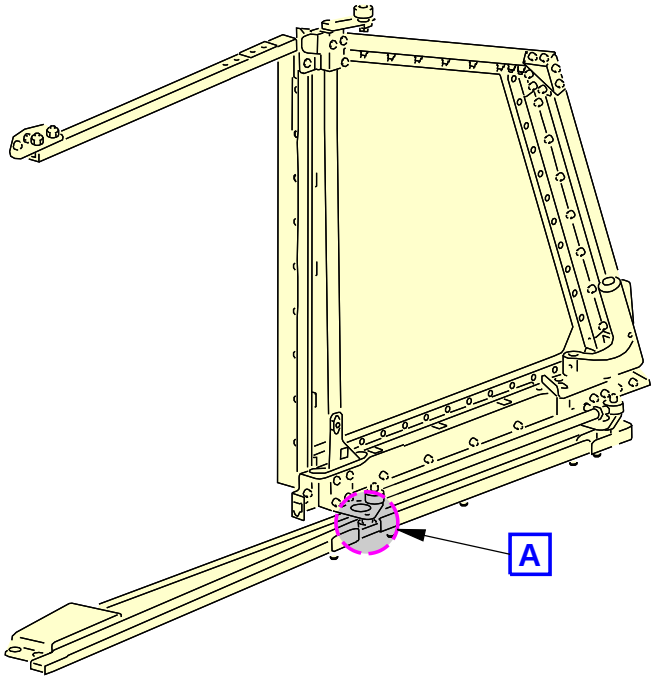
(a) Install the special bolt [24] with the new glide track roller bearing [23], and the shim washer [22].

(b) Change the number of shim washer [22] to give the correct vertical window adjustment as required.

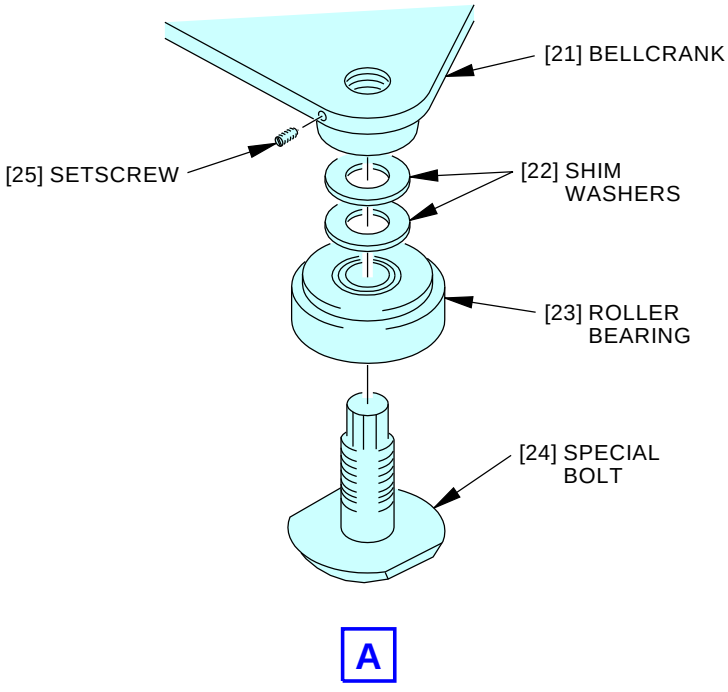
SUBTASK 56-12-11-410-002

(4) Do this task: No. 2 Openable Window Installation, TASK 56-12-11-400-801.

——— END OF TASK ———



LEFT NO. 2 WINDOW
(RIGHT NO. 2 WINDOW IS EQUIVALENT)



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No. 2 Window Bearing Installation
Figure 202/56-12-11-990-802

TASK 56-12-11-300-805

4. Replace the No.2 Window Scuff Plate Assembly

(Figure 203)

A. General

(1) A scuff plate is attached to the upper forward post of the fuselage frame for the No.2 window.

(2) This scuff helps to prevent contact between the movable frame and the bolt heads on the fuselage frame.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Procedure

SUBTASK 56-12-11-010-006

(1) Open the No.2 window.

SUBTASK 56-12-11-020-012

(2) Remove the bumper plate assembly (Figure 203):

(a) Remove the bolts [34] attaching the bumper plate assembly to the window post.

SUBTASK 56-12-11-420-011

(3) Install a new bumper plate assembly (Figure 203):

(a) Align new bumper plate assembly with the fastener bolts [34].

NOTE: Old fasteners could be re-used provided they are clean and free from damage.

(b) Hand tighten the bolts [34].

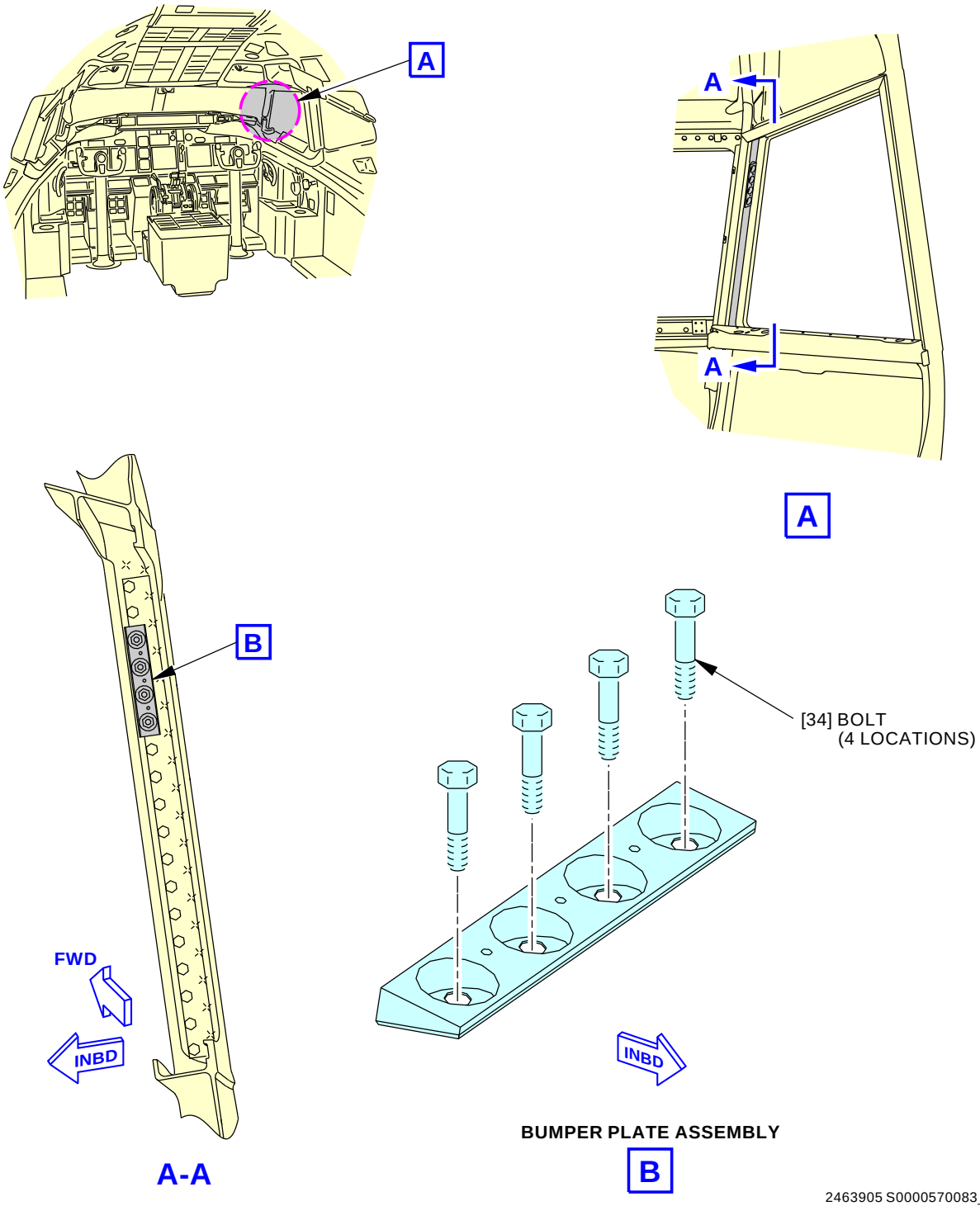
(c) Torque the bolts [34] to 30 in-lb (34.6 kg-cm).

NOTE: HEX head flats should be aligned with the post plane as shown in View A-A of the (Figure 203).

SUBTASK 56-12-11-410-006

(4) Close the window.

——— END OF TASK ———



No.2 Window Scuff Plate Assembly Replacement
Figure 203/56-12-11-990-825

NO. 2 OPENABLE WINDOW - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) The removal of the No. 2 openable window.

(2) The installation of the No. 2 openable window.

TASK 56-12-11-000-801

2. No. 2 Openable Window Removal

(Figure 401)

A. General

(1) This procedure is for the right and left No. 2 openable windows.

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the No. 2 Window Removal.

SUBTASK 56-12-11-860-001

WARNING: THE WINDOW HEAT SYSTEM MUST BE DISARMED WHEN YOU MAKE AN INSPECTION OF THE WINDOWS. IF THE WINDOW POWER IS ON, YOU CAN GET AN ELECTRICAL SHOCK WHEN YOU TOUCH THE WINDOW. THE SHOCK CAN CAUSE INJURY TO PERSONS.

(1) Move these switches on the pilots overhead panel to the OFF position and attach DO-NOT-OPERATE tags:

(a) WINDOW HEAT L SIDE

(b) WINDOW HEAT R SIDE.

SUBTASK 56-12-11-020-003

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
AKS 001-022			
D	2	C00225	WINDOW HEAT CONTROL LEFT SIDE AC
E	2	C00227	WINDOW HEAT CONTROL RIGHT SIDE AC

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
AKS ALL			
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

SUBTASK 56-12-11-860-012

(3) If necessary, put soft blankets to the adjacent windows to prevent damage.

NOTE: Put a blanket on the adjacent windows to prevent scratches or damage to the windows during the removal.

D. Removal of the No. 2 Window.

SUBTASK 56-12-11-980-001

(1) Unlock the No. 2 window.

SUBTASK 56-12-11-980-002

(2) Move the window aft until the aft lower roller [9] is approximately 2.50 in. (63.50 mm) from the locked open stop [8].

SUBTASK 56-12-11-020-004

(3) Remove the forward lower roller [3] from the lower track [7]:

(a) Lift the lower front corner of the window assembly [2].

(b) Move the window forward and aft in the roller track [4] (approximately 1.00 in. (25.40 mm)) until the forward lower roller [3] aligns with the cutout [11] in the track lip.

(c) Lift the lower front corner of the window and move the forward lower roller [3] through the cutout and out of the track [7].

SUBTASK 56-12-11-020-005

(4) Remove the upper roller [1] from the upper track [10]:

(a) Move the window assembly forward until the aft lower roller [9] and the cutout [11] in the track lip align.

NOTE: With the window in this position the forward edge of the clothing guard [5] will be approximately aligned with the forward edge of the lower track [7].

(b) Move the window to make sure that the top edge of the window moves aft.

NOTE: Put a blanket on the edges of the window to prevent damage to the adjacent windows during the removal.

(c) Make sure the aft lower roller [9] stays in its position when you move the window.

(d) Remove the upper roller [1] from the upper track [10].

SUBTASK 56-12-11-020-006

CAUTION: DO NOT LET THE WINDOW FALL FREELY WHEN YOU BREAK THE PRESSURE SEAL. HOLD THE WINDOW, OR USE EQUIPMENT TO HOLD THE WINDOW IN ITS POSITION. IF THE WINDOW FALLS, IT CAN CAUSE DAMAGE TO THE WINDOW OR TO THE FLIGHT COMPARTMENT INSTRUMENTS.

CAUTION: DO NOT MOVE THE WINDOW SIDE TO SIDE. SIDE TO SIDE MOVEMENT CAN CAUSE THE WINDOW TO HIT ADJACENT WINDOWS. THIS CAN CAUSE DAMAGE TO EQUIPMENT.

(5) Lift the window to remove the aft lower roller [9] through the cutout [11] in the track lip.

NOTE: Put a blanket on the edges of the window to prevent damage to the adjacent windows during the removal.

SUBTASK 56-12-11-020-007

(6) Disconnect the electrical connector from the receptacle [6].

(a) If necessary, remove the window frame pad from the window.

END OF TASK

TASK 56-12-11-400-801

3. No. 2 Openable Window Installation

(Figure 401)

A. General

(1) This procedure is for the right and left No. 2 openable windows.

NOTE: It is not always necessary to adjust windows removed from and then installed on the same aircraft. For a window installed on an aircraft for the first time. It is necessary to do to this task and the adjustment task (No. 2 Openable Window Adjustment, TASK 56-12-11-820-801).

B. References

Reference	Title
05-51-91-790-801	Cabin Pressure Leak Test (P/B 201)
30-41-00-200-801	Coil Cord - Inspection (P/B 601)
30-41-00-710-801	Window Heat System - Operational Test (P/B 501)
30-41-21-000-801	Check the Electrical Resistance of the Window Heat Film (P/B 501)
30-41-21-760-802	Check the Electrical Resistance of the Window Heat Film (P/B 501)
56-12-11-200-801	No. 2 Openable Window Inspection (P/B 601)
56-12-11-820-801	No. 2 Openable Window Adjustment (P/B 501)
56-12-11-990-823	Figure: Emergency Exit Release Handle Clearance (P/B 501)
SRM Boeing 737	Structural Repair Manual
WDM 30-41-11	Wiring Diagram Manual
WDM 30-41-12	Wiring Diagram Manual

C. Consumable Materials

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	ASTM D-3735 Type III
B50095	Solvent	BAC5750
B50225	Solvent - Citra-Safe (Deodorized)	
B50226	Solvent - Citra-Safe	
D50039	Lubricant - PTFE Release Agent - Miller-Stephenson MS-122RB (Replaces MS 122 N/C02 Lubricant)	
D50118	Lubricant - Dry Film Silicone Spray	
D50119	Lubricant - Fluorocarbon PTFE Release Agent - Miller-Stephenson MS-122DF	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G02092	Tape - Flexible Foam Sound Damping And Sealing Tape	BMS8-283
G50063	Lubricant - PTFE Release Agent - Miller-Stephenson MS-122XD (Replaces MS-122DF)	BAC5000

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

E. Prepare for the Window Installation.

SUBTASK 56-12-11-210-015

(1) Examine the bulb seal for defects that can cause pressure leaks.

SUBTASK 56-12-11-110-001

(2) Clean the tracks, rollers and the areas around them with a cotton wiper, G00034 which is moist with solvent, B00083.

SUBTASK 56-12-11-210-014

(3) Examine the emergency release handle:

(a) Make sure that the emergency release handle is flush with the skin 0.00 ±0.03 in. (0.00 ±0.76 mm)

(b) If necessary, adjust the emergency release handle: (No. 2 Openable Window Adjustment, TASK 56-12-11-820-801)

SUBTASK 56-12-11-710-014

(4) Examine the Ditching Latch

(a) Move the pull rod of the Ditching Latch forward to the open position.

(b) Move the pull rod of the Ditching Latch aft to the closed position.

1) Make sure that the Ditching Latch easily deploys to the closed position.

NOTE: The Ditching Latch must not touch the insulation blankets.

SUBTASK 56-12-11-710-020

(5) With the window handle fully forward, the trigger released, and the lock bolt fully engaged to the lock plate, make sure that the lock bolt is flush to the lower surface of the Stiffener [18] within 0.020 in. (0.508 mm) to 0.000 in. (0.000 mm). See Figure 56-12-11-990-823, view A-A.

NOTE: The window is in the closed/locked position at this point.

(a) If the lock bolt is not flush to the lower surface of the Stiffener [18] within the noted range, then adjust the Stiffener [18]:

NOTE: If the window handle operation is not affected, the lock bolt protrusion can be more than 0.020 in. (0.508 mm).

1) Loosen the bolts, washers and nuts that are common to the basic stiffener, housing and lock plate.

2) Adjust the basic stiffener by moving it up or down through the slotted holes until the lock bolt protrusion from the lower surface of the stiffener is 0.020 in. (0.508 mm) to 0.000 in. (0.000 mm).

3) Once the lock bolt is within the noted range, hold the basic stiffener in place, and tighten all the bolts.

NOTE: The stiffener flange between the lock plate and basic stiffener is a sheet metal with a thickness of 0.050 in. (1.270 mm). It might slightly deflect to adjust the lock bolt protrusion to be flush within 0.000 in. (0.000 mm) to 0.020 in. (0.508 mm).

4) Make sure that the trigger returns fully when it is released.

SUBTASK 56-12-11-820-001

(6) Adjust the forward lower bellcrank and the Aft Lower Bellcrank [23], Window Lockplate [14] and Rod Assembly [21]:

NOTE: The Handle [13] must be against the window Locked Shut Stop [12] while you measure the bellcranks.

NOTE: Move the Window Lockplate [14] to adjust the forward lower bellcrank. Adjust the Rod Assembly [21] to adjust the Aft Lower Bellcrank [23].

(a) Make sure that the center of the Bolt [15] and Bolt [22] are 0.22 ±0.03 in. (5.59 ±0.76 mm) forward of the center of the Bellcrank Shaft [17] and Bellcrank Shaft [24].

NOTE: You can measure the distance from the bottom of the bellcranks. The Bellcrank Shaft [17] and Bellcrank Shaft [24] are on the inner side of the Aft Lower Housing [20]. Measure the distance between the center of the two rollers, Forward Lower Roller [3] and Aft Lower Roller [9].

NOTE: Align the Bolt [22] in the forward lower bellcrank and the Aft Lower Bellcrank [23] to tighten the Set Screw [25] against the flatside of the Bolt [22].

(b) Adjust the Window Lockplate [14] and the Rod Assembly [21] if the dimension is not 0.22 ±0.03 in. (5.59 ±0.76 mm).

1) To adjust the forward lower bellcrank, loosen the threeLockplate Adjustment Screws [19] that attach the Window Lockplate [14] to the Stiffener [18].

NOTE: You must turn the Handle [13] to get access to all of the Lockplate Adjustment Screws [19].

2) Hold the Handle [13] against the Locked Shut Stop [12].

3) Move the Window Lockplate [14] to get the 0.22 ±0.03 in. (5.59 ±0.76 mm) dimension at the forward lower bellcrank [16].

4) Tighten the three Lockplate Adjustment Screws [19].

5) Hold the Handle [13] against the Locked Shut Stop [12].

6) Loosen the locknuts on the ends of the Rod Assembly [21].

7) Adjust the rod length to get the 0.22 ±0.03 in. (5.59 ±0.76 mm) dimension at the Aft Lower Bellcrank [23].

8) Tighten the locknuts on the Rod Assembly [21].

SUBTASK 56-12-11-400-001

(7) If the No. 2 window is a replacement:

(a) For new No. 2 windows:

1) If necessary, install the window heat wire/bundle and frame pad.

2) Install the window.

(b) For No. 2 windows that are not new:

1) Examine the window for cracks and damages.

a) Do this task: No. 2 Openable Window Inspection, TASK 56-12-11-200-801.

2) If the window has damages:

a) Do the applicable repairs.

b) Or replace the window with another one.

SUBTASK 56-12-11-410-005
(Figure 402)

(8) Examine the tape, G02092 on the flight deck structure. If the tape, G02092 replacement is necessary, do these steps:

NOTE: If the tape, G02092 is not available, install the window without the tape for no more than 24 months. Without the tape, the flight deck noise and moisture can increase.

(a) Remove the used tape, G02092 from the flight deck structure.

(b) To install a new tape, G02092 to the flight deck structure, do these steps:

1) Clean the surface of the flight deck structure with solvent, B50095 to the area on where to install the tape, G02092. Use of citra-safe solvent, B50225 or citra-safe solvent, B50226 is not permitted. Keep the surface of the flight deck structure clean before tape, G02092 installation.

NOTE: Do not let the solvents get in contact with the plastics, control cables, lubricated areas, plastic decals, paints or markings that are non–Skydrol–resistant. If the solvents get in contact with such surfaces, the parts must be rejected.

2) Remove the tape, G02092 from the roll.

3) Turn the surface of the tape, G02092 with adhesive down and cut the tape, G02092 into length. Cut only the length of tape, G02092 necessary for installation.

NOTE: The recommended dimensions for the tape, G02092 are thickness: 0.125 in. (3.18 mm), width: 1.5 in. (38.10 mm) and length: 20.55 in. (522.0 mm).

NOTE: Do not let the surface of the tape, G02092 with adhesive gets contamination with dust, dirt, lint, or grease.

4) For tape, G02092 with protective linings on the adhesive, do these steps:

a) Cut the tape, G02092 into length. Keep the other tapes for storage until its time for installation.

b) Pull the protective lining off the adhesive gradually.

5) Set the tape, G02092 on the flight deck structure as shown in Figure 402.

6) Carefully push from the center of the tape, G02092 to the edges to release the air from the tape, G02092.

7) Remove the wrinkles from the surface of the tape, G02092 and seal the edges with a roller or polyethylene.

8) Make sure to put a puncture in the tape, G02092 with a pin to remove air below the tape, G02092.

NOTE: Air can be below the tape and flight deck structure surface.

a) Make sure to not put a scratch on the surface of the flight deck structure where the tape, G02092 is installed.

9) Carefully push the air out with your fingers from the edge of the bubble to the puncture hole.

10) If it is necessary to remove the tape, G02092 again, make sure to clean off the adhesive on the metal surface.

a) Do the steps to clean the surface of the flight deck structure, to remove and install the tape, G02092 again.

F. Installation of the No. 2 Openable Window.

(Figure 401)

SUBTASK 56-12-11-200-001

(1) Do a visual check of the window post and sill for cracks and corrosion.

(a) For cracks and corrosion, go to the SRM Boeing 737.

SUBTASK 56-12-11-420-004

CAUTION: DO NOT CLOSE THE WINDOW BEFORE ADJUSTMENT. CLOSING THE WINDOW BEFORE ADJUSTMENT CAN CAUSE DAMAGE TO THE WINDOW ASSEMBLY FRAME.

(2) Put the aft lower roller [9] in the lower track [7].

(a) Move the window until the forward edge of the Clothing Guard [5] and the forward edge of the Lower Track [7] align.

(b) Put the Aft Lower Roller [9] on the top of the Lower Track [7] and move the window to find the Track Lip Cutout [11].

(c) Put the Aft Lower Roller [9] through the Track Lip Cutout [11] and into the Lower Track [7].

SUBTASK 56-12-11-420-005

(3) Put the Upper Roller [1] in the Upper Track [10]:

(a) Move the top edge of the window aft.

NOTE: Make sure that the Aft Lower Roller [9] stays in its position when you move the window.

(b) Put the Upper Roller [1] in the Upper Track [10].

SUBTASK 56-12-11-420-006

(4) Put the Forward Lower Roller [3] into the Lower Track [7]:

(a) Put the Forward Lower Roller [3] on the Lower Track [7].

(b) Move the Window Assembly [2] aft until the Forward Lower Roller [3] goes through the Track Lip Cutout [11].

SUBTASK 56-12-11-420-003

(5) Connect the electrical connector to the Receptacle [6].

(a) Turn the connector keyway to the applicable keyway position, do this task: Coil Cord - Inspection, TASK 30-41-00-200-801.

SUBTASK 56-12-11-210-030

(6) Examine the windshield for its electrical resistance.

(a) For windshields that are new, examine the corner of the windshield near the bus bar terminal for the window resistance code.

1) Record the window resistance code.

NOTE: The window resistance code is located on a clear decal with black markings. This code may be covered when the window is installed. It is necessary to know this code when you connect the window heat wiring.

NOTE: For windshields that are new, the window resistance check is not necessary.

(b) When a used windshield is installed, do this task: Check the Electrical Resistance of the Window Heat Film, TASK 30-41-21-000-801 or Check the Electrical Resistance of the Window Heat Film, TASK 30-41-21-760-802

1) Record the window resistance code.

NOTE: It is possible for the window resistance to change with time.

(c) For new windshields that do not have the resistance code on the corner of the windshield, do this task: Check the Electrical Resistance of the Window Heat Film, TASK 30-41-21-000-801 or Check the Electrical Resistance of the Window Heat Film, TASK 30-41-21-760-802.

1) Record the window resistance code.

NOTE: This code is necessary to determine the terminal board tap that matches the resistance measured on the connector terminal.

SUBTASK 56-12-11-760-001

CAUTION: MAKE SURE THAT THE TRANSFORMER TAPS THAT ARE ATTACHED TO THE LEAD HAVE THE SAME RESISTANCE AS THE WINDOW. DIFFERENT RESISTANCES CAN CAUSE DAMAGE TO THE ANTI-ICING SYSTEM.

(7) Make sure that the resistance of the window is the same as the transformer taps (WDM 30-41-11, WDM 30-41-12).

SUBTASK 56-12-11-820-002

CAUTION: DO NOT CLOSE THE WINDOW BEFORE ADJUSTMENT. CLOSING THE WINDOW BEFORE ADJUSTMENT CAN CAUSE DAMAGE TO THE WINDOW ASSEMBLY FRAME.

(8) Do this task: No. 2 Openable Window Adjustment, TASK 56-12-11-820-801.

SUBTASK 56-12-11-640-002

(9) Apply dry film silicone spray, D50118 or MS-122DF lubricant, D50119 or MS-122XD release agent, G50063 or MS-122RB lubricant, D50039 to the tracks, rollers and the mechanisms that touch the tracks.

SUBTASK 56-12-11-710-015

(10) Examine the emergency release handle:

(a) Make sure that the emergency release handle is flush with the skin 0.00 ±0.03 in. (0.00 ±0.76 mm).

(b) If necessary, adjust the emergency release handle: (No. 2 Openable Window Adjustment, TASK 56-12-11-820-801)

SUBTASK 56-12-11-780-001

(11) Make sure that the window is installed correctly, do the cabin pressure leak test (Cabin Pressure Leak Test, TASK 05-51-91-790-801).

SUBTASK 56-12-11-860-003

(12) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
AKS 001-022			
D	2	C00225	WINDOW HEAT CONTROL LEFT SIDE AC
E	2	C00227	WINDOW HEAT CONTROL RIGHT SIDE AC

AKS 001-022 (Continued)

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
AKS ALL			
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE

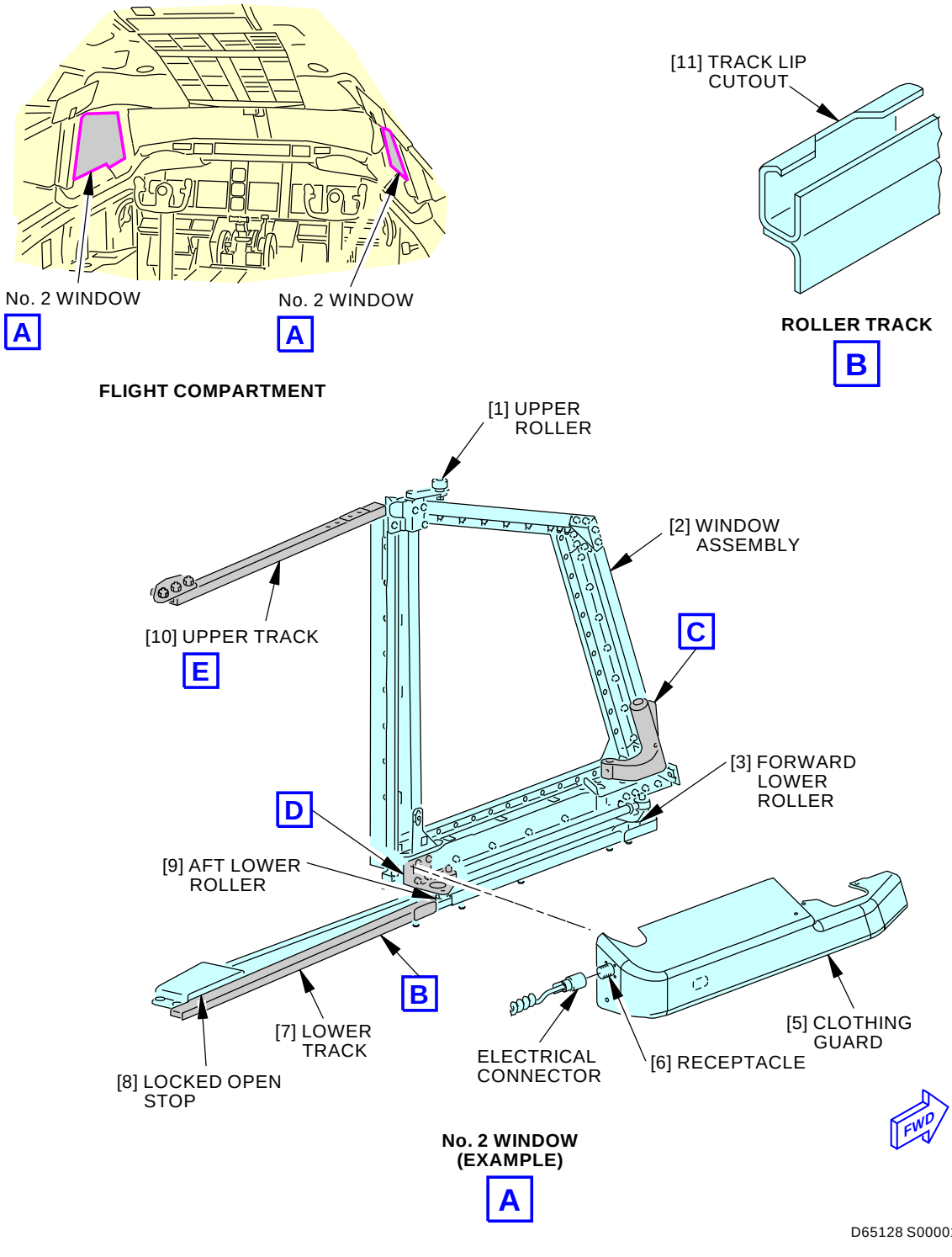
F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

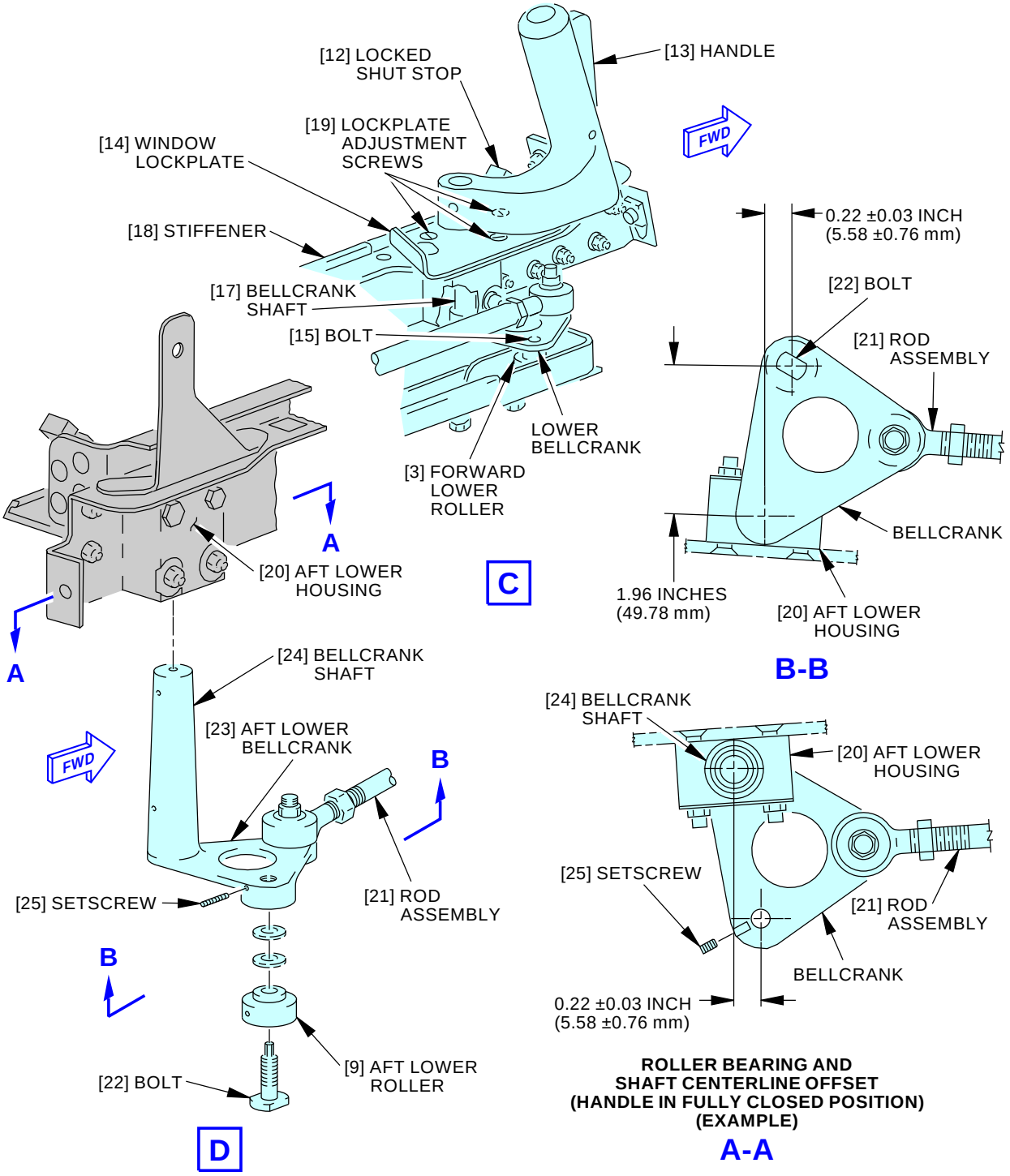
SUBTASK 56-12-11-710-003

(13) Do this task: Window Heat System - Operational Test, TASK 30-41-00-710-801.

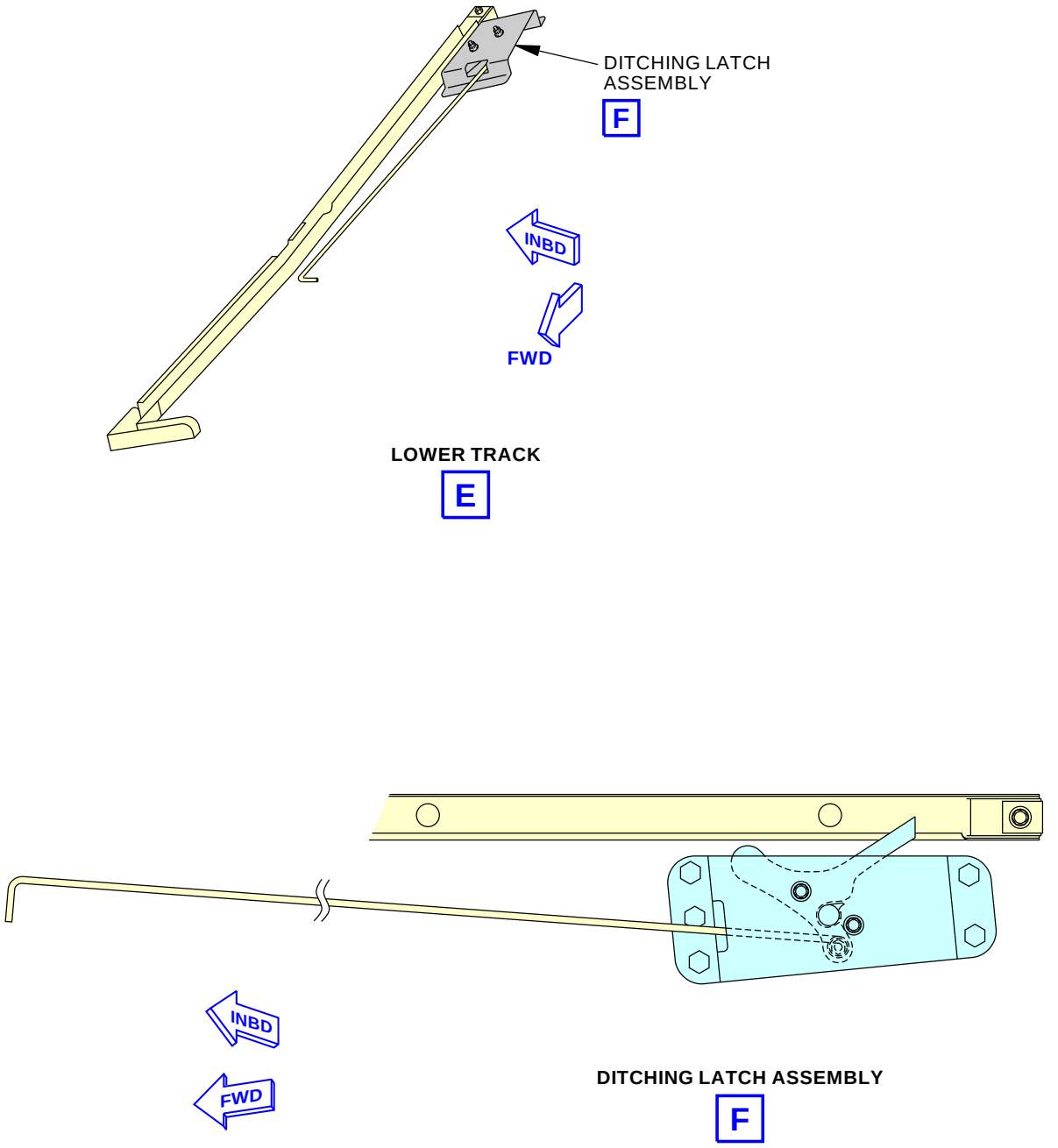
——— END OF TASK ———



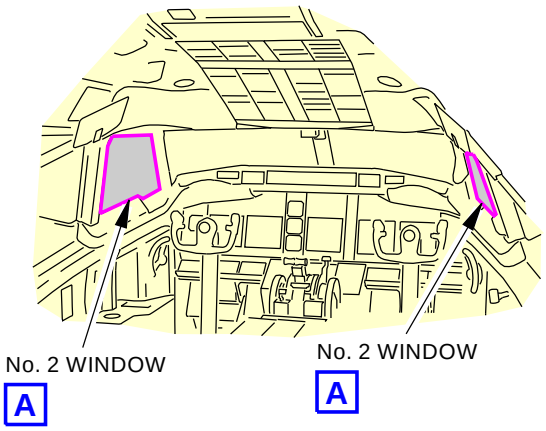
No. 2 Window Installation
Figure 401/56-12-11-990-805 (Sheet 1 of 3)



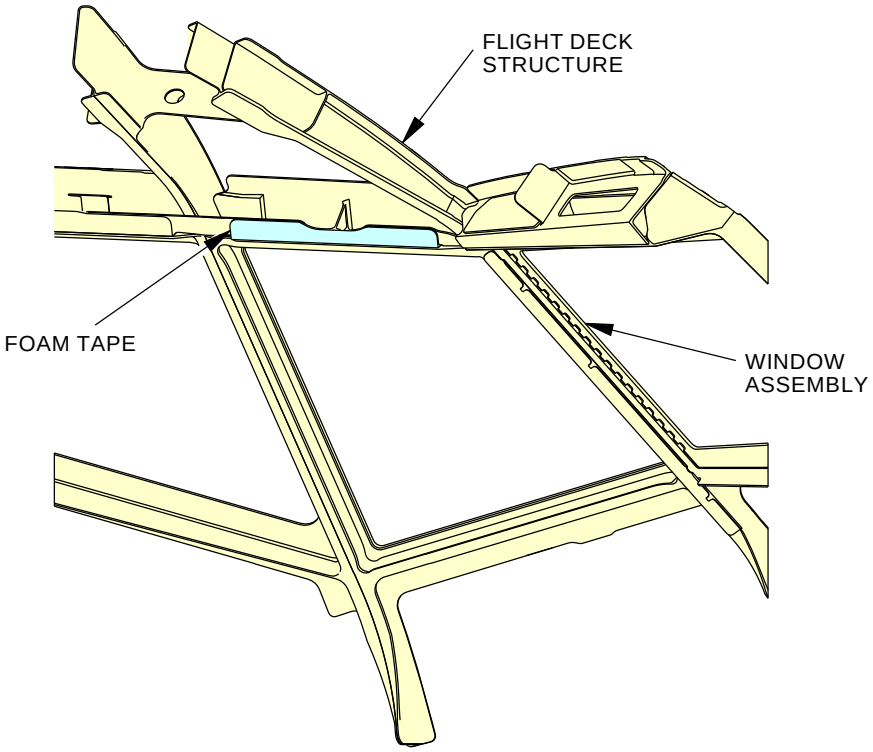
No. 2 Window Installation
Figure 401/56-12-11-990-805 (Sheet 2 of 3)



No. 2 Window Installation
Figure 401/56-12-11-990-805 (Sheet 3 of 3)



FLIGHT COMPARTMENT



No. 2 WINDOW
(EXAMPLE)

A

2371012 S0000542703_V3

Foam Tape Installation
Figure 402/56-12-11-990-824

NO. 2 OPENABLE WINDOW - ADJUSTMENT/TEST

1. General

A. This procedure has these tasks:

(1) An adjustment of the No. 2 openable window.

(2) An operation test of the No. 2 openable window.

(3) A function test of the No. 2 openable window.

TASK 56-12-11-820-801

2. No. 2 Openable Window Adjustment

(Figure 501)

(Figure 502)

A. General

(1) This procedure is for the right and left No. 2 openable windows.

NOTE: It is not always necessary to adjust windows removed from and then installed on the same aircraft. For a window installed on an aircraft for the first time, it is necessary to do to this task.

(2) Do these steps to examine the window assembly. Make all the necessary adjustments to the window assembly. Do this task as many times that are necessary to get correct clearance and rigging.

B. References

Reference	Title
56-12-11-000-801	No. 2 Openable Window Removal (P/B 401)
56-12-11-400-801	No. 2 Openable Window Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
SPL-7425	Socket Assembly - Window Latch (Left and Right Hand) Part #: C56001-1 Supplier: 81205

D. Consumable Materials

Reference	Description	Specification
A00226	Compound - Tamper-Proof Putty	BMS8-45
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00270	Compound - Threadlocking, Low-strength - Loctite 222	
A00562	Adhesive - High Strength Silicone Rubber, One-Part - RTV157	
G01925	Tape - 3M Polyester Film Tape 850 (Formerly 3M No. 850 Tape)	L-T-100

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Prepare for the No. 2 Window adjustment.

SUBTASK 56-12-11-860-004

WARNING: THE WINDOW HEAT SYSTEM MUST BE DISARMED WHEN YOU MAKE AN INSPECTION OF THE WINDOWS. IF THE WINDOW POWER IS ON, YOU CAN GET AN ELECTRICAL SHOCK WHEN YOU TOUCH THE WINDOW. THE SHOCK CAN CAUSE INJURY TO PERSONS.

(1) Move these switches on the pilot's overhead panel to the OFF position and attach DO-NOT-OPERATE tags:

(a) WINDOW HEAT L SIDE.

(b) WINDOW HEAT R SIDE.

SUBTASK 56-12-11-020-009

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

G. Examine the No.2 Window

SUBTASK 56-12-11-820-008

CAUTION: DO NOT CLOSE THE WINDOW BEFORE ADJUSTMENT. CLOSING THE WINDOW BEFORE ADJUSTMENT CAN CAUSE DAMAGE TO THE WINDOW ASSEMBLY FRAME.

(1) Put two layers of 3M 850 tape, G01925 along the forward and aft edges of the window frame.

SUBTASK 56-12-11-210-013

(2) Examine the window assembly to make sure that it attaches into the frame correctly.

(a) Slowly move the window assembly to the closed position:

NOTE: Use two persons if possible to do this step. One external to the aircraft, the other internally to the aircraft to close the window assembly frame. It is necessary for the two personnel to monitor the window while it closes.

1) Make sure that the window assembly frame will not touch the section 41 bolts or frame.

(b) Adjust the window in the Forward-Aft direction if necessary.

(c) Continue with the adjustment task when the window assembly frame does not hit the section 41 bolts or frame.

SUBTASK 56-12-11-820-009

(3) Close the window:

(a) Move the window assembly forward.

(b) Turn the handle to lock the window assembly into the closed position.

SUBTASK 56-12-11-820-012

(4) Open the window:

(a) Turn the handle to unlock the window assembly.

(b) Move the window assembly aft into the open position.

SUBTASK 56-12-11-210-017

(5) Examine the 3M 850 tape, G01925 on the window assembly frame for grooves or tears.

NOTE: Grooves and tears on the tape show areas that touch between the window assembly and the section 41 frame.

NOTE: The tape is used to make sure that the window assembly does not touch the frame. The tape can be removed after the adjustments.

(a) Adjust the window assembly to remove areas that touch the section 41 frame.

1) Adjust the window in the Forward-Aft direction if necessary.

2) Remove a shim washer [27] from the lower aft roller if necessary.

NOTE: When the window assembly frame touches in the top forward corner only, remove a shim washer [27] from the lower aft roller [25].

SUBTASK 56-12-11-820-013

(6) Close the window:

(a) Move the window assembly forward.

(b) Turn the handle to lock the window assembly into the closed position.

SUBTASK 56-12-11-210-016

(7) Measure the forward and aft clearances between the window assembly frame and the section 41 window frame (Figure 502):

(a) The clearance for the forward edge must be 0.08 ±0.03 in. (2.03 ±0.76 mm)

(b) The clearance for the aft edge must be 0.08 +0.14 / -0.06 in. (2.03 +3.56 / -1.53 mm)

(c) If the clearance is out of the tolerance, adjust the window in the Forward-Aft direction.

(d) If the clearance decreases to one side along the forward or aft edges, adjust the window about the Inboard-Outboard axis.

NOTE: Adjustments to the window about the Inboard-Outboard axis will change the forward, aft, top, and bottom clearances.

(8) Measure the top and bottom clearances between the window assembly frame and the section 41 window frame:

(a) Make sure that the window assembly does not hit the upper or lower window sill when it is opened or closed.

(b) The clearance for the top and bottom edges must be 0.12 ±0.10 in. (3.05 ±2.54 mm).

(c) If the clearance is out of the tolerance, adjust the window vertically.

(d) If the clearance decreases to one side along the top or bottom edges, adjust the window about the Inboard-Outboard axis.

NOTE: Adjusting the window about the Inboard-Outboard axis will change the forward, aft, top, and bottom clearances.

SUBTASK 56-12-11-220-001

(9) Do a check of the flushness of the window assembly (Figure 501) (Section A-A):

(a) The flushness for the forward top corner must be 0.04 +0.11 / -0.03 in. (1.02 +2.80 / -0.77 mm).

(b) The flushness for the 3 other corners must be 0.04 +0.06 / -0.03 in. (1.02 +1.53 / -0.77 mm).

(c) If the flushness is out of the tolerance, adjust the window in the Inboard-Outboard direction.

SUBTASK 56-12-11-820-014

(10) Open the window:

(a) Turn the handle to unlock the window assembly.

(b) Move the window assembly aft into the open position.

SUBTASK 56-12-11-210-008

(11) Make sure that the window rollers move freely in the tracks.

(a) Make sure that the window assembly frame moves freely and does not touch the section 41 frame.

(b) Add or remove washers to adjust the rollers to move freely in their tracks if necessary.

NOTE: Adjustments to the window about the Inboard-Outboard axis will change the forward, aft, top, and bottom clearances.

SUBTASK 56-12-11-280-001

(12) Measure the force necessary to open and close the window:

(a) Make sure that the force necessary to close the window is 45 ±15 lbf (200 ±67 N) or a torque of 97.5 ±32.5 in-lb (11.0 ±3.7 N·m).

NOTE: Measure the Force on the handle at a right angle to the handle centerline.

NOTE: If available, use the window latch socket, SPL-7425 to help you with the window/latch torque specifications.

(b) Make sure that the force necessary to open the window is 45 +15 / -26 lbf (200 +67 / -116 N) or a torque of 97.5 +32.5 / -57.5 in-lb (11.0 +3.7 / -6.5 N·m).

NOTE: Measure the Force on the handle at a right angle to the handle centerline.

NOTE: If available, use the window latch socket, SPL-7425 to help you with the window/latch torque specifications.

(c) If the force is out of the limits, adjust the force necessary to open and close the window.

H. Adjust the No. 2 Window

SUBTASK 56-12-11-010-005

(1) Remove the clothing guard [5] if it is necessary to do the adjustment.

SUBTASK 56-12-11-020-010

(2) Do this task: No. 2 Openable Window Removal, TASK 56-12-11-000-801.

SUBTASK 56-12-11-820-003

(3) Adjust the Foward-Aft position of the window assembly if it is necessary:

(a) The clearance for the forward edge must be 0.08 ±0.03 in. (2.03 ±0.76 mm)

(b) The clearance for the aft edge must be 0.08 +0.14 / -0.06 in. (2.03 +3.56 / -1.53 mm)

(c) Put a mark on the serrated plate [10] to record the position of the guide pin [8] before adjustment.

(d) Move the guide pin [8] forward or aft to get to the specified clearance:

1) Lift the bulb pressure seal [7] out of the groove in the window rim to get access to the countersunk bolt.

NOTE: It is not necessary to remove all of the bulb pressure seal [7] out of the groove.

2) Loosen the attachment bolts [9] which attach the guide pin [8] to the serrated plate [10].

3) Move the guide pin [8]:

NOTE: There are 28 serrations per 1 in. (25 mm) on the serrated plate. Each serration will move the guide pin [8] 0.036 in. (0.914 mm) forward or aft.

a) Move the guide pin [8] forward to move the window assembly aft if necessary.

b) Move the guide pin [8] aft to move the window assembly forward if necessary.

4) Tighten the bolts [9] on the guide pin [8].

SUBTASK 56-12-11-820-005

(4) Adjust the vertical position of the window if it is necessary:

(a) The clearance for the top and bottom edges must be 0.12 ±0.10 in. (3.05 ±2.54 mm)

(b) To increase the vertical position of the window assembly:

1) Add a shim washer [27] between the lower bellcranks [4] and [23] and the lower rollers [25]:

a) Loosen the set screw [24] in the bellcrank.

b) Remove the special bolt [26].

c) Add a shim washer [27] to the forward lower roller [25] and to the aft lower roller [25]:

<1> Do not add more than 8 shim washers [27] to one roller.

<2> Add an equal number of shim washers [27] to each lower roller, if necessary.

NOTE: This will adjust the window assembly vertically only.

<3> Add shim washers [27] to the forward lower roller [25] or aft lower roller [25], if necessary.

NOTE: This will turn the window assembly about the Inboard-Outboard axis.

d) Install the special bolt [26].

e) Tighten the set screw [24].

2) Remove a shim washer [14] from between the upper bellcrank [16] and the upper roller [13] (detail B):

a) Remove the special screw [11] from the upper bellcrank [16].

b) Remove a shim washer [14].

NOTE: It is permitted to remove all shim washers [14] if it is necessary.

c) Install the special screw [11].

(c) To decrease the vertical position of the window assembly:

1) Remove a shim washer [27] between the lower bellcranks [4] and [23] and the lower rollers [25]:

a) Loosen the set screw [24] in the bellcrank.

b) Remove the special bolt [26].

c) Remove a shim washers [27] from the forward lower roller [25] and from the aft lower roller [25]:

<1> Remove an equal number of shim washers [27] to a minimum of 1 shim washer [27] for each lower roller, if necessary.

NOTE: This will adjust the window assembly vertically only.

<2> Remove shim washers [27] to a minimum of 1 shim washer [27] from the forward or aft lower roller [25], if necessary.

NOTE: This will turn the window assembly about the Inboard-Outboard axis.

d) Install the special bolt [26].

e) Tighten the set screw [24].

2) Add a shim washer [14] between the upper bellcrank [16] and the upper roller [13] (detail B):

a) Remove the special screw [11] from the upper bellcrank [16].

b) Add a shim washer [14].

c) Do not add more than 10 shim washers [14].

d) Install the special screw [11].

SUBTASK 56-12-11-820-006

(5) Adjust the upper roller [13] to move freely and to not bind if it is necessary (detail B):

(a) Change the number of shim washers [14] between the upper bellcrank [16] and the upper roller [13]:

1) Remove the special screw [11] from the upper bellcrank [16].

2) Add or remove shim washers [14] between the upper bellcrank [16] and the upper roller [13]:

3) Do not add more than 10 shim washers [14].

NOTE: It is permitted to remove all shim washers [14] if it is necessary.

4) Install the special screw [11].

SUBTASK 56-12-11-820-004

(6) Adjust the handle force and the Inboard-Outboard position of the window assembly if it is necessary:

(a) Use the window latch socket, SPL-7425 to adjust the handle force and the Inboard-Outboard position of the window assembly

(b) The force necessary to close the window must be 45 ±15 lbf (200 ±67 N) or a torque of 97.5 ±32.5 in-lb (11.0 ±3.7 N·m).

NOTE: Measure the force on the handle at a right angle to the handle centerline.

(c) The force necessary to open the window must be 45 +15 / -26 lbf (200 +67 / -116 N) or a torque of 97.5 +32.5 / -57.5 in-lb (11.0 +3.7 / -6.5 N·m).

NOTE: Measure the force on the handle at a right angle to the handle centerline.

NOTE: If available, use the window latch socket, SPL-7425 to help you with the window/latch torque specifications.

(d) The clearance for the forward top corner must be 0.04 +0.11 / -0.03 in. (1.02 +2.80 / -0.77 mm).

(e) The clearance for all the other corners must be 0.04 +0.06 / -0.03 in. (1.02 +1.53 / -0.77 mm).

(f) Loosen attachment bolts [18] and [28] which attach the three control housings [2], [3] and [22] to the window rim.

(g) Pull the bulb pressure seal [7] out of the groove in the window rim to get access to the countersunk bolt.

NOTE: It is not necessary to remove all of the bulb pressure seal [7] out of the groove.

(h) Pull out the bolts and gently pull the housing from the window rim and corner fitting to get access to the shims [17] or [21].

(i) Add or remove an equal number of shims [17] and [21] to get the correct handle force, if necessary.

NOTE: To adjust the force necessary to close the window it is preferable to add or remove the same number of shims at all three control housings.

NOTE: This will change the handle force and window assembly position at the same time.

1) Add shims to increase the handle torque.

2) Remove shims to decrease the handle torque.

(j) Add or remove shims [17] and [21] from each control housing [2], [3] and [22] to adjust the Inboard-Outboard position of each corner of the window assembly, if necessary.

NOTE: This will change the handle force and window assembly position at the same time.

1) Add shims to increase the handle torque.

2) Remove shims to decrease the handle torque.

(k) Install control housing [3] and [22].

(l) Install bolts [18] and [28].

SUBTASK 56-12-11-210-018

(7) Examine the window assembly to make sure that it attaches into the frame correctly:

(a) Make sure that the window assembly frame will not touch the section 41 bolts or frame.

(b) Adjust the window in the Forward-Aft direction if necessary.

(c) Continue with the adjustment task when the window assembly frame does not hit the section 41 bolts or frame.

SUBTASK 56-12-11-820-011

(8) Examine the window assembly again:

(a) Do the steps to examine the window assembly again.

(b) Do the steps to adjust the window assembly again, if necessary.

1) Do all the steps to examine the window assembly after each time that the window assembly is adjusted.

(c) Do this task as many times that are necessary to get correct clearance and rigging.

SUBTASK 56-12-11-410-004

(9) Do these steps after the checks to examine the window assembly are completed, and it will receive no more adjustments.

(a) Permanently install bolts [18] and [28] into the control housings [2], [3], [22] with sealant, A00247 class B1/2 applied to the heads and shanks.

(b) Permanently install bolts [9] into the guide pin [8] with sealant, A00247 class B1/2 applied to the heads and shanks.

(c) Permanently install the setscrews [24]:

1) Remove the setscrews [24].

2) Install the setscrew [24] with sealant, A00247 to touch the flat area of the bolt [26].

(d) Apply compound, A00226 to the bolts [18], [28] and to the setscrews [24].

(e) Permanently install the bulb seal:

1) Use RTV157 adhesive, A00562 between the bulb seal and window assembly frame at each corner.

2) Apply the RTV157 adhesive, A00562 to extend from each corner by 3 in. (76 mm).

SUBTASK 56-12-11-420-007

(10) Install the window assembly in its tracks: (No. 2 Openable Window Installation, TASK 56-12-11-400-801)

(a) Connect the window heat leads to the terminal board [6].

SUBTASK 56-12-11-980-004

(11) Close the window:

(a) Move the window assembly forward.

(b) Turn the handle to lock the window assembly into the closed position.

I. Adjust the emergency exit release mechanism.

(Figure 503)

NOTE: For windows with an emergency exit release only.

SUBTASK 56-12-11-820-007

(1) Adjust the external release handle [5] if it is not aligned with the external skin:

(a) Remove the cockpit trim panel below the No. 2 window.

(b) Increase or decrease the length of the turnbuckle [4] and turn the eccentric bushing [2] as necessary.

(c) Install the lockwire or a lockclip on the turnbuckle [4].

(d) Install pin assembly [12] with Loctite 222 compound, A00270 or sealant, A00247.

NOTE: It is possible that the pin assembly [12] will move and prevent the window from opening. Sealant on the pin assembly will let the release cams operate correctly to let the window open.

(e) Install the cockpit trim panel.

SUBTASK 56-12-11-980-005

(2) Make sure that the window unlocks, opens, closes and locks freely when the emergency release handle is aligned with the external skin.

SUBTASK 56-12-11-210-009

(3) Make sure the lower cam assembly [7] and the camshaft assembly [8] are engaged correctly (Section A-A).

(a) Close and lock the window.

(b) Make sure that the upper end of the camshaft pin [9] is not more than 0.02 in. (0.51 mm) above or 0.04 in. (1.02 mm) below the upper surface of the lower cam assembly cam [10].

NOTE: To see the camshaft pin, look between the lower edge of the clothing guard and the cockpit trim panel in the area of the forward lower bellcrank.

(c) Unlock and open the window.

(d) Make sure that the bottom end of the camshaft pin [9] is not below the bottom surface of the camshaft assembly cam [11].

(e) If the camshaft pin [9] is more than 0.02 in. (0.51 mm) above the upper surface of the lower cam [10], and the pin is not below the camshaft assembly cam [11]:

1) Grind the camshaft pin [9] to shorten it.

2) Assemble the camshaft assembly [8].

(f) If the camshaft pin [9] is more than 0.04 in. (1.02 mm) below the upper surface of the lower cam assembly cam [10], and the pin is not below the camshaft assembly cam [11]:

1) Adjust the vertical position of the window assembly to move the lower cam assembly [7] down.

(g) If the lower end of the camshaft pin [9] is below the lower surface of the camshaft assembly cam [11], replace the camshaft assembly [8].

——— END OF TASK ———

TASK 56-12-11-710-803

3. No. 2 Openable Window Operational Check

NOTE: This procedure is a scheduled maintenance task.

A. References

Reference	Title
56-12-11-300-803	Replace the No. 2 Window Handle Trigger Return Spring (P/B 201)

B. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

C. Prepare for the No. 2 window operational check.

SUBTASK 56-12-11-710-012

WARNING: DO NOT TOUCH THE WINDOW UNLESS THE CIRCUIT BREAKERS ARE OPEN, AND THE WINDOW HEAT SWITCHES ARE OFF. ELECTRICAL SHOCK CAN CAUSE INJURIES TO PERSONNEL.

(1) Move these switches on the pilot's overhead panel to the OFF position and attach DO-NOT-OPERATE tags:

(a) WINDOW HEAT L SIDE

(b) WINDOW HEAT R SIDE

SUBTASK 56-12-11-710-013

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

D. Procedure

SUBTASK 56-12-11-710-010

(1) Do a check of the window operation.

(a) Make sure that the window unlocks, and that the handle turns freely when you pull the trigger.

(b) Make sure that the window moves freely on the tracks.

(c) Make sure that the window open lock holds the window open.

(d) Make sure that the window can be unlocked from the open position.

(e) Make sure that the window locks shut when the handle is fully forward and the trigger is released.

(f) Make sure that the lock pin on the handle fully engages the lockplate as shown in View A-A of the (Figure 504).

NOTE: Window is in the closed/locked position. Lower surface of the lock pin to be flush to lower surface of lockplate within +0.020 in. (0.508 mm)/-0.000 in. (0.000 mm). If window handle operation is not effected, then the clearance can greater than 0.020 in. (0.5080 mm)

NOTE: You can adjust the lock bolt protrusion through the lockplate by adjusting the stiffener location, up or down.

(g) Make sure that the trigger returns fully when it is released.

1) If the trigger does not return fully, replace the trigger return spring (TASK 56-12-11-300-803).

SUBTASK 56-12-11-710-011

(2) Do a check of the emergency exit release mechanism.

(a) Make sure that the window unlocks and opens when the external release handle is pulled.

(b) Make sure that the external release handle is aligned with the skin when the handle is in the flight position.

E. Put the Airplane Back to its Usual Condition.

SUBTASK 56-12-11-860-010

(1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

SUBTASK 56-12-11-800-004

(2) Remove the DO-NOT-OPERATE tags from these switches on the pilot's overhead panel:

(a) WINDOW HEAT L SIDE.

(b) WINDOW HEAT R SIDE.

——— END OF TASK ———

TASK 56-12-11-720-801

4. No. 2 Openable Window Functional Check

A. Procedure

SUBTASK 56-12-11-710-008

(1) Do a check of the following window functions:

(a) The window unlocks and that the handle turns freely when you pull the trigger.

(b) The window moves freely on the tracks when opening and closing.

(c) The window open lock holds the window open and the window can be unlocked from the open position.

(d) The window locks shut when the handle is fully forward and the trigger is released.

(e) Make sure that the lock bolt on the handle fully engages to the lock plate. See Figure 504, view A-A.

NOTE: The window is in the closed/locked position at this point.

(f) Make sure that the lock bolt is flush to the lower surface of the stiffener within 0.020 in. (0.508 mm) to 0.000 in. (0.000 mm). If the lock bolt is not flush to the lower surface of the stiffener within the noted range, then adjust the stiffener as noted below.

NOTE: If the window handle operation is not affected, the lock bolt protrusion can be more than 0.020 in. (0.508 mm).

1) Loosen the bolts, washers and nuts that are common to the basic stiffener, housing and lock plate.

2) Adjust the basic stiffener by moving it up or down through the slotted holes until the lock bolt protrusion from the lower surface of the stiffener is within 0.020 in. (0.508 mm) to 0.000 in. (0.000 mm).

3) Once the lock bolt is within the noted range, hold the basic stiffener in place and tighten all the bolts.

NOTE: The stiffener flange between the lock plate and basic stiffener is a sheet metal with a thickness of 0.050 in. (1.270 mm). It might slightly deflect to adjust the lock bolt protrusion to be flush within 0.000 in. (0.000 mm) to 0.020 in. (0.508 mm).

(g) Make sure that the trigger returns fully when it is released.

(h) The force necessary to close the window is within the range of 45 ±15 pounds (200 ± 67 newtons).

SUBTASK 56-12-11-710-009

(2) Do a check of the emergency exit release mechanism.

(a) Make sure that the window unlocks and opens when the external release handle is pulled.

NOTE: The maximum force necessary to pull the external release handle is 110 pounds (489 newtons).

(b) Make sure that the external release handle is aligned with the skin when the handle is in the flight position.

B. Put the Airplane Back to its Usual Condition.

SUBTASK 56-12-11-860-009

(1) Remove the safety tags and close these circuit breakers:

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

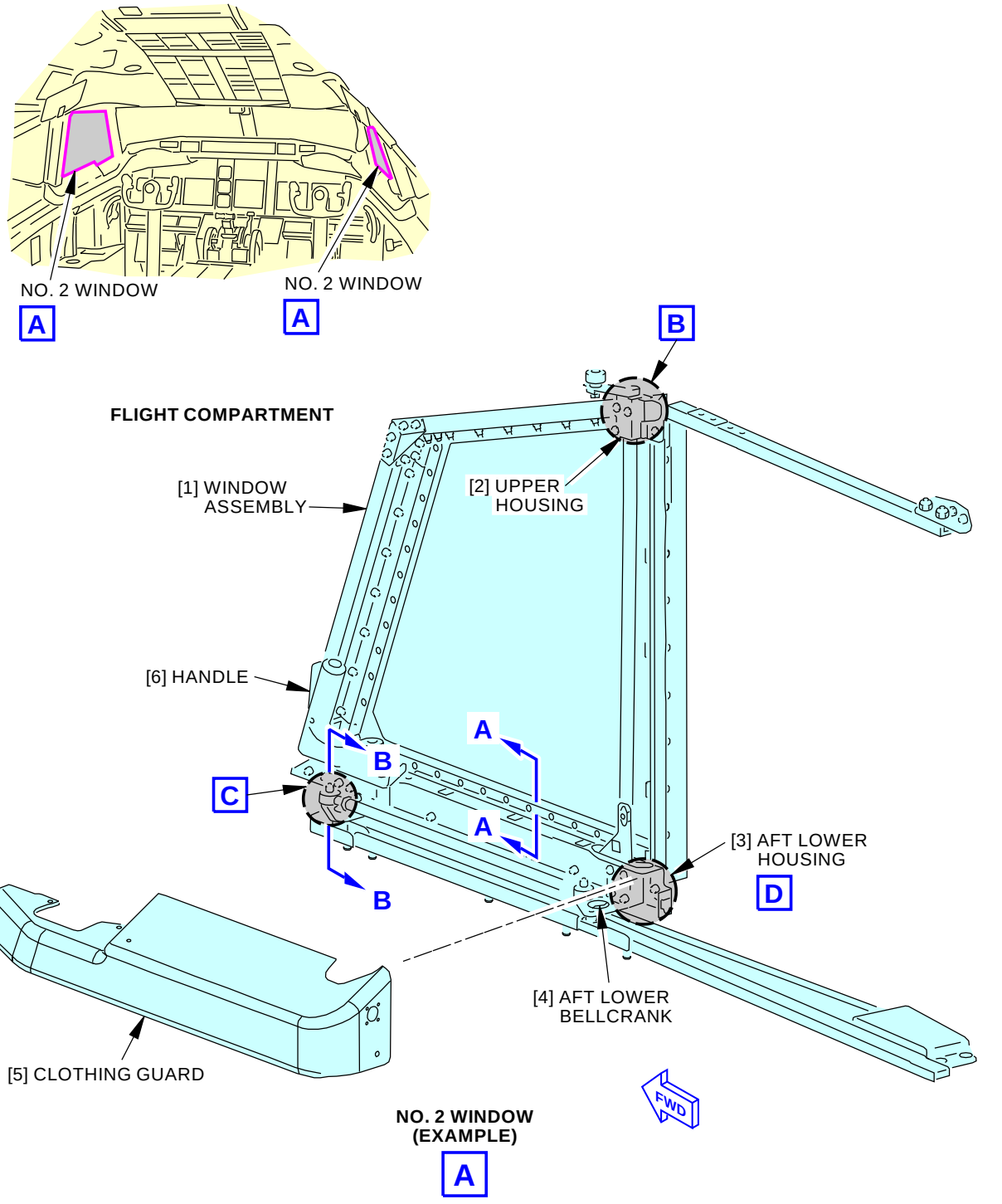
SUBTASK 56-12-11-800-003

(2) Remove the DO-NOT-OPERATE tags from these switches on the pilot's overhead panel:

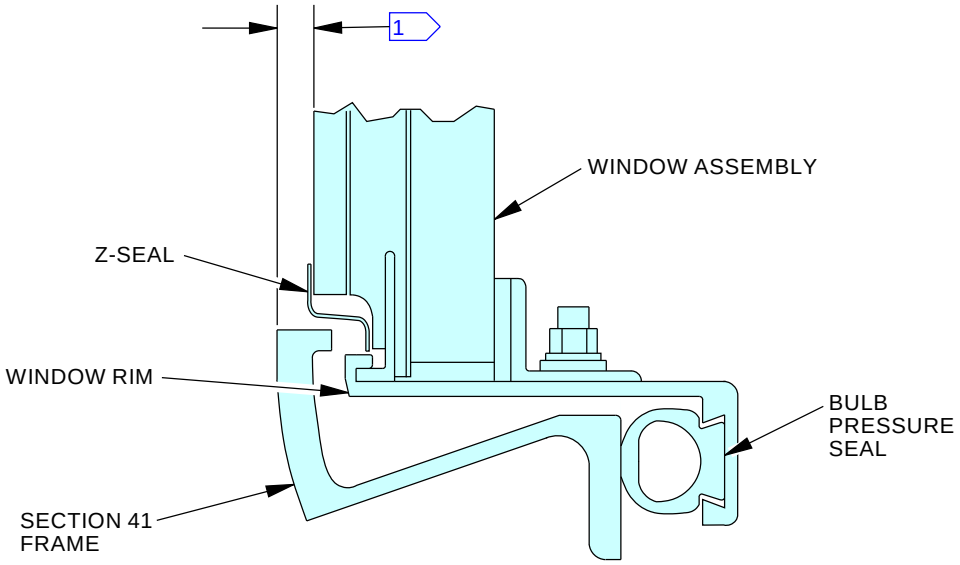
(a) WINDOW HEAT L SIDE.

(b) WINDOW HEAT R SIDE.

——— END OF TASK ———



No. 2 Window Adjustment
Figure 501/56-12-11-990-806 (Sheet 1 of 5)



A-A

NOTE:

WINDOW FAIR NOT PRESSURIZED:
THE WINDOW RIM CAN RECLINE INWARD
FROM THE INNER SURFACE OF FRAME
SUPPORT FLANGE AS SHOWN.

1 FLUSHNESS:
TOP FORWARD CORNER: 0.04 +0.11/-0.03 INCH (1.02 +2.8/-0.77 mm)
THE OTHER 3 CORNERS: 0.04 +0.06/-0.03 INCH (1.02 +1.53/-0.77 mm)

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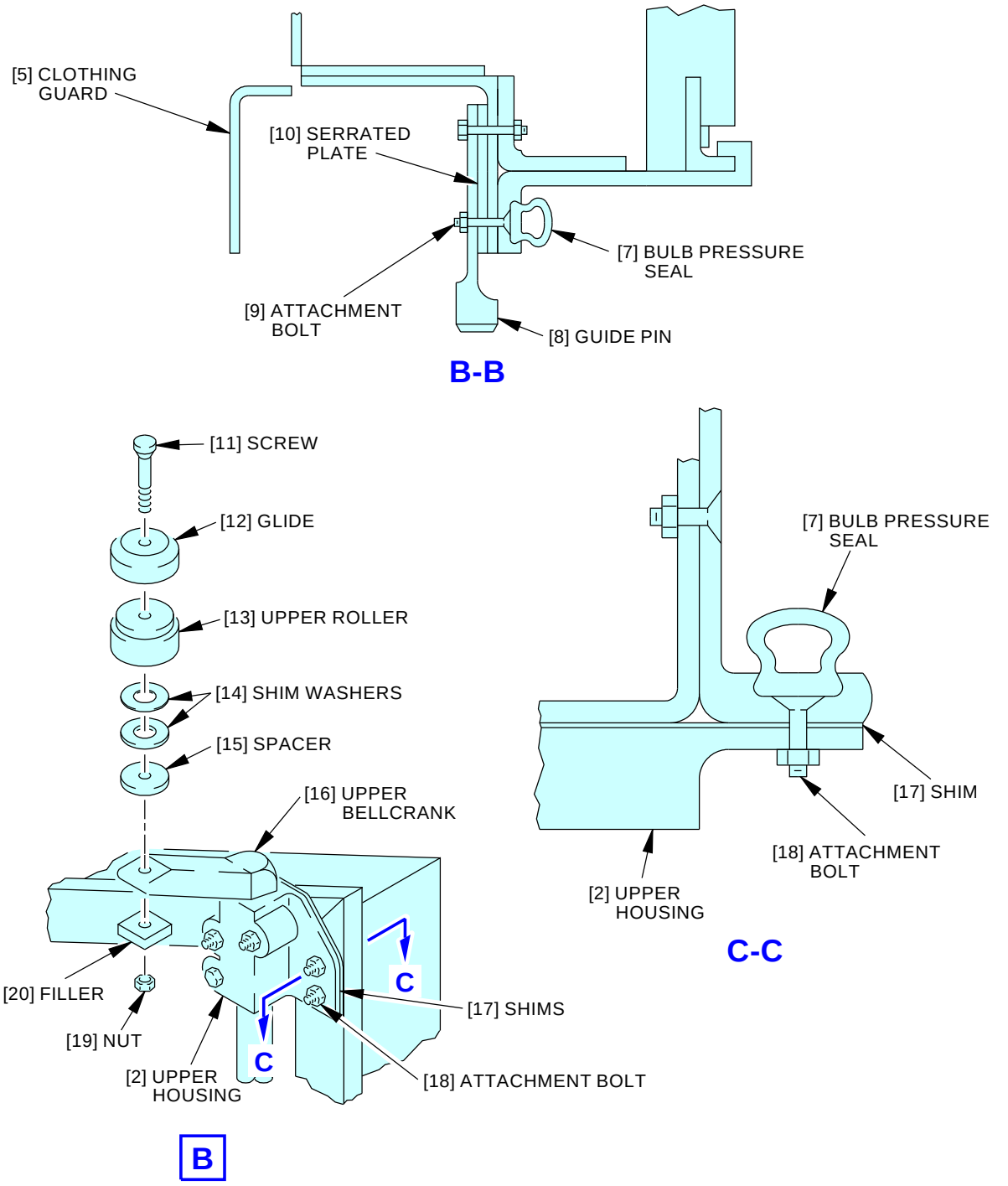
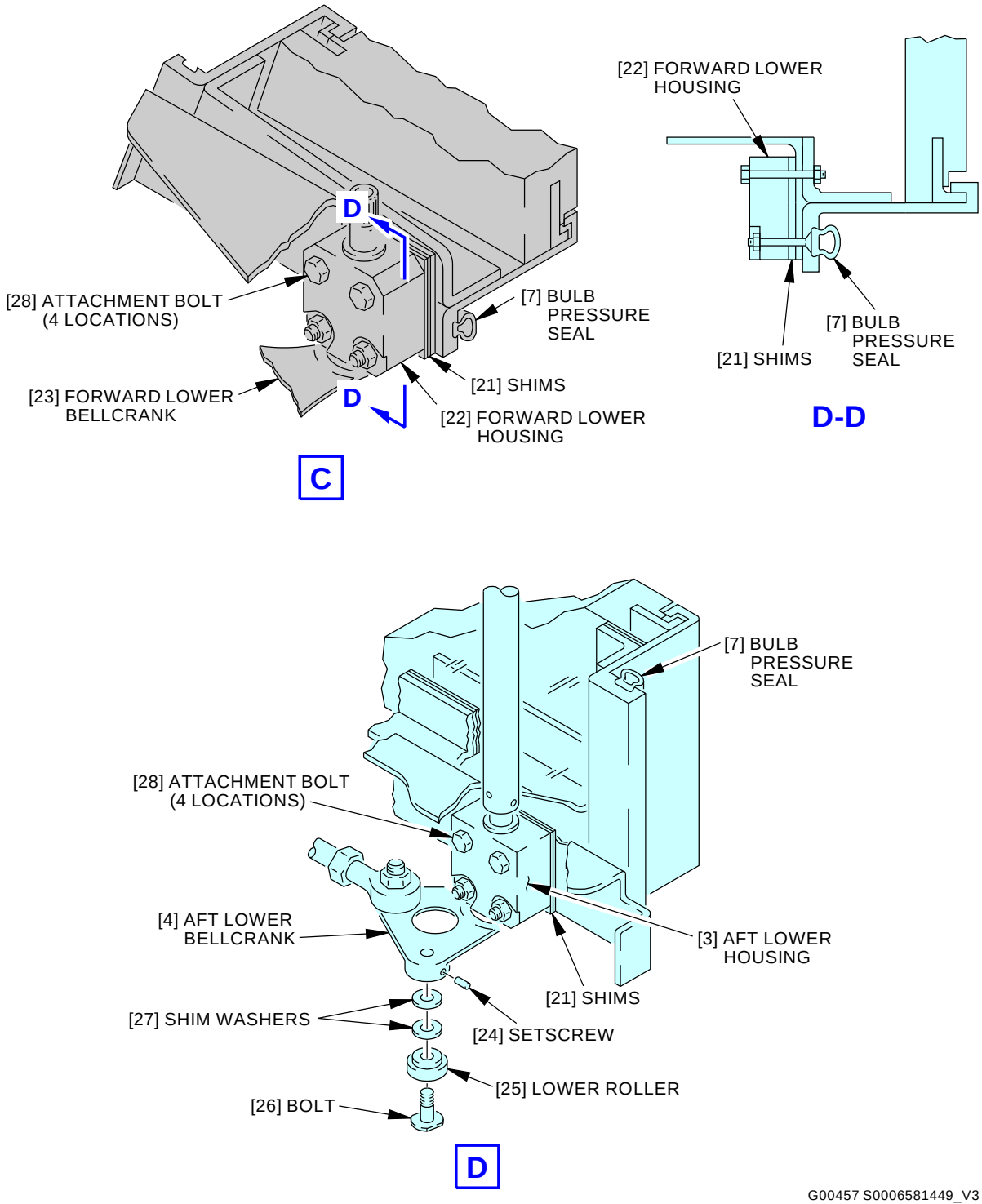
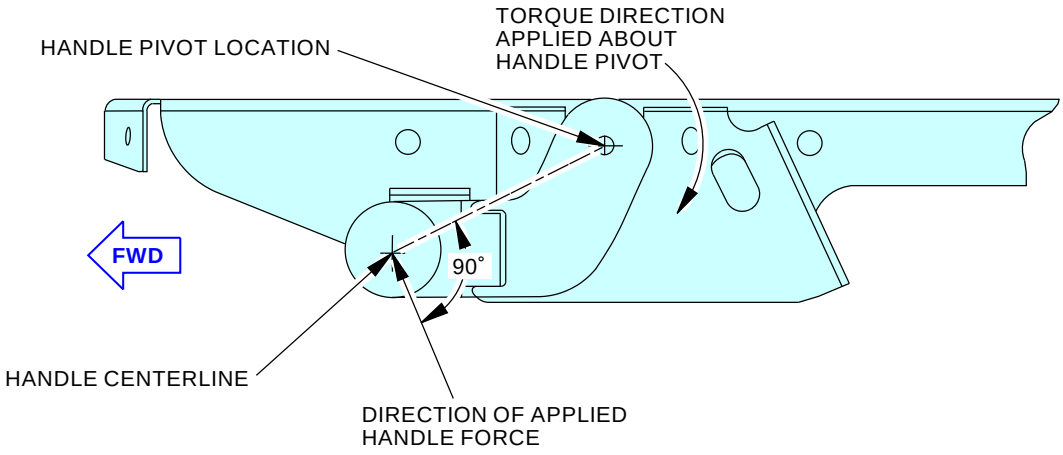
No. 2 Window Adjustment
Figure 501/56-12-11-990-806 (Sheet 2 of 5)



No. 2 Window Adjustment
Figure 501/56-12-11-990-806 (Sheet 3 of 5)



No. 2 Window Adjustment
Figure 501/56-12-11-990-806 (Sheet 4 of 5)



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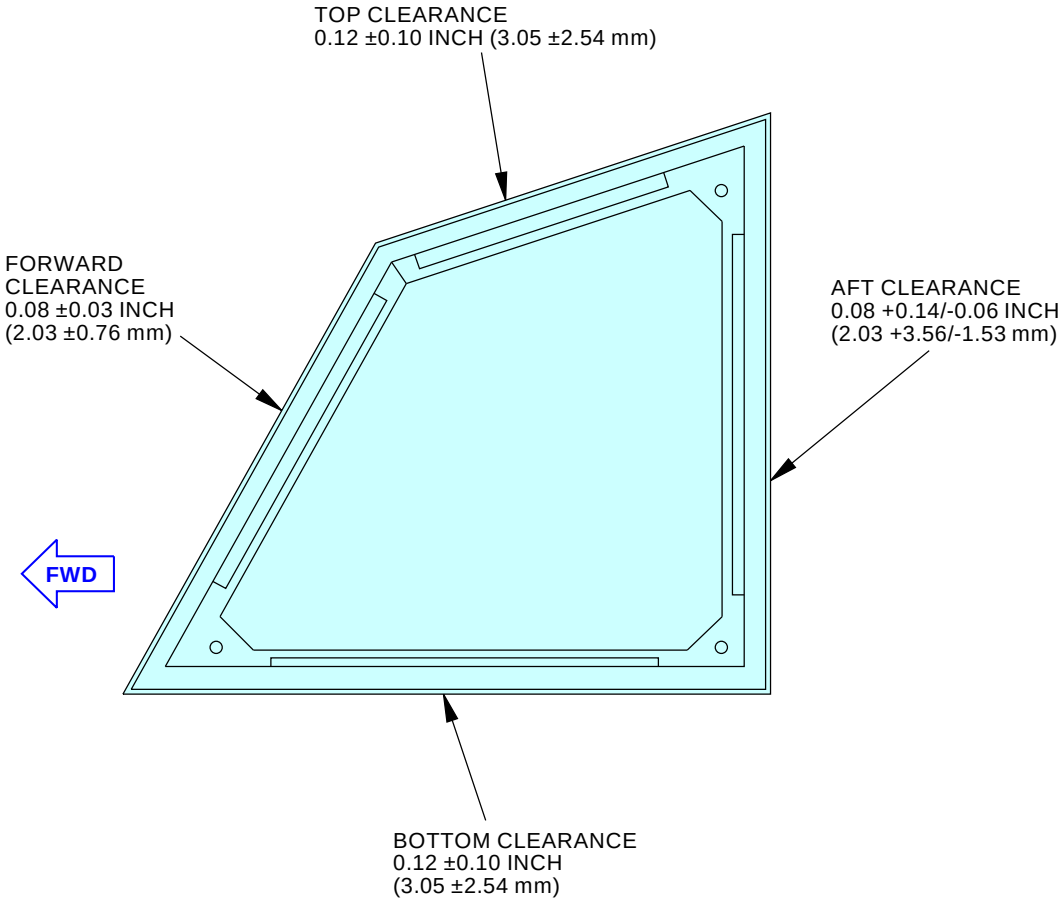
No. 2 Window Adjustment
Figure 501/56-12-11-990-806 (Sheet 5 of 5)



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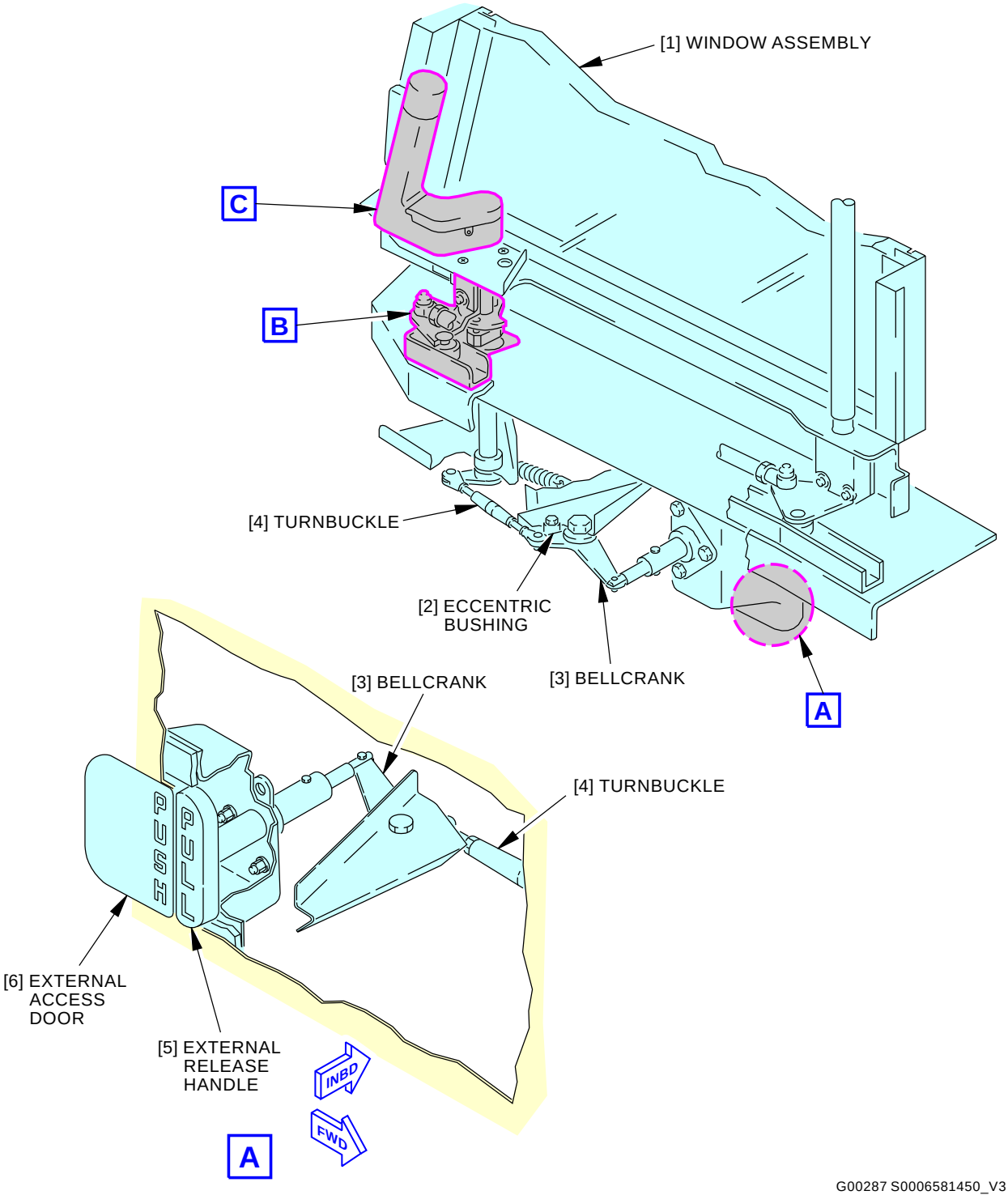
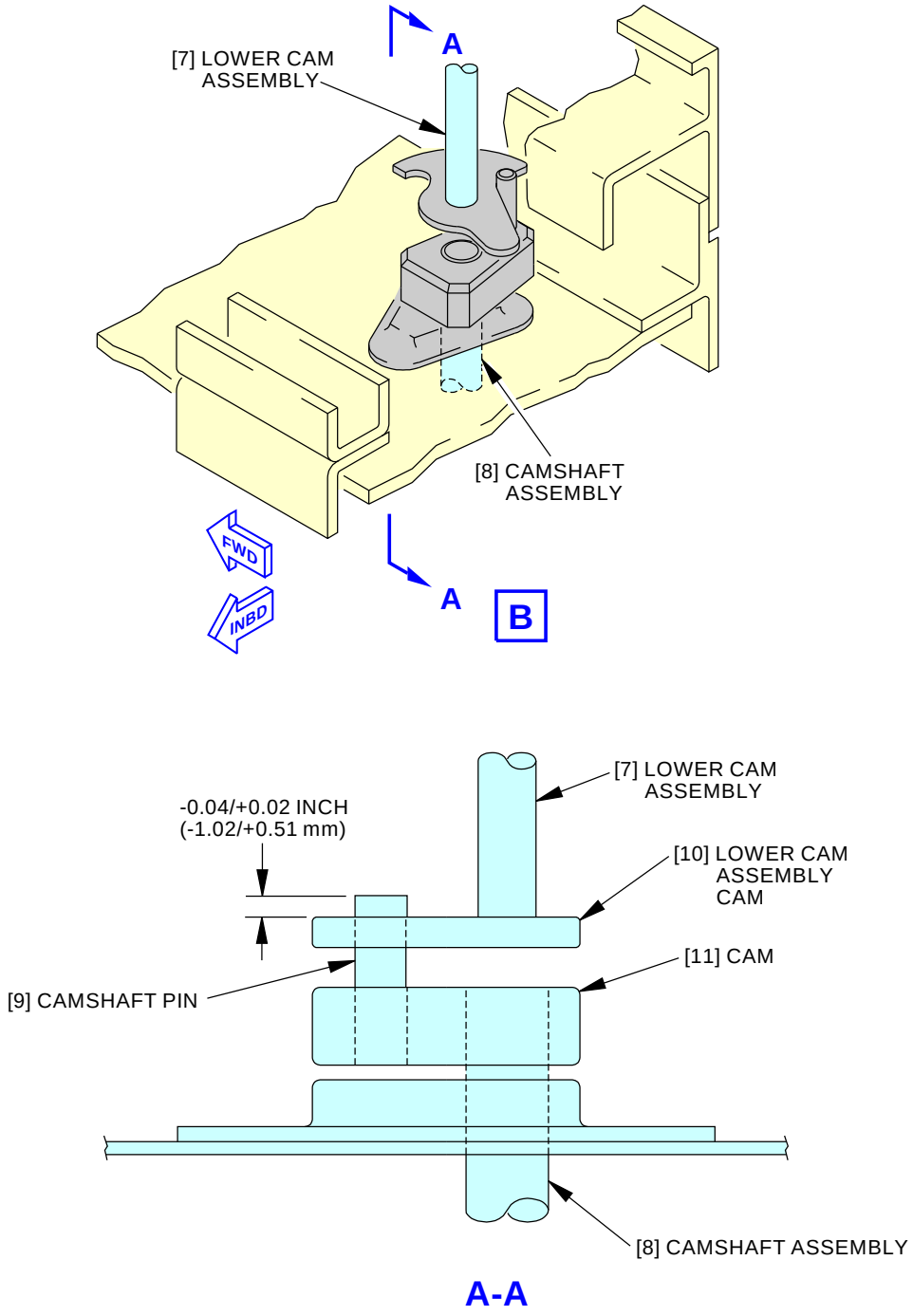
No. 2 Window Clearance
Figure 502/56-12-11-990-811



Emergency Exit Release Adjustment
Figure 503/56-12-11-990-807 (Sheet 1 of 3)



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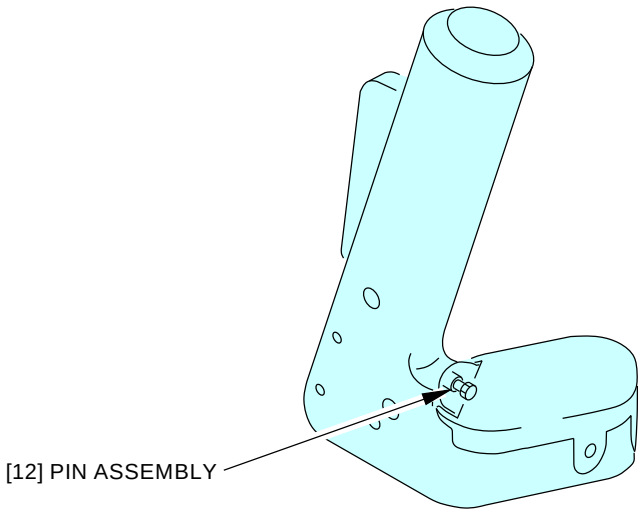
Emergency Exit Release Adjustment
Figure 503/56-12-11-990-807 (Sheet 2 of 3)



C

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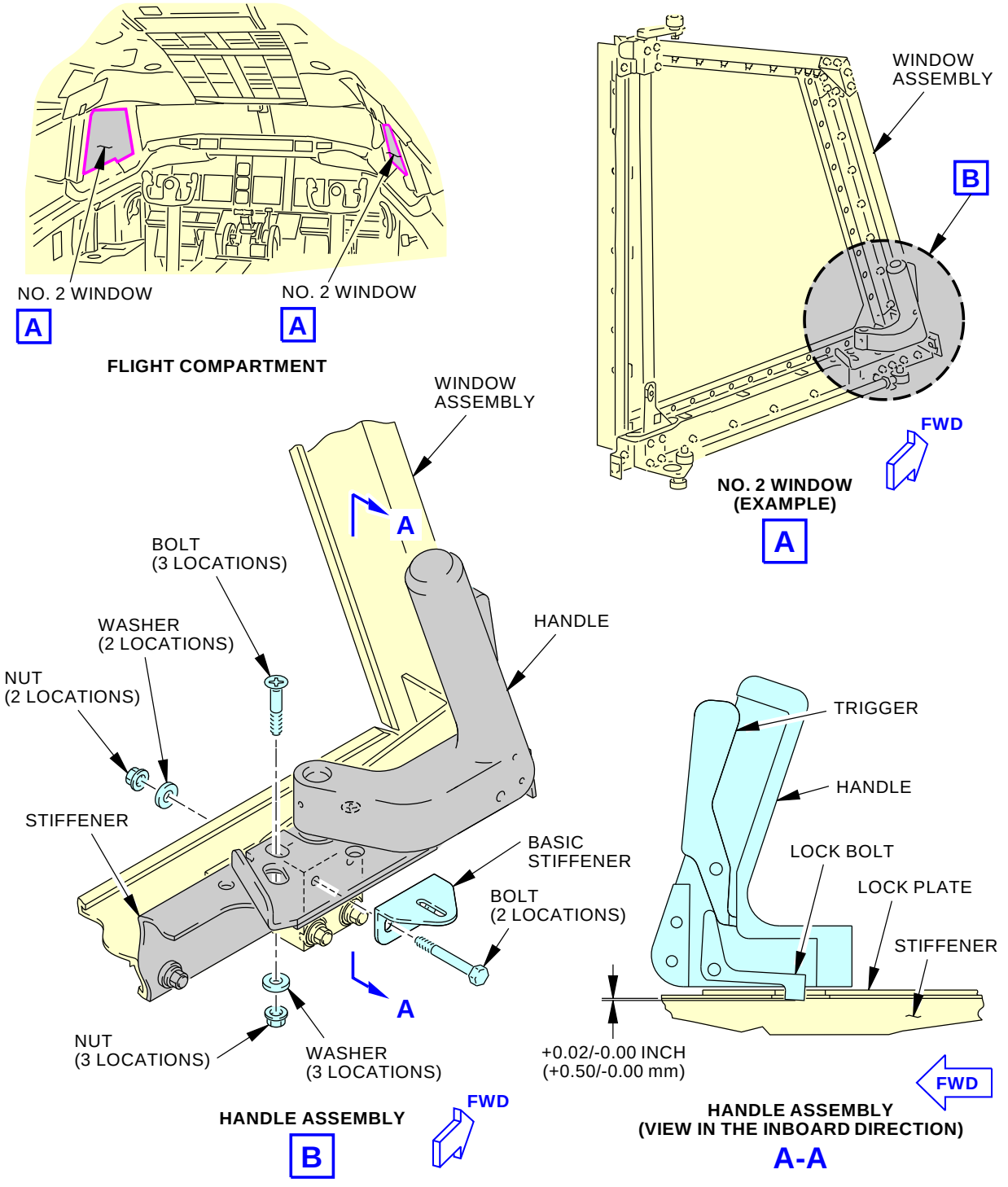
Emergency Exit Release Adjustment
Figure 503/56-12-11-990-807 (Sheet 3 of 3)



Emergency Exit Release Handle Clearance
Figure 504/56-12-11-990-823

NO. 2 OPENABLE WINDOW - INSPECTION/CHECK

1. General

A. This procedure has these tasks:

(1) The inspection of the No. 2 window.

B. The Control Cabin Window inspection is for damage that has an effect on the structural, visual and operational functions of the window.

TASK 56-12-11-200-801

2. No. 2 Openable Window Inspection

(Figure 601, Figure 602, Figure 603, Figure 604, Figure 605, Figure 606, Figure 607Figure 56-12-11-990-825)

A. General Flight Deck Windows Vocabulary

(1) Window Components

(a) Fail-Safe Interlayer: Interlayer that will hold the pressure loads if there is a failure of a structural pane.

(b) Interlayer: A flexible transparent layer that bonds glass panes together. It can be a structural component for pressure fail-safety and bird impact resistance.

(c) Laminate: Assembly of interlayer materials and glass panes bonded together by application of heat and pressure.

(d) Metal Insert: A thin piece of metal around the periphery of the window used to transfer failsafe pressure or bird impact loads from the interlayer to the window frame.

(e) Pane: One layer of glass in a window.

(f) Pressure Seal: A rubber bulb seal that makes a pressure seal between the window and the fuselage.

(g) Structural Pane: A glass pane that holds the structural loads of the window.

(h) Urethane: A type of interlayer material.

(i) Vinyl (Polyvinyl Butyral - PVB): A type of interlayer material.

(j) Z Seal: A Z-shaped piece of metal that is bonded to the window edge. The seal is a barrier used to prevent external moisture penetration into the window laminate.

(2) Window Vision Terms

(a) Clear View Area (Daylight Opening): The transparent area of the window for external vision.

(b) Critical Vision Area: The area of primary vision through the window that does not include the Non-Critical Vision Area.

(c) Decreased Visual Quality: A reduction of vision through the clear view area, which can cause interference with the flight crew visual operations of the aircraft in the air or on the ground. Damage to the window can result in decreased visual quality.

(d) Non-Critical Vision Area: A 2.0 in. (5.1 cm) band around the periphery of the window measured into the clear view area.

(e) Tong Marks: Small dimples or indentations that are sometimes on the surface of the non-structural outer glass pane and cause local distortion in the clear view area. These are a by-product of the manufacturing procedure.

(f) Visual Quality: The property of the window that allows visual operation of the aircraft in the air or on the ground.

(3) Electrical Components

(a) Bus Bar: Two thin electrical conductors put on opposite edges of the window, and used to transmit electrical current from the power wires to the conductive heating film.

(b) Conductive Heating Film (Coating): A transparent metallic film located on a glass pane used to heat the window for anti-ice and anti-fog function when electrical current is applied.

(c) Power Terminal: The location where the wire bundle that supplies power for the window heat is connected to the window.

(d) Power Wire: A braided wire in the window laminate that connects the power terminals for the window heat to the bus bars.

(e) Sensor Terminal: The location where the wire bundle that supplies temperature sensor input is connected to the window.

(f) Sensor Wires: Thin solid or braided wire that connects the sensor terminals for the window heat to the temperature sensors embedded in the window.

(g) Solder Joint: Solder or a bonding application used to attach the power wire to the bus bar in the window laminate.

(h) Temperature Sensor: A sensor embedded in the window that has resistance that changes with temperature. The WHCU uses the embedded sensor to control power to the window and regulate temperature.

(i) Window Heat Control Unit (WHCU): A device that constantly monitors window temperature through the temperature sensors and controls the power to the window

B. Flight Deck Windows Damage Description

(1) Arcing: An electrical arc is a discharge or short circuit across a discontinuity in a wire, bus bar, conductive heating film, or other internal window components. Arcs usually occur near the window bus bars, and are typically the result of moisture ingress. The heat from an arc can cause dark brown or black burn marks on the bus bar and in the interlayer or the fracture of a glass pane. It is also possible to see small bubbles in the interlayer at the location of an arc.

Arcs in the heating film away from the bus bar can occur as a jagged line and is also known as a line arc (Example: Figure 605) (“lightning bolt pattern”).

(2) Crack: A crack is a break or discontinuity of the material. A list of descriptions of cracks by material follows.

(a) Glass Panes: Cracks in a glass pane will always grow to an edge or adjacent crack in the window. (A line arc can be confused with a crack but one end typically stops in the center area of the window.)

1) Non-Structural Pane - Cracks will look equivalent to smooth fissures perpendicular to the surface and through the entire thickness of the pane. There are usually many cracks across the glass surface (spider web pattern) of the pane. Cracks will not significantly decrease visual quality. (Example: Figure 603).

2) Structural Pane – The pane will break into many small irregularly shaped pieces, typically no larger than 0.25 in. (6.35 mm) maximum dimension. Visual quality is significantly decreased. (Example: Figure 603).

(b) Interlayers:

1) Urethane – Cracks can occur in urethane interlayer around the outboard edge of the window and at bolt hole locations. The cracks are usually in a network that does not run parallel to the edges of the window and are usually in random directions (also referred to as crackling). Urethane interlayer cracks frequently occur with white or yellow discoloration. See also moisture ingression. (Examples: Figure 606).

2) Vinyl – Cracks that can occur in the vinyl interlayer around the perimeter of the window and usually follow the edges of internal features, for example, the metal inserts, or bolt holes. The cracks are usually thick or broken lines perpendicular to the window panes. It is possible in some extreme conditions to see the vinyl interlayer as stretched or separated from the metal insert. (Examples: Figure 607).

(3) Scratch: The linear removal or displacement of material from the surface of a pane.

(4) Chips: The removal of material from the surface of a glass pane, usually from the impact with a hard object. The descriptions that follow are a list of different types of chips.

(a) External chips:

1) Shell type chips are in the surface or edge of the pane. These chips have a circular or curved shape with many fine lines or ridges that follow the outline of the edge of the chip that give it almost the same shape of a shell. The width of the chip is more than its depth.

2) “V” shaped chips have the shape of a sharp narrow "V". Depth of the chip is equal to or larger then the width.

(5) Delamination: Delamination is the separation of a pane or panes from the interlayer internal to the window. Delamination looks like an air bubble that starts from the edge, is flat, smooth, and has a circular edge. Delaminations can have an edge with smooth finger-like projections. The delamination will cause a reflection of light when you look at it from an angle to the surface of the window. A delamination can distort vision through the delaminated area.

(6) Moisture Ingression: A cloudy white or yellow haze internal to the window usually around the periphery. It can follow wires internal to the window, along the bus bar and also in areas of delamination. Long term exposure to moisture can lead to electrical arcing of the heating system internal to the window.

(7) Bubbles: Small isolated or irregular shaped voids in the interlayer internal to the window not at the window edge. Bubbles can be the result of a damaged window heat control system. Multiple bubbles together in a small group, or black or dark brown bubbles are an indication of a damaged window heat control system.

(8) Metal Insert Corrosion: as an etching of the metal surface, and the result of a direct chemical attack (moisture ingression). Corrosion of the aluminum surface usually looks equivalent to whitish powdery contamination with dulling of the surface. While the corrosion attack continues, the surface will look mottled or etched possibly with pits.

NOTE: Corrosion found on metal insert of the No. 2 window is acceptable and the window can remain in service provided there is no other damage that is outside the limits of the AMM. Boeing has validated this type of corrosion by bird impact and failsafe pressure testing.

C. References

Reference	Title
12-16-02 P/B 301	FLIGHT COMPARTMENT WINDOWS - SERVICING
30-41-00 P/B 501	CONTROL CABIN WINDOW ANTI-ICING SYSTEM - ADJUSTMENT/TEST
56-12-11 P/B 401	NO. 2 OPENABLE WINDOW - REMOVAL/INSTALLATION

(Continued)

Reference	Title
56-12-11-300-805	Replace the No.2 Window Scuff Plate Assembly (P/B 201)
56-12-11-990-825	Figure: No.2 Window Scuff Plate Assembly Replacement (P/B 201)

D. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2039	Micrometer, Optical (Min Depth .02 inch and Accuracy +/-.0005 Inch) Part #: 8400K Supplier: 65956 Part #: MODEL 966A1 Supplier: 0ZYB5 Part #: MODEL 966A1 Supplier: 88277 Opt Part #: 8400PCK Supplier: 65956
COM-4786	Processor/Printer - Optical Micrometer (used with 8400K only) Part #: DP-1VR Supplier: 65956

E. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

F. Prepare to Examine the No. 2 Window

SUBTASK 56-12-11-860-011

WARNING: DO NOT TOUCH THE WINDOW UNLESS THE CIRCUIT BREAKERS ARE OPEN, AND THE WINDOW HEAT SWITCHES ARE OFF. ELECTRICAL SHOCK CAN CAUSE INJURIES TO PERSONNEL.

(1) Put the window heat switches in the OFF positions.

SUBTASK 56-12-11-840-001

(2) Open these circuit breakers and install safety tags:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
AKS 001-022			
D	2	C00225	WINDOW HEAT CONTROL LEFT SIDE AC
E	2	C00227	WINDOW HEAT CONTROL RIGHT SIDE AC

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
AKS ALL			
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

SUBTASK 56-12-11-110-002

(3) Clean the window if necessary: FLIGHT COMPARTMENT WINDOWS - SERVICING, PAGEBLOCK 12-16-02/301

NOTE: Clean windows are necessary to do the inspection.

G. No. 2 window - Inspection/Check

(Figure 602)

SUBTASK 56-12-11-210-019

(1) Examine the window for chips in the glass panes (Example: Figure 604):

NOTE: Chips in structural glass panes can decrease structural capability. Chips can also decrease the visual quality of a window.

(a) Replace the window for one or more of the subsequent list of damages (NO. 2 OPENABLE WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-12-11/401).

1) Chips: A chip or group of chips on the surface of a structural pane that are more than 0.015 in. (0.381 mm) in depth are a cause for the removal of the window.

2) A chip or group of chips that decreases the visual quality on a pane of the window is a cause for the removal of the window.

3) The outer glass pane is non-structural. Unless chips decrease the visual quality, they are permitted.

SUBTASK 56-12-11-210-031

(2) Examine the window for moisture ingression.

(a) Examine the window for a cloudy white or yellow haze internal area in a delamination or around the periphery of the window. This is a sign of moisture ingress which can cause arcing in the window heat film.

1) If the moisture is found with any signs of arcing, replace the window.

2) If the delamination or the moisture limits vision, replace the window.

3) If moisture is found near bus bars, it is recommended to replace the window.

NOTE: Moisture ingression in the bus bar is an indication that electrical failure may occur.

NOTE: Delamination in the vicinity of the bus bars or electrical attachment can provide a direct path for moisture into the window heat system. Any delamination near a bus bar or electrical attachment should be checked carefully for a cloudy or yellow haze appearance or uneven discoloration of the adjacent bus bar.

SUBTASK 56-12-11-210-020

(3) Examine the window for delamination:

(a) Replace the window if the delamination decreases the visual quality (NO. 2 OPENABLE WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-12-11/401).

NOTE: Delamination can result in moisture ingress which can cause arcing and ply cracks. The recommended limit for windows with a delamination is 2.0 in. (50.8 mm) from the edge of the window frame.

SUBTASK 56-12-11-210-021

(4) Examine the window for arcing (Example: Figure 605):

(a) Examine the window for signs of arcing near the bus bar.

(b) Examine the window for line arcs.

(c) Replace the window if there are indications of arcing (NO. 2 OPENABLE WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-12-11/401).

SUBTASK 56-12-11-210-022

(5) Examine the window for bubbles:

(a) Multiple bubbles together in a small group, or black or dark brown bubbles are a typical indication of a damaged window heat control system.

1) Do a check of the heater control system for that window if necessary (CONTROL CABIN WINDOW ANTI-ICING SYSTEM - ADJUSTMENT/TEST, PAGEBLOCK 30-41-00/501).

(b) Replace the window if the bubbles decrease the visual quality or bubbles are black or dark brown in color (NO. 2 OPENABLE WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-12-11/401).

NOTE: Tong Marks can be found on non-structural outer glass panes are not cause for removal.

SUBTASK 56-12-11-210-023

(6) Examine window for scratches:

(a) The glass outer pane is non-structural. Unless scratches or other damages decrease the visual quality, they are permitted.

(b) The glass inner pane is structural. Replace the window if the inner glass pane has a scratch with a depth more than 0.015 in. (0.381 mm) or if it decreases the visual quality.

1) Use optical micrometer, COM-2039 or equivalent to measure the depth of the scratches. It is necessary to use the optical micrometer processor/printer, COM-4786 with the optical micrometer, COM-2039.

SUBTASK 56-12-11-210-024

(7) Examine the window for cracks in the vinyl interlayer:

(a) Replace the window if you find cracks that follow the long edges of the metal insert (Examples: Figure 607).

NOTE: Cracks in the urethane interlayer do not decrease the window structural capacity and are not a cause for a window removal unless they decrease the visual quality.

AKS ALL; AIRPLANES WITH 5-89355-87/-88 NO. 2 FLIGHT DECK WINDOWS OR NEWER

(b) If you find vinyl cracks that extend more than 0.1 in. (2.54 mm) beyond any edge of the red or white epoxy, then replace the window (Figure 607).

NOTE: Vinyl cracks that you find on the red (power terminal locations) or white (temperature sensor location) insulating epoxy in the corners common to the power and temperature sensor terminals are permitted. Vinyl cracks that you find that are up to a maximum of 0.1 inches (2.54 mm) of the red or white insulating epoxy in the corners common to the power and temperature sensor terminals are permitted.

(c) Vinyl interlayer cracks in the forward upper corner are permitted as defined below.

1) The maximum permitted length of the crack is 0.5 in. (12.7 mm) into the ‘‘daylight opening’’ or, 0.45 in. (11.43 mm) from the nearest edge of the metal insert.

AKS ALL; AIRPLANES WITH 5-89355-77/-78 NO. 2 FLIGHT DECK WINDOWS OR EARLIER

(d) Vinyl interlayer cracks in the forward upper corner are permitted as defined below.

AKS ALL; AIRPLANES WITH 5-89355-77/-78 NO. 2 FLIGHT DECK WINDOWS OR EARLIER (Continued)

1) The maximum permitted length of the crack is 0.5 in. (12.7 mm) into the "daylight opening" or, 0.45 in. (11.43 mm) from the nearest edge of the metal insert.

(e) Cylindrical vinyl interlayer cracks at the metal insert holes are permitted.

AKS ALL

SUBTASK 56-12-11-210-025

(8) Examine the window for cracks (Example: Figure 603):

NOTE: A crack in the outer pane can cause the window anti-ice system to not operate and it can cause unsatisfactory vision.

NOTE: If the flight crew agrees that the vision through the window is satisfactory, a limited dispatch can occur. The limits of the MMEL Window Heat System (Ref MMEL section 30-11) must be followed.

NOTE: A dispatch with cracks in the inner structural glass panes is not allowed. The windshield must be replaced before flight can occur.

(a) Replace the window if cracks are found in any glass pane (NO. 2 OPENABLE WINDOW - REMOVAL/INSTALLATION, PAGEBLOCK 56-12-11/401).

SUBTASK 56-12-11-210-026

(9) Examine the mechanism for worn areas (Figure 601).

Table 601/56-12-11-993-807 No. 2 Window Mechanism Wear Limits

		DESIGN LIMITS		WEAR LIMITS		REWORK LIMITS					
INDEX NO.	DIM	DIA-METER		MAX WEAR DIM	MAX DIAM CLEAR-ANCE	BUSHING OR PLATING PERMITTED			OVERSIZE HOLE OR PLATING BUILD-UP	BUSHING INTER-FERENCE	
		MIN	MAX			YES	NO	MTL	MAX	MIN	MAX
[1]In	I/D	0.500	0.501	0.531	0.05			REPLACE			
[1]Mm	I/D	12.7	12.725	13.49	1.27			REPLACE			

SUBTASK 56-12-11-210-028

(10) Examine the window frame drain No. 2 Openable Window Sill Drain Inspection, TASK 56-12-11-200-802.

SUBTASK 56-12-11-210-032

(11) Examine the scuff plate for wear damage.

NOTE: Minor delamination between the scuff plate shim and bumper (wedge piece of the assembly) does not require immediate replacement (Figure 56-12-11-990-825). It can be replaced at the next maintenance opportunity.

(a) The three rivets attaching the bumper and shim are not loose.

(b) Wear damage on the bumper provides clearance between the leading edge of the window frame and the bolt heads attaching the No.1 window to the post.

SUBTASK 56-12-11-900-001

(12) Replace the scuff plate assembly (Replace the No.2 Window Scuff Plate Assembly, TASK 56-12-11-300-805) if any of the following conditions are found:

- Complete delamination between the scuff plate shim and bumper (wedge piece of the assembly).
- Loose or missing rivets.
- Loose bumper.

H. Put the Airplane Back to Its Usual Condition

SUBTASK 56-12-11-860-006

(1) Remove the safety tags and close these circuit breakers:

CAPT Electrical System Panel, P18-3

Row	Col	Number	Name
AKS 001-022			
D	2	C00225	WINDOW HEAT CONTROL LEFT SIDE AC
E	2	C00227	WINDOW HEAT CONTROL RIGHT SIDE AC

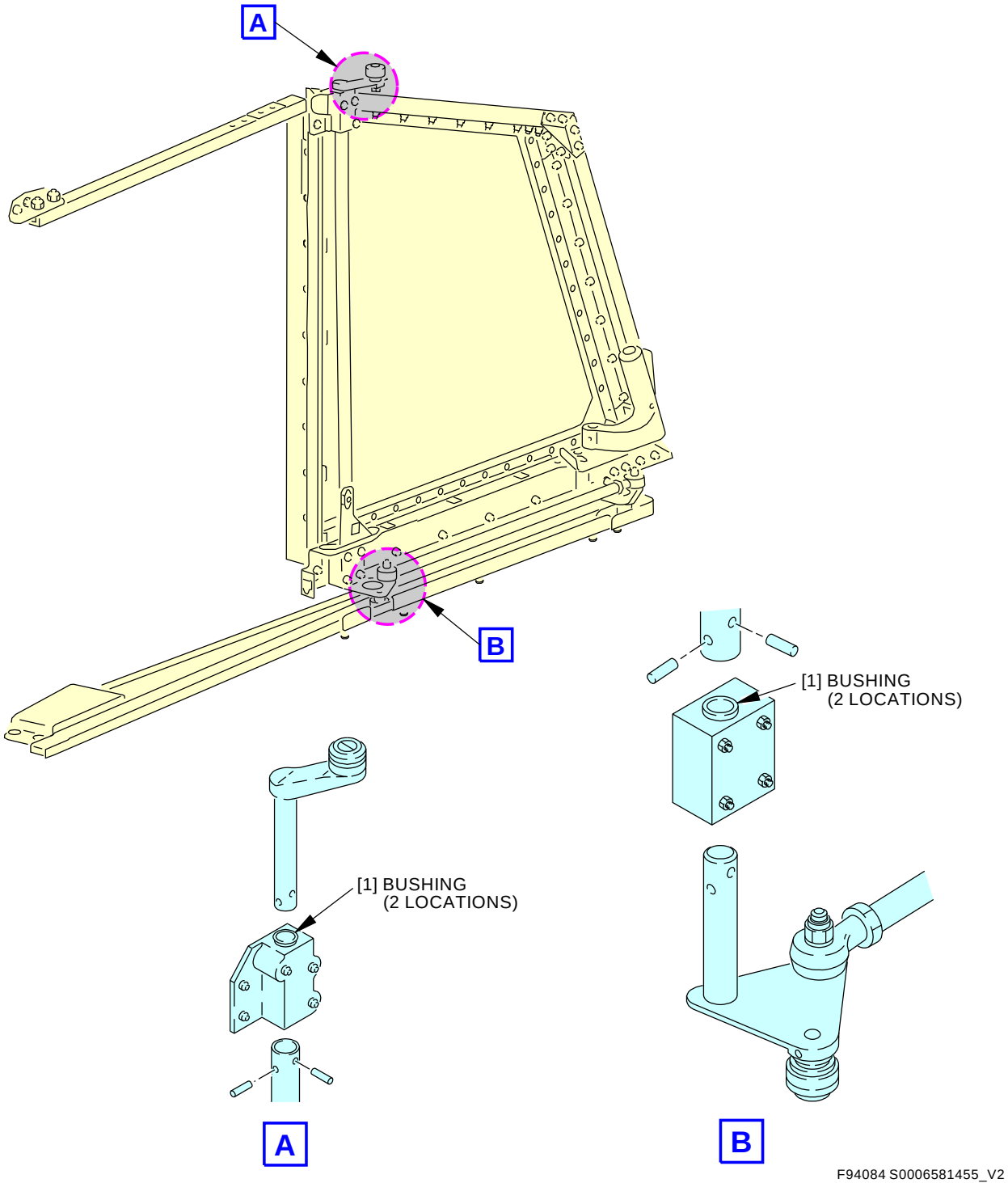
F/O Electrical System Panel, P6-11

Row	Col	Number	Name
AKS ALL			
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE

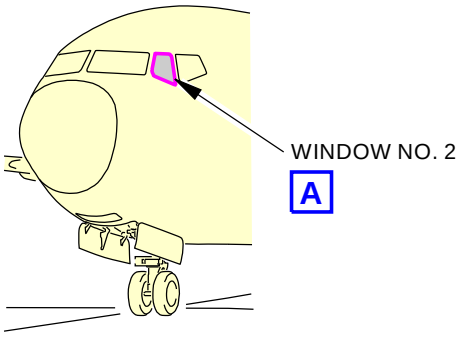
F/O Electrical System Panel, P6-12

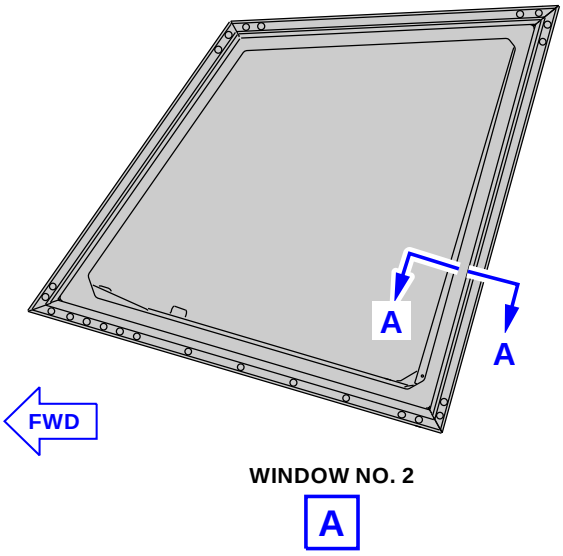
Row	Col	Number	Name
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

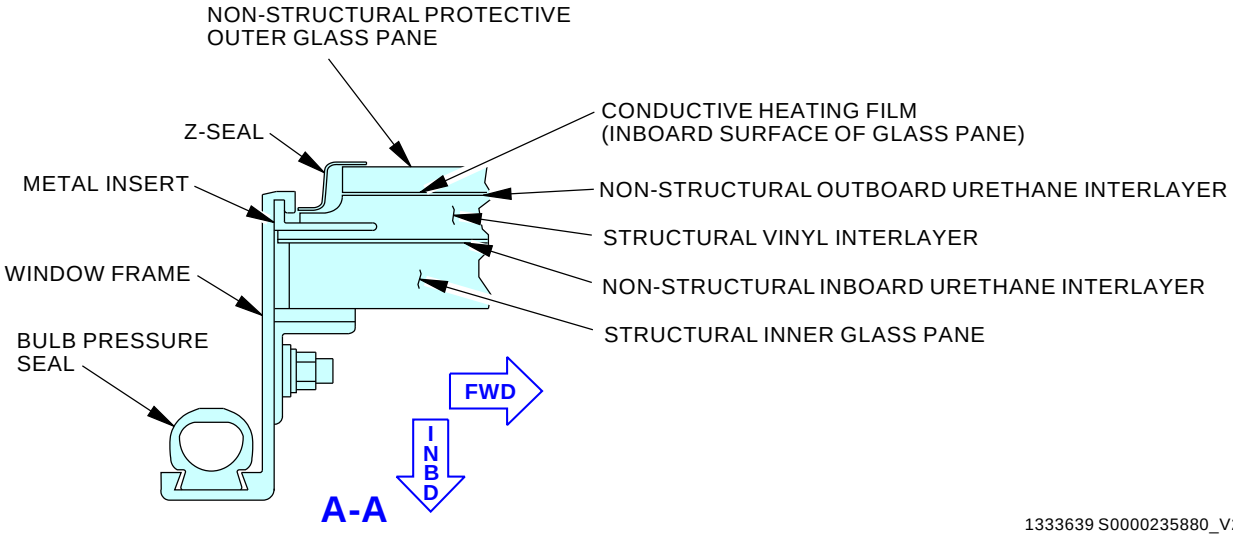
——— END OF TASK ———



No. 2 Window Mechanism Wear Limits
Figure 601/56-12-11-990-803







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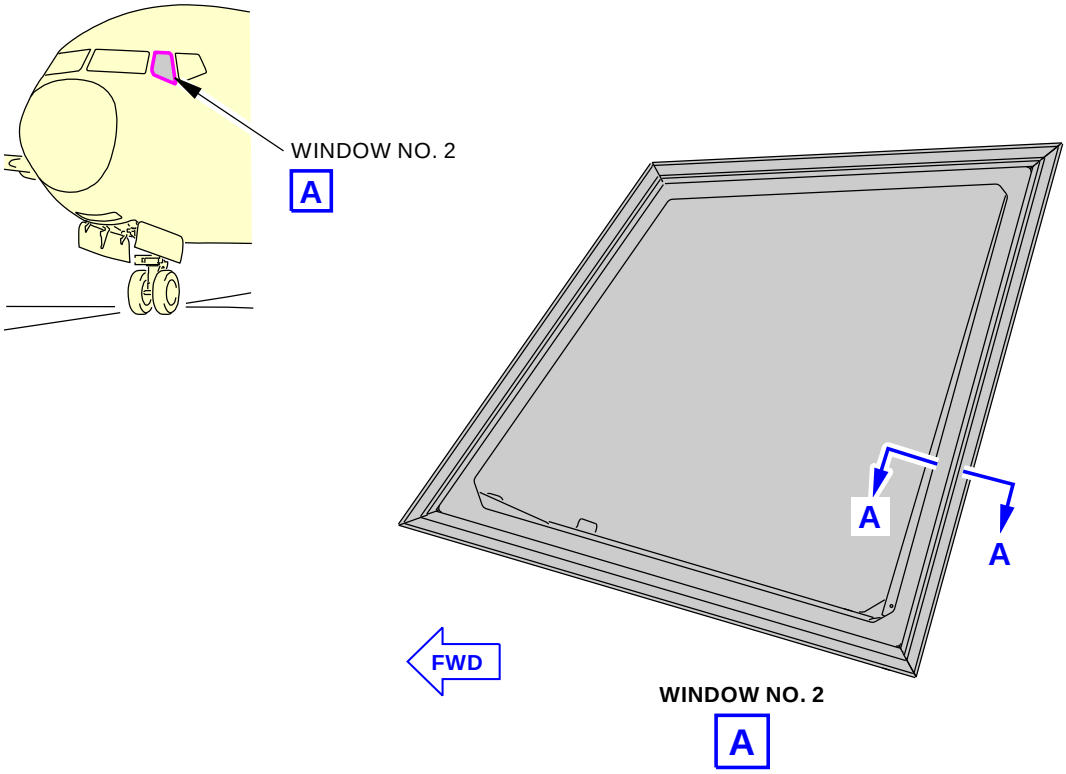
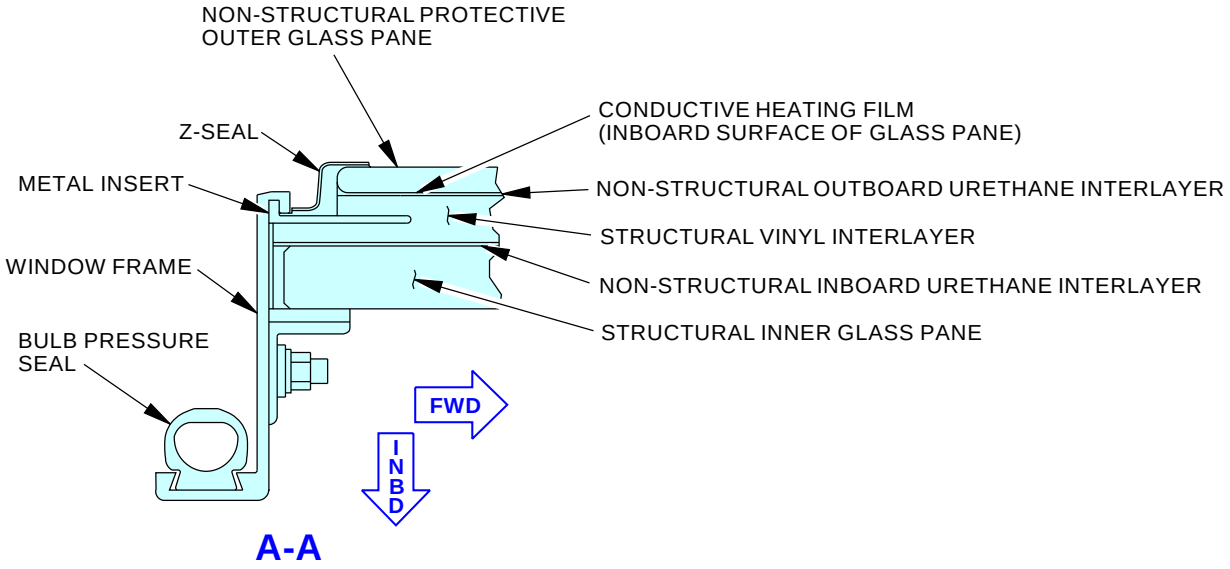
Control Cabin Window Cross Sections
Figure 602/56-12-11-990-812 (Sheet 1 of 2)





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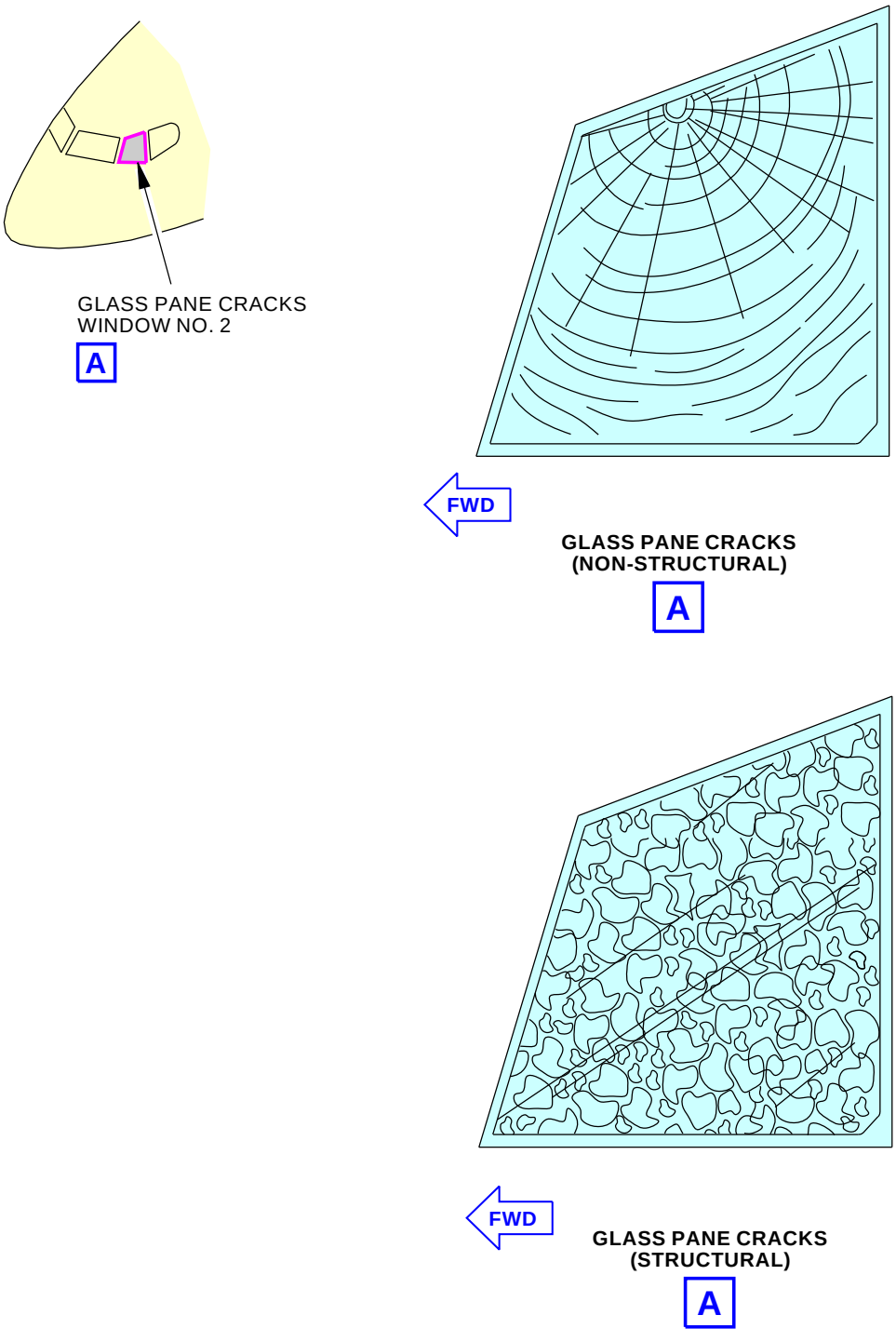
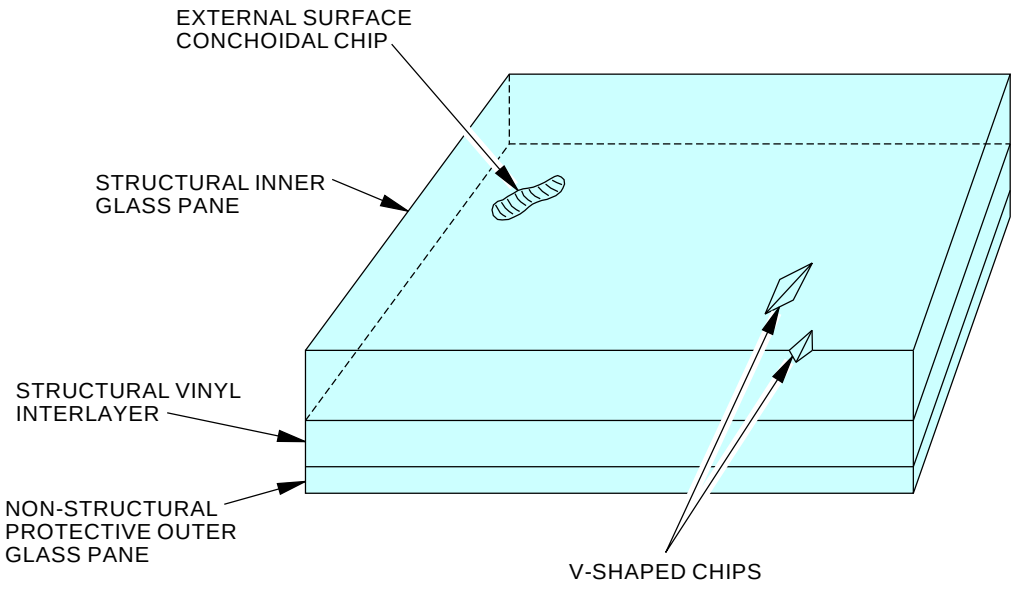
Control Cabin Window Cross Sections
Figure 602/56-12-11-990-812 (Sheet 2 of 2)



Glass Pane Cracks
Figure 603/56-12-11-990-813



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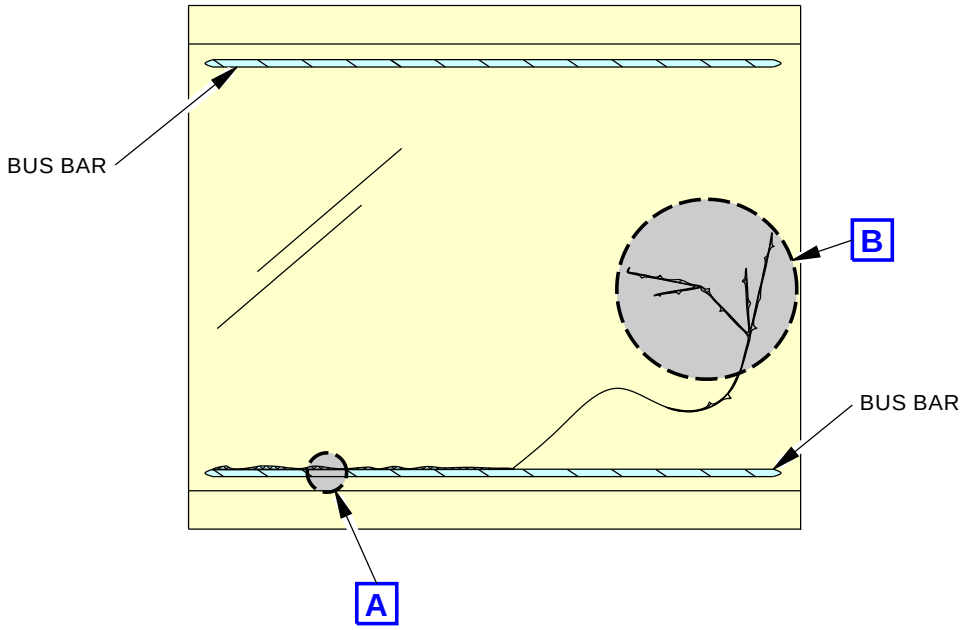
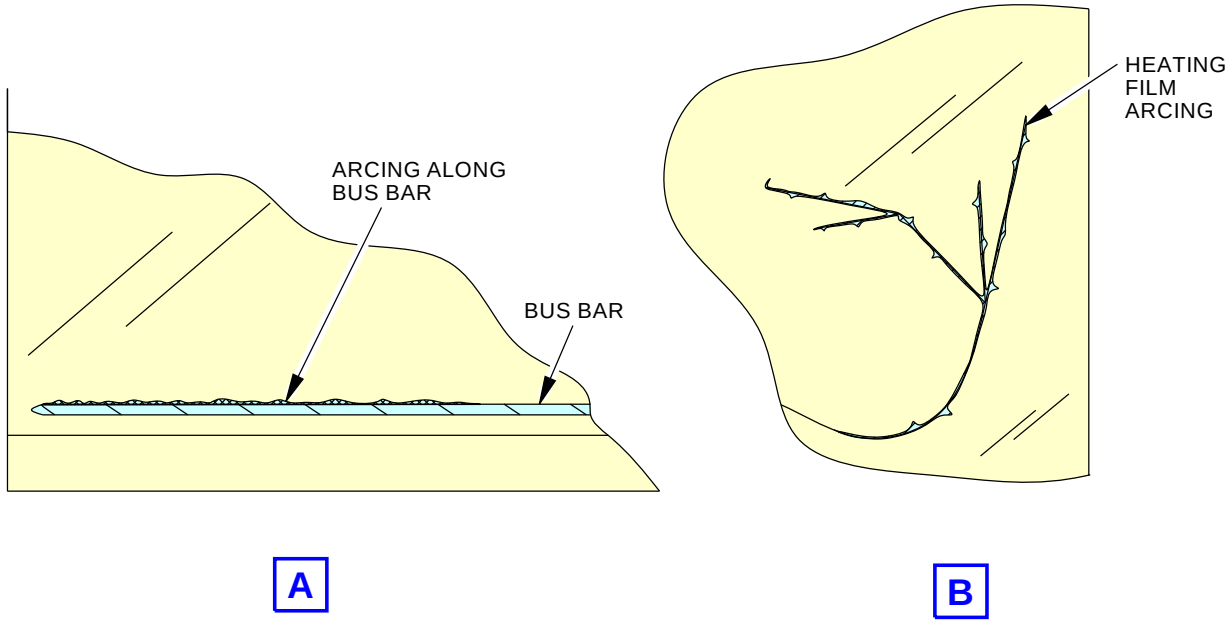
Glass Pane Chips
Figure 604/56-12-11-990-814



WINDOW HEAT ARCING



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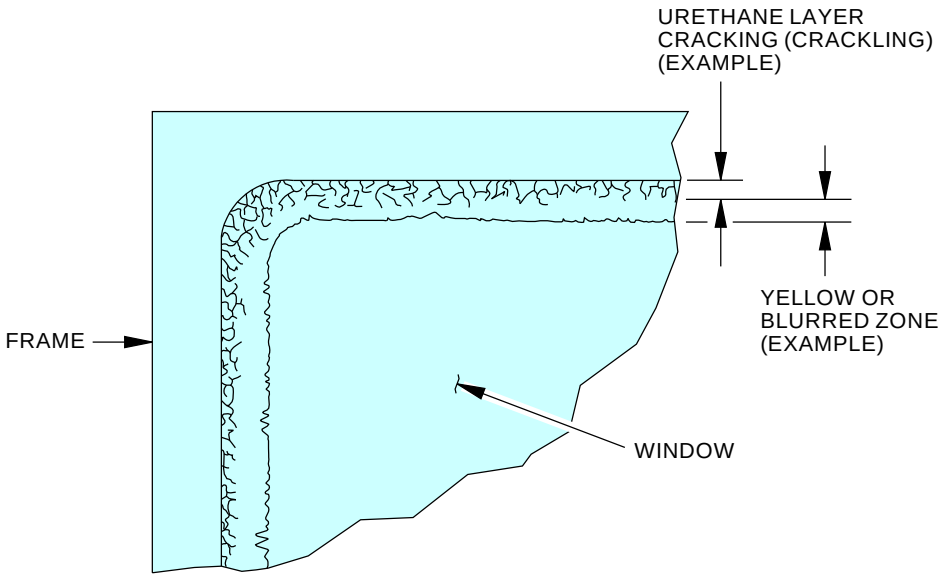
Window Heat Arcing
Figure 605/56-12-11-990-816



URETHANE INTERLAYER CRACKS

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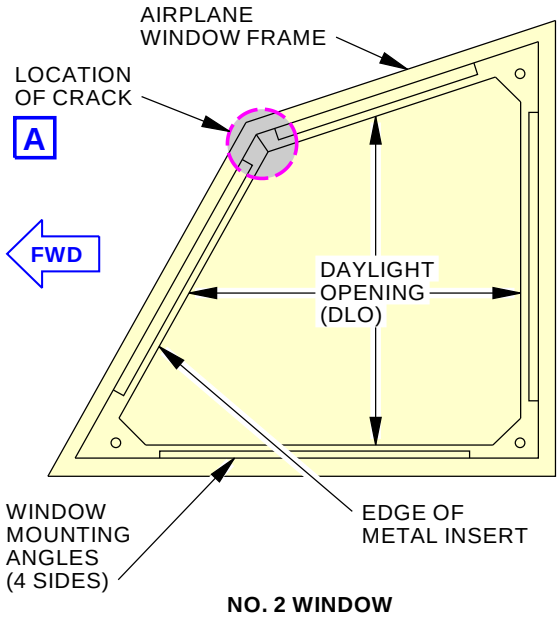
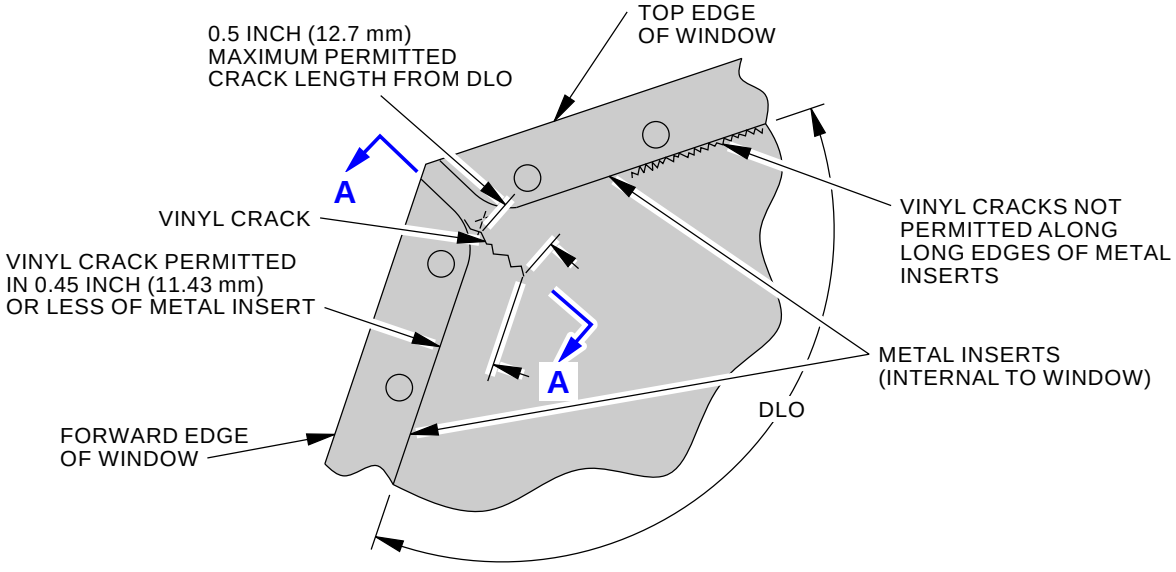
Urethane Interlayer Cracks
Figure 606/56-12-11-990-817



NO. 2 WINDOW
(RIGHT SIDE)
(VIEW IN THE OUTBOARD DIRECTION)

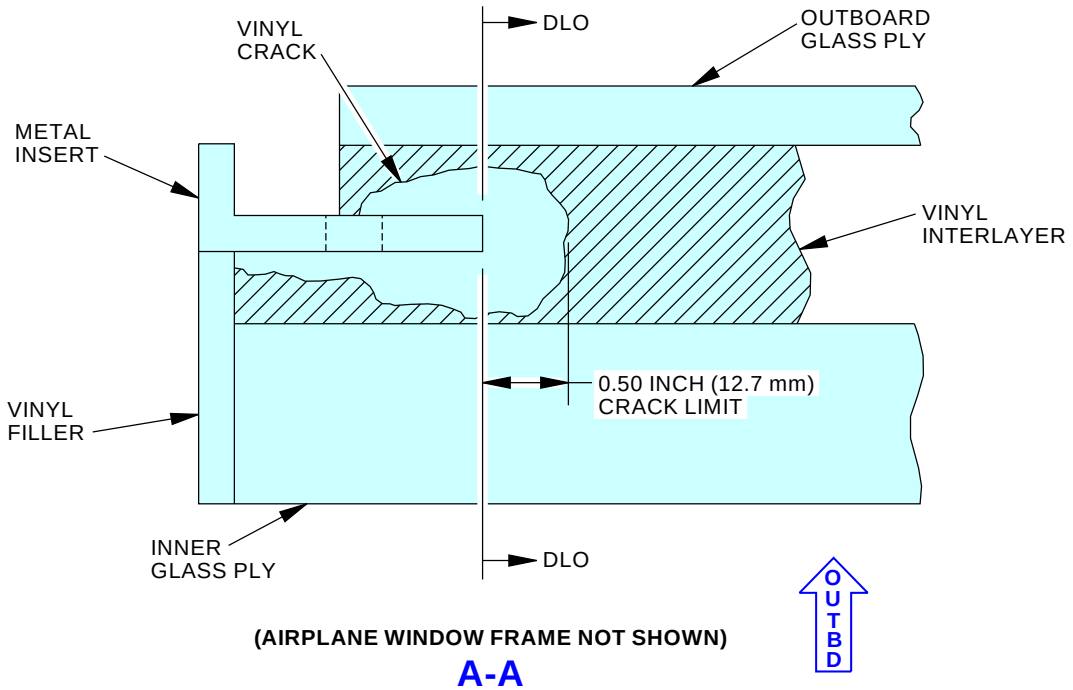


LOCATION OF CRACK
(AIRPLANE WINDOW FRAME IS NOT SHOWN)

A

484013 S0000144514_V5

No. 2 Window Vinyl Interlayer Crack Limits
Figure 607/56-12-11-990-810 (Sheet 1 of 5)

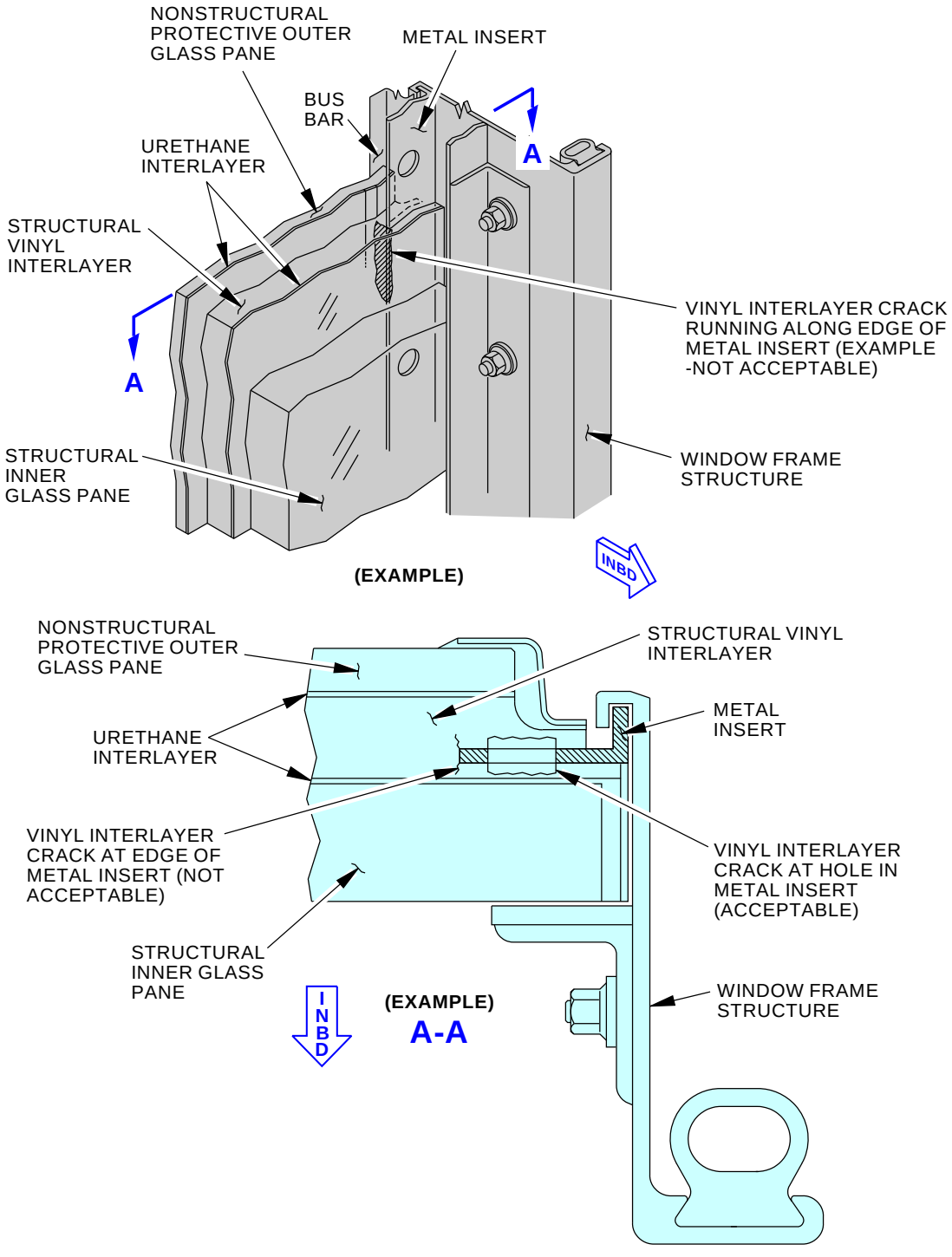


(AIRPLANE WINDOW FRAME NOT SHOWN)

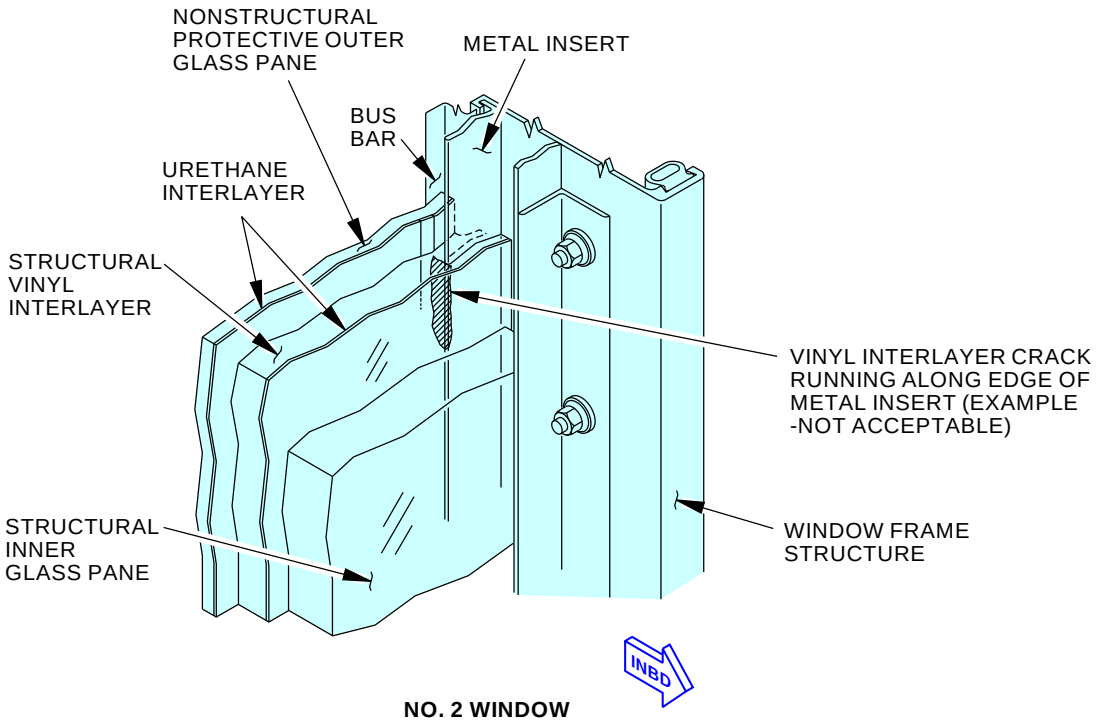
A-A

U64701 S0000211089_V2

No. 2 Window Vinyl Interlayer Crack Limits
Figure 607/56-12-11-990-810 (Sheet 2 of 5)



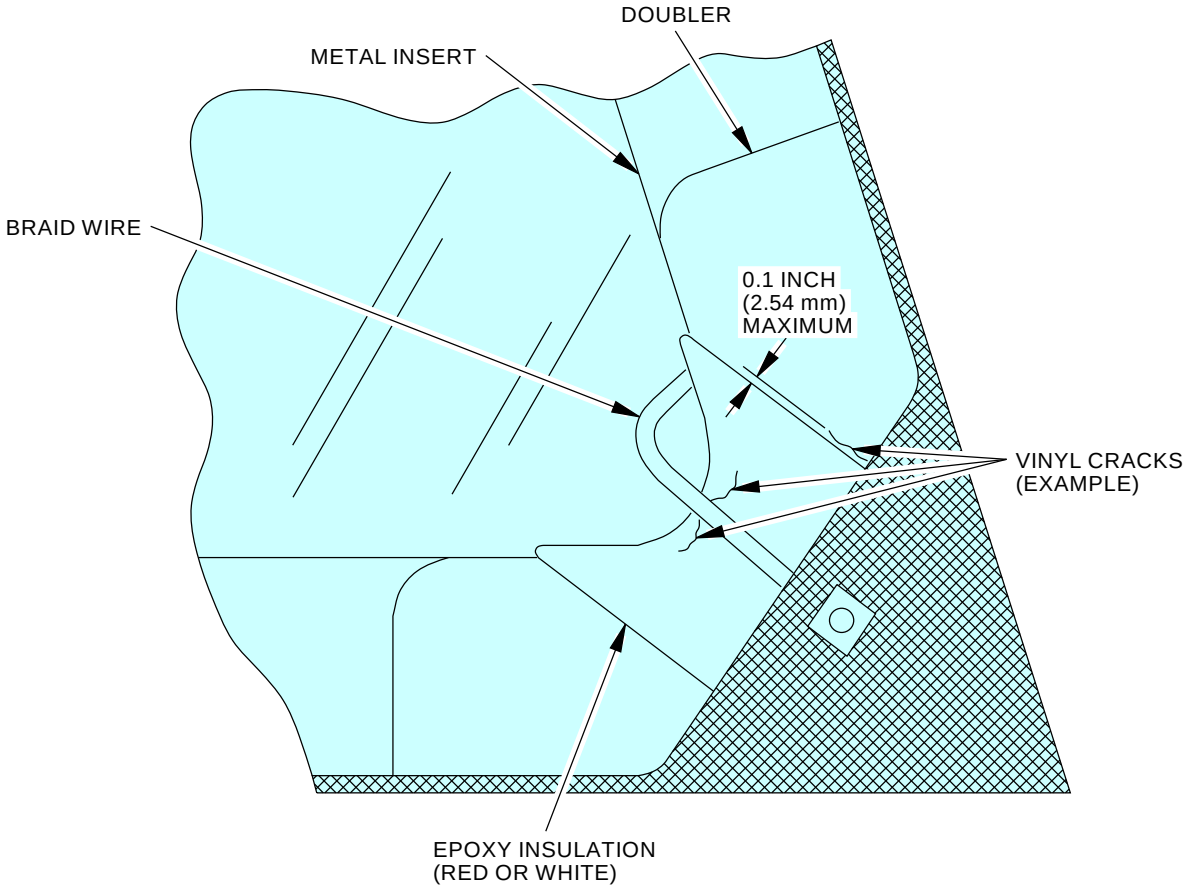
No. 2 Window Vinyl Interlayer Crack Limits
Figure 607/56-12-11-990-810 (Sheet 3 of 5)



NO. 2 WINDOW

1931756 S0000365270_V2

No. 2 Window Vinyl Interlayer Crack Limits
Figure 607/56-12-11-990-810 (Sheet 4 of 5)



WINDOW NO. 2 CORNER-TYPE VINYL CRACK (EXAMPLE)

2214475 S0000493964_V3

No. 2 Window Vinyl Interlayer Crack Limits
Figure 607/56-12-11-990-810 (Sheet 5 of 5)

TASK 56-12-11-200-802

3. No. 2 Openable Window Sill Drain Inspection

(Figure 608)

NOTE: This procedure is a scheduled maintenance task.

A. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

B. Perform a general visual check of the pilot's and co-pilot's no. 2 openable window sill drain for obvious damage, clogging, condition and security.

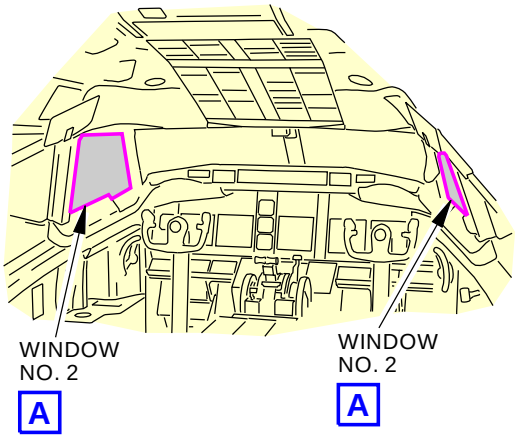
SUBTASK 56-12-11-200-003

(1) Examine no. 2 openable window sill drain.

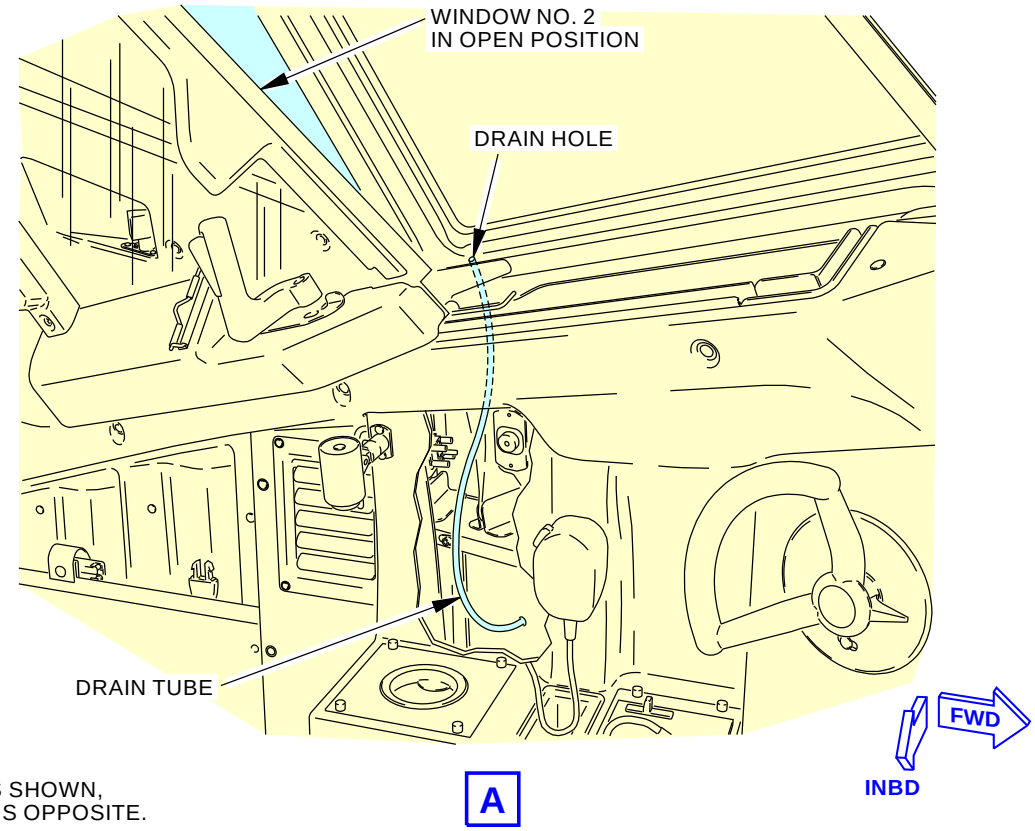
(a) Examine no. 2 openable window sill drain for obvious damage, condition and security.

(b) Make sure the drain is not blocked and that water has not accumulated in the frame.

——— END OF TASK ———



FLIGHT COMPARTMENT



NOTE:

LEFT SIDE IS SHOWN,
RIGHT SIDE IS OPPOSITE.

D65166 S0000161612_V2

No. 2 Openable Window Sill Drain Inspection
Figure 608/56-12-11-990-809

NO. 2 OPENABLE WINDOW - REPAIRS

1. General

A. This procedure has this task:

(1) The repair of the fillet seal for the No. 2 openable window.

B. There is aerodynamic smoother (sealant) around the No. 2 windows. The aerodynamic smoother can erode and have cracks.

TASK 56-12-11-300-804

2. No. 2 Openable Window Fillet Seal Repair

A. References

Reference	Title
51-31-00-160-801	Prepare For Sealing (P/B 201)

B. Tools/Equipment

Reference	Description
STD-449	Gun - Sealant

C. Consumable Materials

Reference	Description	Specification
A00103	Sealant - Windshield And Window - PR-1425	
A00247	Sealant - Pressure And Environmental - Chromate Type	BMS5-95
A00708	Sealant - Fast Curing, 2-Part - PR-1828	AMS 3277
A01056	Sealant - Aerodynamic - PR 1829	
A50052	Sealant - PR-1826 Class B Rapid Curing Fuel Tank Sealant	SAE AMS3277 Class B
B00083	Solvent - VM&P Naphthas	ASTM D-3735 Type III
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00291	Tape - Aluminum Foil, Scotch 425	AMS-T-23397 / L-T-80

D. Location Zones

Zone	Area
211	Flight Compartment - Left
212	Flight Compartment - Right

E. General.

SUBTASK 56-12-11-000-001

(1) This procedure is for the right and left No. 2 openable windows.

F. Prepare for the Repair.

SUBTASK 56-12-11-040-001

WARNING: DO NOT TOUCH THE WINDOW UNLESS THE CIRCUIT BREAKERS ARE OPEN, AND THE WINDOW HEAT SWITCHES ARE OFF. ELECTRICAL SHOCK CAN CAUSE INJURIES TO PERSONNEL.

(1) Move these switches on the P5 panel to the OFF position and attach DO-NOT-OPERATE tags:

(a) WINDOW HEAT L SIDE

(b) WINDOW HEAT R SIDE

SUBTASK 56-12-11-040-002

(2) Open these circuit breakers and install safety tags:

F/O Electrical System Panel, P6-11

Row	Col	Number	Name
B	8	C00393	WINDOW HEAT POWER RIGHT SIDE

F/O Electrical System Panel, P6-12

Row	Col	Number	Name
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

G. Repair the Fillet Seal.

SUBTASK 56-12-11-000-002

CAUTION: OBEY THE INSTRUCTIONS IN THE PROCEDURE TO REMOVE AND APPLY THE SEALANT. IF YOU DO NOT OBEY THE INSTRUCTIONS, DAMAGE TO THE AIRPLANE SURFACE CAN OCCUR.

CAUTION: YOU MUST USE PLASTIC TOOLS WHEN YOU REMOVE THE SEALANT. IF YOU DO NOT USE PLASTIC TOOLS, YOU CAN CAUSE DAMAGE TO THE WINDOW.

(1) Remove the sealant from the fillet seal if the following conditions exist (Prepare For Sealing, TASK 51-31-00-160-801):

(a) Cracks.

(b) Erosion.

(c) Sealant is not bonded to the window.

SUBTASK 56-12-11-100-001

(2) Clean the window with cotton wiper, G00034 and solvent, B00083.

SUBTASK 56-12-11-400-002

(3) Apply the Scotch Flatback Masking Tape 250, G00270 on the glass window where you will apply the new fillet seal.

SUBTASK 56-12-11-400-003

(4) Use one of the sealants that follow (in sequence of preference):

(a) sealant, A00247 (PRO-SEAL 870 Class B) (preferred)

(b) PR-1425 sealant, A00103

(c) PR 1829 sealant, A01056

(d) PR-1826 sealant, A50052

(e) PR-1828 sealant, A00708.

SUBTASK 56-12-11-400-004

(5) Mix the sealant to the manufacturer's instructions.

SUBTASK 56-12-11-400-005

(6) Use a sealant gun, STD-449 to apply the sealant you have chosen to the glass window.

NOTE: When you apply the aerodynamic smoother with the sealant gun, STD-449 you should push the sealant gun, STD-449. This will keep you from trapping air underneath the aerodynamic sealant.

(a) Apply more sealant than is necessary.

SUBTASK 56-12-11-400-006

(7) Smooth the aerodynamic smoother to the shape that is shown in Figure 801.

SUBTASK 56-12-11-000-003

(8) Remove the Scotch Flatback Masking Tape 250, G00270 before the aerodynamic smoother starts to get hard.

SUBTASK 56-12-11-400-007

(9) Let the sealant cure (Figure 802).

SUBTASK 56-12-11-400-008

(10) If you must send the airplane before the sealant fully cures, do the step that follows:

(a) Apply Scotch 425 Aluminum Foil Tape, G00291 on the top of the sealant.

SUBTASK 56-12-11-000-004

(11) Remove the Scotch 425 Aluminum Foil Tape, G00291 after the sealant has fully cured.

H. Put the Airplane Back to Its Usual Condition.

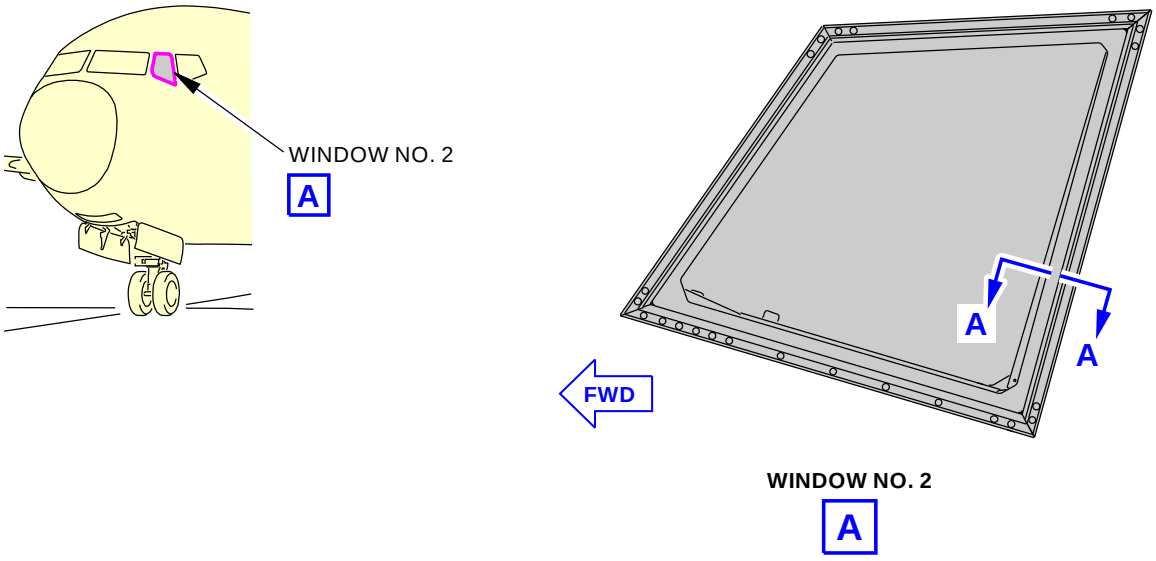
SUBTASK 56-12-11-400-009

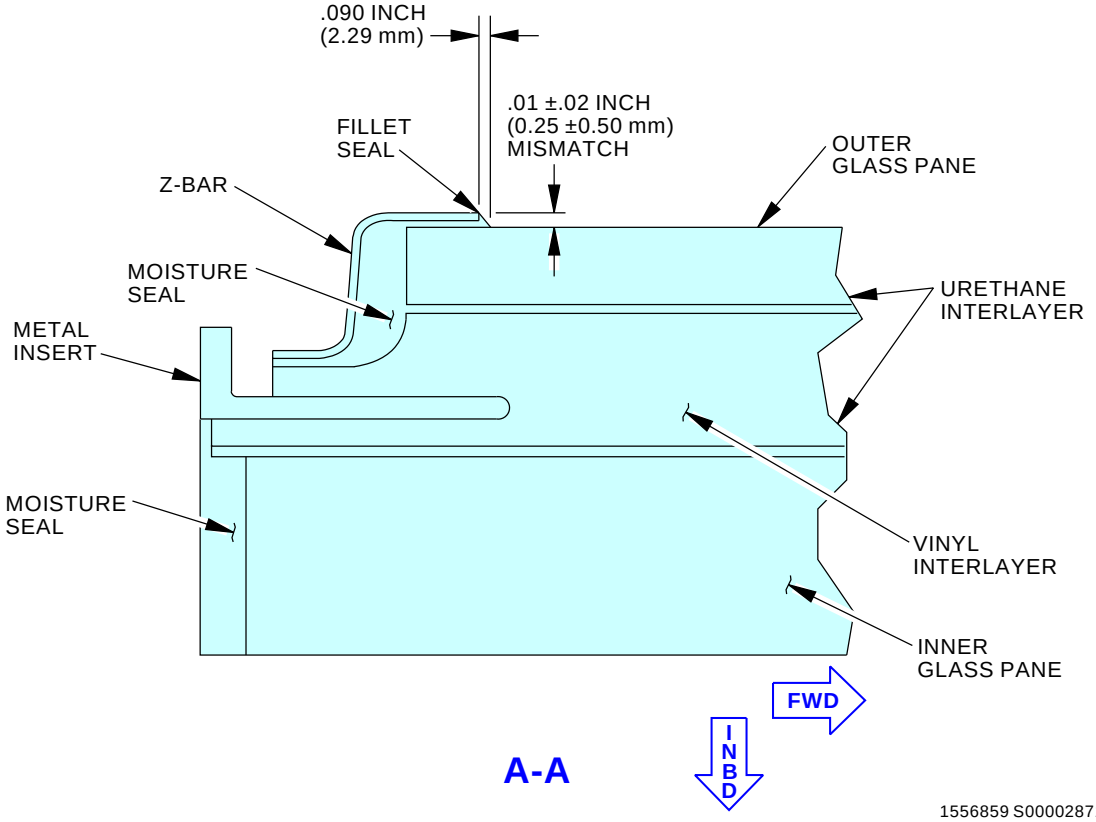
(1) Remove the safety tag and close this circuit breaker:

F/O Electrical System Panel, P6-12

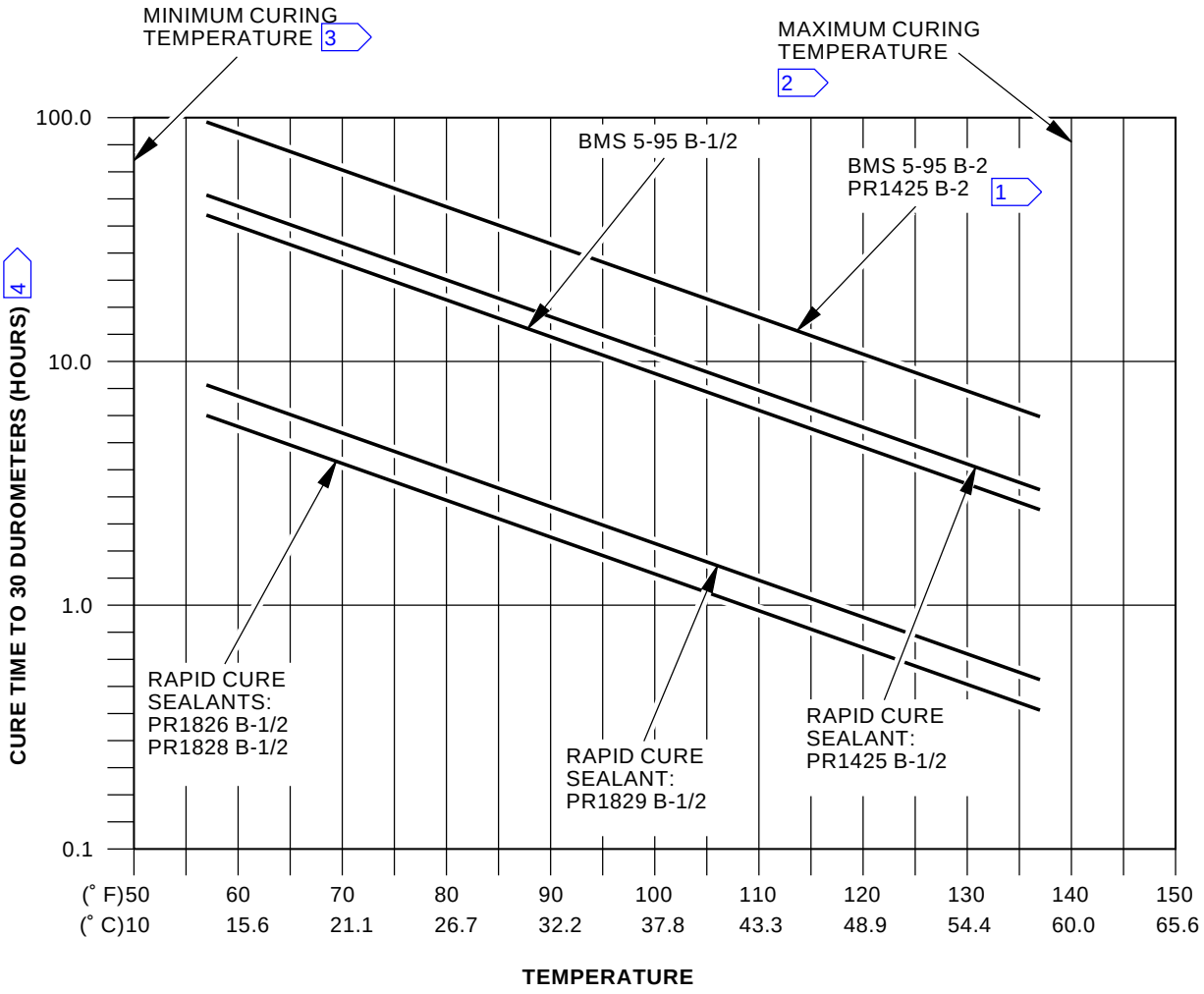
Row	Col	Number	Name
B	9	C00392	WINDOW HEAT POWER LEFT SIDE

——— END OF TASK ———





Fillet Seal Application
Figure 801/56-12-11-990-818



1 FOR SHOP HANDLING AND FLY AWAY

2 DO NOT CURE SEALANT ABOVE 140˚ F(60˚ C)

3 DO NOT CURE SEALANT BELOW 50˚ F (10˚ C)

4 REX A DUROMETER READING OF 30

G08328 S0006581373_V3

Cure Times vs Temperatures for Sealants
Figure 802/56-12-11-990-819

PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION

1. General

A. This procedure contains two tasks:

(1) The removal of a passenger cabin window

(2) The installation of a passenger cabin window

B. If you need to remove or install a window plug, do one of these tasks:

(1) Passenger Cabin Window Plug Removal, TASK 56-21-11-000-801

(2) Passenger Cabin Window Plug Installation, TASK 56-21-11-400-801

TASK 56-21-00-000-801

2. Removal of a Passenger Cabin Window

(Figure 401 or Figure 402)

A. References

Reference	Title
25-21-12-000-804	Snap In Window Shade and Reveal Assembly Removal (P/B 401)

B. Consumable Materials

Reference	Description	Specification
G00834	Cloth - Lint-free Cotton	

C. Location Zones

Zone	Area
220	Subzone - Passenger Compartment - Body Station 259.50 to 360.00
230	Subzone - Passenger Compartment - Body Station 360.00 to 663.75
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

D. Procedure

SUBTASK 56-21-00-010-001

(1) To remove the window shade and reveal, do this task: Snap In Window Shade and Reveal Assembly Removal, TASK 25-21-12-000-804

SUBTASK 56-21-00-940-001

(2) Cover the window shade and reveal assembly with a lint-free cloth, G00834 to prevent scratches.

SUBTASK 56-21-00-020-001

(3) Remove the window assembly from the window frame [1].

(a) Remove the clip adjustment screws [5]

(b) Remove the rigid window retaining clips [4], if installed.

(c) Remove the spring window retaining clips [7], if installed.

AKS ALL; WINDOWS WITH AIRFLOW DAMPERS

(d) Remove the window assembly from the window frame [1]

NOTE: The window assembly has an outer pane [2], seal [6], stiffener ring [10], airflow damper [9], middle pane [3], and clamping ring [8].

AKS ALL

SUBTASK 56-21-00-700-001

(4) Look for damage on the window seal [6].

SUBTASK 56-21-00-960-001

(5) Replace the window seal [6] if it has damage.

——— END OF TASK ———

TASK 56-21-00-400-801

3. Passenger Cabin Window Installation

(Figure 401 or Figure 402)

A. References

Reference	Title
25-21-12-400-805	Snap In Window Shade and Reveal Assembly Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	ASTM D-3735 Type III
B00106	Cloth - Chamois Leather, Sheepskin, Oil Tanned	CS99-1970, KK-C-300
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00834	Cloth - Lint-free Cotton	
G01989	Soap - Castile (Vegetable Oil Based)	
G50397	Tape - Acrylic Foam, White	

C. Location Zones

Zone	Area
220	Subzone - Passenger Compartment - Body Station 259.50 to 360.00
230	Subzone - Passenger Compartment - Body Station 360.00 to 663.75
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

D. Procedure

AKS ALL; WINDOWS WITH AIRFLOW DAMPERS

SUBTASK 56-21-00-420-004

(1) Put the window assembly together.

NOTE: Windows with airflow dampers have the vent hole at the top of the middle pane.

(a) Clean the surfaces of the window seal [6], and the window frame [1] with a cotton wiper, G00034 and solvent, B00083.

(b) Make sure the part number on the outer window pane [2] is at the top of the window assembly and place in seal [6].

AKS ALL; WINDOWS WITH AIRFLOW DAMPERS (Continued)

(c) Make sure to install the stiffening ring [10] in the window seal [6].

NOTE: The window seal [6] to be on the inner edge of the stiffening ring [10].

(d) Install the middle windowpane [3] in the seal [6] with the breather hole at the top of the assembly.

SUBTASK 56-21-00-420-005

(2) Install the airflow damper [9] on top of the vent hole on the middle pane:

(a) Clean the surfaces of the airflow damper [9] and middle pane [3] with a cotton wiper, G00034 and solvent, B00083.

(b) Cut tape to align with the mating surface of the airflow damper.

NOTE: Adhesive must not extend more than 0.01 in. (0.25 mm) from the edge of the airflow damper.

(c) Apply adhesive tape, G50397 to the middle pane [3].

NOTE: The vent hole must not be blocked with adhesive. There must not be space between the adhesive and the middle pane. Do not put the edge of adhesive nearer than 0.42 in. (10.7 mm) from the edge of the middle pane.

(d) Remove the backing of the adhesive on the middle pane [3].

(e) Apply the airflow damper [9] directly to the adhesive above the breather hole Figure 402 (Sheet 1).

(f) Put the clamping ring [8] on the window assembly on the edge of the seal that covers the middle pane [3].

AKS ALL

SUBTASK 56-21-00-160-001

(3) To help make sure that the installation of the window assembly occurs easily, do the steps that follow:

NOTE: This step is optional.

(a) Apply a mixture of castile soap, G01989 and water to the edge of the window seal [6].

(b) If the soap and water mixture comes in contact with the outer windowpane [2] or the middle windowpane [3], do the step that follows:

1) Use a cotton wiper, G00034 to wipe the soap and water mixture from the window immediately.

NOTE: The combination of extended soap contact and extended sun exposure can cause the window to craze.

SUBTASK 56-21-00-420-011

(4) Install the passenger window as follows:

(a) Put the window assembly in the window frame [1].

(b) Install the window retaining clips as follows:

NOTE: It is recommended that the applicable window assembly be installed with either rigid or spring window retaining clips only. The AIPC will provide the applicable window retaining clips for the window assembly.

AKS ALL; WINDOWS WITH AIRFLOW DAMPERS

NOTE: For windows with airflow dampers, the spring window retaining clip [7] will contact the clamping ring [8] and not the seal [6] or the edge of the middle pane [3].

AKS ALL; WINDOWS WITH SPRING CLIPS

1) To install a spring window retaining clip [7], do the following steps:

CAUTION: DO NOT TIGHTEN THE CLIP ADJUSTMENT SCREWS TOO QUICKLY. YOU WILL BEND THE SPRING CLIP TOO MUCH. OR, THE SPRING CLIP WILL STAY AGAINST THE NUTPLATE. THIS CAN CAUSE DAMAGE TO THE SPRING CLIP OR THE WINDOW.

a) Slowly tighten the window clip adjustment screws [5]. Use the tightening sequence shown in Figure 401 or Figure 402.

NOTE: Only tighten the window clip adjustment screws [5] sufficiently to keep the window seal [6] in its correct location.

NOTE: For windows with airflow dampers, the spring window retaining clips [7] will contact the clamping ring [8] and not the seal [6] or the edge of the middle pane [3].

AKS ALL; WINDOWS WITH AIRFLOW DAMPERS

b) For all ten spring clips [7] of the window, the spring clip [7] may contact the nut plate but should not be fully tightened down to the nutplate. A clearance of 0.02 in. (0.51 mm) is permitted between the screw head [5], washer, and flange of spring clip [7].

<1> Tighten the screws until the fastener head and washer are flush with the deflected flange of spring clip [7].

<a> Do not use more than 20 in-lb (2 N·m) when you install the screw.

AKS ALL; WINDOWS WITH SPRING CLIPS

c) If the seal [6] gets wrinkles in it, apply light pressure to the location of the wrinkles.

d) If the seal [6] continues to have wrinkles in it, do these steps:

<1> Remove the screws [5], and clips [7].

<2> Remove the window assembly from the window frame [1].

<3> Adjust the clips [7] and seal [6] where necessary.

<4> Tighten the window clip adjustment screws [5] to 13.5 ±1.5 in-lb (1.5 ±0.2 N·m).

<a> Use the torque sequence in Figure 401 or Figure 402.

<5> If the spring window retaining clips [7] are loose, you may increase the torque in increments of 5 in-lb (0.56 N·m) to no more than 20 in-lb (2 N·m).

NOTE: Bowing of the clip on installation is acceptable.

AKS ALL; WINDOWS WITH SPRING CLIPS (Continued)

<6> If the seal [6] continues to have wrinkles in it, repeat these steps.

AKS ALL

SUBTASK 56-21-00-110-001

(5) Clean the inside surface of the middle windowpane [3].

SUBTASK 56-21-00-420-003

(6) Do this task: Snap In Window Shade and Reveal Assembly Installation, TASK 25-21-12-400-805.

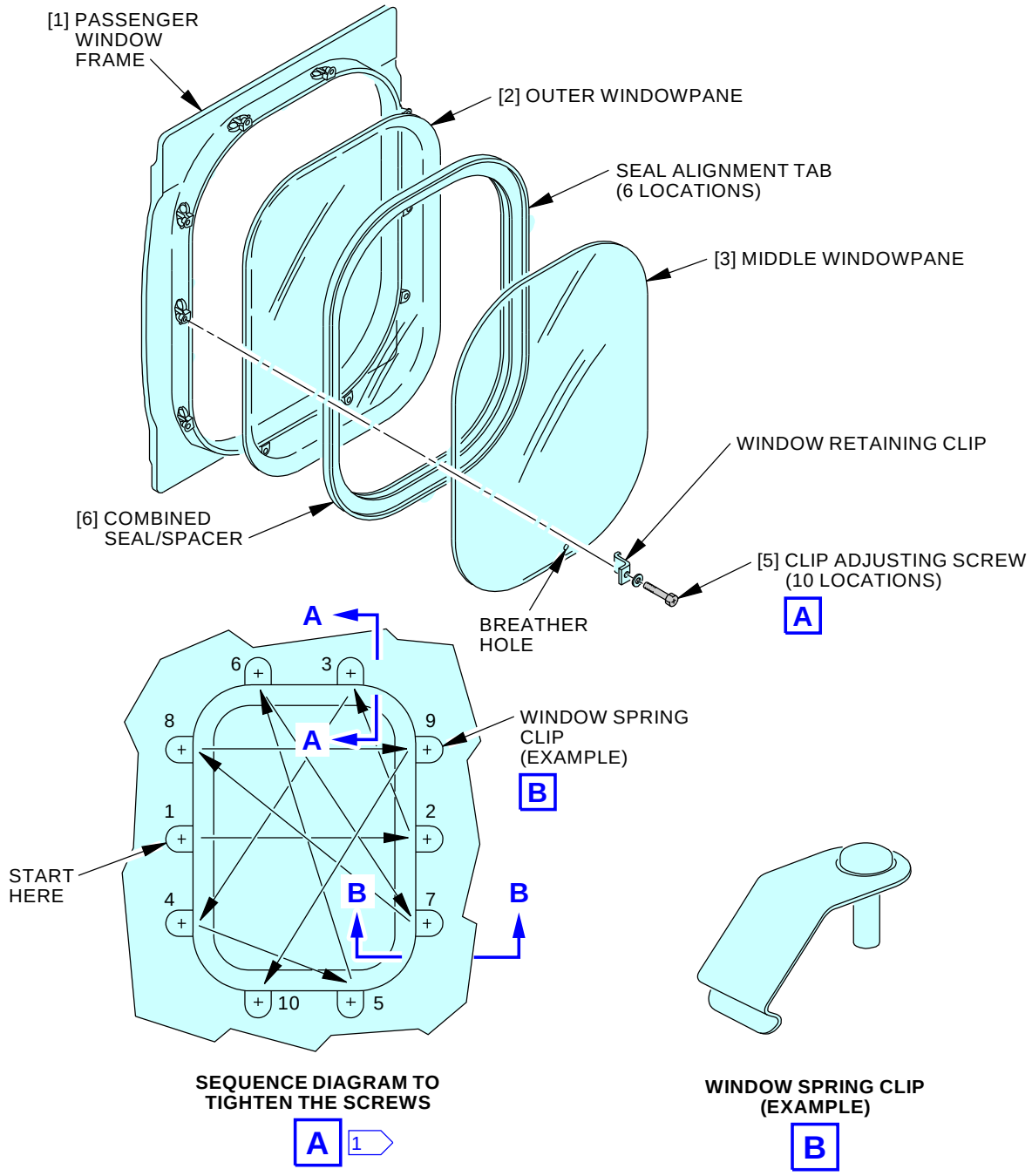
SUBTASK 56-21-00-110-002

(7) Use a mixture of warm water and castile soap, G01989 and a lint-free cloth, G00834 to clean the out side of the outer windowpane [2].

SUBTASK 56-21-00-110-003

(8) Use a damp chamois cloth, B00106 to dry the window.

——— END OF TASK ———



1 USE THIS DIAGRAM AS AN EXAMPLE ONLY. ANY SIMILAR PATTERN TO TIGHTEN THE SCREWS IS SATISFACTORY.

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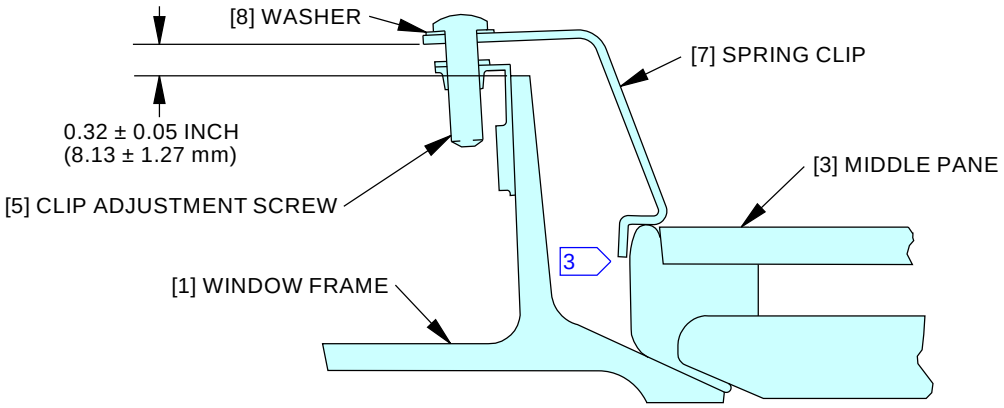
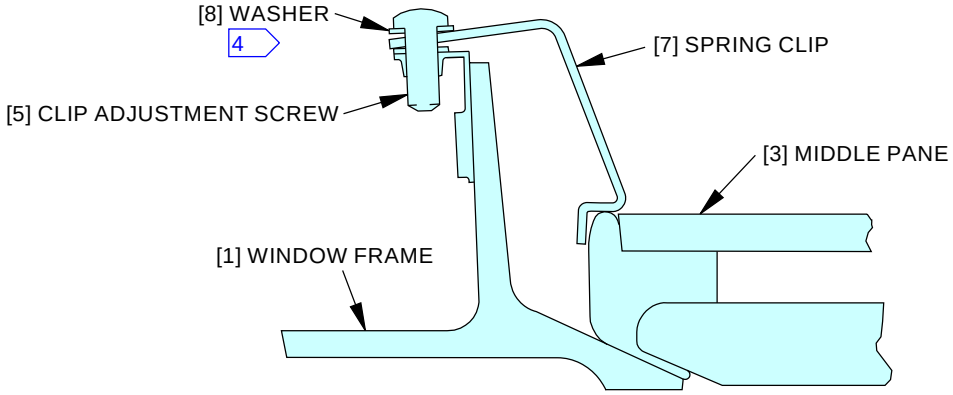
Passenger Cabin Windows Installation
Figure 401/56-21-00-990-801 (Sheet 1 of 2)



WINDOW CLIP
(TOP/BOTTOM OF WINDOW)
(EXAMPLE, 4 LOCATIONS)

A-A 2



WINDOW CLIP
(LEFT AND RIGHT SIDES OF WINDOW)
(EXAMPLE, 6 LOCATIONS)

B-B

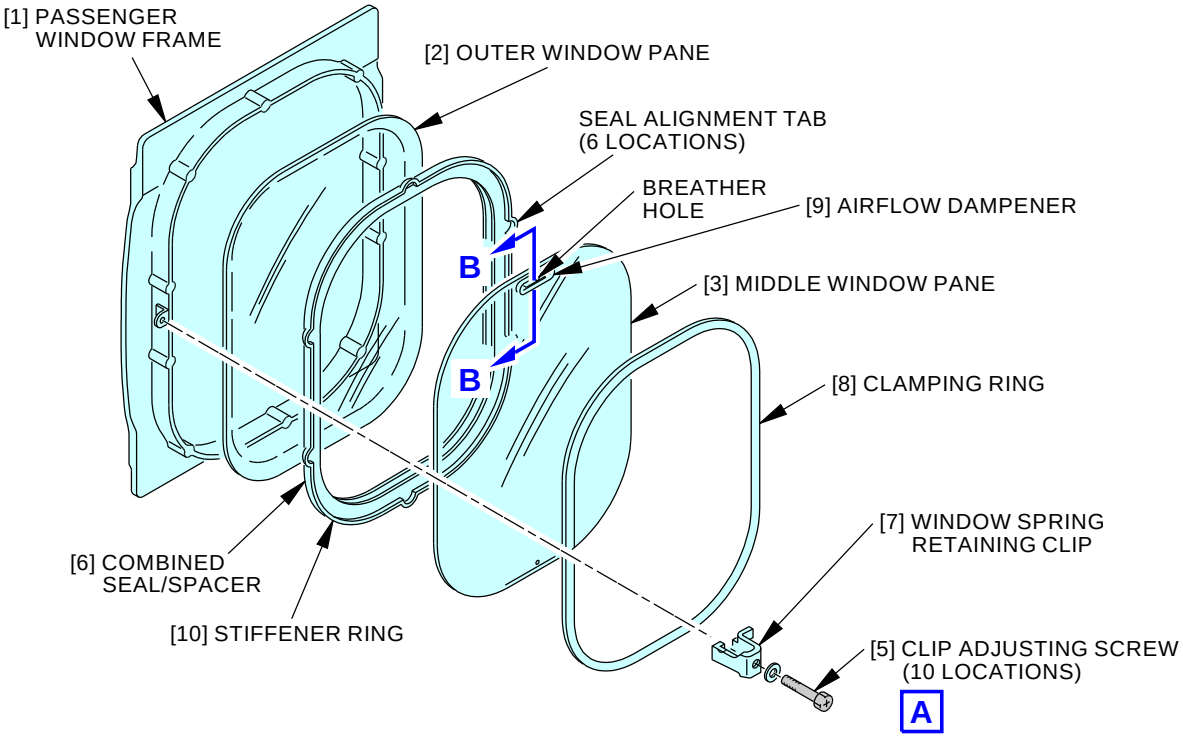
2 WINDOW CLIPS AT TOP (2 LOCATIONS) AND BOTTOM OF WINDOW (2 LOCATIONS) ARE SLIGHTLY LONGER THAN CLIPS AT SIDES OF WINDOW AND USE A LONGER ADJUSTING SCREW.

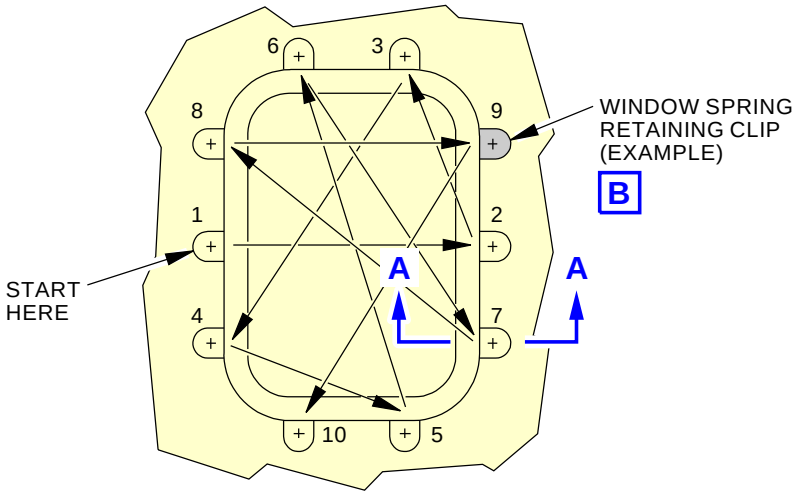
3 THE END OF THE SPRING CLIP CAN PUSH AGAINST THE SEAL OR AGAINST THE EDGE OF THE MIDDLE PANE. THE RECOMMENDED POSITION IS AGAINST THE SEAL.

4 TIGHTEN THE SCREWS UNTIL THE FASTENER STACKUP BOTTOMS OUT IN THE NUTPLATE.

W08423 S0006581467_V5

Passenger Cabin Windows Installation
Figure 401/56-21-00-990-801 (Sheet 2 of 2)





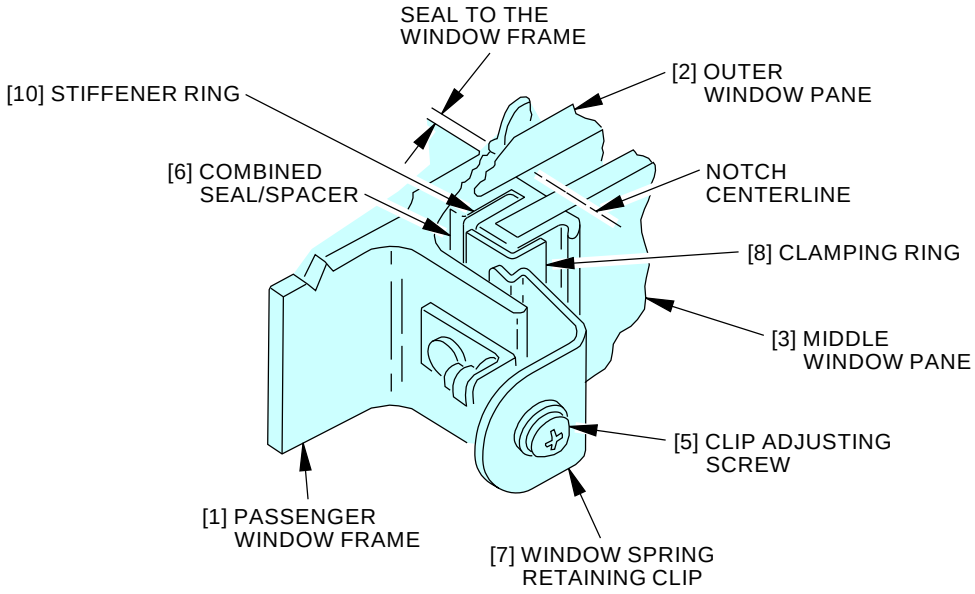
SEQUENCE DIAGRAM TO TIGHTEN THE SCREWS

A 1

1 USE THIS DIAGRAM AS AN EXAMPLE ONLY. ANY SIMILAR PATTERN TO TIGHTEN THE SCREWS IS SATISFACTORY.

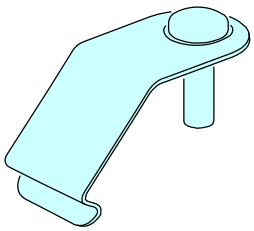
J72469 S0000176951_V4

Passenger Cabin Window Installation
Figure 402/56-21-00-990-805 (Sheet 1 of 3)



WINDOW SPRING RETAINING CLIP (AS INSTALLED) (EXAMPLE)

B

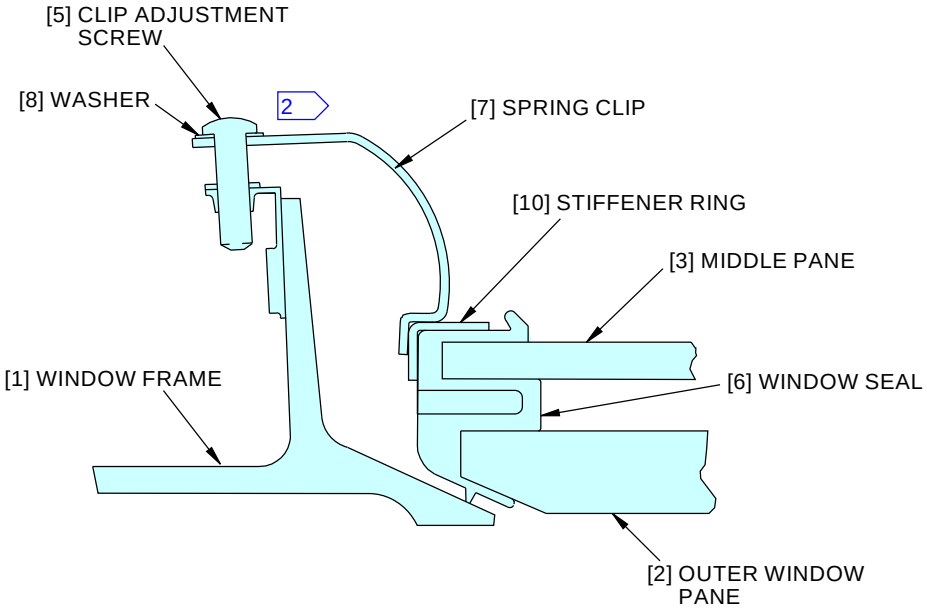


WINDOW SPRING RETAINING CLIP

C

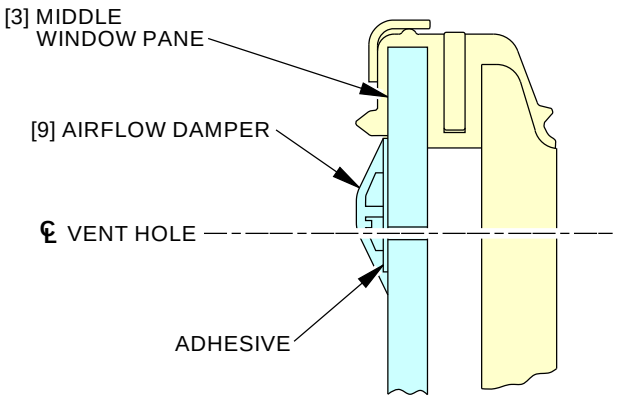
J72299 S0000176967_V2

Passenger Cabin Window Installation
Figure 402/56-21-00-990-805 (Sheet 2 of 3)



LEFT AND RIGHT SIDES OF WINDOW
(EXAMPLE, 6 LOCATIONS)

A-A



B-B

2 TIGHTEN SCREWS UNTIL THE FASTENER HEAD AND WASHER ARE FLUSH WITH DEFLECTED FLANGE OF WINDOW CLIP [7].

J72295 S0000176968_V3

Passenger Cabin Window Installation
Figure 402/56-21-00-990-805 (Sheet 3 of 3)

PASSENGER CABIN WINDOWS - INSPECTION/CHECK

1. General

A. This procedure has this task

(1) The inspection of the passenger cabin windows.

TASK 56-21-00-200-801

2. Passenger Cabin Window Inspection

(Figure 601, Figure 602)

A. General

CAUTION: APPLICATION OF PAINT OR OTHER UNAPPROVED OR NON-TRANSPARENT MATERIAL TO THE ACRYLIC PASSENGER WINDOW PANES IS PROHIBITED. SOLVENT IN PAINT WILL CAUSE STRUCTURAL DAMAGE TO THE ACRYLIC AND THE PAINT WILL PREVENT DAMAGE DETECTION.

(1) The types of damage to acrylic windows are as follows:

(a) Crazing:

1) Crazing is many very fine fissures with no visible width at the surface of a ply.

2) In a bright light shown from an angle to the surface, crazing looks frosted and appears to light up.

3) In dim light and light normal to the surface, crazing is difficult to see.

4) Crazing can develop into cracks.

(b) Cracks:

1) A crack is a fissure that has a visible width and depth.

2) Cracks can start from a scratch or a crazing mark Figure 601.

3) Cracks can be single or dual Figure 601.

4) Cracks in stretched acrylic plastic that occur in the direction of the applied force can become in-plane cracks.

(c) Scratches:

1) A scratch is the removal of material from the surface of the window.

2) Scratches usually occur in a straight line or slight curve.

3) The depth of a scratch is not usually greater than the width of the scratch.

(d) Chips:

1) Chips are pieces or layers of acrylic broken from the surface.

2) Spall (shell-type) chips:

a) Spall chips are circular with many fine ridges.

b) The ridges in the chip follow the outer edge and get smaller and deeper near the center and give it the clamshell appearance.

3) Vee-shaped chips:

a) These chips have a sharp "V" shape bottom that continues to the surface of the ply.

(e) In-plane Cracking:

1) In-plane cracking is sometimes referred to as delamination.

2) In-plane cracking is a crack that grows parallel to the surface of the ply from an edge or crack.

3) In-plane cracking looks shiny in reflected light.

(f) If the window is damaged as specified in this procedure, remove the window and replace or repair the damaged components (PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-21-00/401).

(2) Other conditions that may be seen on acrylic windows are as follows:

(a) Fogging:

1) Fogging is visible moisture that has condensed on the window surfaces.

NOTE: During aircraft flight, or cold weather ground operations, the moisture may freeze on the window panes and appear as frost or ice crystals.

2) Fogging can be caused by a seal that leaks or excessive humidity due to changes in climate and location.

3) Fogging is categorized as minor or severe:

a) Minor fogging:

<1> Appears as a very light mist, or fog, on the window surfaces.

<2> Has few or no visible water droplets in the main viewing area of the window

NOTE: It is normal for some visible water droplets to be found in the area directly around the window vent hole.

<3> May dry during normal aircraft operation or continue to worsen and become severe fogging

b) Severe fogging:

<1> Appears as a dense mist, or fog, on the window surfaces that prevents clear vision through large areas of the window typically 1/3 or more.

<2> Has many easily visible water droplets in the main viewing areas of the window.

<3> Continues to worsen during normal aircraft operations and can result in water pooling at the bottom of the window.

(b) Warping (deformation)

1) Warping is defined as visible deformation of a window pane from its original shape.

NOTE: The ‘original’ or normal shape of the window panes should match the shape (curvature) of the aircraft structure. Panes on a normal window will not have warping and will have a uniform air gap between the panes.

2) Warping can be caused by long-term exposure of the panes to moisture from severe fogging or exposure to temperatures greater than 200°F (93°C).

3) Minor warping may occur at the edge of the window panes where the attachment clips contact the window panes.

(c) Peeled or worn coating:

1) The hard, protective finish on the outer pane is peeling or wearing away.

NOTE: The hard coating on the passenger windows is not structural. It is a protective surface finish that is intended to maximize the service life of the window. Once the coating wears away and the bare structural acrylic pane is exposed, the window is much more susceptible to chemical attack and surface damage.

NOTE: Provided no other damage is visible, a window with peeled or worn coating may remain in service. The window may be repaired or replaced as desired by the operator during a future scheduled maintenance check.

B. References

Reference	Title
56-21-00 P/B 401	PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION
56-21-00-000-801	Removal of a Passenger Cabin Window (P/B 401)
56-21-00-300-801	Repair the Passenger Windows (Orbital Sander Method) (P/B 801)
56-21-00-400-801	Passenger Cabin Window Installation (P/B 401)

C. Tools/Equipment

NOTE: When more than one tool part number is listed under the same "Reference" number, the tools shown are alternates to each other within the same airplane series. Tool part numbers that are replaced or non-procurable are preceded by "Opt:", which stands for Optional.

Reference	Description
COM-2039	Micrometer, Optical (Min Depth .02 inch and Accuracy +/-.0005 Inch) Part #: 8400K Supplier: 65956 Part #: MODEL 966A1 Supplier: 0ZYB5 Part #: MODEL 966A1 Supplier: 88277 Opt Part #: 8400PCK Supplier: 65956
COM-4786	Processor/Printer - Optical Micrometer (used with 8400K only) Part #: DP-1VR Supplier: 65956

D. Location Zones

Zone	Area
220	Subzone - Passenger Compartment - Body Station 259.50 to 360.00
230	Subzone - Passenger Compartment - Body Station 360.00 to 663.75
240	Subzone - Passenger Compartment - Body Station 663.75 to Body Station 1016.00

E. Procedure

SUBTASK 56-21-00-200-001

(1) Use an optical micrometer, COM-2039 to measure damaged areas in the window. It is necessary to use the optical micrometer processor/printer, COM-4786 with the micrometer, COM-2039.

NOTE: You can use other accurate methods to find the crack depth.

(a) Multiply the acrylic plastic index of refraction (1.49) by the micrometer value, to calculate the depth of the damage.

SUBTASK 56-21-00-200-002

(2) Examine the middle pane for damage.

WARNING: YOU MUST IMMEDIATELY REPLACE THE MIDDLE PANE IF IT HAS DAMAGE. A CRACK MAY PREVENT MIDDLE PANE FROM CARRYING PRESSURE IF OUTER PANE FAILS DURING FLIGHT AND IS CRITICAL FOR THE SAFETY OF THE PASSENGERS.

(a) Replace the middle pane if it has any damage (PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-21-00/401).

NOTE: Middle pane cracks that start from the vent hole and are 0.062 in. (1.575 mm) or less in length do not need to be replaced.

(b) Replace the middle pane if the thickness is less than 0.157 in. (3.988 mm) (PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-21-00/401).

SUBTASK 56-21-00-200-003

(3) Examine the outer pane for cracks.

(a) Replace the outer pane if the depth of the crack is more than 0.050 in. (1.270 mm) (PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-21-00/401).

(b) Replace the outer pane if the window, after the repair, is less than 0.265 in. (6.731 mm) thick (Figure 602) (PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-21-00/401).

SUBTASK 56-21-00-200-004

(4) Examine the outer pane for crazing.

(a) Replace the outer pane if the depth of the crazing on the edge is more than 0.030 in. (0.762 mm) as shown in (Figure 602).

SUBTASK 56-21-00-200-005

(5) Examine the edges of the outer pane for in-plane cracking.

(a) Replace the outer pane if it has this damage (PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-21-00/401) :

1) With the window installed, you can see in-plane cracking at the edges.

2) With the window removed, the in-plane cracking is more than 0.55 in. (13.97 mm) from the edge.

3) There is less than 0.14 in. (3.56 mm) between damaged areas, 0.10 in. (2.54 mm) from the edge of the window as shown in (Figure 602).

SUBTASK 56-21-00-200-006

(6) Examine the outer pane at the areas other than the edges for chips and cracking.

(a) Replace the outer pane if it has this damage (PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-21-00/401):

1) The depth of a chip is more than 0.05 in. (1.27 mm).

2) The maximum diameter of an area of in-plane cracking is more than 0.40 in. (10.16 mm).

3) The distance between damaged areas must be more than two times the diameter of the damaged area.

SUBTASK 56-21-00-200-007

(7) Examine the windows for scratches.

(a) If you find scratches, do this task: Repair the Passenger Windows (Orbital Sander Method), TASK 56-21-00-300-801.

SUBTASK 56-21-00-200-009

(8) Examine the windows for deterioration.

(a) If you find deterioration, do this task: Repair the Passenger Windows (Orbital Sander Method), TASK 56-21-00-300-801.

SUBTASK 56-21-00-200-011

(9) Examine the window for warping (deformation).

(a) Make sure that the middle pane vent hole is open.

NOTE: A window that is warped or deformed with no visible damage beyond allowable limits is structurally satisfactory even if the middle and outer panes touch when the airplane is not pressurized. Window panes that have warping can be replaced during usual maintenance to prevent possible leakage.

(b) If you find warping (deformation), do this task: Repair the Passenger Windows (Orbital Sander Method), TASK 56-21-00-300-801.

SUBTASK 56-21-00-200-012

(10) If you find a window that is bent, repair it (Repair the Passenger Windows (Orbital Sander Method), TASK 56-21-00-300-801).

NOTE: It is possible to repair the window to its initial shape or very near.

(a) Remove the bent window with moisture in it.

(b) To dry the window, put it in a low moisture space at room temperature for an extended period of time.

SUBTASK 56-21-00-200-013

(11) Examine the windows for visual distortion.

(a) Replace windows that have bad visual distortion, or window thickness that is not constant (PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-21-00/401).

NOTE: High temperatures can cause this damage.

SUBTASK 56-21-00-210-002

(12) Examine the window for fogging between the middle and outer panes.

NOTE: Windows that have fogging with no other visible damage beyond allowable limits are considered structurally satisfactory and may remain in service. Windows with severe fogging can be replaced as desired by the operator during a future scheduled maintenance check.

(a) If severe fogging causes water to pool at the bottom of the window or block the vent hole, the window and/or seal must be replaced (PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-21-00/401).

(b) Windows with severe fogging should be examined for signs of leaks.

SUBTASK 56-21-00-200-015

(13) Examine the windows for leaks between the middle and the outer panes.

(a) Replace the seals if these signs of leaks show on the window: (do this task: (Removal of a Passenger Cabin Window, TASK 56-21-00-000-801 and do this task: Passenger Cabin Window Installation, TASK 56-21-00-400-801)

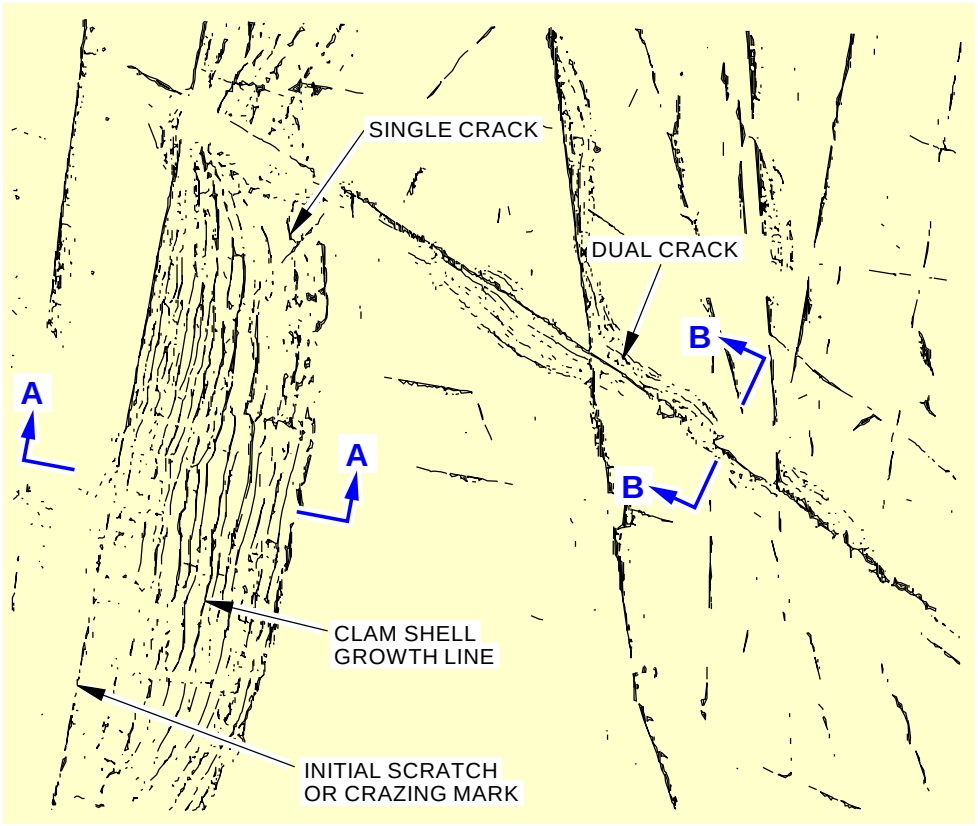
1) If water has pooled at the bottom of the window or blocks the vent hole, the window or seal must be repaired or replaced.

2) Brown stains show near the seal or in the vent hole in the middle pane.

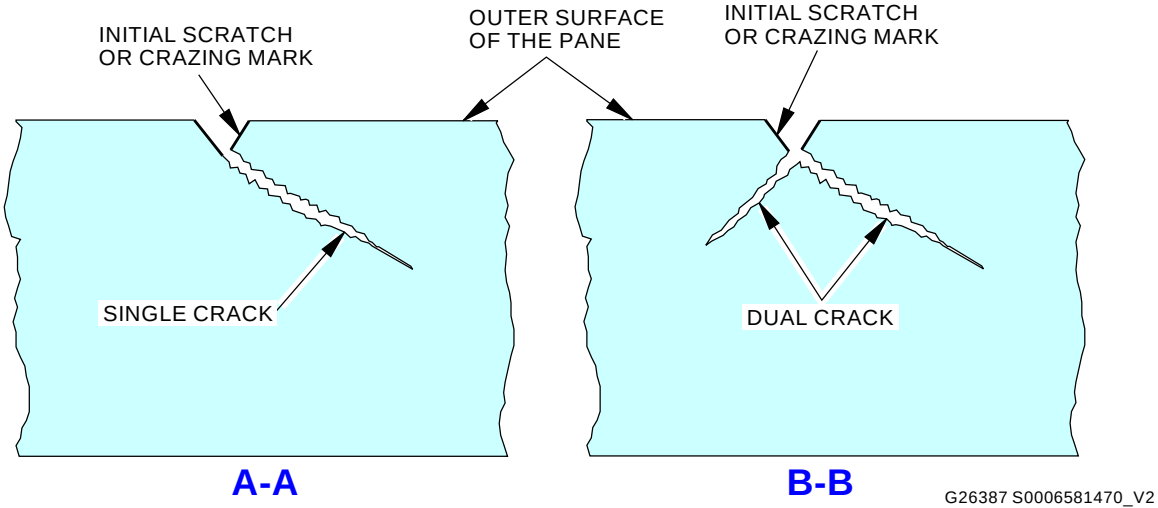
3) A seal that is observed to be out of place, rolled back, or damaged.

NOTE: Provided no other damage beyond allowable limits is visible, a seal that is out of place, rolled back, or damaged, may remain in service. The seal may be repaired or replaced as desired by the operator during a future scheduled maintenance check.

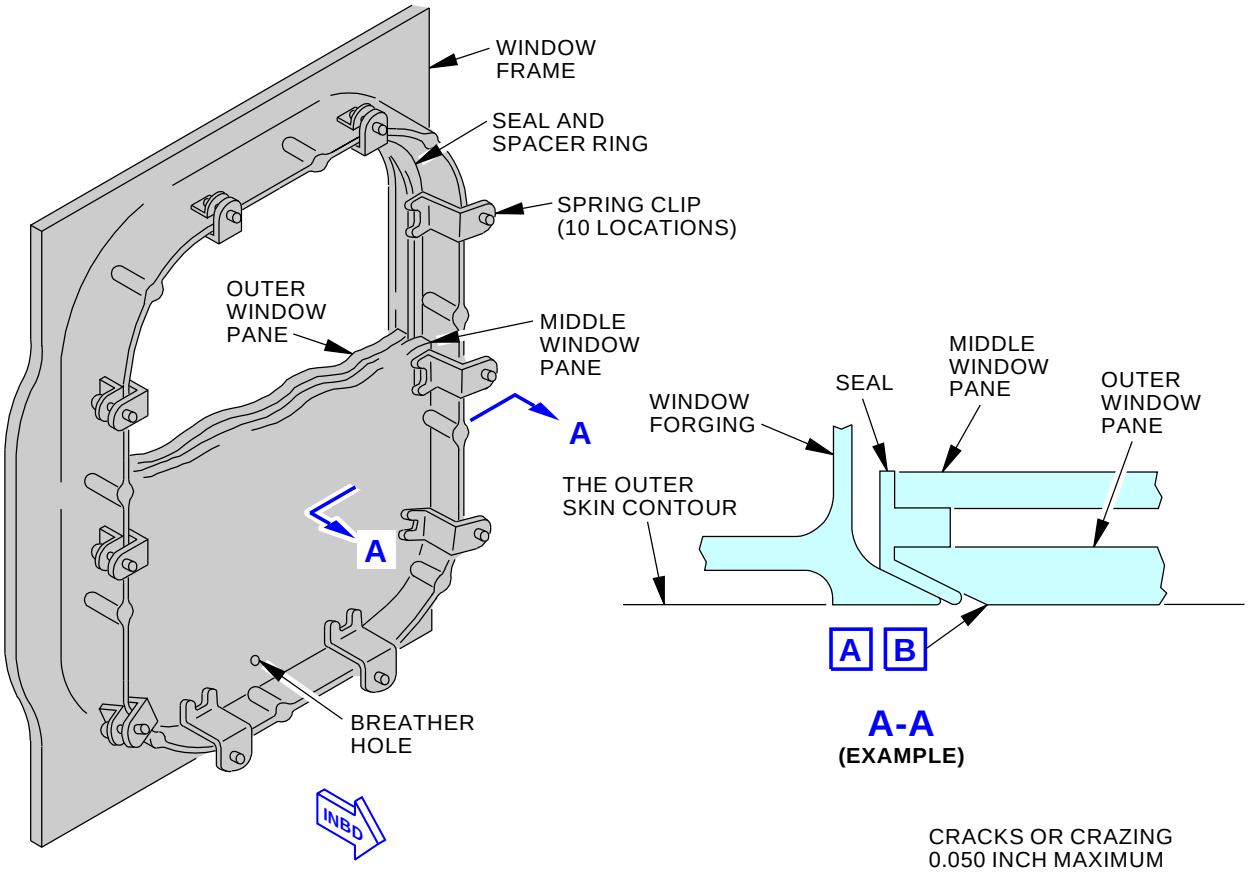
——— END OF TASK ———

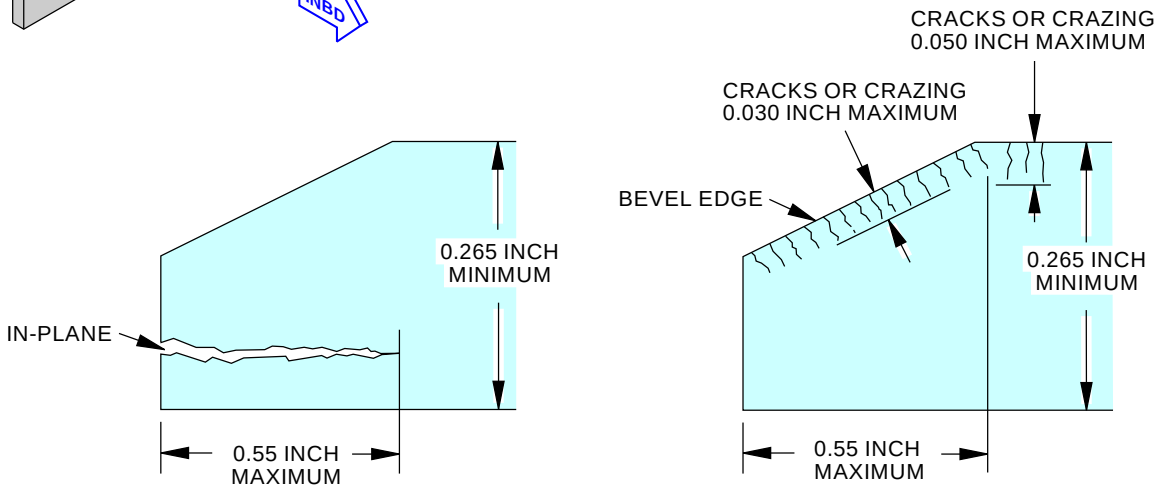


**WINDOW SURFACE
(EXAMPLE)**



**Example of Window Surface Cracks that Develop (Outer Pane Stretched Acrylic)
Figure 601/56-21-00-990-802**





DELAMINATION (IN-PLANE CRACK)

A

OUTER WINDOW PANE CRACK AND CRAZING LIMITS

B

G26416 S0006581471_V2

Passenger Compartment Window Inspection
Figure 602/56-21-00-990-803

PASSENGER CABIN WINDOWS - REPAIRS

1. General

A. This procedure has two tasks. These tasks repair the external surface of the outer passenger windows.

B. This procedure contains repairs that you can do with the windows installed in the airplane.

C. You can do this task with the windows installed on the airplane.

D. The damage limits for the windows are given in Passenger Cabin Windows - Inspection/Check (AMM 56–21–00/601).

E. Use clean cotton gloves when you touch the windowpanes to prevent more damage.

F. Do not cause damage to the window surface with finger rings or other sharp objects.

TASK 56-21-00-300-801

2. Repair the Passenger Windows (Orbital Sander Method)

A. References

Reference	Title
56-21-00 P/B 401	PASSENGER CABIN WINDOWS - REMOVAL/INSTALLATION
56-21-00-200-801	Passenger Cabin Window Inspection (P/B 601)

B. Tools/Equipment

Reference	Description
STD-1207	Sander/Polisher - Orbital, Air Driven

C. Consumable Materials

Reference	Description	Specification
G00139	Tape - Protective - Gizzard Protex-20V	
G01111	Tape - Aluminum Foil, Pressure Sensitive, Heat Reflective, Adhesive	A-A-59258
G50978	Kit - Micro-Surfaces Finishes Light Damage Removal Kit	

D. Location Zones

Zone	Area
200	Upper Half of Fuselage

E. Procedure

SUBTASK 56-21-00-160-004

(1) Do the steps that follow to clean the window:

(a) Examine the condition of the seal. Replace the window seal if there are signs of condensation or seal damage (PAGEBLOCK 56-21-00/401).

(b) Apply Gizzard Protex-20V tape, G00139 or tape, G01111 to the window frame.

(c) Apply Gizzard Protex-20V tape, G00139 or tape, G01111 to the seal.

(d) Use a water spray to clean the window.

(e) Remove loose dirt with your bare hand.

SUBTASK 56-21-00-350-003

(2) Do the steps that follow to remove the window damage (Orbital Sander Method):

NOTE: This task is intended to supplement the manufacturers' repair kit instructions for final polishing of the window, and is not intended to replace them.

(a) Select the grade of sandpaper found in the repair kit listed below:

1) Light Damage Removal Kit, G50978.

(b) Wrap the sandpaper around the sander/polisher, STD-1207.

(c) Use sufficient water to keep the window surface cool and to flush away the grit and acrylic material removed.

(d) Sand the window with the orbital sander horizontal direction.

(e) Sand the whole window surface.

(f) Keep water on the surface being sanded.

NOTE: Water will serve as a lubricant and coolant on the window.

(g) Sand the window with the abrasive paper in a vertical direction.

(h) Sand the whole window surface.

(i) Use each grade of sandpaper in the kit to remove the previous pattern made by the previous sandpaper.

(j) Do the procedure until all the surface damage is removed and the window has a constant thickness.

(k) Measure the window thickness dimensions (Passenger Cabin Window Inspection, TASK 56-21-00-200-801).

(l) Remove the water spray.

(m) Attach the polishing pad (included in the kit) to a right angle polisher.

(n) Wet the surface with water.

(o) Apply approximately 1 tablespoon (15 mL) of Micro-Gloss (included in the kit) and polish for 2-4 minutes.

(p) Attach the white foam sponge pad (included in the kit) to the right angle polisher and repeat the previous three steps.

(q) Rinse the surface off with water.

(r) Wipe clean with the dry flannel cloth.

NOTE: All fine scratches should be gone.

(s) Apply Anti-Static compound (included in the kit) to the surface with a clean dry flannel cloth.

(t) Polish the surface by hand to remove the static charge that has built up during the process.

(u) Measure the window thickness dimensions (Passenger Cabin Window Inspection, TASK 56-21-00-200-801).

(v) Make sure the window pane thickness is greater than the limits permitted (Passenger Cabin Window Inspection, TASK 56-21-00-200-801).

——— END OF TASK ———

TASK 56-21-00-300-802

3. Repair The Passenger Windows (Hand Method)

A. References

Reference	Title
56-21-00-200-801	Passenger Cabin Window Inspection (P/B 601)

B. Tools/Equipment

Reference	Description
STD-9478	Sanding Block

C. Consumable Materials

Reference	Description	Specification
G00139	Tape - Protective - Gizzard Protex-20V	
G01111	Tape - Aluminum Foil, Pressure Sensitive, Heat Reflective, Adhesive	A-A-59258
G50972	Abrasive - 3M Wetordry Tri-M-ite 400A abrasive paper (400 Grit)	
G50973	Abrasive - 3M Wetordry Tri-M-ite 600A abrasive paper (600 Grit)	
G50974	Kit - Micro-Surfaces Finishes KR-70 Acrylic/Plastic Restoral Kit	
G50975	Kit - Micro-Surfaces Finishes HP-100 Acrylic Restoral Kit	
G50976	Kit - Micro-Surfaces Finishes NC-78-1 Acrylic Restoral Kit	
G50977	Kit - Micro-Surfaces Finishes MA-1 Acrylic Restoral Kit	

D. Procedure

SUBTASK 56-21-00-160-005

(1) Do the steps that follow to clean the window:

(a) Examine the condition of the seal. Replace the window seal if there are signs of condensation or seal damage (TASK 56-21-00-200-801).

(b) Apply Gizzard Protex-20V tape, G00139 or tape, G01111 to the window frame.

(c) Apply Gizzard Protex-20V tape, G00139 or tape, G01111 to the seal.

(d) Use a water spray to clean the window.

(e) Remove loose dirt with your bare hand.

SUBTASK 56-21-00-350-004

(2) Do the steps that follow to remove the window damage (Hand Method):

(a) Select the grade of sandpaper from the items that follow:

1) Use 3M Wetordry Tri-M-ite 400A abrasive paper, G50972 for deep scratches and bad crazing.

2) Use 3M Wetordry Tri-M-ite 600A abrasive paper, G50973 for minor scratches and crazing.

(b) Use sufficient water to keep the window surface cool and to flush away the grit and acrylic material removed.

(c) Wrap the sandpaper around a sanding block, STD-9478.

(d) Sand the window with the abrasive paper in a horizontal direction.

(e) Sand the whole window surface.

(f) Keep water on the surface being sanded.

NOTE: Water will serve as a lubricant and coolant on the window.

(g) Sand the window with the abrasive paper in a vertical direction.

(h) Sand the whole window surface.

(i) Do this procedure until all the surface damage is removed and the window has a constant thickness.

SUBTASK 56-21-00-350-005

(3) Do the steps that follow to polish the window after repairs have been done:

NOTE: This task is intended to supplement the manufacturers' repair kit instructions for final polishing of the window, and is not intended to replace them.

(a) Select the grade of sandpaper found in the repair kits listed below:

1) KR-70 Acrylic/Plastic Restoral Kit, G50974.

2) HP-100 Acrylic Restoral Kit, G50975.

3) NC-78-1 Acrylic Restoral Kit, G50976.

4) MA-1 Acrylic Restoral Kit, G50977.

(b) Wrap the sandpaper sheets around a foam sanding block (included in the kit).

(c) Use sufficient water to keep the window surface cool and to flush away the grit and acrylic material removed.

(d) Sand the window with the abrasive paper in a horizontal direction.

(e) Sand the whole window surface.

(f) Keep water on the surface being sanded.

NOTE: Water will serve as a lubricant and coolant on the window.

(g) Sand the window with the abrasive paper in a vertical direction.

(h) Use each grade of sandpaper in the kit to remove the previous pattern made by the previous sandpaper.

(i) Do this procedure until all the surface damage is removed and the window has a constant thickness.

(j) Measure the window thickness dimensions (TASK 56-21-00-200-801).

(k) Do a check of the window visually for optical quality. If the window is damaged, do the repair process again.

(l) Make sure the window pane thickness is greater than the limits permitted (TASK 56-21-00-200-801).

END OF TASK

PASSENGER CABIN WINDOW PLUG - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) The removal of the passenger compartment window plug.

(2) The installation of the passenger compartment window plug.

TASK 56-21-11-000-801

2. Passenger Cabin Window Plug Removal

(Figure 401)

A. References

Reference	Title
25-21-12-000-804	Snap In Window Shade and Reveal Assembly Removal (P/B 401)

B. Consumable Materials

Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00834	Cloth - Lint-free Cotton	

C. Location Zones

Zone	Area
200	Upper Half of Fuselage

D. Procedure

SUBTASK 56-21-11-010-001

(1) Do this task: Snap In Window Shade and Reveal Assembly Removal, TASK 25-21-12-000-804.

SUBTASK 56-21-11-010-002

(2) Remove the insulation pillow.

SUBTASK 56-21-11-020-001

(3) Remove the window adjustment screws.

SUBTASK 56-21-11-020-002

(4) Remove the window retaining clips.

SUBTASK 56-21-11-020-003

(5) Disconnect the grounding strap from the window plug.

SUBTASK 56-21-11-010-003

(6) Remove the window plug and seal.

NOTE: You do not have to remove the seal from the plug if the seal is not damaged.

SUBTASK 56-21-11-950-001

CAUTION: UNLESS YOU IMMEDIATELY INSTALL THE PLUG, INSTALL A SHEET OF CLOTH OR EQUIVALENT MATERIAL TO THE PLUG SURFACES WITH MASKING TAPE. THIS WILL PREVENT DAMAGE TO THE PLUG AFTER YOU REMOVE THE PLUG.

(7) Use Scotch Flatback Masking Tape 250, G00270 to install a protective cover of lint-free cloth, G00834 to the window plug surfaces.

END OF TASK

TASK 56-21-11-400-801

3. Passenger Cabin Window Plug Installation

(Figure 401)

A. References

Reference	Title
25-21-12-400-805	Snap In Window Shade and Reveal Assembly Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	ASTM D-3735 Type III
B00130	Alcohol - Isopropyl	TT-I-735
G00834	Cloth - Lint-free Cotton	

C. Location Zones

Zone	Area
200	Upper Half of Fuselage

D. Prepare for installation

SUBTASK 56-21-11-950-002

(1) Remove the tape and the cloth from the plug surfaces.

SUBTASK 56-21-11-110-001

WARNING: DO NOT GET SOLVENTS IN YOUR MOUTH, OR YOUR EYES, OR ON YOUR SKIN. DO NOT BREATHE THE FUMES FROM SOLVENTS. SOLVENTS ARE HAZARDOUS MATERIALS. REFER TO PRODUCT MATERIAL SAFETY DATA SHEETS (MSDS) AND LOCAL REQUIREMENTS FOR PROPER HANDLING PROCEDURES.

(2) Apply solvent, B00083 or alcohol, B00130 to a lint-free cloth, G00834 and clean the mating surfaces of the seal and the window frame.

E. Install the window plug

SUBTASK 56-21-11-420-001

(1) Install the seal on the window plug.

SUBTASK 56-21-11-410-001

(2) Install the window plug and seal in the window frame where necessary.

SUBTASK 56-21-11-420-002

(3) Install the window retaining clips.

(a) Install the window retaining clip screws

(b) Tighten each retaining clip adjustment screw to 12 to 15 pound-inches (1.4-1.7 newton-meters).

NOTE: If the window retaining clip does not contact the window plug, you can increase the torque to a maximum of 25 pound-inches (2.8 newton-meters).

SUBTASK 56-21-11-420-003

(4) Connect the grounding strap to the window plug.

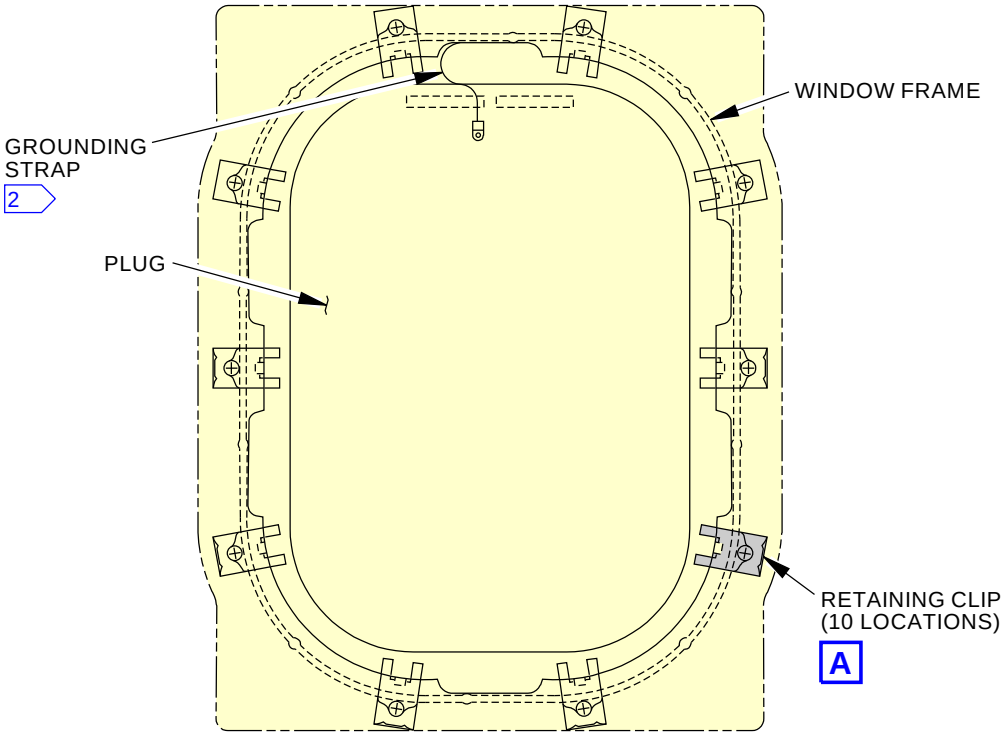
SUBTASK 56-21-11-410-002

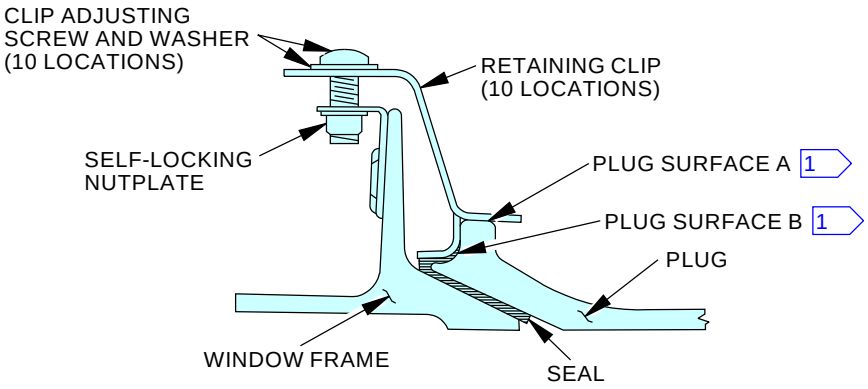
(5) Install the insulation pillow.

SUBTASK 56-21-11-410-003

(6) Do this task: Snap In Window Shade and Reveal Assembly Installation, TASK 25-21-12-400-805.

——— END OF TASK ———





RETAINING CLIP (EXAMPLE)

A

1 IF THE WINDOW RETAINING CLIP TOUCHES PLUG SURFACE B, A SPACE IS PERMITTED BETWEEN THE WINDOW RETAINING CLIP AND PLUG SURFACE A.

2 NOT INSTALLED ON ALL AIRPLANES

G27000 S0006581478_V3

Passenger Cabin Window Plate (Plug) Installation
Figure 401/56-21-11-990-801

PASSENGER CABIN CORROSION PREVENTION - MAINTENANCE PRACTICES

1. General

A. Corrosion can occur on the passenger cabin window frames. To reduce the possibility of this corrosion, an improved finish system is now used.

B. Refer to the Introduction of this manual for a discussion of the Aging Airplane Corrosion Prevention and Control Program and related documentation. Structural items within this section are subject to the unique requirements of the mandatory Corrosion Prevention and Control Program.

TASK 56-21-37-600-801

2. CORROSION PREVENTION

A. References

Reference	Title
SRM 737-678	Structural Repair Manual

B. Consumable Materials

Reference	Description	Specification
C00033	Coating - Protective Enamel, Flexibility Use	BMS10-60 Type II
C00319	Primer - Urethane Compatible, Corrosion Resistant	BMS10-79 Type II

C. Corrosion Prevention

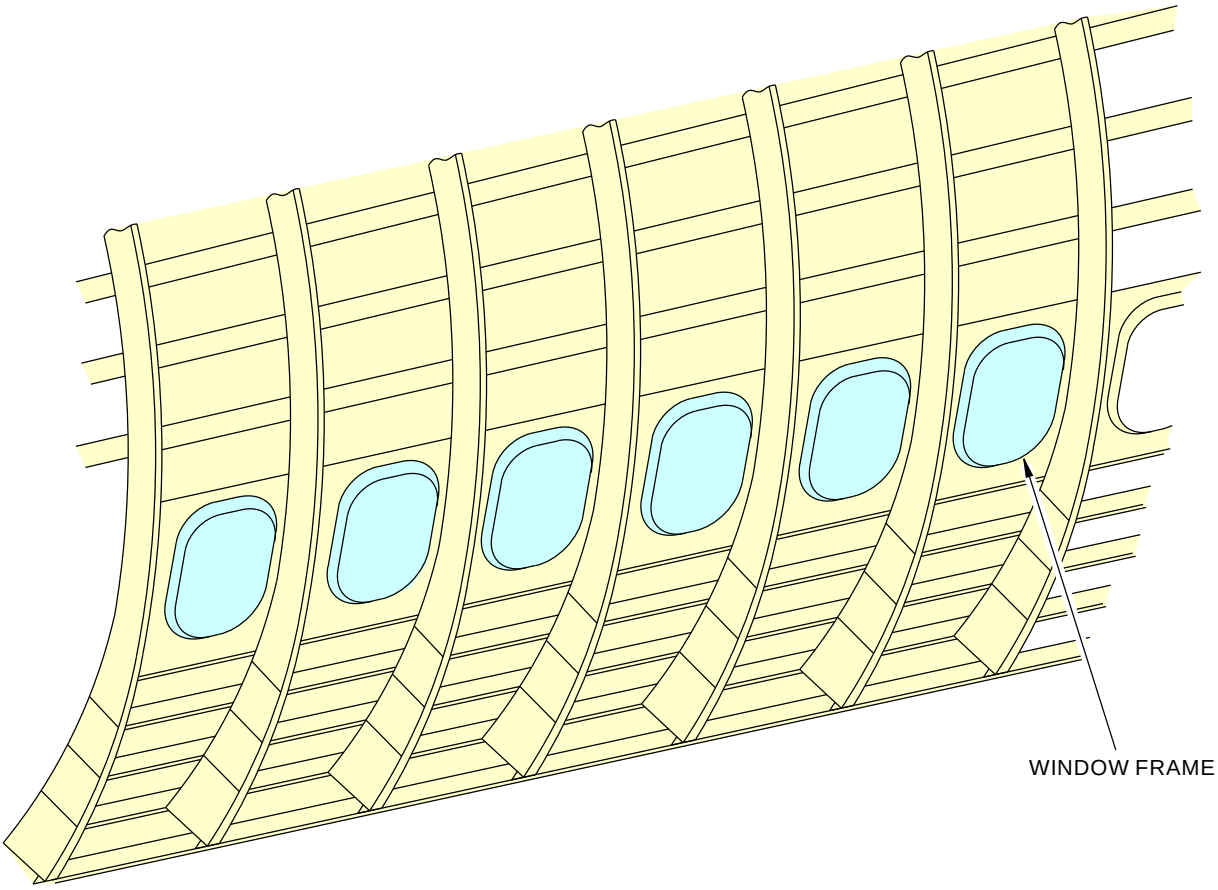
SUBTASK 56-21-37-610-001

(1) Make periodic inspections of the window frames internally and externally for evidence of corrosion or deterioration of finish.

(2) Where minor corrosion is evident or the finish is broken, refer to SRM 737-678 for details of corrosion removal.

(3) The improved finish system can be applied to the entire interior surfaces of passenger cabin windows and those in doors. The finish consists of one coat of primer, C00319 followed by one coat of white enamelcoating, C00033. To gain access to the areas to be repainted, it is necessary to remove the decorative trim, the window reveal and the window assembly. It is not necessary to strip existing finish although any evidence of corrosion should be removed. Areas not to be repainted should be masked, but overspray on the inner skin surface, nut plates and sheet metal parts is permissible.

——— END OF TASK ———



TYPICAL PASSENGER CABIN WINDOW AREA

J69956 S0000174584_V2

Passenger Cabin Window Frames
Figure 201/56-21-37-990-801

AUTOMATIC OVERWING EXIT WINDOW - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) The removal of the automatic overwing exit window.

(2) The installation of the automatic overwing exit window.

TASK 56-22-00-000-801

2. Automatic Overwing Exit Window Removal

(Figure 401)

A. References

Reference	Title
52-22-51-000-801	Emergency Exit Door Lining Removal (P/B 401)

B. Consumable Materials

Reference	Description	Specification
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G02173	Paper - Wrapping, Chemically Neutral (Non-Corrosive)	MIL-DTL-17667 (Supersedes MIL-P-17667)

C. Location Zones

Zone	Area
832	Left Forward Emergency Exit
833	Left Emergency Exit (STA 627.5)
842	Right Forward Emergency Exit
843	Right Emergency Exit (STA 627.5)

D. Procedure

SUBTASK 56-22-00-010-001

(1) Do this task: Emergency Exit Door Lining Removal, TASK 52-22-51-000-801.

SUBTASK 56-22-00-020-001

CAUTION: BE CAREFUL WHEN YOU TOUCH THE MIDDLE AND OUTER WINDOW PANES. THE MIDDLE AND OUTER WINDOW PANES ARE ACRYLIC AND CAN BE EASILY DAMAGED.

(2) Remove the automatic overwing exit door window assembly as follows:

(a) Remove the screws [4] and the window clip [3] that hold the window assembly in the window frame.

(b) Remove the window assembly.

NOTE: The window assembly has an outer pane [1], seal [5], stiffener ring [6], inner pane [2], and clamping ring [7].

(c) If necessary, remove the seal [5] from the window assembly.

(d) Apply a protective cover of wrapping paper, G02173 with Scotch Flatback Masking Tape 250, G00270 to the inner and outer surfaces of the outer pane [1] and inner pane [2].

END OF TASK

TASK 56-22-00-400-801

3. Automatic Overwing Exit Window Installation

(Figure 401)

A. References

Reference	Title
12-16-03-600-801	Apply Antistatic Solution to the Passenger Compartment Windows (P/B 301)
52-22-51-400-801	Emergency Exit Door Lining Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
B00083	Solvent - VM&P Naphthas	ASTM D-3735 Type III
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G01989	Soap - Castile (Vegetable Oil Based)	

C. Location Zones

Zone	Area
832	Left Forward Emergency Exit
833	Left Emergency Exit (STA 627.5)
842	Right Forward Emergency Exit
843	Right Emergency Exit (STA 627.5)

D. Prepare for the Installation

SUBTASK 56-22-00-100-001

(1) Clean the window frame and the seal [5] with solvent, B00083 on a clean, oil-free cotton wiper, G00034.

SUBTASK 56-22-00-100-002

(2) Use a clean, dry cotton wiper, G00034 to remove the solvent, B00083 before it dries on the frame and the seal [5].

SUBTASK 56-22-00-020-002

CAUTION: BE CAREFUL WHEN YOU TOUCH THE MIDDLE AND OUTER WINDOW PANES. THE MIDDLE AND OUTER WINDOW PANES ARE ACRYLIC AND CAN BE EASILY DAMAGED.

(3) Remove the protective paper cover and tape from the window panes.

SUBTASK 56-22-00-100-003

CAUTION: DO NOT RUB THE WINDOW SURFACES WITH A DRY CHEESECLOTH. THIS CAN CAUSE SCRATCHES AND MAKE AN ELECTROSTATIC CHARGE WHICH CAN CAUSE DUST PARTICLES TO BOND TO THE WINDOW SURFACES.

(4) Clean the outer pane [1] and inner pane [2].

SUBTASK 56-22-00-100-004

(5) Do this task (optional): Apply Antistatic Solution to the Passenger Compartment Windows, TASK 12-16-03-600-801.

E. Installation

SUBTASK 56-22-00-420-004

(1) Put the parts of the window assembly together as follows (Figure 401):

(a) Get these parts:

1) seal [5]
2) Outer pane [1]
3) Inner pane [2].
4) Stiffener ring [6]
5) Clamping ring [7]

(b) Install the window seal [5] on the inner edge of the stiffening ring [6].

(c) Put the seal [5] around the outer pane [1].

1) Make sure the serial number of the outer pane [1] is at the top of the assembly.

(d) Put the inner pane [2] in position so the seal is around the edges and also between the two panes (Figure 401).

1) Make sure the breather hole in the inner pane [2] is at the top of the assembly.

(e) Put the clamping ring [7] on the window assembly on the edge of the seal [5] that covers the middle pane [2].

SUBTASK 56-22-00-420-002

(2) Install the window assembly in the window frame as follows:

(a) Align the window assembly with the frame.

(b) Push at the edges on opposite sides of the assembly to move it into the frame.

NOTE: If the window assembly will not slide into the window frame apply a soap and water solution to the outer edge of the seal [5] on the window assembly.

(c) Make sure the window is correctly aligned in the center of the frame.

SUBTASK 56-22-00-420-003

(3) Install the window clip [3] to attach the window assembly to the frame. (Figure 401).

(a) Loosely install the screws [4] on the frame.

(b) Tighten the screws [4] until the clip foot is flat against the pane: (Figure 401)

(c) Tighten these top and bottom screws [4] to 27 in-lb (3 N·m) - 38 in-lb (4 N·m):

1) Top aft
2) Bottom forward
3) Bottom aft
4) Top forward

(d) Tighten these screws [4] above and below the middle screws to 27 in-lb (3 N·m) - 38 in-lb (4 N·m):

1) Aft above
2) Forward below
3) Aft below
4) Forward above

(e) Tighten these screws [4] in the middle to 27 in-lb (3 N·m) - 38 in-lb (4 N·m):

1) Forward middle
2) Aft middle

(f) Tighten the window clip [3] to increase the pressure on the rubber seal [5] in the area where the rubber seal [5] is not visible.

NOTE: To insure a correct seal between the window and the window frame the seal should be visible when you look through the window.

F. Put the Airplane To Its Usual Condition

SUBTASK 56-22-00-410-001

(1) Do this task: Emergency Exit Door Lining Installation, TASK 52-22-51-400-801.

SUBTASK 56-22-00-160-001

(2) Clean the outer surface of the outer pane:

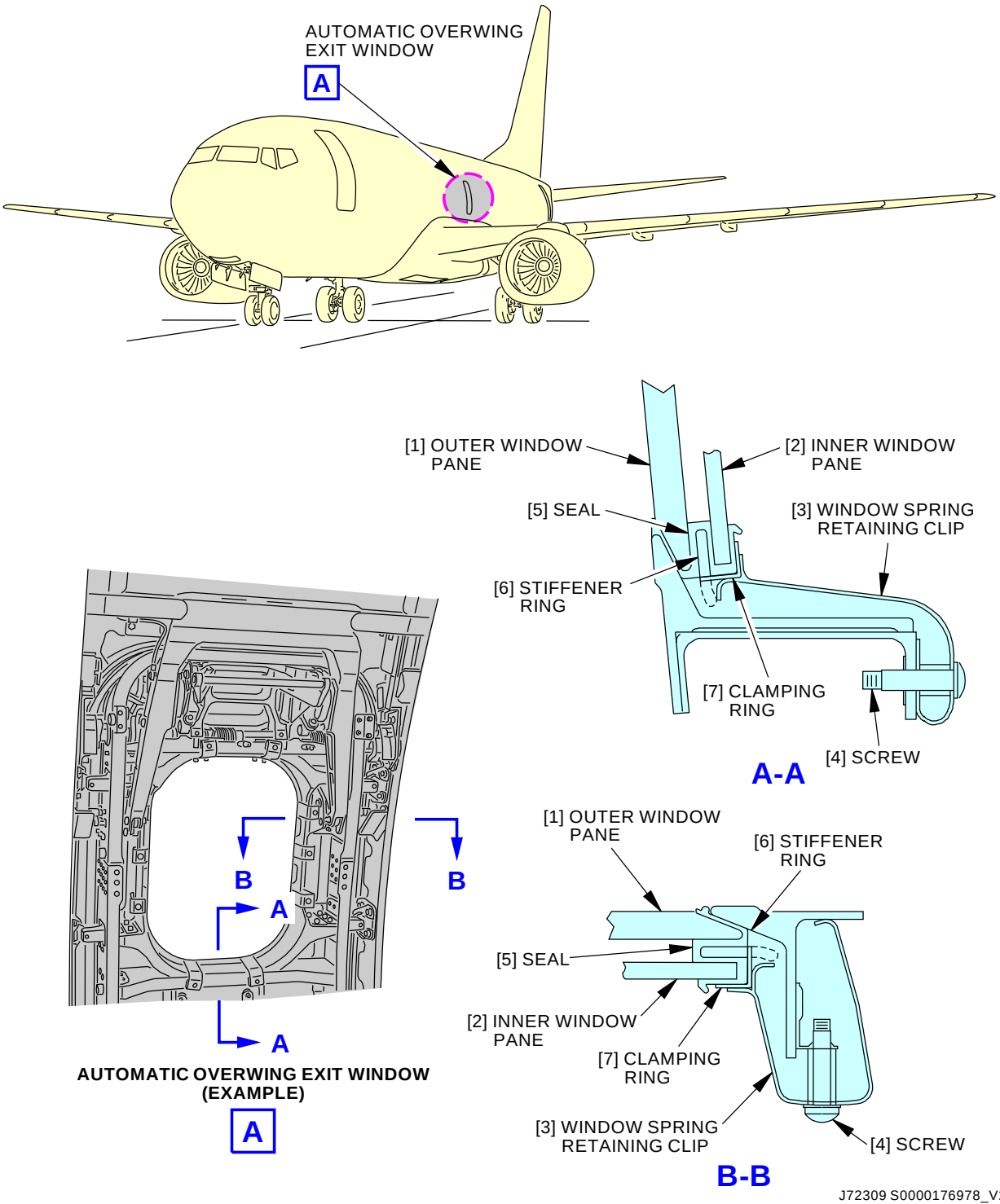
(a) Make a solution of castile soap, G01989 and warm water.

(b) Apply the soap solution to the outer surface with a cotton wiper, G00034.

CAUTION: DO NOT RUB THE OUTER SURFACE WITH A DRY CHEESECLOTH. THIS CAN CAUSE SCRATCHES AND MAKE AN ELECTROSTATIC CHARGE WHICH CAN CAUSE DUST PARTICLES TO BOND TO THE OUTER SURFACE.

(c) Dry the outer surface with a clean cotton wiper, G00034 moist with water.

——— END OF TASK ———



Automatic Overwing Exit Window Installation
Figure 401/56-22-00-990-801

EMERGENCY EXIT HATCH WINDOW - INSPECTION/CHECK

1. General

A. This procedure has these tasks:

(1) The inspection/check of the emergency exit hatch windows.

B. The inspection/check requirements for the emergency exit hatch windows are the same as for the passenger windows.

TASK 56-22-00-200-801

2. Emergency Exit Hatch Window - Inspection/Check

A. References

Reference	Title
56-21-00-200-801	Passenger Cabin Window Inspection (P/B 601)

B. Location Zones

Zone	Area
832	Left Forward Emergency Exit
833	Left Emergency Exit (STA 627.5)
842	Right Forward Emergency Exit
843	Right Emergency Exit (STA 627.5)

C. Procedure

SUBTASK 56-22-00-210-001

(1) Do this task: Passenger Cabin Window Inspection, TASK 56-21-00-200-801.

——— END OF TASK ———

DOOR-MOUNTED WINDOWS - REMOVAL/INSTALLATION

1. General

A. This procedure has these tasks:

(1) The removal of door-mounted windows

(2) The installation of door-mounted windows

B. The entry and galley service door windows have three panes.

(1) The outer and middle panes mount on a frame and each one is resistant to the loads of cabin pressurization.

(2) The inner pane mounts in the door lining and is not a structural pane.

TASK 56-31-00-000-801

2. Remove the Door-Mounted Windows

(Figure 401)

A. References

Reference	Title
52-11-31-000-802	Forward Entry Door Lining Removal (P/B 401)
52-13-31-000-802	Aft Entry Door Lining Removal (P/B 401)
52-41-31-000-802	Galley Service Door Lining Removal (P/B 401)

B. Location Zones

Zone	Area
831	Forward Entry Door
834	Left Aft Entry Door
841	Forward Galley Service Door
844	Aft Galley Service Door

C. Procedure

SUBTASK 56-31-00-010-001

(1) If it is necessary to get access to the window, do this task: Forward Entry Door Lining Removal, TASK 52-11-31-000-802, do this task: Aft Entry Door Lining Removal, TASK 52-13-31-000-802 or, do this task: Galley Service Door Lining Removal, TASK 52-41-31-000-802.

SUBTASK 56-31-00-020-001

(2) Remove the three bolts [1] that hold the window assembly in the door.

SUBTASK 56-31-00-020-007

(3) Remove the seal [3] on the retainer assembly.

SUBTASK 56-31-00-020-002

(4) Remove the window assembly.

SUBTASK 56-31-00-020-003

(5) Lift the edge of the outer seal [5] to remove the outer pane [7].

SUBTASK 56-31-00-020-004

(6) Do the steps that follow to remove the middle pane [6]:

AKS ALL; WINDOWS WITH A VENT HOLE IN THE WINDOW SEAL

(a) Remove the three backup clips [9] that hold the middle pane [6] in position.

AKS ALL; WINDOWS WITHOUT A VENT HOLE IN THE WINDOW SEAL

(b) Remove the six backup clips [9] that hold the middle pane [6] in position.

AKS ALL

(c) Lift the outer seal [5] and remove the middle pane [6].

SUBTASK 56-31-00-550-001

(7) Apply a cover to the surfaces of the window panes for protection.

——— END OF TASK ———

TASK 56-31-00-400-801

3. Install the Door-Mounted Windows

(Figure 401)

A. References

Reference	Title
52-11-31-400-802	Forward Entry Door Lining Installation (P/B 401)
52-13-31-400-802	Aft Entry Door Lining Installation (P/B 401)
52-41-31-400-802	Galley Service Door Lining Installation (P/B 401)

B. Consumable Materials

Reference	Description	Specification
B00106	Cloth - Chamois Leather, Sheepskin, Oil Tanned	CS99-1970, KK-C-300
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G01989	Soap - Castile (Vegetable Oil Based)	

C. Location Zones

Zone	Area
831	Forward Entry Door
834	Left Aft Entry Door
841	Forward Galley Service Door
844	Aft Galley Service Door

D. Procedure

SUBTASK 56-31-00-010-002

(1) Remove the protective covers from the window panes.

SUBTASK 56-31-00-140-001

(2) Use a cotton wiper, G00034 with warm water and castile soap, G01989 to clean the inner surface of the outer pane [7] and the outer surface of the middle pane [6].

SUBTASK 56-31-00-140-002

(3) Dry the window surface with a chamois cloth, B00106.

AKS ALL; WINDOWS WITH A VENT HOLE IN THE WINDOW SEAL

SUBTASK 56-31-00-420-001

(4) Install the pane or panes in the outer seal [5].

AKS ALL

(a) Make sure the vent hole is located at roughly the 10:00 o'clock position for the FWD Galley, AFT Galley, and AFT Entry door.

NOTE: The FWD Entry door vent hole is located at the 5:00 o'clock position.

AKS ALL; WINDOWS WITH A VENT HOLE IN THE WINDOW SEAL

(b) Make sure the manufacturing code and date are in the 11:00 or 5:00 o'clock position on the middle pane [6] and the 1:00 or 7:00 o'clock position on the outer pane [7].

NOTE: This will insure correct orientation of the window panes.

SUBTASK 56-31-00-420-002

(5) Install the three backup clips [9].

AKS ALL; WINDOWS WITHOUT A VENT HOLE IN THE WINDOW SEAL

SUBTASK 56-31-00-420-004

(6) Install the pane or panes in the outer seal [5].

(a) Make sure the manufacturing code and date are in the 9:00 o'clock position on the middle pane [6] and the outer pane [7].

NOTE: This will insure correct orientation of the window panes.

SUBTASK 56-31-00-420-006

(7) Install the six backup clips [9].

AKS ALL

SUBTASK 56-31-00-020-008

(8) Install seal [3] on to retainer assembly.

SUBTASK 56-31-00-420-003

(9) Put the window assembly in the door and install the three bolts [1].

SUBTASK 56-31-00-420-005

(10) Tighten the bolts.

(a) For the door-mounted window on the FORWARD ENTRY DOOR, tighten the bolts to 15 in-lb (2 N·m) to 20 in-lb (2 N·m).

(b) For all other door-mounted windows, tighten the bolts to 25 in-lb (3 N·m) to 35 in-lb (4 N·m).

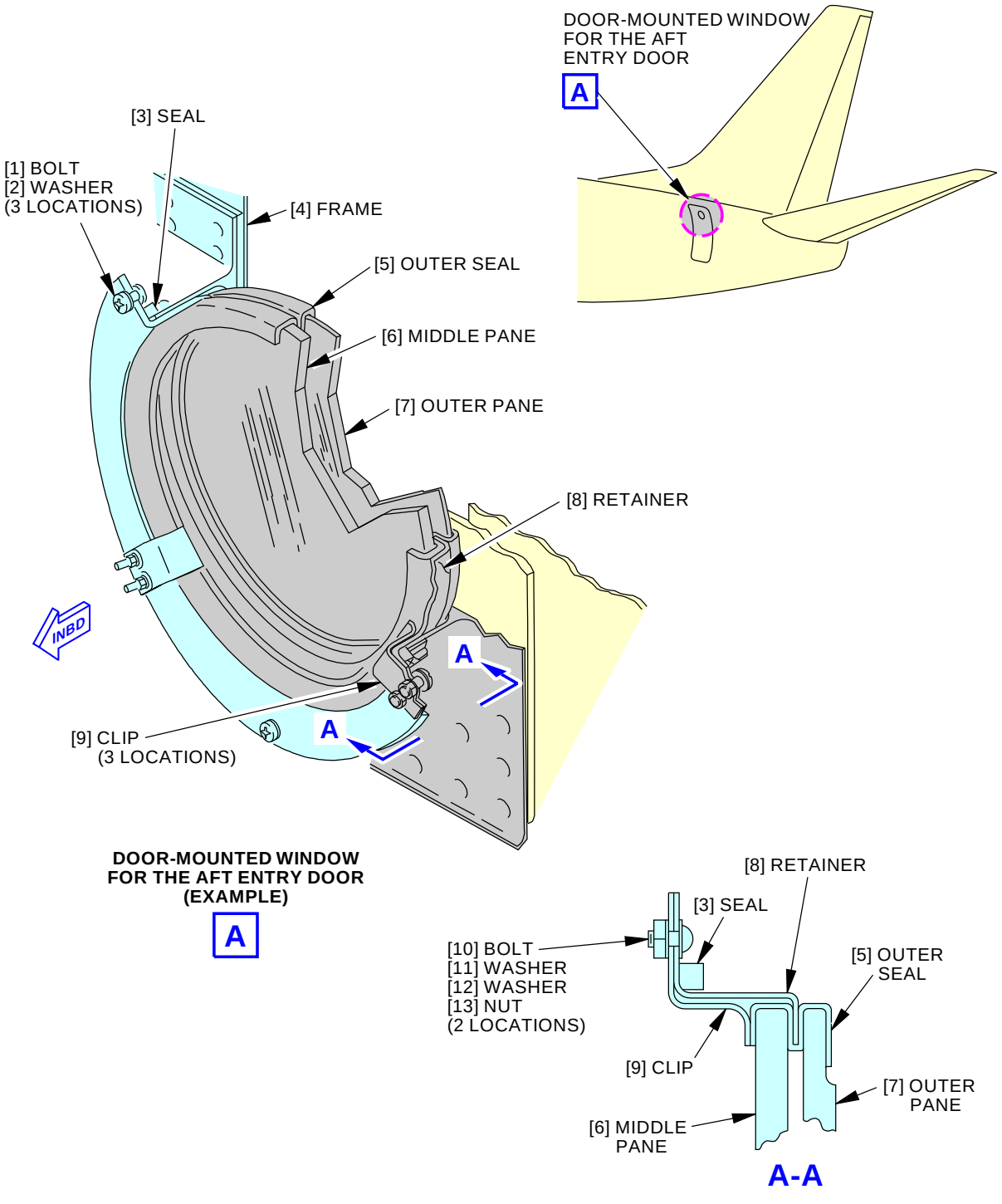
SUBTASK 56-31-00-140-003

(11) Rub the surfaces of the window assembly with a cotton wiper, G00034.

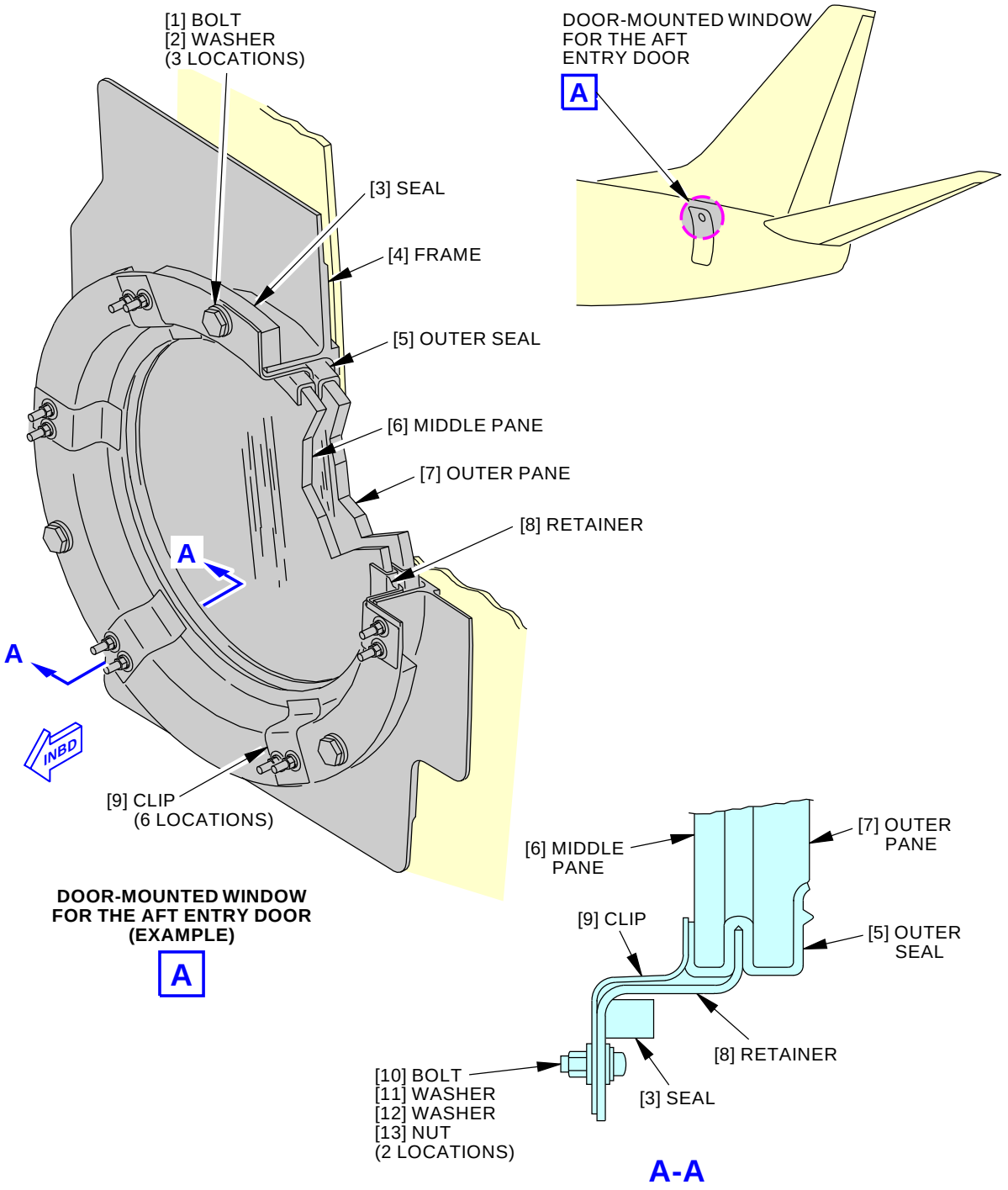
SUBTASK 56-31-00-010-003

(12) If you removed the door lining to get access to the window, do this task: Forward Entry Door Lining Installation, TASK 52-11-31-400-802, do this task: Aft Entry Door Lining Installation, TASK 52-13-31-400-802 or, do this task: Galley Service Door Lining Installation, TASK 52-41-31-400-802.

——— END OF TASK ———



Door-mounted Window Installation
Figure 401/56-31-00-990-801 (Sheet 1 of 2)



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Door-mounted Window Installation
Figure 401/56-31-00-990-801 (Sheet 2 of 2)

DOOR MOUNTED WINDOWS - INSPECTION/CHECK

1. General

A. This procedure has these tasks:

(1) An inspection of the door mounted windows.

B. The types of damage are as follows:

(1) Crazing:

(a) Crazing is many very fine fissures with no visible width or depth at the surface of a ply.

(b) In a bright light shown from an angle to the surface, crazing looks frosted and appears to light up.

(c) In dim light and light normal to the surface, crazing is difficult to see.

(d) Crazing can develop into cracks.

(2) Cracks:

(a) A crack is a fissure that has a visible width or depth.

(b) Cracks can start from a scratch or a crazing mark.

(c) Cracks can be single or dual.

(3) Scratches:

(a) A scratch is the removal of material from the surface of the window.

(b) Scratches usually occur in a straight line or slight curve.

(c) The depth of a scratch is not usually greater than the width of the scratch.

(4) Chips:

(a) Chips are pieces or layers of acrylic broken from the surface.

(b) Spall (shell-type) chips:

1) Spall chips are circular with many fine ridges.

2) The ridges in the chip follow the outer edge and get smaller and deeper near the center and give it the clamshell appearance.

(c) Vee-shaped chips:

1) These chips have a sharp "V" shape bottom that continues to the surface of the ply.

(5) In-plane Cracking:

(a) In-plane cracking is sometimes referred to as delamination.

(b) In-plane cracking is a crack that grows parallel to the surface of the ply from an edge or crack.

(c) In-plane cracking looks shiny in reflected light.

TASK 56-31-00-200-801

2. Door Mounted Window Inspection

(Table 601)

A. General

(1) The inner pane is not a structural pane.

(2) Only replace the inner pane if the visual quality is not acceptable.

B. References

Reference	Title
56-31-00 P/B 401	DOOR-MOUNTED WINDOWS - REMOVAL/INSTALLATION
56-31-00 P/B 801	ENTRY AND GALLEY SERVICE DOOR WINDOWS - REPAIRS
56-31-00-000-801	Remove the Door-Mounted Windows (P/B 401)

C. Location Zones

Zone	Area
831	Forward Entry Door
834	Left Aft Entry Door
841	Forward Galley Service Door
844	Aft Galley Service Door

D. Examine the door mounted windows

SUBTASK 56-31-00-210-001

(1) Examine the window seal for deterioration.

(a) If the seal has deteriorated replace the seal, (TASK 56-31-00-000-801).

SUBTASK 56-31-00-210-002

(2) Examine the window for marks, scratches, and dents in the plastic reveal.

(a) To repair the window, refer to: (ENTRY AND GALLEY SERVICE DOOR WINDOWS - REPAIRS, PAGEBLOCK 56-31-00/801).

SUBTASK 56-31-00-210-003

(3) Examine the window for loose fasteners.

SUBTASK 56-31-00-210-004

CAUTION: DO NOT PRESSURIZE THE AIRPLANE IF THE MIDDLE PANE HAS CRACKS OR CRAZING. THE PRESSURE CAN BREAK THE WINDOW.

(4) Examine the windows for cracks and crazing.

NOTE: It is not necessary to remove the pane to examine it for crazing. You can examine the window pane from inside the airplane.

(a) Replace the pane if the crazing is greater than 0.060 in. (1.524 mm) in depth in an area less than 2.0 in. (50.8 mm) in diameter.

(b) Replace the pane if the crazing is greater than 0.050 in. (1.270 mm) maximum depth along the full surface of the window.

(c) Replace the pane if there is crazing on the routed edge.

(d) Routed Radius Crazing

1) Replace the pane if the depth of the crazing is greater than 0.012 in. (0.305 mm) around the routed edge .

NOTE: The crazing can be continuous around the radius of the pane.

2) Replace the pane if the depth of the crazing is greater than 0.005 in. (0.127 mm) in an area with delamination.

(e) Replace the window if it is necessary: DOOR-MOUNTED WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-31-00/401.

SUBTASK 56-31-00-210-005

CAUTION: REPLACE THE MIDDLE PANE IF IT HAS A DELAMINATION. THE WINDOW PANE IS NO LONGER STRUCTURALLY ACCEPTABLE.

(5) Examine the window for delamination.

(a) Edge delamination in the outer pane is permitted if it is within the limits that follow:

1) The maximum distance from the edge of the pane is 0.20 in. (5.08 mm).

2) The maximum length at the edge of the window is 0.50 in. (12.70 mm).

3) The minimum distance between delaminations is 1.0 in. (25.4 mm).

4) No more than 2 delaminations are permitted in the outer pane.

5) The maximum depth at the routed edge is 0.012 in. (0.305 mm).

NOTE: A delamination at the routed edge can be continuous.

6) A depth of 0.025 in. (0.635 mm) for a maximum length of 0.25 in. (6.35 mm). The crazing in the area must have a depth of less than 0.005 in. (0.127 mm).

(b) Replace the window if it is necessary: DOOR-MOUNTED WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-31-00/401.

AKS ALL; WINDOWS WITH A VENT HOLE IN THE WINDOW SEAL

SUBTASK 56-31-00-020-005

(6) Replace the outer pane if the delamination or chip is larger than the limits that follow (DOOR-MOUNTED WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-31-00/401).

NOTE: Delaminations in the outer pane, other than at the edge, are usually with chips.

(a) The depth of the chip is 0.025 in. (0.635 mm).

(b) The delamination is 0.25 in. (6.35 mm) in diameter or greater.

(c) The distance between delaminations is 0.50 in. (12.70 mm) or greater.

AKS ALL; WINDOWS WITHOUT A VENT HOLE IN THE WINDOW SEAL

SUBTASK 56-31-00-210-011

(7) Replace the outer pane if the delamination or chip is larger than the limits that follow (DOOR-MOUNTED WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-31-00/401).

NOTE: Delaminations in the outer pane, other than at the edge, are usually with chips.

(a) The depth of the chip is 0.05 in. (1.27 mm).

(b) The delamination is 0.25 in. (6.35 mm) in diameter or greater.

(c) The distance between delaminations is 0.50 in. (12.70 mm) or greater.

AKS ALL

SUBTASK 56-31-00-210-006

(8) Examine the window panes for scratches.

(a) If the scratches are larger than the limits in (Table 601), do this task: Remove the Door-Mounted Windows, TASK 56-31-00-000-801

Table 601/56-31-00-993-802 Scratch Limits

Scratch Depth	Max. Length One Scratch	Max. Total Length
0.01 Inch 0.254 Mm	0.50 Inch 12.7 Mm	2.50 Inches 6.35 Cm

Table 601/56-31-00-993-802 Scratch Limits (Continued)

Scratch Depth	Max. Length One Scratch	Max. Total Length
0.005 Inch 0.127 Mm	1.50 Inches 3.81 Cm	4.00 Inches 10.16 Mm

AKS ALL; WINDOWS WITH A VENT HOLE IN THE WINDOW SEAL

SUBTASK 56-31-00-210-007

(9) Examine the window for chips.

NOTE: Surface and V-shaped chips are not permitted in the middle pane. Shell type chips less than 0.03 inch (0.762) are permitted.

(a) Refer to SUBTASK 56-31-00-020-005 for the limits of chips in the outer pane.

(b) Replace the window if the chip is larger than the limits (DOOR-MOUNTED WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-31-00/401).

AKS ALL; WINDOWS WITHOUT A VENT HOLE IN THE WINDOW SEAL

SUBTASK 56-31-00-210-010

(10) Examine the window for chips.

NOTE: Surface and V-shaped chips are not permitted in the middle pane. Shell type chips less than 0.05 in. (1.27 mm) are permitted.

(a) Refer to SUBTASK 56-31-00-210-011 for the limits of chips in the outer pane.

(b) Replace the window if the chip is larger than the limits (DOOR-MOUNTED WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-31-00/401).

AKS ALL

SUBTASK 56-31-00-210-008

(11) Examine the window for concavity (out of contour).

NOTE: Concavity alone is not a cause to replace the window. The panes can touch.

(a) Uniform concavity.

1) Put a straightedge along the width of the outboard surface of the outer pane.

NOTE: If there is a clearance between the straightedge and the center of the pane, the window is concave. Windows which become fogged regularly, frequently have uniform concavity.

2) You can dry a window to get it close to its initial contour.

a) To dry a window, remove it from the airplane and keep it in room temperature air.

NOTE: The time it will take to dry the window will change because of local humidity and how badly the window is deformed.

NOTE: Windows panes usually do not go fully to their initial contour.

(b) Examine the seals for a leak into the window between the outer and the middle pane.

1) Replace all seals which have a leak (DOOR-MOUNTED WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-31-00/401).

SUBTASK 56-31-00-020-006

(12) If a window has a distortion or a thickness that changes, do this task: Remove the Door-Mounted Windows, TASK 56-31-00-000-801.

(a) Examine the window for a surface contour that is not smooth or has a distortion.

NOTE: Exposure to a high temperature, such as a photo flood lamp, can cause a distortion.

SUBTASK 56-31-00-210-009

(13) Examine the middle pane for a warped or deformed condition.

CAUTION: DO NOT PRESSURIZE THE AIRPLANE IF THE WARPED CONDITION HAS AN EFFECT ON THE SEAL. THE FAIL-SAFE PROPERTY OF THE WINDOW IS REMOVED. THE WINDOW CAN BREAK.

(a) Window replacement is not necessary if it is warped or deformed, unless there is an effect on the pressure seal.

(b) Replace the seals which have a leak (DOOR-MOUNTED WINDOWS - REMOVAL/INSTALLATION, PAGEBLOCK 56-31-00/401).

——— END OF TASK ———

ENTRY AND GALLEY SERVICE DOOR WINDOWS - REPAIRS

1. General

A. This procedure has this task:

(1) The repair of the entry and galley service door windows.

TASK 56-31-00-300-801

2. Entry or Galley Service Door Window Repair

(Figure 801)

A. General

(1) When you polish or buff the window start at the center of the pane and move out towards the edges.

(2) Machine polishing and buffing are recommended when the equipment and an approved operator are available.

B. Tools/Equipment

Reference	Description
STD-1205	Wheel - Buffer, Cotton Cloth, 80/92 Thread Count, Spiral Sewn, 6 Inch Diameter, 7/8 Inch Thick, 1/4 Inch Arbor Hole

C. Consumable Materials

Reference	Description	Specification
B00026	Compound - Buffing - Learok 119	
B00027	Compound - Buffing - Learok 884E (Formerly Learock 888)	
B00106	Cloth - Chamois Leather, Sheepskin, Oil Tanned	CS99-1970, KK-C-300
B00138	Abrasive - Silicon Carbide Coated Cloth	
B00701	Polish - Brilliant Shine	
G00034	Cotton Wiper - Process Cleaning Absorbent Wiper (Cheesecloth, Gauze)	BMS15-5 Class A
G00253	Material - Barrier Materials, Greaseproofed, Waterproof, Flexible, Heat-Sealable	MIL-PRF-121 (Supersedes MIL-B-121)
G00270	Tape - Scotch Flatback Masking 250	ASTM D6123 (Supersedes A-A-883)
G00834	Cloth - Lint-free Cotton	
G01989	Soap - Castile (Vegetable Oil Based)	
G02373	Abrasive - Emery Cloth - No. 400	

D. Location Zones

Zone	Area
831	Forward Entry Door
834	Left Aft Entry Door
841	Forward Galley Service Door
844	Aft Galley Service Door

E. Clean the Window

SUBTASK 56-31-00-110-001

CAUTION: MAKE SURE YOU USE THE CORRECT METHODS TO CLEAN THE WINDOW AND THE CORRECT CLEANING AGENTS. IF YOU USE INCORRECT METHODS OR CLEANING AGENTS THEY CAN CAUSE DAMAGE TO THE WINDOW.

(1) Clean the window as follows:

(a) Use a spray of clean water to gently clean the window.

NOTE: This will remove sand or abrasive material.

(b) Use castile soap, G01989 and water and a chamois cloth, B00106 or cotton wiper, G00034 to wash the window.

(c) Use clean water to flush the castile soap, G01989 and unwanted material from the window.

(d) Dry the window with clean compressed air or a clean damp chamois cloth, B00106.

(e) Apply a protective cover of barrier material, G00253 and Scotch Flatback Masking Tape 250, G00270 on the side of the window you will not polish.

F. Repair the Window

SUBTASK 56-31-00-350-001

(1) If the window has superficial or minor scratches, do the steps that follow:

CAUTION: BE CAREFUL NOT TO CAUSE AN OVERHEAT OF THE WINDOW WITH THE BUFFING WHEEL. IF THE WINDOW GETS TOO HOT IT CAN BECOME DAMAGED.

(a) Use a lint-free cloth, G00834 or a buffing cotton cloth buffer wheel, STD-1205 to polish the window with Brilliant Shine polish, B00701.

NOTE: Move the buffing wheel in a constant motion on the window to keep from over heating the window.

AKS ALL; WINDOWS WITH A VENT HOLE IN THE WINDOW SEAL

(b) Measure the repaired window pane to make sure it has a minimum thickness of 0.20 in. (5.08 mm) (Figure 801).

AKS ALL; WINDOWS WITHOUT A VENT HOLE IN THE WINDOW SEAL

(c) Measure the repaired window pane to make sure it has a minimum thickness of 0.265 in. (6.731 mm) (Figure 801).

AKS ALL

SUBTASK 56-31-00-340-001

(2) If the window has major scratches, do the steps that follow:

NOTE: It is not recommended to use a vibrator with sandpaper because it can remove too much material from the window.

(a) Soak the No. 400 abrasive cloth, G02373 sandpaper in water for a few minutes.

(b) Sand the window with No. 400 abrasive cloth, G02373 and water.

NOTE: If you sand an area approximately 4 inches (10 cm) in diameter, you can reduce optical distortion. You should rub the surface across the scratch at a 45 degree angle with light hand pressure. Continue to sand the area until the scratch buildup material is removed.

(c) After the buildup material is removed, sand with No. 600 abrasive, B00138 wet and dry sandpaper that has been soaked in water.

NOTE: This will reduce the sanding abrasions made with the No. 400 abrasive cloth, G02373 and water.

CAUTION: BE CAREFUL NOT TO CAUSE AN OVERHEAT OF THE WINDOW WITH THE BUFFING WHEEL. IF THE WINDOW GETS TOO HOT IT CAN BECOME DAMAGED.

(d) Apply Learok 119 compound, B00026 to a buffing cotton cloth buffer wheel, STD-1205 and buff the affected area until you remove all frosted finish.

NOTE: Move the buffing wheel in a constant motion on the window to keep from over heating the window.

NOTE: If you buff the area too much with Learok 119 compound, B00026 you can cause optical distortion.

(e) Use a buffing cotton cloth buffer wheel, STD-1205 and Learok 884E compound, B00027 to polish the window surface to a high gloss.

AKS ALL; WINDOWS WITH A VENT HOLE IN THE WINDOW SEAL

(f) Measure the repaired window pane to make sure it has a minimum thichness of 0.20 in. (5.08 mm) (Figure 801).

AKS ALL; WINDOWS WITHOUT A VENT HOLE IN THE WINDOW SEAL

(g) Measure the repaired window pane to make sure it has a minimum thichness of 0.265 in. (6.731 mm) (Figure 801).

AKS ALL

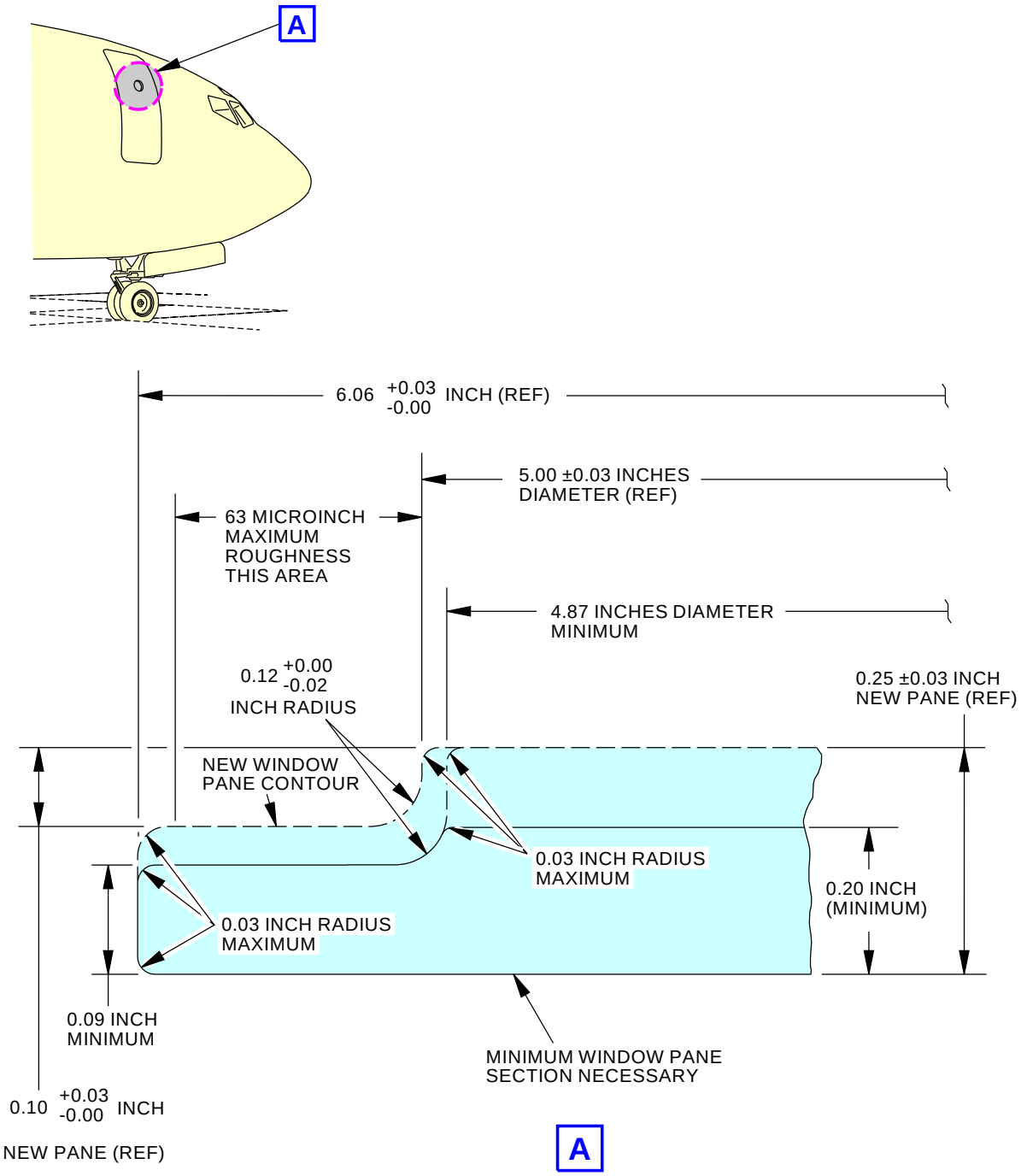
SUBTASK 56-31-00-370-001

(3) Apply one of the approved waxes to the window and lightly polish it with a flannel cloth.

SUBTASK 56-31-00-370-002

(4) Apply barrier material, G00253 and Scotch Flatback Masking Tape 250, G00270 to protect the window.

——— END OF TASK ———



NOTE:

ALL DIMENSIONS ARE FOR MINIMUM WINDOW THICKNESS.

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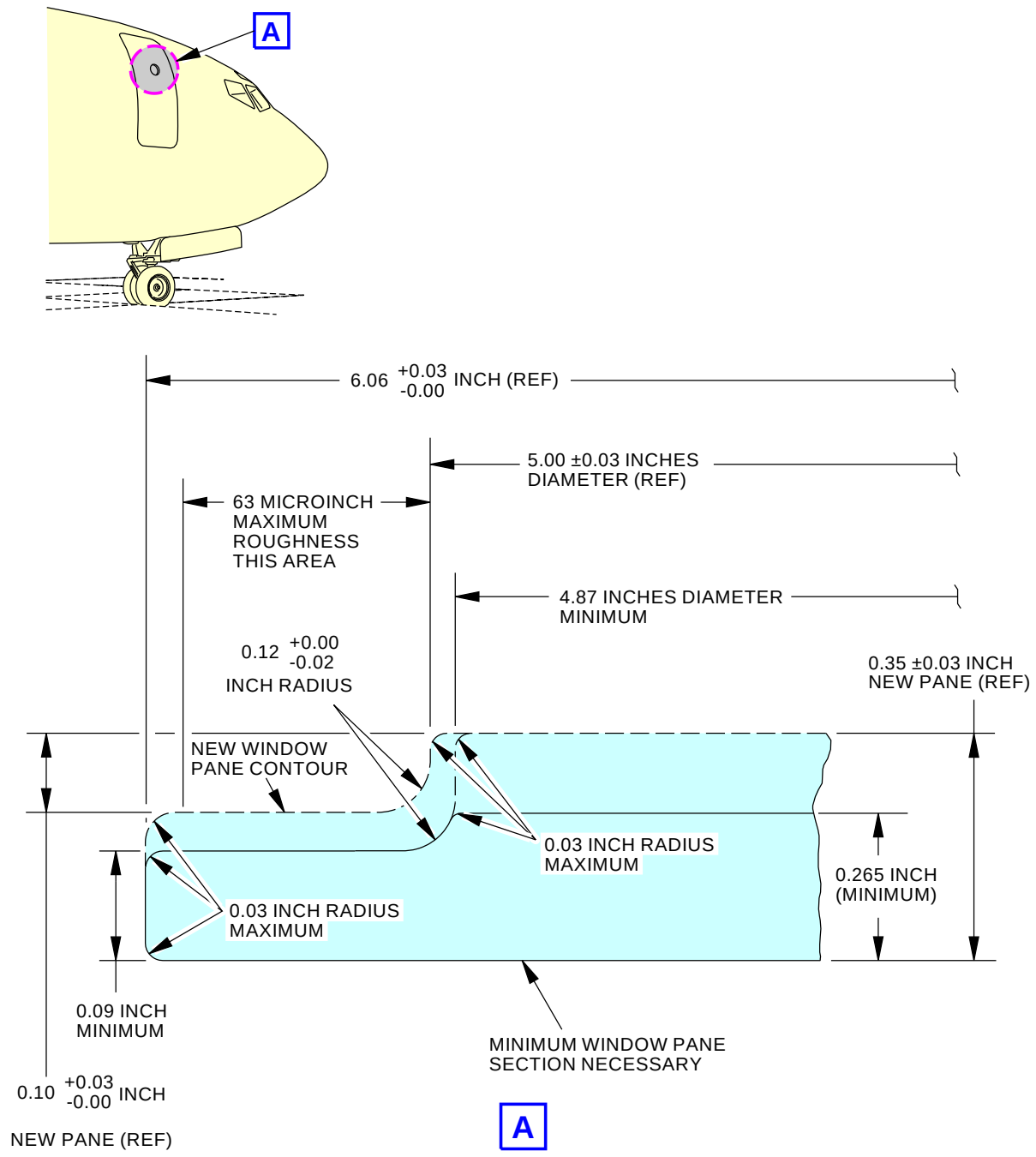
Entry and Galley Service Window Outer Panel Allowable Rework Limits
Figure 801/56-31-00-990-803 (Sheet 1 of 2)



NOTE:

ALL DIMENSIONS ARE FOR MINIMUM WINDOW THICKNESS.

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Entry and Galley Service Window Outer Panel Allowable Rework Limits
Figure 801/56-31-00-990-803 (Sheet 2 of 2)