

**PARAVION TECHNOLOGY, INC.
2001 AIRWAY AVENUE
FORT COLLINS, CO 80524**

PR-206PDO-900M

INSTALLATION INSTRUCTIONS

PNEUMATIC DOOR OPENING SYSTEM

FOR

BELL 206 SERIES HELICOPTERS

REVISIONS

<u>REV.</u>	<u>DATE</u>	<u>DESCRIPTION</u>	<u>BY</u>
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1.0 INSTALLATION INSTRUCTIONS – 206PDO-110

- 1.1 Remove lower door sill fairing and roll carpet inward to gain access to the lower door post at the position where it attaches to the cabin floor.
- 1.2 Remove interior panel of the door (if applicable) to gain access to the door center support structure.
- 1.3 Referring to the installation drawing, locate the proper position for the lower door sill plate. It is important to have the radius of the plate as close to the edge of the door sill as possible.
- 1.4 Position the bracket assembly as indicated and mark the center of the nutsert location. At this location on the door post, cut the indicated hole. It is suggested that a hole saw be used for inserting this hole. Caution must be taken not to drill any deeper than just through the door post and not into the fuselage structure. The door post is only 0.025 inch thick.
- 1.5 Align the plate assembly so that the nutsert will recess in the precut hole. If the hole is slightly mislocated so the radius of the plate and door sill do not match, it will be necessary to ream the hole allowing the plate to be properly positioned.
- 1.6 Position the bracket assembly as indicated and match drill holes in the door post corresponding with the rivet holes provided in the bracket assembly. A drill stop device should be used for this procedure to prevent drilling the holes through the door's outer skin.
- 1.7 Most door posts have a rivnut located in the area, which the plate assembly will cover. If one does exist, locate and mark the point on the plate assembly, which corresponds to the position of the rivnut. Remove the plate and drill a 0.25 inch dia. hole at the previously marked location on the plate. Once drilled, insure the hole will allow a screw to pass through the plate and into the rivnut while the plate is located in its proper position. The hole may be enlarged slightly if necessary.
- 1.8 Using good sheet metal practices, clean the area around all drilled holes.
- 1.9 Seal the back side of the bracket assembly as indicated and place into position.
- 1.10 Using indicated rivets, rivet bracket assembly into place. Clean excess sealant from area.
- 1.11 Reposition carpet and trim edge if necessary. Position the door sill fairing and mark the area, which conflicts with the ball assembly's location. Cut a hole in the fairing as indicated at the previously marked location, which will allow the ball assembly to pass through the fairing. Reinstall the fairing.

- 1.12 Locate the upper bracket assembly on the door structure approximately as shown, then mark the center of the nutsert location on the door structure.
NOTE: THE INDICATED POSITION IS APPROXIMATE DUE TO SLIGHT VARIATIONS IN EACH AIRCRAFT AND MINOR ERRORS, WHICH MAY HAVE BEEN MADE IN POSITIONING THE LOWER BRACKET.
- 1.13 Prior to cutting any holes, attach the actuator (cylinder rod end) to the lower door sill ball assembly. While holding the door open, place the upper end of the actuator ball socket over the previously marked location. Insure that the door is opening far enough for easy entry and exit, but not to far to create a conflict between the actuator and the interior of the aircraft (some interiors have been modified and could create positioning problems).
NOTE: IF THE TOP OF THE ACTUATOR IS ATTACHED TO FAR FORWARD, IMPROPER ACTUATOR ACTION WILL OCCUR. If it is placed to far aft, the door will not open far enough. The same is true for the vertical positioning of the bracket. The ideal placement is a position aft and down as far as possible while still maintaining the proper opening distance and clearance of the door sill, any interior pockets, or other items attached to the interior of the door. The optimum angle of the open door in relation to the fuselage is 45 to 60 degrees.
- 1.14 Once the proper location has been determined for the nutsert, cut the indicated hole in the door support structure for the nutsert to pass through. It is recommended that a hole saw be used for cutting this hole. Caution must be taken not to drill through the outer skin of the door. The door support structure is only 0.030 inch thick.
- 1.15 Position the upper bracket assembly as indicated and match drill holes in the door post corresponding to the predrilled holes in the plate assembly. A drill stop device should be used for this procedure to prevent drilling through the door's outer skin.
- 1.16 Using good sheet metal practices, clean the area around all drilled holes.
- 1.17 Seal the back side of the bracket assembly as indicated and rivet into position. Clean excess sealant from the area.
- 1.18 If the interior door panels exist, place them in their proper position and locate the point at which the ball assembly makes contact with the panel. Cut a hole at the premarked location in the panel. Reinstall the panels as required.
- 1.19 Snap the actuator onto the lower ball assembly with the **ACTUATOR ROD END DOWN**. While holding the door open; snap the cylinder end onto the ball assembly on the door. Safety the attachment points by using the provided clips or alternate cotter pins.
- 1.20 Complete the proper aircraft logbook entries and revise the weight and balance. The additional weight increase is 1.28 pounds at station 46.6 inches for each door installation.
- 1.21 No flight manual supplement is required since there are no additional restrictions or alterations to the aircraft's flight characteristics.

NOTE: WHEN REMOVING THE DOOR, IT IS NECESSARY TO FIRST REMOVE THE ACTUATOR. WHEN REMOVING THE ACTUATOR, FIRST REMOVE SAFETY CLIPS.

2.0 INSTALLATION INSTRUCTIONS – 206PDO-120

- 2.1 Remove lower door sill fairing and roll carpet inward to gain access to the lower door post at the position where it attaches to the cabin floor.
- 2.2 Remove interior panel of the door (if applicable) to gain access to the door center support structure.
- 2.3 Referring to the installation drawing, locate the proper position for the lower door sill plate.
- 2.4 Position the bracket assembly as indicated and mark the center of the nutsert location. At this location on the door post, cut the indicated hole. It is suggested that a hole saw be used for inserting this hole. Caution must be taken not to drill any deeper than just through the door post and not into the fuselage structure. The door post is only 0.025 inch thick.
- 2.5 Align the plate assembly so that the nutsert will recess in the precut hole. If the hole is slightly mislocated so the radius of the plate and door sill do not match, it will be necessary to ream the hole allowing the plate to be properly positioned.
- 2.6 Position the bracket assembly as indicated and match drill holes in the door post corresponding with the rivet holes provided in the bracket assembly. A drill stop device should be used for this procedure to prevent drilling the holes through the door's outer skin.
- 2.7 Most door posts have a rivnut located in the area, which the plate assembly will cover. If one does exist, locate and mark the point on the plate assembly, which corresponds to the position of the rivnut. Remove the plate and drill the indicated hole at the previously marked location on the plate. Once drilled, insure the hole will allow a screw to pass through the plate and into the rivnut while the plate is located in its proper position. The hole may be enlarged slightly if necessary.
- 2.8 Using good sheet metal practices, clean the area around all drilled holes.
- 2.9 Seal the back side of the bracket assembly as indicated and place into position.
- 2.10 Using indicated rivets, rivet bracket assembly into place. Clean excess sealant from area.

- 2.11 Reposition carpet and trim edge if necessary. Position the door sill fairing and mark the area, which conflicts with the ball assembly's location. Cut a hole in the fairing as indicated at the previously marked location, which will allow the ball assembly to pass through the fairing. Reinstall the fairing.
- 2.12 Locate the upper bracket assembly on the door structure approximately as shown, then mark the center of the nutsert location on the door structure.
NOTE: THE INDICATED POSITION IS APPROXIMATE DUE TO SLIGHT VARIATIONS IN EACH AIRCRAFT AND MINOR ERRORS, MAY HAVE BEEN MADE IN POSITIONING THE LOWER BRACKET.
- 2.13 Prior to cutting any holes, attach the actuator (cylinder rod end) to the lower door sill ball assembly. While holding the door open, place the upper end of the actuator ball socket over the previously marked location. Insure that the door is opening far enough for easy entry and exit, but not to far to create a conflict between the actuator and the interior of the aircraft (some interiors have been modified and could create positioning problems).
NOTE: IF THE TOP OF THE ACTUATOR IS ATTACHED TO FAR FORWARD, IMPROPER ACTUATOR ACTION WILL OCCUR. If it is placed to far aft, the door will not open far enough. The same is true for the vertical positioning of the bracket. The ideal placement is a position aft and down as far as possible while still maintaining the proper opening distance and clearance of the door sill, any interior pockets, or other items attached to the interior of the door. The optimum angle of the open door in relation to the fuselage is 45 to 60 degrees.
- 2.14 Once the proper location has been determined for the nutsert, cut the indicated hole in the door support structure for the nutsert to pass through. It is recommended that a hole saw be used for cutting this hole. Caution must be taken not to drill through the outer skin of the door. The door support structure is only 0.030 inch thick.
- 2.15 Position the upper bracket assembly as indicated and match drill holes in the door post corresponding to the predrilled holes in the plate assembly. A drill stop device should be used for this procedure to prevent drilling through the door's outer skin.
- 2.16 Using good sheet metal practices, clean the area around all drilled holes.
- 2.17 Seal the back side of the bracket assembly as indicated and rivet into position. Clean excess sealant from the area.
- 2.18 If the interior door panels exist, place them in their proper position and locate the point at, which the ball assembly makes contact with the panel. Cut a hole at the premarked location in the panel. Reinstall the panels as required.
- 2.19 Snap the actuator onto the lower ball assembly with the **ACTUATOR ROD END DOWN**. While holding the door open; snap the cylinder end onto the ball assembly on the door. Safety the attachment points by using the provided clips or alternate cotter pins.

NOTE: WHEN REMOVING THE DOOR, IT IS NECESSARY TO FIRST REMOVE THE ACTUATOR. WHEN REMOVING THE ACTUATOR, FIRST REMOVE SAFETY CLIPS.

- 2.20 Complete the proper aircraft logbook entries and revise the weight and balance. The additional weight increase is as follows:

206A/B – 1.0 lbs at station 81 in., it is the same for the left and right door.

206L - 1.0 lbs at station 105 in., for the right rear door.

- 2.21 No flight manual supplement is required since there are no additional restrictions or alterations to the aircraft's flight characteristics.

3.0 INSTALLATION INSTRUCTIONS –206PDO-125

3.1 INSTALLATION INSTRUCTIONS (-3/-5 Ambulance Door)

- 3.1.1 Remove interior panel of the door (if applicable) to gain access to the door center support structure. Remove left aft rear facing seat cushions.
- 3.1.2 Remove the two screws and pivot bolt, which attach the seat back panel and the seat back pivot.
- 3.1.3 Referring to the installation drawing, locate the proper position for the bracket assembly. Slide the bracket assembly down between the angle bracket and diagonal brace. Align the predrilled holes in the bracket with the existing holes in the angle bracket and diagonal brace.
- 3.1.4 Noting the six rivets in the airframe structure covered by the bracket, remove the bracket and drill out these rivets. Reposition the bracket and mark the locations on the bracket of the drilled holes. Once more, remove the bracket and drill six holes at the premarked locations.
- 3.1.5 Using good sheet metal practices, clean the area around all drilled holes.
- 3.1.6 Coat the back side of the plate assembly with indicated sealant and place into position.
- 3.1.7 Using rivets as indicated on the installation drawing, rivet bracket assembly into place. Clean excess sealant from area.
- 3.1.8 Reinstall the previously removed bolt and screws. Safety bolt as required.
- 3.1.9 Referring to the installation drawing, locate the bracket position on the door structure.

- 3.1.10 Prior to drilling any holes, attach the actuator (cylinder end) to the airframe bracket ball assembly. While holding the door open; snap the other end of the actuator ball socket to the door bracket. Locate the bracket into its approximate position on the door. Insure the door is opening far enough for ease of entry and exit but not too far to create a conflict between the actuator and the interior of aircraft. The open door position will need to be slightly less than 90° to prevent conflicts between the actuator and the door interior panel.
- 3.1.11 Drill indicated holes corresponding to the predrilled holes in the bracket assembly. It is recommended that a drill stop device be used to prevent drilling through the door's outer skin.
- 3.1.12 Using good sheet metal practices, clean the area around all drilled holes.
- 3.1.13 Coat the back side of the bracket assembly where contact is made with the door structure with the indicated sealant and rivet into position using rivets. Clean excess sealant from the area.
- 3.1.14 Place the interior door panel (if applicable) into its proper position. Locate and mark the point at, which the ball assembly and the small nutsert make contact with the panel. On some interior panels, a doubler is located in such a position on the back side of the panel that a conflict with proper positioning will exist. In such cases, it is necessary to cut away a portion of the doubler to allow room for the bracket assembly. After this has been done, cut the indicated hole at the premarked ball location, and the indicated hole at the premarked small nutsert location in the panel. Reinstall the panel as required. An additional screw (P/N AN525-8) is to be inserted at the location of the previously drilled hole.
- 3.1.15 Snap the cylinder end of the actuator onto the airframe ball assembly. While holding the door open; snap the rod end onto the ball assembly on the door. Safety the attachment points by using the provided clips or alternate cotter pins.
- 3.1.16 Replace the seat cushions as required.
- 3.1.17 Complete the proper aircraft logbook entries and revise the weight and balance. The additional weight increase is 1.3 pounds per door installation at station 81.0.
- 3.1.18 No flight manual supplement is required since there are no additional restrictions or alterations to the aircraft's flight characteristics.

NOTE: WHEN REMOVING THE DOOR, FIRST REMOVE THE ACTUATOR. WHEN REMOVING THE ACTUATOR, FIRST REMOVE THE SAFETY CLIPS.

DOOR RETENTION STRAP P/N 206-033-660-001 CANNOT BE USED WITH THIS INSTALLATION.

3.2 INSTALLATION INSTRUCTIONS (-1 Long Door)

- 3.2.1 Remove lower door sill fairing and roll carpet inward to gain access to the lower door post at the position where it attaches to the cabin floor.
- 3.2.2 Remove interior panel of the door (if applicable) to gain access to the door center support structure.
- 3.2.3 Referring to the installation drawing, locate the proper position for the lower door sill plate.
- 3.2.4 Position the bracket assembly as indicated and mark the center of the nutsert location. At this location on the door post, cut the indicated hole. It is suggested that a hole saw be used for inserting this hole. Caution must be taken not to drill any deeper than just through the door post and not into the fuselage structure. The door post is only 0.025 inch thick.
- 3.2.5 Align the plate assembly so that the nutsert will recess in the precut hole. If the hole is slightly mislocated so the radius of the plate and door sill do not match, it will be necessary to ream the hole allowing the plate to be properly positioned.
- 3.2.6 Position the bracket assembly as indicated and match drill holes in the door post corresponding with the rivet holes provided in the bracket assembly. A drill stop device should be used for this procedure to prevent drilling the holes through the door's outer skin.
- 3.2.7 Most door posts have a rivnut located in the area, which the plate assembly will cover. If one does exist, locate and mark the point on the plate assembly, which corresponds to the position of the rivnut. Remove the plate and drill a 0.25 inch dia. hole at the previously marked location on the plate. Once drilled, insure the hole will allow a screw to pass through the plate and into the rivnut while the plate is located in its proper position. The hole may be enlarged slightly if necessary.
- 3.2.8 Using good sheet metal practices, clean the area around all drilled holes.
- 3.2.9 Seal the back side of the bracket assembly as indicated and place into position.
- 3.2.10 Using indicated rivets, rivet bracket assembly into place. Clean excess sealant from area.
- 3.2.11 Reposition carpet and trim edge if necessary. Position the door sill fairing and mark the area, which conflicts with the ball assembly's location. Cut a hole in the fairing as indicated at the previously marked location, which will allow the ball assembly to pass through the fairing. Reinstall the fairing.

- 3.2.12 Locate the upper bracket assembly on the door structure approximately as shown, then mark the center of the nutsert location on the door structure.

NOTE: THE INDICATED POSITION IS APPROXIMATE DUE TO SLIGHT VARIATIONS IN EACH AIRCRAFT AND MINOR ERRORS, WHICH MAY HAVE BEEN MADE IN POSITIONING THE LOWER BRACKET.

- 3.2.13 Prior to cutting any holes, attach the actuator (cylinder rod end) to the lower door sill ball assembly. While holding the door open, place the upper end of the actuator ball socket over the previously marked location. Insure that the door is opening far enough for easy entry and exit, but not to far to create a conflict between the actuator and the interior of the aircraft (some interiors have been modified and could create positioning problems). **NOTE: IF THE TOP OF THE ACTUATOR IS ATTACHED TO FAR FORWARD, IMPROPER ACTUATOR ACTION WILL OCCUR.** If it is placed to far aft, the door will not open far enough. The same is true for the vertical positioning of the bracket. The ideal placement is a position aft and down as far as possible while still maintaining the proper opening distance and clearance of the door sill, any interior pockets, or other items attached to the interior of the door. The optimum angle of the open door in relation to the fuselage is 45 to 60 degrees.
- 3.2.14 Once the proper location has been determined for the nutsert, cut the indicated hole in the door support structure for the nutsert to pass through. It is recommended that a hole saw be used for cutting this hole. Caution must be taken not to drill through the outer skin of the door. The door support structure is only 0.030 inch thick.
- 3.2.15 Position the upper bracket assembly as indicated and match drill holes in the door post corresponding to the predrilled holes in the plate assembly. A drill stop device should be used for this procedure to prevent drilling through the door's outer skin.
- 3.2.16 Using good sheet metal practices, clean the area around all drilled holes.
- 3.2.17 Seal the back side of the bracket assembly as indicated and rivet into position. Clean excess sealant from the area.
- 3.2.18 If the interior door panels exist, place them in their proper position and locate the point at, which the ball assembly makes contact with the panel. Cut a hole at the premarked location in the panel. Reinstall the panels as required.
- 3.2.19 Snap the actuator onto the lower ball assembly with the **ACTUATOR ROD END DOWN**. While holding the door open; snap the cylinder end onto the ball assembly on the door. Safety the attachment points by using the provided clips or alternate cotter pins.

3.2.20 Complete the proper aircraft logbook entries and revise the weight and balance. The additional weight increase is 0.85 pounds at station 105 inches for each door installation.

3.2.21 No flight manual supplement is required since there are no additional restrictions or alterations to the aircraft's flight characteristics.

NOTE: WHEN REMOVING THE DOOR, IT IS NECESSARY TO FIRST REMOVE THE ACTUATOR. WHEN REMOVING THE ACTUATOR, FIRST REMOVE SAFETY CLIPS.

4.0 INSTALLATION INSTRUCTIONS – 206PDO-150

4.1 Position the baggage compartment bracket assembly as indicated and match drill holes in the baggage compartment forward panel corresponding with the rivet holes provided in the bracket assembly.

*****CAUTION*****

A drill stop device should be used for this procedure, a fuel cell is located forward of this panel

4.2 Seal the back side of the bracket assembly as indicated and place into position.

4.3 Using indicated rivets, rivet bracket assembly into place. Clean excess sealant from area.

4.4 -1 Installation

4.4.1 Position the door bracket assembly as shown and match drill the indicated holes in the door stiffeners. A drill stop device should be used for this procedure to prevent drilling through the outer skin.

4.4.2 Seal the faying surfaces of the bracket assembly as indicated and place into position.

4.4.3 Using indicated rivets, rivet bracket assembly into place. Clean excess sealant from area.

4.5 -2 Installation

4.5.1 Locate the door bracket assembly on the door as shown, then mark the center of the nutsert location on the door structure.

4.5.2 Cut the indicated hole in the door for the nutsert to pass through. It is recommended that a hole saw be used for cutting this hole. Caution must be taken not to drill through the outer skin of the door.

- 4.5.3 Position the upper bracket assembly as indicated and match drill holes in the door post corresponding to the predrilled holes in the plate assembly. A drill stop device should be used for this procedure to prevent drilling through the door's outer skin.
- 4.5.4 Seal the back side of the bracket assembly as indicated and rivet into position. Clean excess sealant from the area.
- 4.6 Snap the actuator onto the lower ball assembly with the **ACTUATOR ROD END DOWN**. While holding the door open; snap the cylinder end onto the ball assembly on the door. Safety the attachment points by using the provided clips or alternate cotter pins.
- 4.7 Complete the proper aircraft logbook entries and revise the weight and balance. The additional weight increase is 1.15 pounds at station 136 inches for the 206A/B and 161 inches for the 206L
- 4.8 No flight manual supplement is required since there are no additional restrictions or alterations to the aircraft's flight characteristics.
NOTE: WHEN REMOVING THE DOOR, IT IS NECESSARY TO FIRST REMOVE THE ACTUATOR. WHEN REMOVING THE ACTUATOR, FIRST REMOVE SAFETY CLIPS.

5.0 SERVICE INSTRUCTIONS

- 5.1 Prior to removing the door, remove the actuator.
- 5.2 When removing the actuator, first remove the safety clip.
- 5.3 Periodically check the tightness of the ball assemblies.
- 5.4 Periodically lubricate the ball sockets of the actuator with a light grease.
- 5.5 To prevent actuator seal damage, insure the cylinder rod is kept clean.
- 5.6 Inspect door hinges for wear per manufacturer's recommendations.