

FLAP SYSTEM - MAINTENANCE PRACTICES

1. General

A. The flap system maintenance practices section has removal and installation procedures for the flap system components.

2. Tools and Equipment

A. For a list of tools and equipment, refer to Flight Controls - General.

3. Flap Actuator Worm Gear Assembly Removal/Installation

A. Remove the Flap Actuator Worm Gear Assembly (Refer to Figure 201).

- (1) Remove the flap actuator assembly. Refer to Flap Actuator Removal/Installation.
- (2) Remove the safety wire from the standby motor.
- (3) Remove the standby motor hex nuts, the standby motor, and the standby motor coupling.
- (4) Turn the adapter counterclockwise and remove it.
- (5) Remove the primary motor hex nuts, the primary motor, and the primary motor coupling.
- (6) Remove the worm gear assembly from the transmission assembly.

B. Install the Flap Actuator Worm Gear Assembly (Refer to Figure 201).

- (1) Pack the flap actuator worm gear with B100-24 Grease. Refer to Flight Controls - General.
- (2) Install the worm gear assembly in the transmission assembly.
- (3) Make sure the slot in the worm gear assembly aligns with the primary motor coupling.
- (4) Apply silicone sealer to the base of the threads on the adapter.
- (5) Turn the adapter clockwise to tighten it on the transmission assembly.
- (6) Put a new standby motor coupling on the standby motor shaft.
- (7) Put the standby motor shaft into the adapter.
- (8) Align the slot in the sleeve with the standby motor coupling by turning the standby motor coupling. Refer to the Model 208 Series Illustrated Parts Catalog for the standby motor coupling part number.
- (9) Install the primary and secondary motor hex nuts.
- (10) Tighten the primary and secondary motor hex nuts.
- (11) Install safety wire on the standby motor. Refer to Chapter 20, Safetying - Maintenance Practices.
- (12) Install the flap actuator assembly. Refer to Flap Actuator Removal/Installation.

4. Flap Transmission Removal/Installation

A. Remove the Flap Transmission (Refer to Figure 201).

NOTE: If the standby flap motor operates, but the flaps do not move, it is possible that the flap transmission and the primary and standby motor couplings need to be replaced. Refer to Chapter 27, Flap System Troubleshooting.

- (1) Remove the flap actuator assembly. Refer to Flap Actuator Removal/Installation.
- (2) Remove the bolts that attach the transmission to the actuator assembly.
- (3) Remove the transmission assembly from the actuator assembly.

B. Install the Flap Transmission (Refer to Figure 201).

- (1) Install the bolts that attach the transmission to the actuator assembly.
- (2) Install the flap actuator assembly. Refer to Flap Actuator Removal/Installation.

5. Flap Control Lever and Pointer Removal/Installation

A. Remove the Flap Control Lever and the Pointer (Refer to Figure 202).

- (1) Remove the screws from the cover on top of the control pedestal to get access to the flap control lever and the pointer.
- (2) Remove the cotter pin, washer, and pin from the flap control lever.
- (3) Disconnect the flap control cable from the flap control lever.
- (4) Remove the nut from the pointer.

- (5) Remove the follow-up cable from the clamp bolt.
 - (6) Remove the thin washers, clamp bolt, and spring from the pointer.
 - (7) Remove the knob from the control pedestal.
 - (8) Remove the spring, flap control lever, spacer, pointer, and step spacer from the control pedestal.
- B. Install the Flap Control Lever and the Pointer (Refer to Figure 202).
- (1) Start the knob through the hole on the right side of the control pedestal.
 - (2) Install the spring, flap control lever, spacer, pointer, and step spacer as the knob is pushed through the control pedestal.
 - (3) Tighten the knob with your hand when the threads in the knob contact the threads in the mating part.
 - (4) Connect the flap control cable to the flap control lever.
 - (5) Install the pin, washer, and cotter pin to the flap control lever.
 - (6) Connect the spring to the pointer.
 - (7) Install the clamp bolt through the pointer.
 - (8) Install the thin washers and the follow-up cable through the clamp bolt.
 - (9) Install the nut on the clamp bolt.
 - (10) Put the cover on the control pedestal and install the screws.

6. Flap Switch Actuator Removal/Installation

- A. Remove the Flap Switch Actuator (Refer to Figure 203).
- (1) Remove the headliner to get access to the flap switch actuator.
 - (2) Remove the cotter pin, washer, and pin from the flap control arm.
 - (3) Disconnect the flap control cable from the flap control arm.
 - (4) Remove the cotter pin, washer, and pin from the follow-up arm.
 - (5) Disconnect the follow-up cable from the follow-up arm.
 - (6) Disconnect the follow-up barrel assembly from the follow-up arm and the stud.
 - (a) Remove the nut and bolt that attaches the follow-up barrel assembly to the follow-up arm.
 - (b) Remove the cotter pin and nut that attaches the follow-up barrel assembly to the stud.
 - (7) Remove the bolts and washers from the support assembly.
 - (8) Disconnect the flap switch actuator from the support assembly.
 - (9) Disconnect and tag the electrical leads to the down and up switch.
- B. Install the Flap Switch Actuator (Refer to Figure 203).
- (1) Connect the electrical leads to the up and down switch.
 - (2) Put the flap switch actuator in the support assembly.
 - (3) Install the washers and bolts in the support assembly.
 - (4) Connect the follow-up barrel assembly to the stud and the follow-up arm.
 - (a) Install the cotter pin and nut that attaches the follow-up barrel assembly to the stud.
 - (b) Install the nut and bolt that attaches the follow-up barrel assembly to the follow-up arm.
 - (5) Connect the follow-up cable to the follow-up arm.
 - (6) Install the pin, washer, and cotter pin in the follow-up arm.
 - (7) Connect the flap control cable to the flap control arm.
 - (8) Install the pin, washer, and cotter pin in the flap control arm.
 - (9) Make sure all the components are secure.
 - (10) Install the headliner.

7. Flap Actuator Tube Removal/Installation

- A. Remove the Flap Actuator Tube (Refer to Figure 204 and Figure 214).

- (1) Remove the panel on the bottom of the right wing to get access to the right inboard forward bell crank.
- (2) Remove the headliner to get access to the flap actuator assembly.
- (3) Remove the cotter pin and nut from the stud.
- (4) Disconnect the follow-up barrel assembly from the stud.
- (5) Remove the setscrew from the actuator tube.
- (6) Remove the drivescrew stop nut from the actuator tube.
- (7) Remove the nut, washer, and bolt from the actuator tube.
- (8) Disconnect the actuator tube from the right inboard forward bell crank.
- (9) Remove the bolts and tie wrap from the right forward wing rib seal assembly.
- (10) Remove the actuator tube.

B. Install the Flap Actuator Tube (Refer to Figure 204 and Figure 214).

- (1) Put the actuator tube between the right inboard forward bell crank and the flap actuator assembly.
- (2) Connect the actuator tube to the right inboard forward bell crank.
- (3) Install the bolt, washer, and nut in the actuator tube.
- (4) Make sure the seal assembly is correctly put on the actuator tube.
- (5) Turn the drivescrew stop nut into the actuator tube.
- (6) Install the setscrew wet with Loctite 242 or equivalent MIL-S-22473, Grade B Adhesive.
- (7) Torque the setscrew to 40 inch-pounds.
- (8) Connect the right forward wing rib seal assembly to the right wing rib and install the bolts and tie wrap.
NOTE: The right forward wing rib seal assembly must be extended with the flaps in the down position.
- (9) Connect the follow-up barrel assembly to the stud.
- (10) Install the nut and cotter pin on the stud.
- (11) Install the headliner.
- (12) Install the panels on the bottom of both wings.

8. Flaps Wing-to-Wing Interconnect Rod Assembly Removal/Installation

A. Remove the Flaps Wing-to-Wing Interconnect Rod Assembly (Refer to Figure 205 and Figure 214).

- (1) Remove the panels on the bottom of both wings to get access to the left and right inboard forward bell cranks.
- (2) Remove the headliner to get access to the short and long wing-to-wing interconnect rod assemblies.
- (3) Remove the nut, washer, and bolt from the left inboard forward bell crank.
- (4) Disconnect the short wing-to-wing interconnect rod assembly from the left inboard forward bell crank.
- (5) Remove the nut, washer, and bolt from the right inboard forward bell crank.
- (6) Disconnect the long wing-to-wing interconnect rod assembly from the right inboard forward bell crank.
- (7) Remove the bolts and tie wrap from the right aft wing rib seal assembly.
- (8) Remove the bolts and tie wrap from the left wing rib seal assembly.
- (9) Loosen the left threaded jam nut and the right threaded jam nut.
- (10) Remove the barrel from the short wing-to-wing interconnect rod assembly.
- (11) Remove the short wing-to-wing interconnect rod assembly.
- (12) Put the long wing-to-wing interconnect rod assembly as far left as possible.
- (13) Remove the nuts, washers, bolts, and wear plates from the wear plate support.
- (14) Disconnect the aft end of the wear plate support and remove the barrel from the long wing-to-wing interconnect rod assembly.
- (15) Remove the long wing-to-wing interconnect rod assembly.

B. Install the Flaps Wing-to-Wing Interconnect Rod Assembly (Refer to Figure 205 and Figure 214).

- (1) Put the long wing-to-wing interconnect rod assembly between the wear plate support and above the right side of

cabin.

- (2) Put the short wing-to-wing interconnect rod assembly above the left side of the cabin.
- (3) Put the left wing rib seal assembly on the short wing-to-wing interconnect rod assembly.
- (4) Install the barrel between the short wing-to-wing interconnect rod assembly and the long interconnect rod assembly.
- (5) Adjust the wing-to-wing interconnect rod assembly length to 73.37 inches and tighten the left and the right threaded jam nuts.
- (6) Put the right aft wing rib seal assembly on the long wing-to-wing interconnect rod assembly.
- (7) Connect the right aft wing rib seal assembly to the right wing rib and install the bolts and tie wrap.
NOTE: The right aft wing rib seal assembly must be extended with the flaps in the up position.
- (8) Connect the left wing rib seal assembly to the left wing rib and install the bolts and the tie wrap.
NOTE: The left wing rib seal assembly must be extended with the flaps in the down position.
- (9) Use rivets to install the aft end of the wear plate support.
- (10) Use the bolts, washers, and nuts to attach the wear plates to the wear plate support.
- (11) Use a bolt, washer, and nut to connect the short wing-to-wing interconnect rod assembly to the left inboard forward bell crank.
- (12) Use a bolt, washer, and nut to connect the long wing-to-wing interconnect rod assembly to the right inboard forward bell crank.
- (13) After the installation of all the flap components, rig flaps in accordance with Flap Rigging Guide. Refer to Chapter 27-50-02, Flap Rigging Guide - Adjustment/Test.
- (14) Install the headliner.
- (15) Install the panels on the bottom of both wings.

9. Flap Interconnect Rods Removal/Installation

- A. Remove the Flap Interconnect Rods (Refer to Figure 206 and Figure 214).
 - (1) Remove the wing panels and the covers to get access to the left and the right inboard forward and aft bell cranks.
 - (2) Remove the nut, washer, and bolt from the left inboard forward bell crank.
 - (3) Remove the nut, washer, and bolt from the inboard aft bell crank.
 - (4) Disconnect the left interconnect rod assembly from the left inboard forward bell crank and the inboard aft bell crank.
- B. Install the Flap Interconnect Rods (Refer to Figure 206 and Figure 214).
 - (1) Connect the left interconnect rod assembly to the left inboard forward bell crank and the inboard aft bell crank.
 - (2) Install the bolt, washer, and nut in the inboard aft bell crank.
 - (3) Install the bolt, washer, and nut in the left inboard forward bell crank.
 - (4) After the installation of all the flap components, rig flaps in accordance with Flap Rigging Guide. Refer to Chapter 27-50-02, Flap Rigging Guide - Adjustment/Test.
 - (5) Install the wing panels and the covers.

10. Flap Connecting Rods Removal/Installation

- A. Remove the Flap Connecting Rods (Refer to Figure 207 and Figure 214).
 - (1) Remove the wing panels and the covers necessary to get access to the left and the right connecting rods and the corresponding bell cranks.
 - (2) Remove the nut, washer, and bolt from the inboard aft bell crank.
 - (3) Disconnect the connecting rod assembly from the inboard aft bell crank.
 - (4) Remove the nut, washer, and bolt from the outboard bell crank.
 - (5) Disconnect the connecting rod assembly from the outboard bell crank.
 - (6) Remove the connecting rod assembly through the access hole at Wing Station 53.00.
- B. Install the Flap Connecting Rods (Refer to Figure 207 and Figure 214).
 - (1) Install the connecting rod assembly through the access hole at Wing Station 53.00.
 - (2) Connect the connecting rod assembly to the outboard bell crank.

- (3) Install the bolt, washer, and nut in the outboard bell crank.
- (4) Connect the connecting rod assembly to the inboard aft bell crank.
- (5) Install the bolt, washer, and nut in the inboard aft bell crank.
- (6) After the installation of all the flap components, rig flaps in accordance with Flap Rigging Guide. Refer to Chapter 27-50-02, Flap Rigging Guide - Adjustment/Test.
- (7) Install the wing panels and the covers.

11. Flap Pushrods Removal/Installation

- A. Remove the Flap Pushrods (Refer to Figure 208 and Figure 214).

- (1) Remove the wing panels and the covers to get access to the left and the right inboard and outboard pushrods.
- (2) Remove the nut, washers, and bolt from the inboard aft bell crank.
- (3) Remove the nut, washers, and bolt from the flap bracket.
- (4) Disconnect the inboard pushrod assembly from the inboard aft bell crank and the flap bracket.
- (5) Remove the nut, washers, bolt from the outboard bell crank.
- (6) Remove the nut, washers, and bolt from the flap bracket.
- (7) Disconnect the outboard pushrod assembly from the outboard bell crank and the flap bracket.

NOTE: Replacement of the pushrod attach bolt is required if the bolt is not of the clevis head type.

- B. Install the Flap Pushrods (Refer to Figure 204, Figure 205, Figure 206, Figure 207, Figure 208, and Figure 214).

NOTE: Airplanes 20800001 thru 20800126 and 208B0001 thru 208B0042 not incorporating CAB88-13 have a nonadjustable right wing-to-wing interconnect rod assembly. The rod is 73.37 inches long.

NOTE: The following installation instructions are for the left inboard and outboard pushrods. The right inboard and outboard pushrods are similar.

- (1) To provide sufficient adjustment to the rig system, adjust the pushrods, connecting rods, and interconnecting rods to the following nominal lengths:

NOTE: The rod lengths are measured from center-to-center of the rod ends.

- (a) Inboard pushrod assemblies - 8.57 inches.
 - (b) Outboard pushrod assemblies - 7.62 inches.
 - (c) Connecting rod assemblies - 73.82 inches.
 - (d) Left interconnect rod assembly - 11.04 inches.
 - (e) Right interconnect rod assembly - 14.20 inches.
- (2) Connect the outboard pushrod assembly to the outboard bell crank and the flap bracket.
 - (3) Install the bolt, washers, and nut in the outboard bell crank.

NOTE: Replacement of the pushrod attach bolt is required if the bolt is not of the clevis head type.

- (4) Install the bolt, washers, and nut in the flap bracket.
- (5) Connect the inboard pushrod assembly to the inboard aft bell crank and the flap bracket.
- (6) Install the bolt, washers, and nut in the inboard aft bell crank.
- (7) Install the bolt, washers, and nut in the flap bracket.

(8) After the installation of all the flap components, rig flaps in accordance with Flap Rigging Guide. Refer to Chapter 27-50-02, Flap Rigging Guide - Adjustment/Test.

- (9) Install the wing panels and the covers.

12. Flap Cables and Pulleys Removal/Installation

- A. Remove the Flap Cables and Pulleys (Refer to Figure 209 and Figure 214).

- (1) Remove the wing panels and the covers to get access to the left and the right flap cables and pulleys.
- (2) Remove the cotter pin, washer, and pin from the inboard aft bell crank.
- (3) Disconnect the turnbuckle from the inboard aft bell crank.
- (4) Remove the nut, washer, and bolt from the support.

- (5) Disconnect the pulley from the support.
- (6) Remove the cotter pin, washer, and pin from the flap bracket.
- (7) Disconnect the cable from the flap bracket.
 - (a) Attach a wire to the removed end of the cable.
 - (b) Remove the cable from the system.
 - (c) Let the wire stay in position and do not change the routing of the wire through the structure.

B. Install the Flap Cables and Pulleys (Refer to Figure 209 and Figure 214).

- (1) Attach a wire to the cable.
- (2) Use the attached wire to pull the cable through the system between the inboard aft bell crank and the flap bracket.
- (3) Connect the turnbuckle to the inboard aft bell crank.
- (4) Install the pin, washer, and cotter pin in the inboard aft bell crank.
- (5) Put the cable around the pulley.
- (6) Install the pulley in the support.
- (7) Install the bolt, washer, and nut in the support.
- (8) Connect the cable to the flap bracket.
- (9) Install the pin, washer, and cotter pin in the flap bracket.
- (10) After the installation of all the flap components, rig flaps in accordance with Flap Rigging Guide. Refer to Chapter 27-50-02, Flap Rigging Guide - Adjustment/Test.
- (11) Install the wing panels and the covers.

13. Flap Inboard Forward Bell Cranks Removal/Installation

A. Remove the Flap Inboard Forward Bell Cranks (Refer to Figure 210 and Figure 214).

- (1) Remove the panels on the bottom of both wings to get access to the left and the right inboard forward bell cranks.
- (2) Remove the nut, washer, and bolt that connect the short wing-to-wing interconnect rod assembly to the left inboard forward bell crank.
- (3) Disconnect the short wing-to-wing interconnect rod assembly from the left inboard forward bell crank.
- (4) Remove the nut, washer, and bolt that connect the left interconnect rod assembly to the left inboard forward bell crank.
- (5) Disconnect the left interconnect rod assembly from the left inboard forward bell crank.
- (6) Remove the nut, washer, bolt, and special washers from the left inboard forward bell crank.
- (7) Disconnect the left inboard forward bell crank from the supports.
- (8) Remove the nut, washer, and bolt that connect the actuator tube to the right inboard forward bell crank.
- (9) Disconnect the actuator tube from the right inboard forward bell crank.
- (10) Remove the nut, washer, and bolt that connect the long wing-to-wing interconnect rod assembly to the right inboard forward bell crank.
- (11) Disconnect the long wing-to-wing interconnect rod assembly from the right inboard forward bell crank.
- (12) Disconnect the interconnect rod from the right inboard forward bell crank.
- (13) Remove the bolt and special brass washers (if necessary), washers, nut, and cotter pin (if necessary) from the right inboard forward bell crank.

NOTE: The installation of the right inboard forward bell crank changed on Airplanes 20800350 and 20800362 and On, 208B0931, 208B0947, 208B0972, 208B0973, 208B0976, 208B0979, 208B0988, 208B0989, and 208B0991 and On, and airplanes incorporating SK208-148A (CAB02-12, Revision 1). Three washers are used between the lower support and the nut and optional washers are permitted between the supports.

- (14) Disconnect the right inboard forward bell crank from the upper and the lower supports.

B. Install the Flap Inboard Forward Bell Cranks (Refer to Figure 210 and Figure 214).

- (1) Put the left inboard forward bell crank in the supports.
- (2) Install the bolt, special washers, washer, and nut in the left inboard forward bell crank.

NOTE: The special washers are installed above and below the left inboard forward bell crank between the left inboard forward bell crank and the supports.

- (3) Connect the short wing-to-wing interconnect rod assembly to the left inboard forward bell crank.
- (4) Install the bolt, washer, and nut that connect the short wing-to-wing interconnect rod assembly to the left inboard forward bell crank.
- (5) Connect the left interconnect rod assembly to the left inboard forward bell crank.
- (6) Install the bolt, washer, and nut that connect the left interconnect rod assembly to the left inboard forward bell crank.
- (7) Connect the right inboard forward bell crank to the upper and the lower supports.
- (8) Install the bolt, special washers (if necessary), washers, nut, and cotter pin (if necessary) in the right inboard forward bell crank.

NOTE: The special washers, if necessary, are installed above and below the right inboard forward bell crank between the right inboard forward bell crank and the supports.

NOTE: The installation of the right inboard forward bell crank changed on Airplanes 20800350 and 20800362 and On, 208B0931, 208B0947, 208B0972, 208B0973, 208B0976, 208B0979, 208B0988, 208B0989, and 208B0991 and On, and airplanes incorporating SK208-148A (CAB02-12, Revision 1). The right inboard forward bell crank is installed with three washers between the lower support and the nut. Optional washers are permitted between the supports. A maximum of three optional thin washers or a combination of one optional thick and one thin washer is permitted between the supports.

- (9) Connect the actuator tube to the right inboard forward bell crank.
- (10) Install the bolt, washer, and nut that connect the actuator tube to the right inboard forward bell crank.
- (11) Connect the long wing-to-wing interconnect rod assembly to the right inboard forward bell crank.
- (12) Install the bolt, washer, and nut that connect the long wing-to-wing interconnect rod assembly to the right inboard forward bell crank.
- (13) Connect the interconnect rod to the right inboard forward bell crank.
- (14) After the installation of all the flap components, rig flaps in accordance with Flap Rigging Guide. Refer to Chapter 27-50-02, Flap Rigging Guide - Adjustment/Test.
- (15) Install the panels on the bottom of both wings.

14. Flap Inboard Aft Bell Cranks Removal/Installation

- A. Remove the Flap Inboard Aft Bell Cranks (Refer to Figure 211 and Figure 214).
 - (1) Remove the wing panels and the covers to get access to the left and the right inboard aft bell cranks.
 - (2) Remove the nut, washer, and bolt that connect the left interconnect rod assembly to the inboard aft bell crank.
 - (3) Disconnect the left interconnect rod assembly from the inboard aft bell crank.
 - (4) Remove the nut, washer, and bolt that connect the connecting rod assembly to the inboard aft bell crank.
 - (5) Disconnect the connecting rod assembly from the inboard aft bell crank.
 - (6) Remove the nut, washers, and bolt that connect the inboard pushrod assembly to the inboard aft bell crank.
 - (7) Disconnect the inboard pushrod assembly from the inboard aft bell crank.
 - (8) Remove the cotter pin, washer, and pin from the inboard aft bell crank.
 - (9) Disconnect the turnbuckle from the inboard aft bell crank.
 - (10) Remove the nut, washer, special washers, and rod that connect the inboard aft bell crank to the supports.
 - (11) Disconnect the inboard aft bell crank from the supports.
- B. Install the Flap Inboard Aft Bell Cranks (Refer to Figure 211 and Figure 214).
 - (1) Put the inboard aft bell crank in the supports.
 - (2) Apply Loctite 242, or equivalent MIL-S-22473, Grade B Adhesive to the threads of the rod.
 - (3) Install the rod, special washers, washer, and nut that connect the inboard aft bell crank to the supports.

NOTE: The special washers are installed above and below the inboard aft bell crank between the inboard aft bell crank and the supports.

- (4) Connect the turnbuckle to the inboard aft bell crank.
- (5) Install the pin, washer, and cotter pin in the inboard aft bell crank.
- (6) Connect the inboard pushrod assembly to the inboard aft bell crank.
- (7) Install the bolt, washer, and nut that connect the inboard pushrod assembly to the inboard aft bell crank.
- (8) Connect the connecting rod assembly to the inboard aft bell crank.
- (9) Install the bolt, washer, and nut that connect the connecting rod assembly to the inboard aft bell crank.
- (10) Connect the left interconnect rod assembly to the inboard aft bell crank.
- (11) Install the bolt, washer, and nut that connect the left interconnect rod assembly to the inboard aft bell crank.
- (12) After the installation of all the flap components, rig flaps in accordance with Flap Rigging Guide. Refer to Chapter 27-50-02, Flap Rigging Guide - Adjustment/Test.
- (13) Install the wing panels and the covers.

15. Flap Outboard Bell Cranks Removal/Installation

- A. Remove the Flap Outboard Bell Cranks (Refer to Figure 212 and Figure 214).

NOTE: The following removal instructions are for the left outboard bell crank. The right outboard bell crank is similar.

- (1) Remove the wing panels and the covers to get access to the left and the right outboard bell cranks.
- (2) Remove the nut, washer, and bolt that connect the connecting rod assembly to the outboard bell crank.
- (3) Disconnect the connecting rod assembly from the outboard bell crank.
- (4) Remove the nut, washers, and bolt that connect the outboard pushrod assembly from the outboard bell crank.
- (5) Disconnect the outboard pushrod assembly from the outboard bell crank.

NOTE: Replacement of the pushrod attach bolt is required if the bolt is not of the clevis head type.

- (6) Remove the bolt, washer(s), and special washers (if applicable) from the outboard bell crank.

NOTE: The outboard bell cranks with part numbers 2622091-1 and 2622091-2 are installed with a washer under the head of the bolt and a bushing with two special washers. The special washers are installed one above and one below the bushing. The other outboard bell cranks are installed with a washer under the head of the bolt and a maximum of three optional thin washers between the supports.

- (7) Disconnect the outboard bell crank and the bushing (if applicable) from the supports.

- B. Install the Flap Outboard Bell Cranks (Refer to Figure 212 and Figure 214).

NOTE: The following installation instructions are for the left outboard bell crank. The right outboard bell crank is similar.

- (1) Put the outboard bell crank and the bushing (if applicable) in the supports.

NOTE: The outboard bell cranks with part numbers 2622091-1 and 2622091-2 are installed with a washer under the head of the bolt and a bushing with two special washers. The special washers are installed one above and one below the bushing. The other outboard bell cranks are installed with a washer under the head of the bolt and a maximum of three optional thin washers between the supports.

- (2) Install the special washers (if applicable), washer(s), and bolt in the outboard bell crank.
- (3) Connect the outboard pushrod assembly to the outboard bell crank.
- (4) Install the bolt, washers, and nut that connect the outboard pushrod assembly to the outboard bell crank.

NOTE: Replacement of the pushrod attach bolt is required if the bolt is not of the clevis head type.

- (5) Connect the connecting rod assembly to the outboard bell crank.
- (6) Install the bolt, washer, and nut that connect the connecting rod assembly to the outboard bell crank.

(7) After the installation of all the flap components, rig flaps in accordance with Flap Rigging Guide. Refer to Chapter 27-50-02, Flap Rigging Guide - Adjustment/Test.

- (8) Install the wing panels and the covers.

16. Flap Actuator Removal/Installation

- A. Remove the Flap Actuator (Refer to Figure 213).
- (1) Remove the headliner to get access to the flap actuator assembly.
 - (2) Disconnect the electrical connectors from the receptacles.
 - (3) Remove the setscrew from the actuator tube.
 - (4) Remove the drivescrew stop nut from the actuator tube.
 - (5) Remove the nuts, washers, special washers, spacer, and bolt from the transmission assembly.
 - (6) Remove the actuator assembly from the support.
 - (7) Examine the leather washer for excessive wear. If the leather washer is worn, remove the leather washer from the transmission assembly at the drivescrew and discard it.
- B. Install the Flap Actuator (Refer to Figure 213).
- (1) If necessary, use EC1300L Adhesive to install the leather washer to the transmission assembly at the drivescrew. Refer to Chapter 20, Adhesive and Solvent Bonding - Maintenance Practices.
 - (2) Position the actuator assembly in the support.
 - (3) Install the spacer in the transmission assembly.
 - (4) Install the special washers, washers, bolt, and nut in the transmission assembly.
NOTE: One of the special washers in the transmission assembly is installed above the spacer. The other special washer in the transmission assembly is installed below the spacer between the transmission assembly and the support. The washers in the transmission assembly are installed above and below the special washers.
 - (5) Turn the drivescrew stop nut into the actuator tube.
 - (6) Install the setscrew wet with Loctite 242 or equivalent MIL-S-22473, Grade B Adhesive. Refer to Chapter 20, Adhesive and Solvent Bonding - Maintenance Practices.
 - (7) Torque the setscrew to 40 inch-pounds.
 - (8) Connect the receptacles to the electrical connectors.
 - (9) After the installation of all the flap components, rig flaps in accordance with Flap Rigging Guide. Refer to Chapter 27-50-02, Flap Rigging Guide - Adjustment/Test.
 - (10) Install the headliner.

17. Flap Switch Actuator Disassembly/Assembly

- A. Disassemble the Flap Switch Actuator (Refer to Figure 215).
- (1) Remove the flap switch actuator. Refer to Flap Switch Actuator Removal/Installation.
 - (2) Remove the roll pin from the flap control arm.
 - (3) Disconnect the flap control arm, stop assembly, and spacer from the switch actuator body.
 - (4) Remove the spring and ball detent from the flap control arm.
 - (5) Loosen the lock nuts on the down and up switch.
 - (6) Remove the down and up switch from the switch actuator body.
 - (7) Remove the cover from the switch actuator body.
 - (8) Remove the snap ring above the short shaft.
 - (9) Disconnect the short shaft, bearing above the short shaft, and spring washer above the short shaft.
 - (10) Remove the snap ring below the long shaft.
 - (11) Disconnect the long shaft, bearing below the long shaft, spring washer below the long shaft, and striker.
 - (12) Loosen the lock nut on the up stop bolt.
 - (13) Remove the up stop bolt from the stop assembly.
 - (14) Loosen the lock nut on the full-down stop bolt.
 - (15) Remove the full-down stop bolt from the stop assembly.
 - (a) Examine the detents on the stop assembly. If the detents are worn or groves are apparent between the detents, you must replace the stop assembly.

- (16) Remove the roll pins from the gears on the short and long shaft.
- (17) Disconnect the gear from the short shaft.
- (18) Disconnect the gear from the long shaft.
- (19) Remove the cotter pin, washers, spring washer, and gear from the striker.

B. Assemble the Flap Switch Actuator (Refer to Figure 215).

- (1) Install the gear, washers, and spring washer on the striker.
- (2) Install the cotter pin in the striker.
- (3) Install the gear on the short shaft.
- (4) Install the gear on the long shaft.
- (5) Install new roll pins in the gears on the short and long shaft.
- (6) Install the up stop bolt in the stop assembly.
- (7) Install the full-down stop bolt in the stop assembly.
- (8) Tighten the lock nuts on the up stop bolt and the full-down stop bolt.
- (9) Put the striker in the switch actuator body.

NOTE: The long shaft must be put through the attaching hole in the striker before you assemble the spring washer below the long shaft, the bearing below the long shaft, and the snap ring below the long shaft.

- (10) Install the long shaft through the attaching hole in the striker.
- (11) Assemble the spring washer below the long shaft and the bearing below the long shaft to the switch actuator body.
- (12) Install the snap ring below the long shaft.
- (13) Connect the short shaft, spring washer above the short shaft, and bearing above the short shaft to the switch actuator body.
- (14) Install the snap ring above the short shaft.
- (15) Install the cover on the switch actuator body.
- (16) Install the down switch in the switch actuator body.
- (17) Install the up switch in the switch actuator body.
- (18) Tighten the lock nuts on the down and up switch.
- (19) Connect the stop assembly and spacer to the switch actuator body.
- (20) Install the bolts and washers through the stop assembly and the switch actuator body.
- (21) Install the spring and detent ball in the flap control arm.
- (22) Connect the flap control arm to the long shaft.
- (23) Install a new roll pin in the flap control arm.
- (24) Adjust and install the flap switch actuator. Refer to Flap Switch Actuator Removal/Installation.

(25) After the installation of all the flap components, rig flaps in accordance with Flap Rigging Guide. Refer to Chapter 27-50-02, Flap Rigging Guide - Adjustment/Test.

18. Standby Flap Motor Switches Removal/Installation (Airplanes 20800001 thru 20800223 and 208B0001 thru 208B0326 not incorporating SK208-119A)

NOTE: If the standby flap motor operates, but the flaps do not move, it is possible that the flap transmission and the primary and standby motor couplings need to be replaced. Refer to Chapter 27, Flap System Troubleshooting.

A. Remove the Standby Flap Motor Switches (Refer to Figure 216).

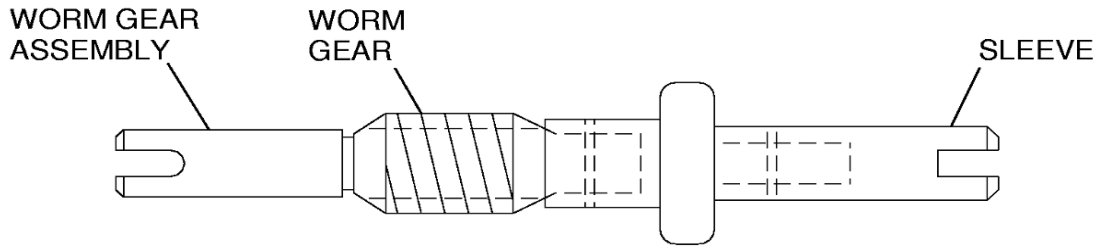
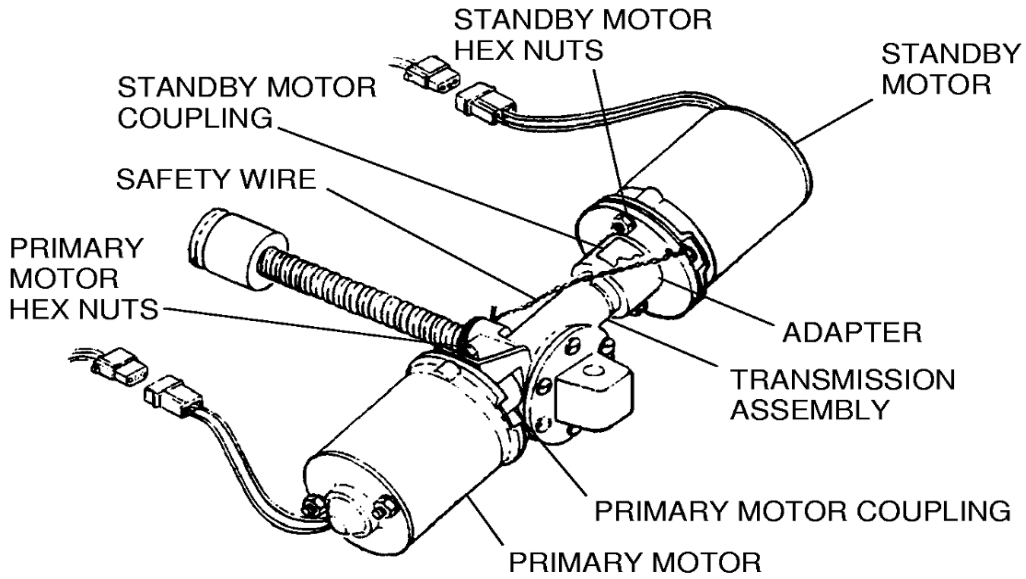
- (1) Remove the Wemacs and the knobs.
- (2) Remove the retainers from the light assemblies.
- (3) Remove the trim panel.
- (4) Pull the headliner loose to get access to the overhead panel mounting screws.
- (5) Remove the screws and lower the overhead panel.

- (6) Open the NORMAL/STBY switch guard.
 - (7) Remove the jam nut and special washer from the NORMAL/STBY switch.
 - (8) Disconnect the NORMAL/STBY switch guard from the NORMAL/STBY switch.
 - (9) Remove the jam nut and special washer from the standby UP/DOWN switch.
 - (10) Remove the NORMAL/STBY switch and the standby UP/DOWN switch from the overhead panel.
 - (11) Disconnect and tag the electrical leads to the NORMAL/STBY switch and the standby UP/DOWN switch.
- B. Install the Standby Flap Motor Switches (Refer to Figure 216).
- (1) Connect the electrical leads to the NORMAL/STBY switch and the standby UP/DOWN switch.
 - (2) Install the NORMAL/STBY switch and the standby UP/DOWN switch in the overhead panel.
 - (3) Install the special washer and jam nut on the standby UP/DOWN switch.
 - (4) Connect the NORMAL/STBY switch guard to the NORMAL/STBY switch.
 - (5) Install the special washer and jam nut on the NORMAL/STBY switch.
 - (6) Close the NORMAL/STBY switch guard.
 - (7) Put the overhead panel in position and install the screws.
 - (8) Attach the headliner.
 - (9) Put the trim panel in position and install the knobs and the Wemacs.
 - (10) Install the retainers on the light assemblies.
- 19. Standby Flap Motor Switches Removal/Installation (Airplanes 20800224 and On, 208B0327 and On, 20800001 thru 20800223 and 208B0001 thru 208B0326 incorporating SK208-119A)**
- A. Remove the Standby Flap Motor Switches (Refer to Figure 216).
- (1) Remove the Wemacs and the knobs.
 - (2) Remove the retainers from the light assemblies.
 - (3) Remove the trim panel.
 - (4) Pull the headliner loose to get access to the overhead panel mounting screws.
 - (5) Remove the screws and lower the overhead panel.
 - (6) If necessary, remove the STANDBY FLAP MOTOR led panel. Refer to Chapter 33, Overhead console LED Panels - Removal/Installation, Standby Flap Motor LED Panel Removal/Installation.
 - (7) Break the frangible wire on the NORM/STBY switch guard.
 - (8) Open the NORM/STBY switch guard.
 - (9) Remove the jam nut and special washer from the NORM/STBY switch.
 - (10) Disconnect the NORM/STBY switch guard from the NORM/STBY switch.
 - (11) Break the frangible wire on the standby UP/DOWN switch guard.
 - (12) Open the standby UP/DOWN switch guard.
 - (13) Remove the jam nut and special washer from the standby UP/DOWN switch.
 - (14) Disconnect the standby UP/DOWN switch guard from the standby UP/DOWN switch.
 - (15) Remove the NORM/STBY switch and the standby UP/DOWN switch from the overhead panel.
 - (16) Disconnect and tag the electrical leads to the NORM/STBY switch and the standby UP/DOWN switch.
- B. Install the Standby Flap Motor Switches (Refer to Figure 216).
- (1) Connect the electrical leads to the NORM/STBY switch and the standby UP/DOWN switch.
 - (2) Install the NORM/STBY switch and the standby UP/DOWN switch in the overhead panel.
 - (3) Connect the standby UP/DOWN switch guard to the standby UP/DOWN switch.
 - (4) Install the special washer and jam nut on the standby UP/DOWN switch.
 - (5) Connect the NORM/STBY switch guard to the NORM/STBY switch.
 - (6) Install the special washer and jam nut on the NORM/STBY switch.
 - (7) Close the NORM/STBY switch guard.

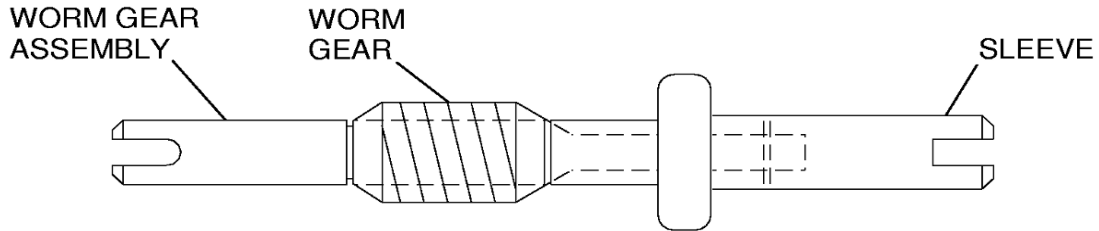
- (8) If necessary, install the STANDBY FLAP MOTOR led panel. Refer to Chapter 33, Overhead console LED Panels - Removal/Installation, Standby Flap Motor LED Panel Removal/Installation.
- (9) Put the overhead panel in position and install the screws.
- (10) Attach the headliner.
- (11) Put the trim panel in position and install the knobs and the Wemacs.
- (12) Install the retainers on the light assemblies.
- (13) Use frangible copper wire to safety the NORM/STBY switch guard and the standby UP/DOWN switch guard in the closed position.

Figure 201 : Sheet 1 : Flap Actuator Worm Gear Assembly

A22576



AIRPLANES 20800001 THRU 20800150 AND
AIRPLANES 208B0001 THRU 208B0168



AIRPLANES 20800151 AND ON AND
AIRPLANES 208B0169 AND ON

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2664T1002

Figure 202 : Sheet 1 : Flap Control Lever and Pointer

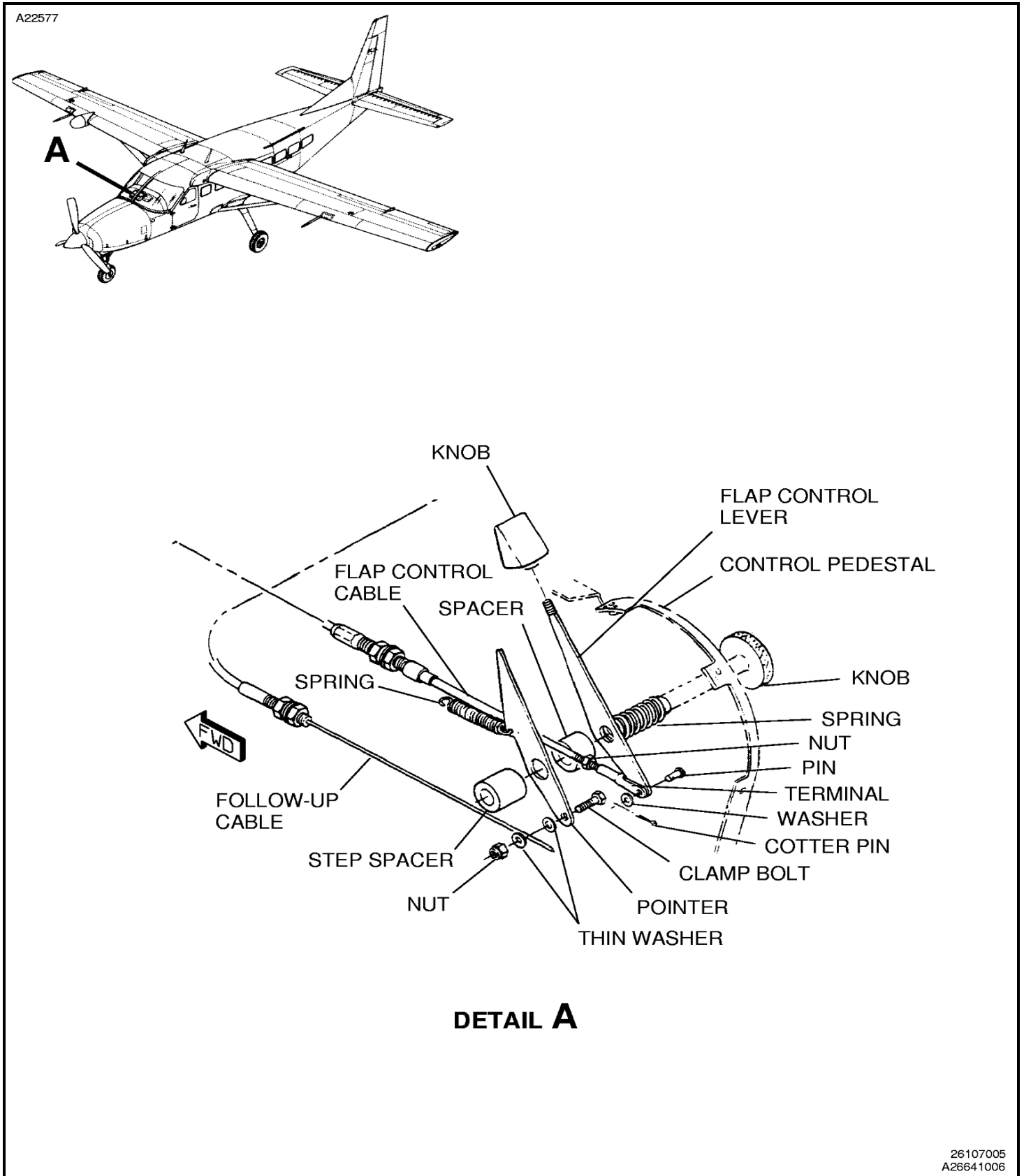
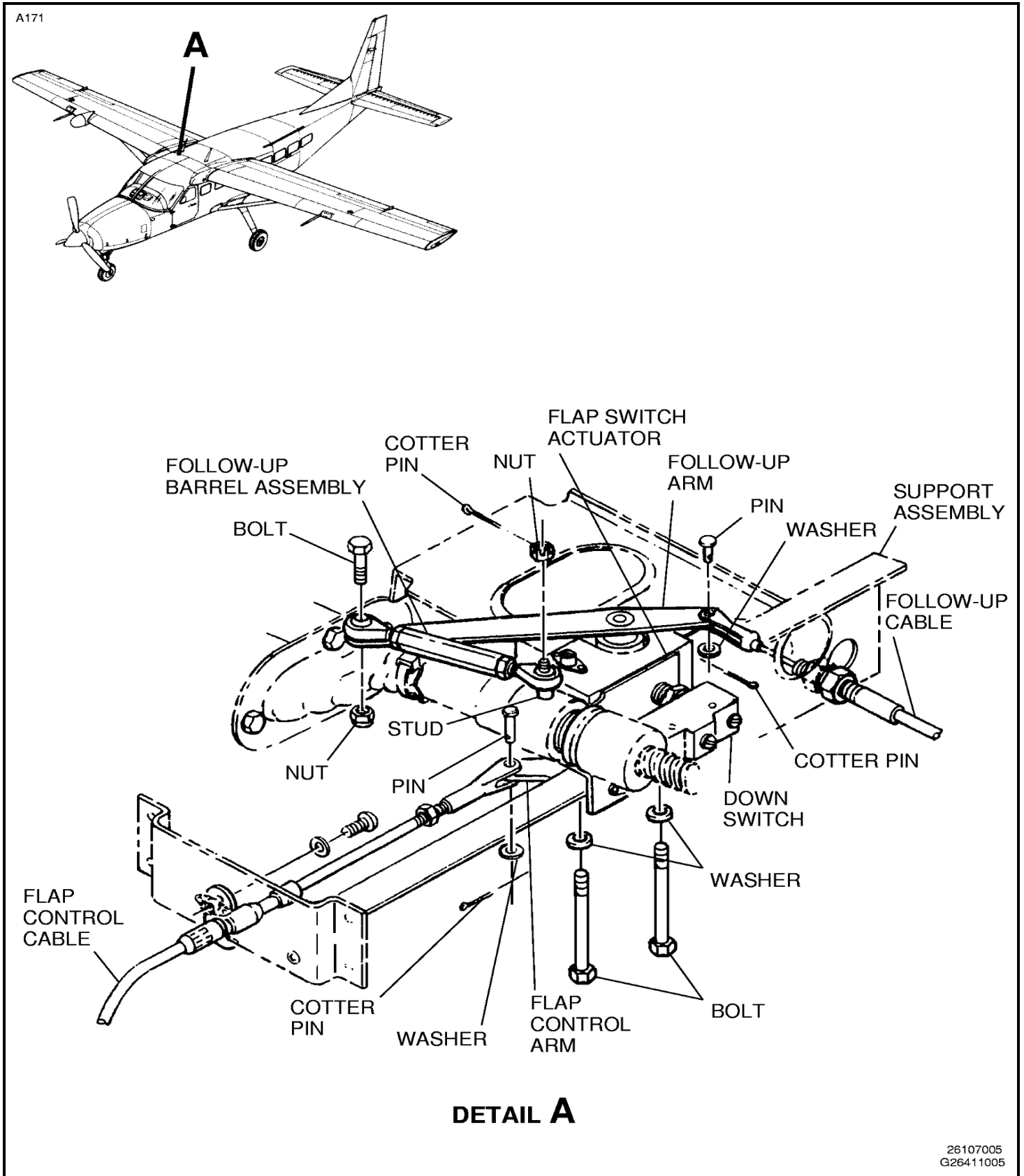


Figure 203 : Sheet 1 : Flap Switch Actuator



26107005
G26411005

Figure 204 : Sheet 1 : Flap Actuator Tube

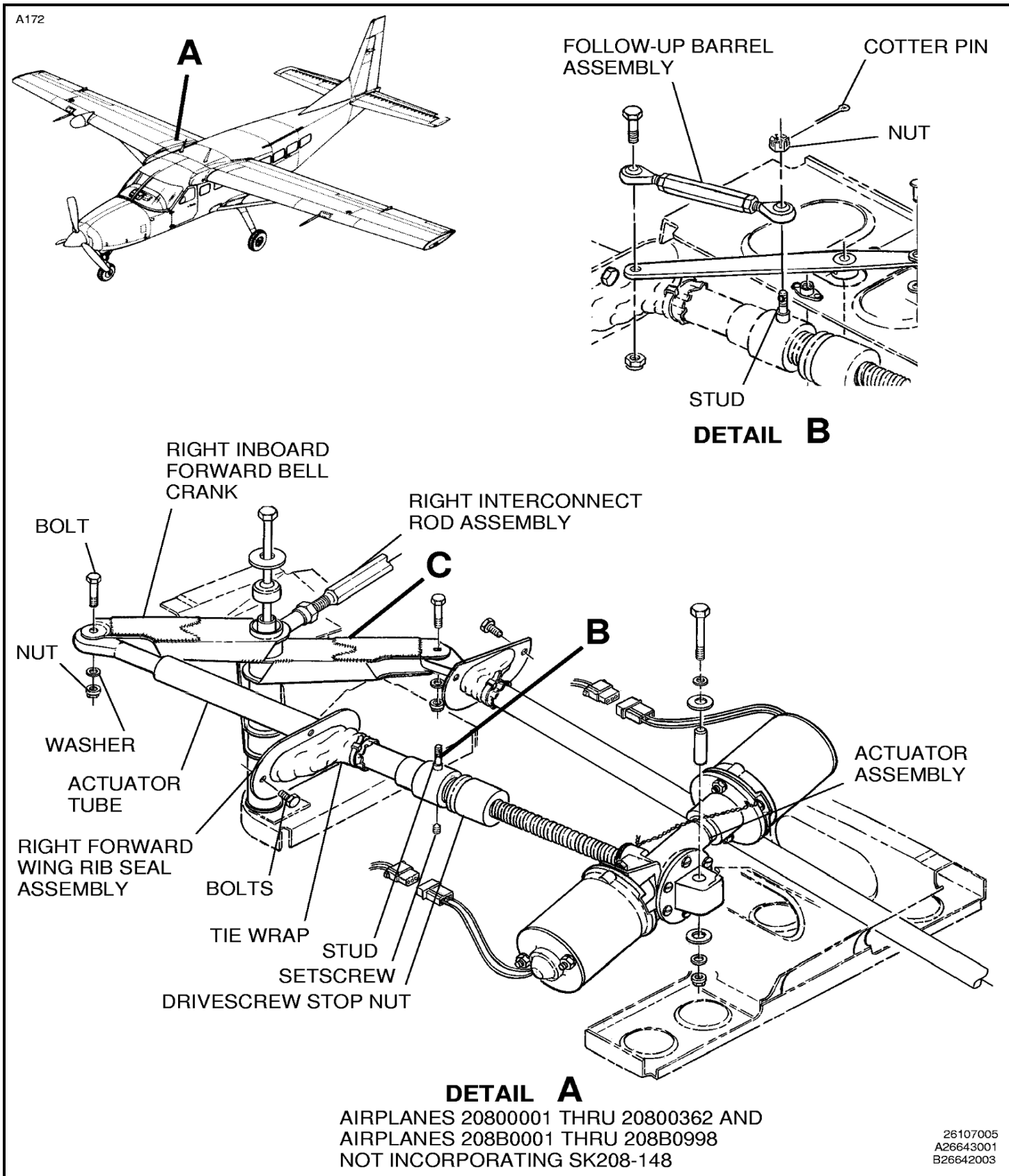
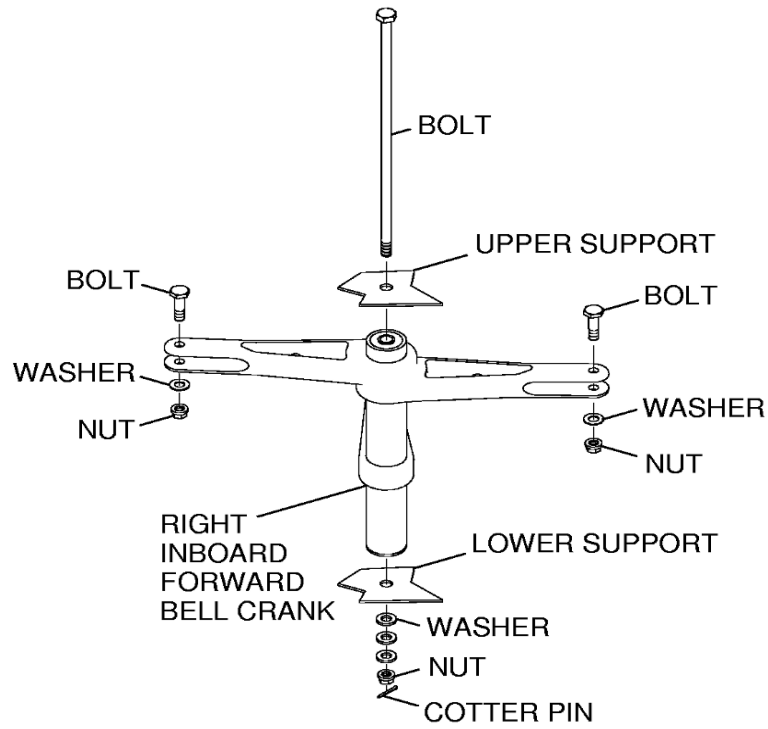


Figure 204 : Sheet 2 : Flap Actuator Tube

A1665



DETAIL C

AIRPLANES 20800363 AND ON AND
AIRPLANES 208B0999 AND ON AND
AIRPLANES 20800001 THRU 20800362 AND
AIRPLANES 208B0001 THRU 208B0998
INCORPORATING SK208-148

C2664T1025

Figure 205 : Sheet 1 : Flaps Wing-to-Wing Interconnect Rod Assembly

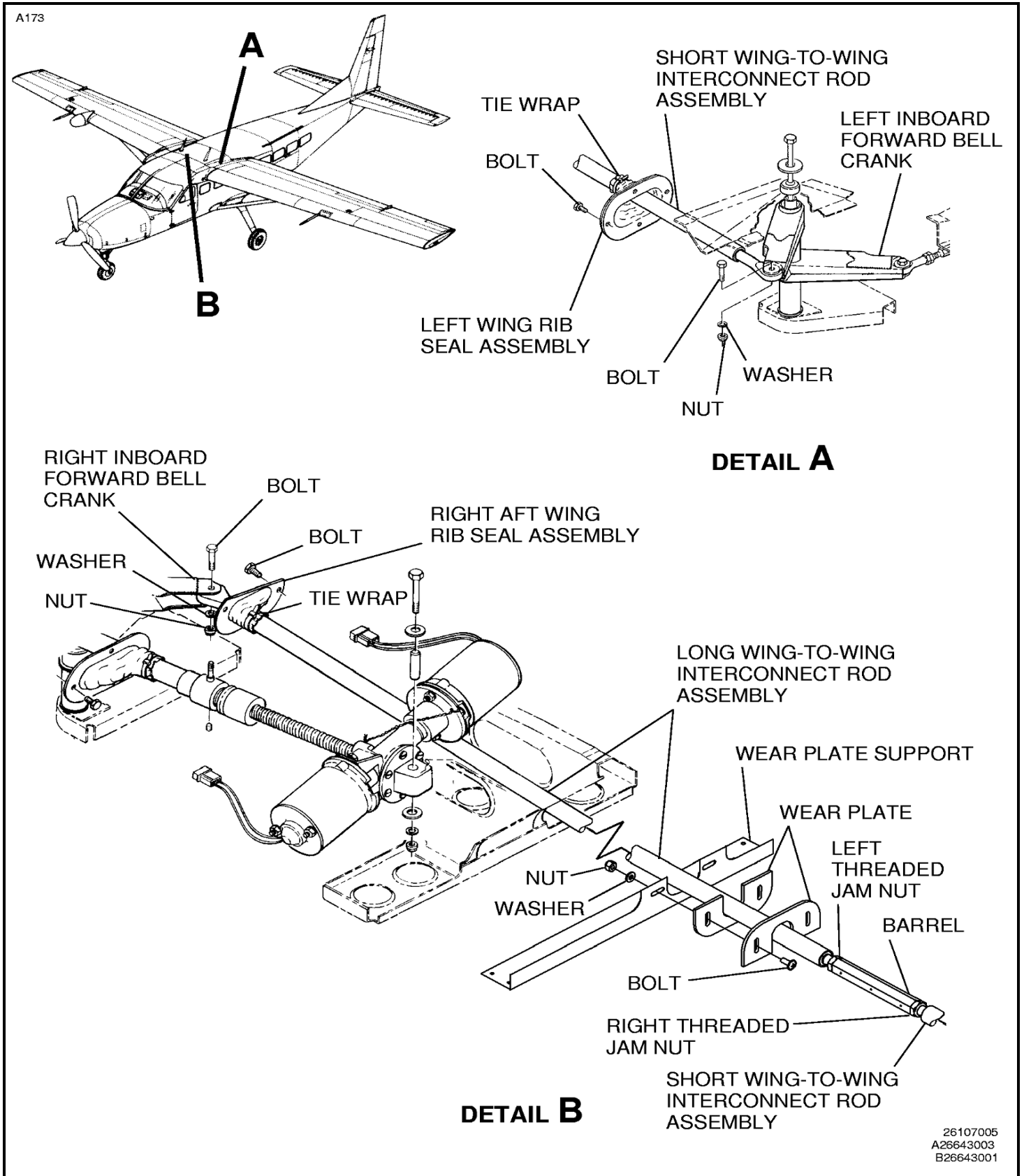


Figure 206 : Sheet 1 : Flap Interconnect Rods

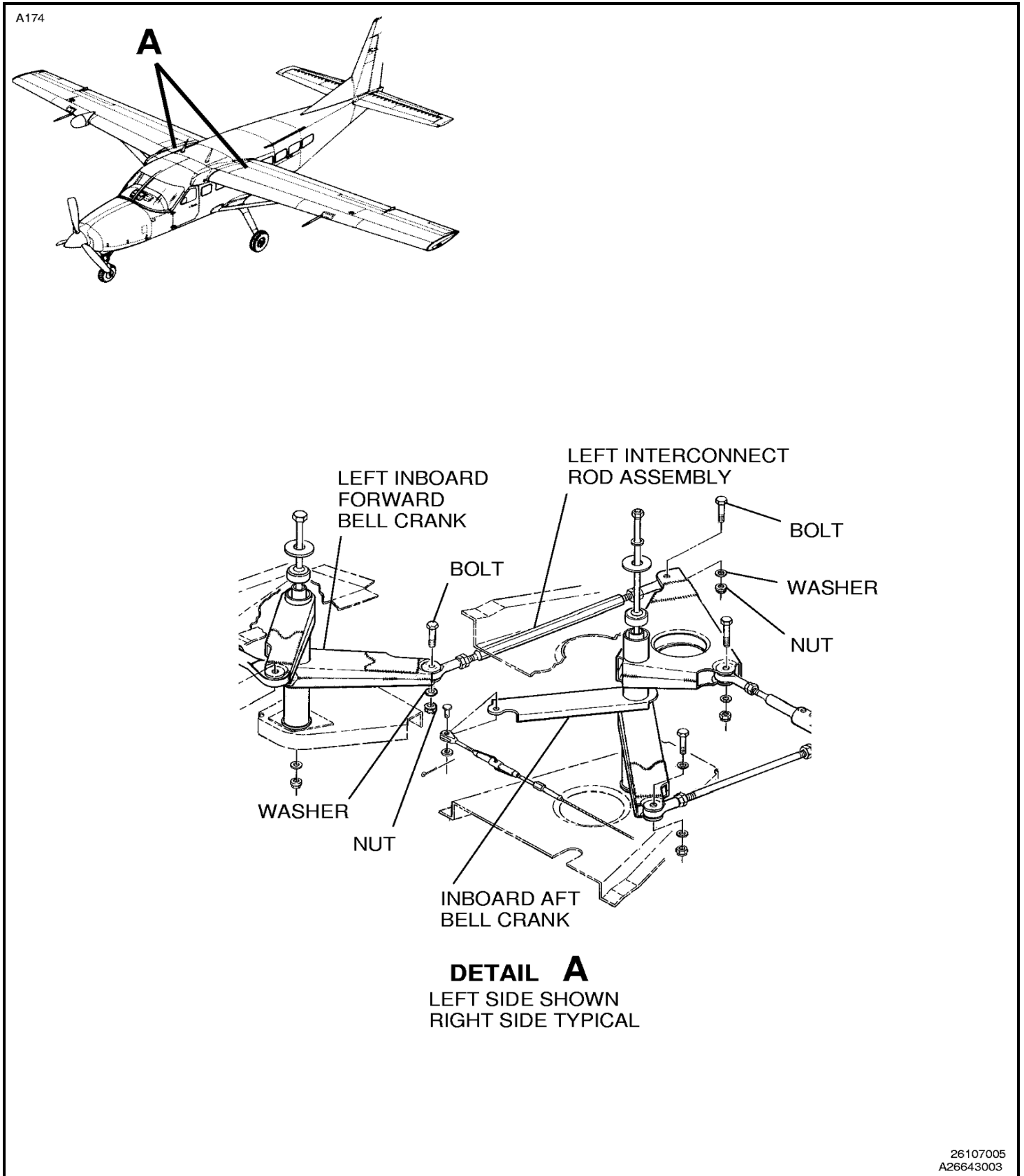


Figure 207 : Sheet 1 : Flap Connecting Rods

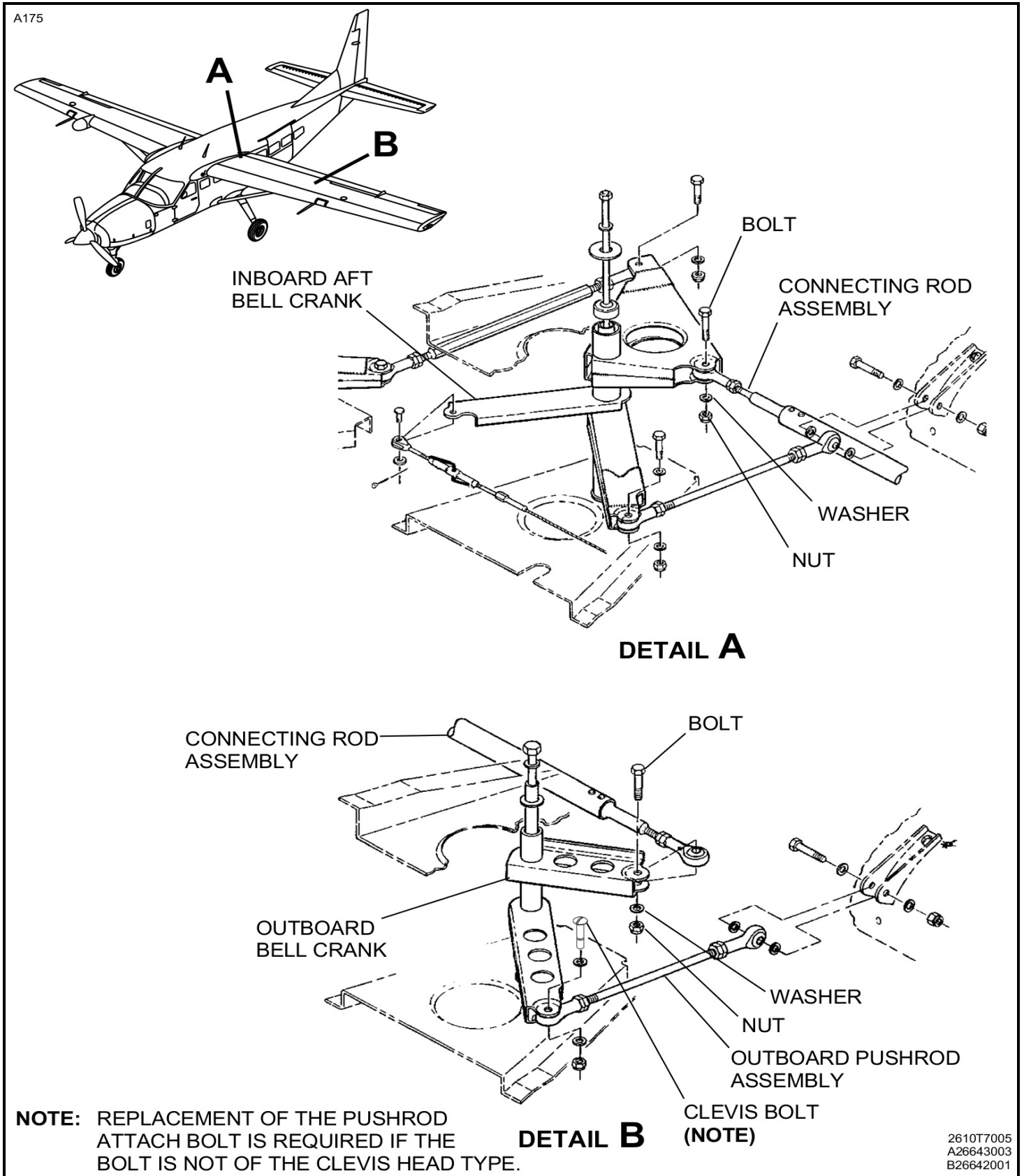


Figure 208 : Sheet 1 : Flap Pushrods

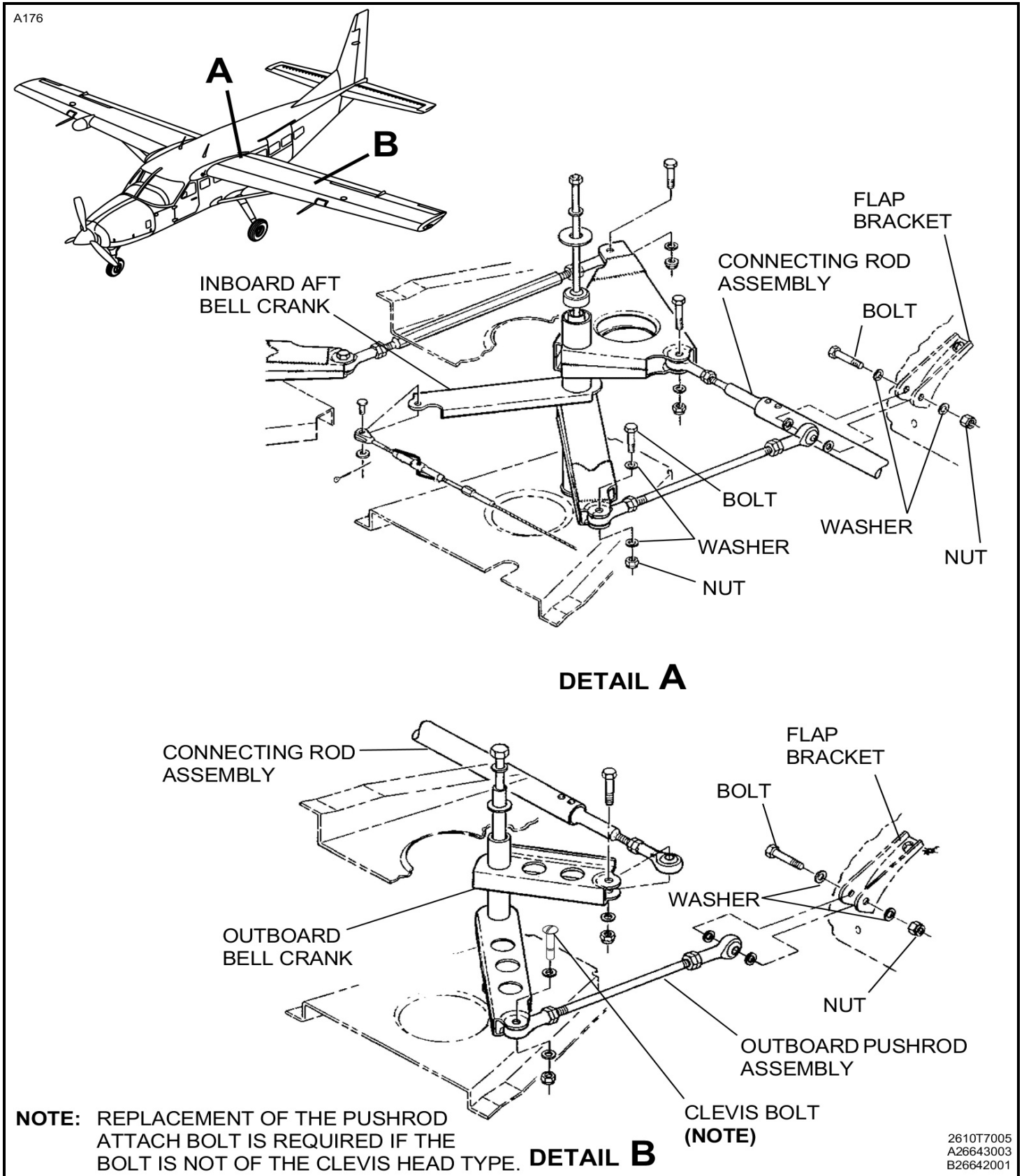


Figure 209 : Sheet 1 : Flap Cables and Pulleys

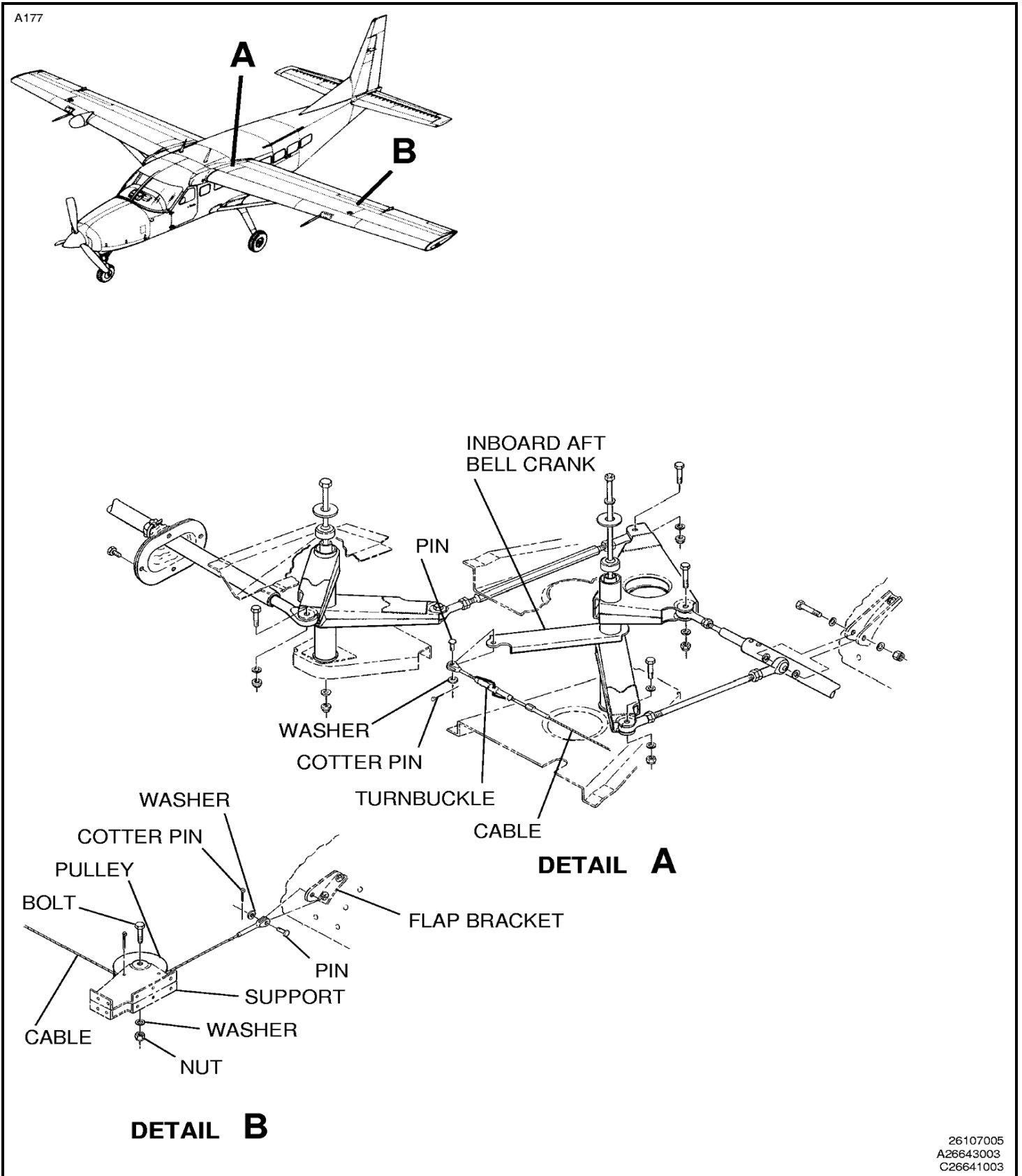


Figure 210 : Sheet 1 : Flap Inboard Forward Bell Cranks

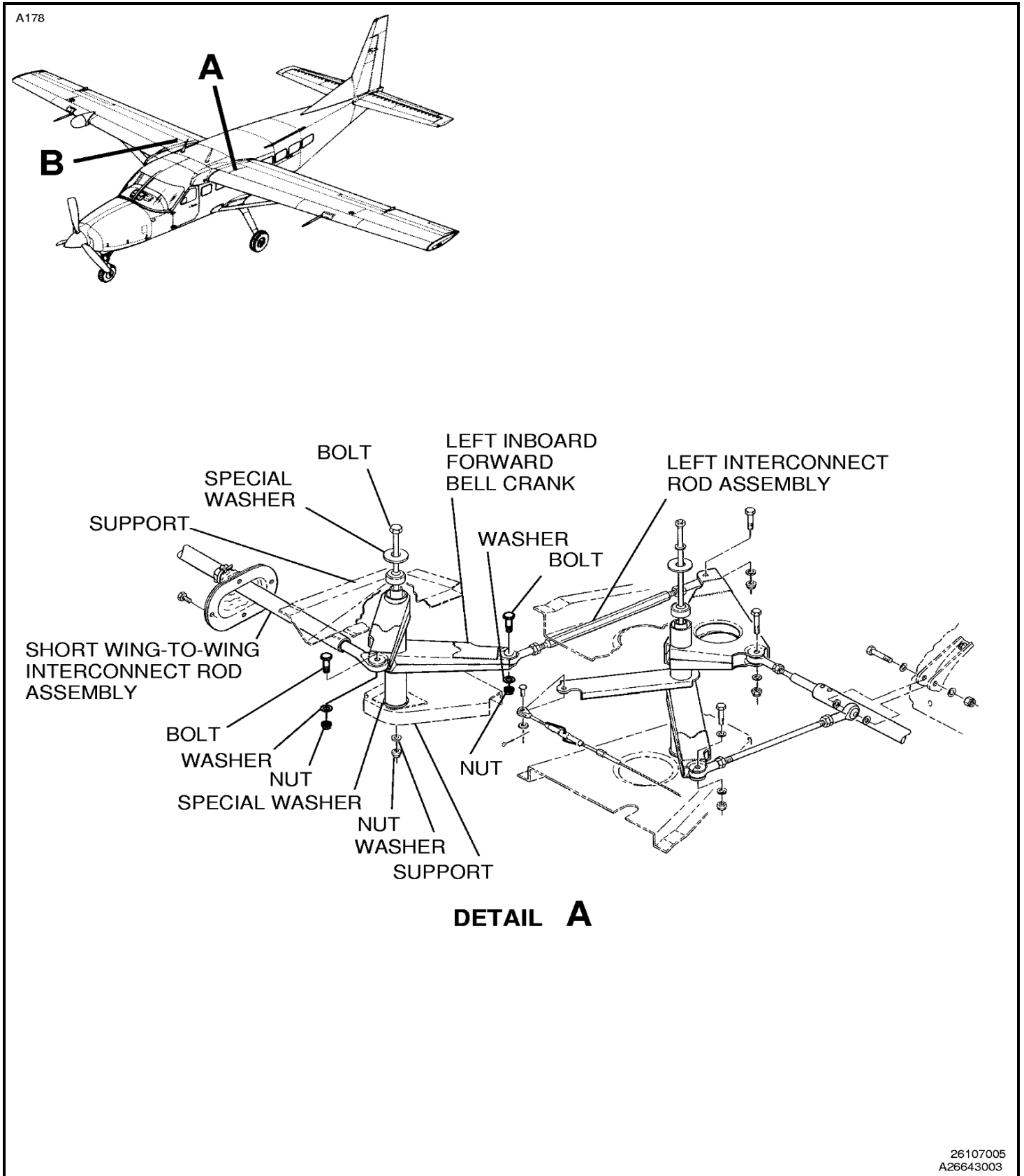
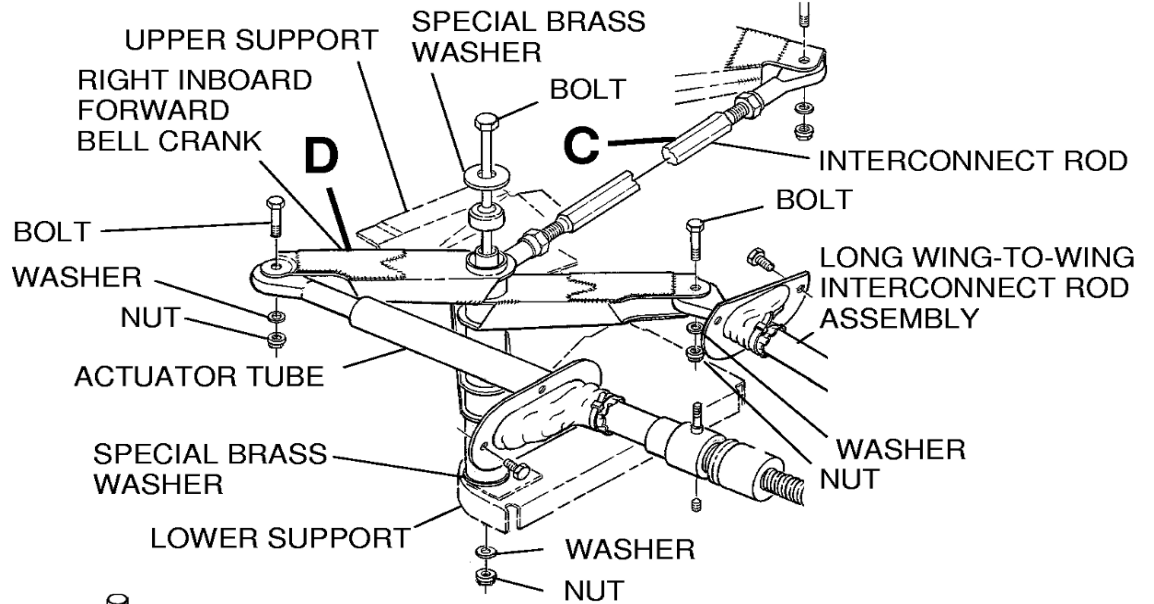


Figure 210 : Sheet 2 : Flap Inboard Forward Bell Cranks

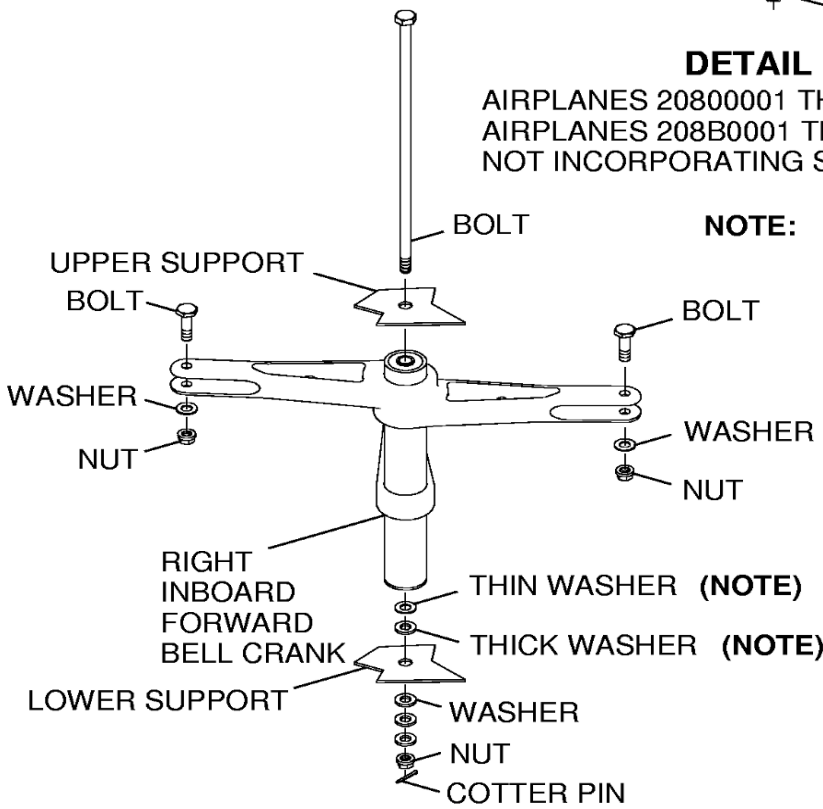
A22586



DETAIL B

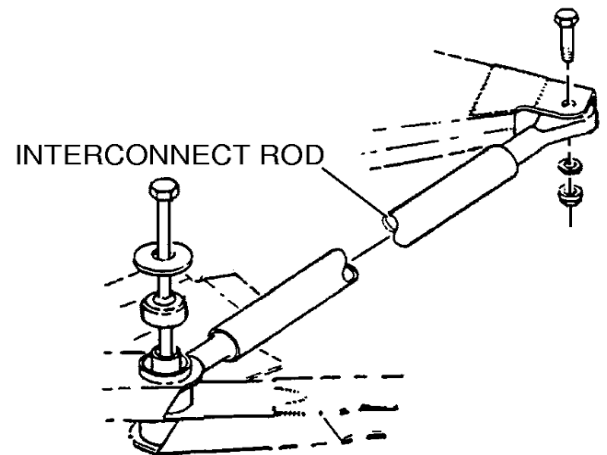
AIRPLANES 20800001 THRU 20800362 AND
 AIRPLANES 208B0001 THRU 208B0998
 NOT INCORPORATING SK208-148

NOTE: A MAXIMUM OF THREE THIN WASHERS
 OR A MAXIMUM COMBINATION OF
 ONE THICK AND ONE THIN WASHER
 IS PERMITTED BETWEEN THE SUPPORTS.



DETAIL D

AIRPLANES 20800363 AND ON AND
 AIRPLANES 208B0999 AND ON AND
 AIRPLANES 20800001 THRU 20800362 AND
 AIRPLANES 208B0001 THRU 208B0998
 INCORPORATING SK208-148



DETAIL C

AIRPLANES 20800001 THRU 20800127 AND
 AIRPLANES 208B0001 THRU 208B0043

B25543001
 C2554R3001
 D2664T1025

Figure 211 : Sheet 1 : Flap Inboard Aft Bell Cranks

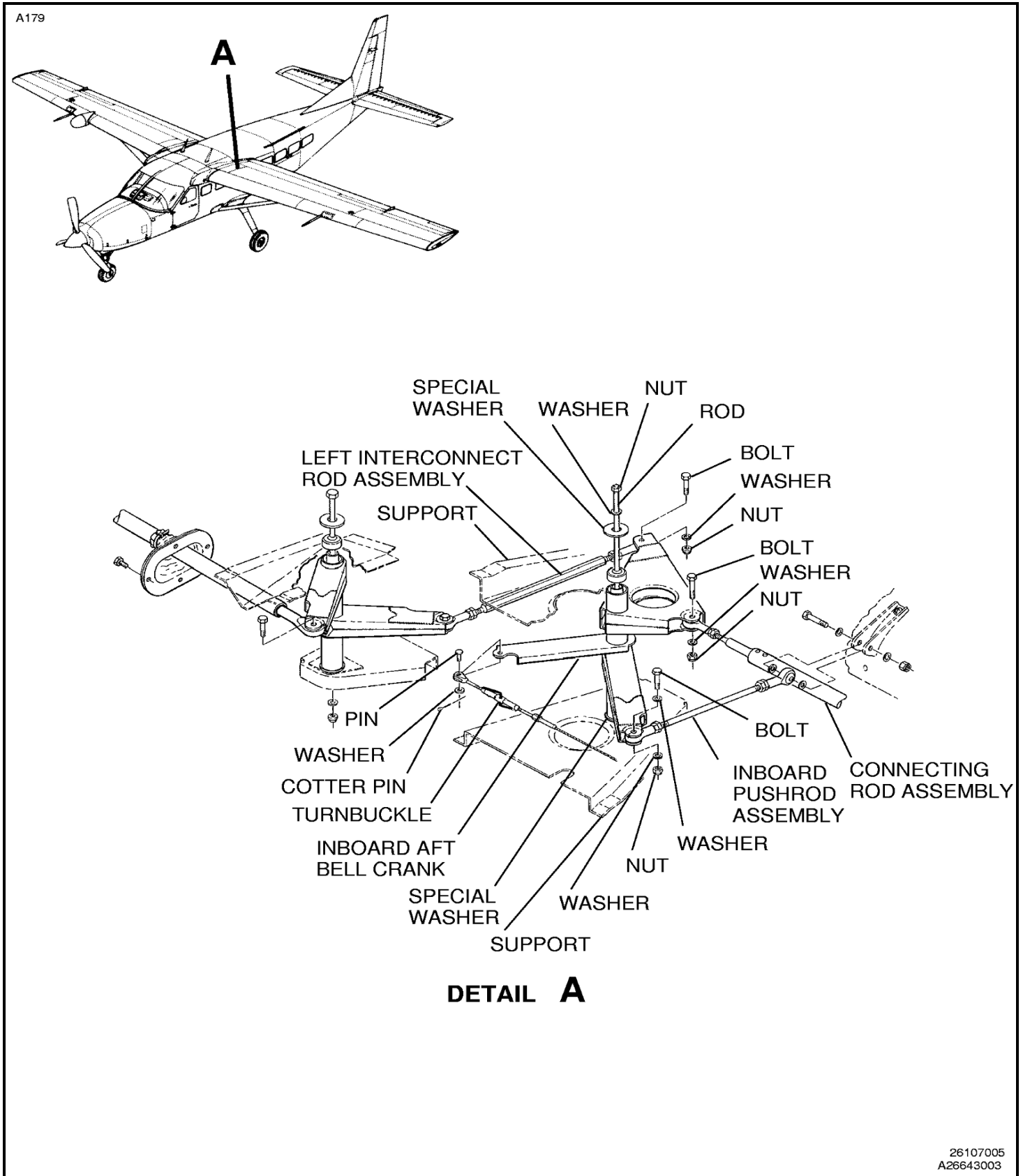


Figure 212 : Sheet 1 : Flap Outboard Bell Cranks

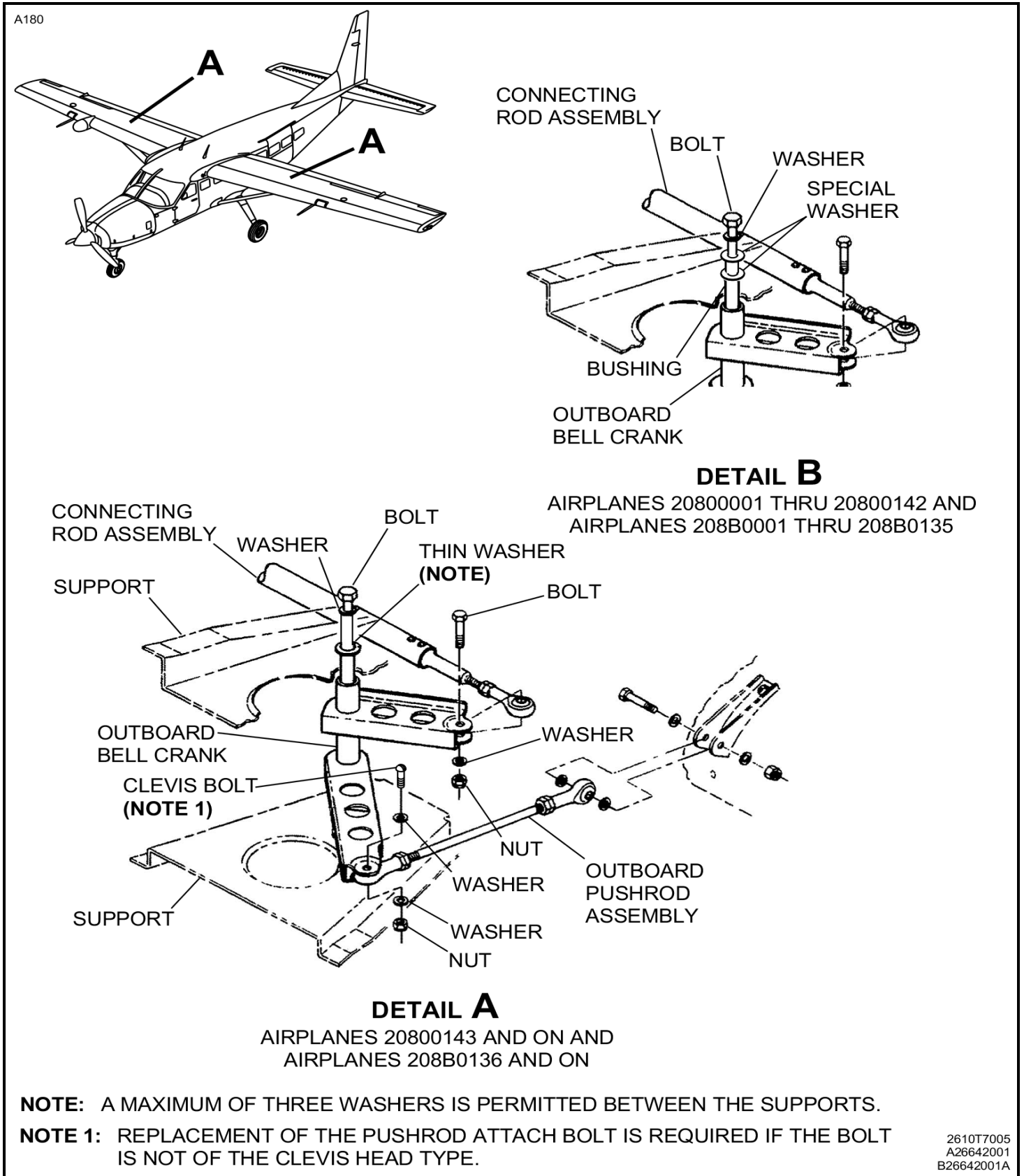
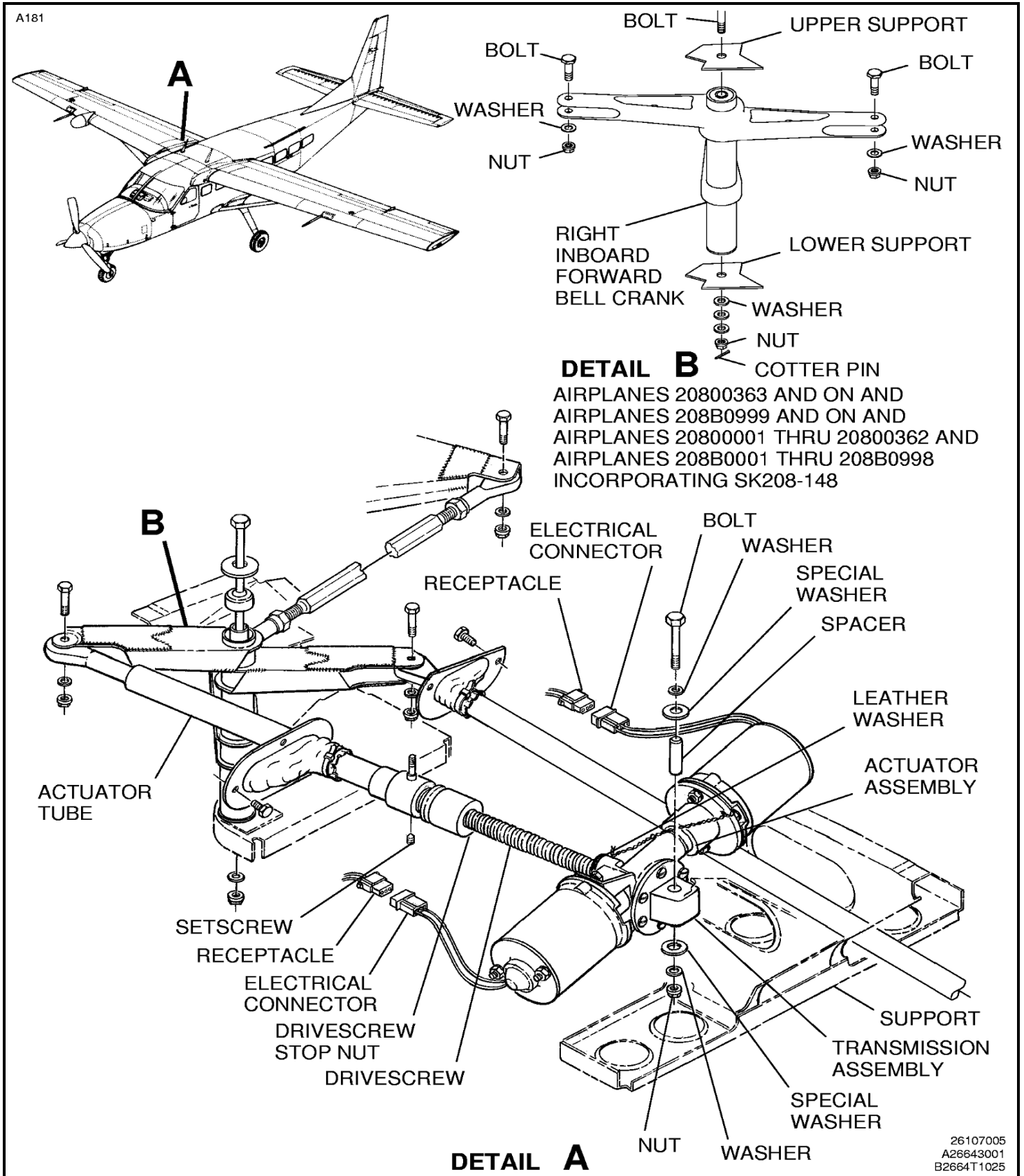


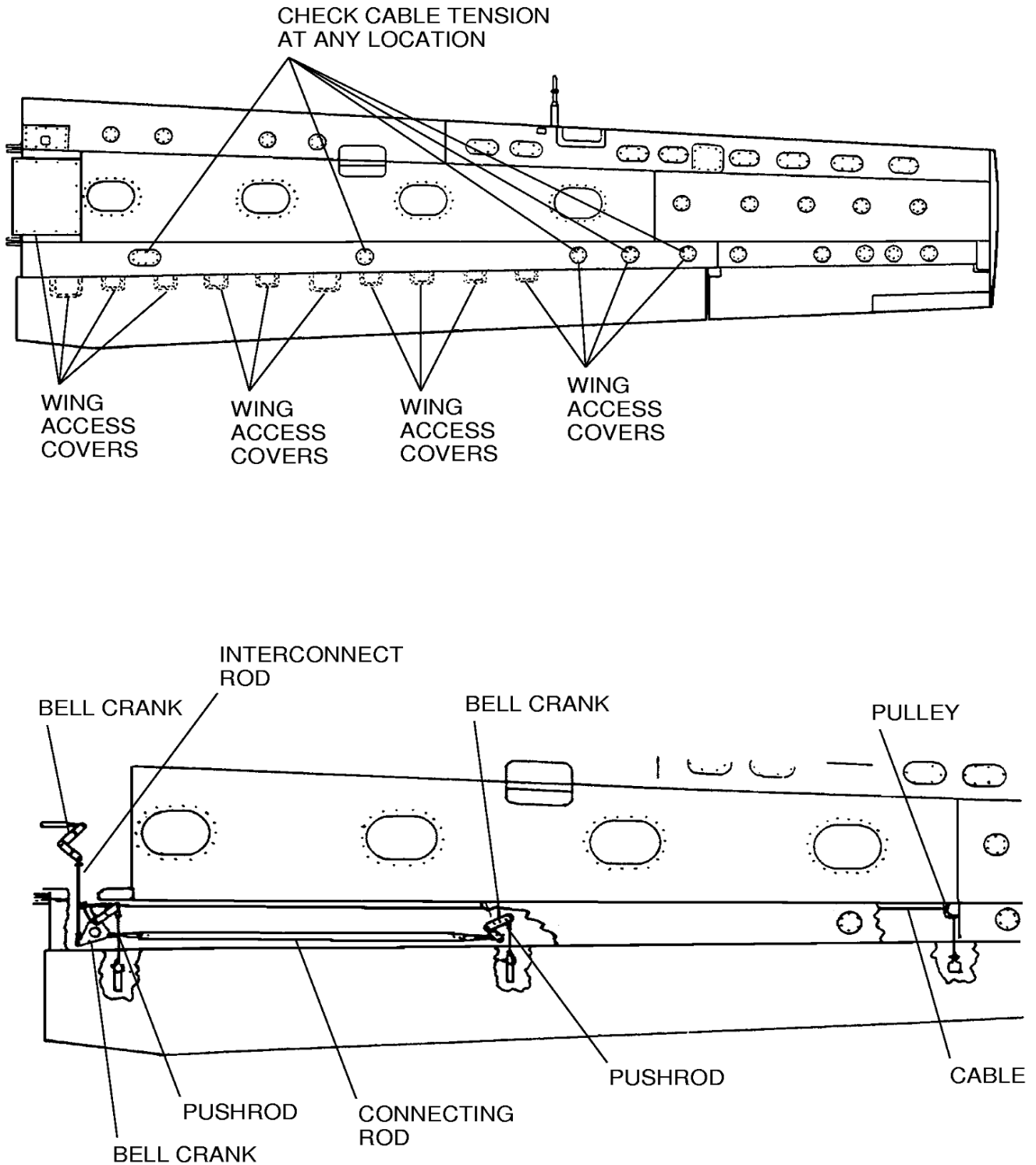
Figure 213 : Sheet 1 : Flap Actuator



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 A26643001
 B2664T1025

Figure 214 : Sheet 1 : Flap System Access

A22587



26102008
26641008

Figure 215 : Sheet 1 : Flap Switch Actuator

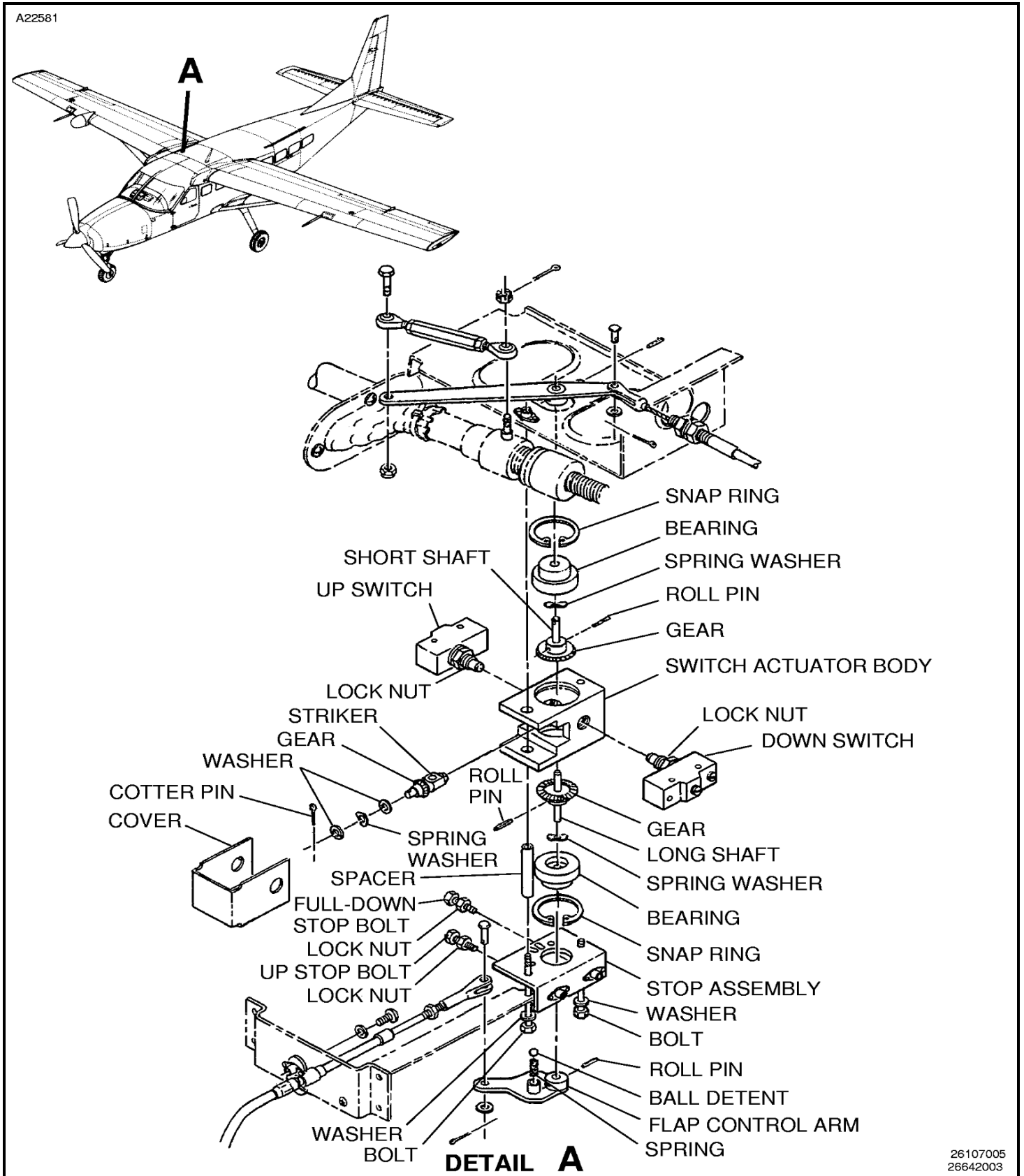
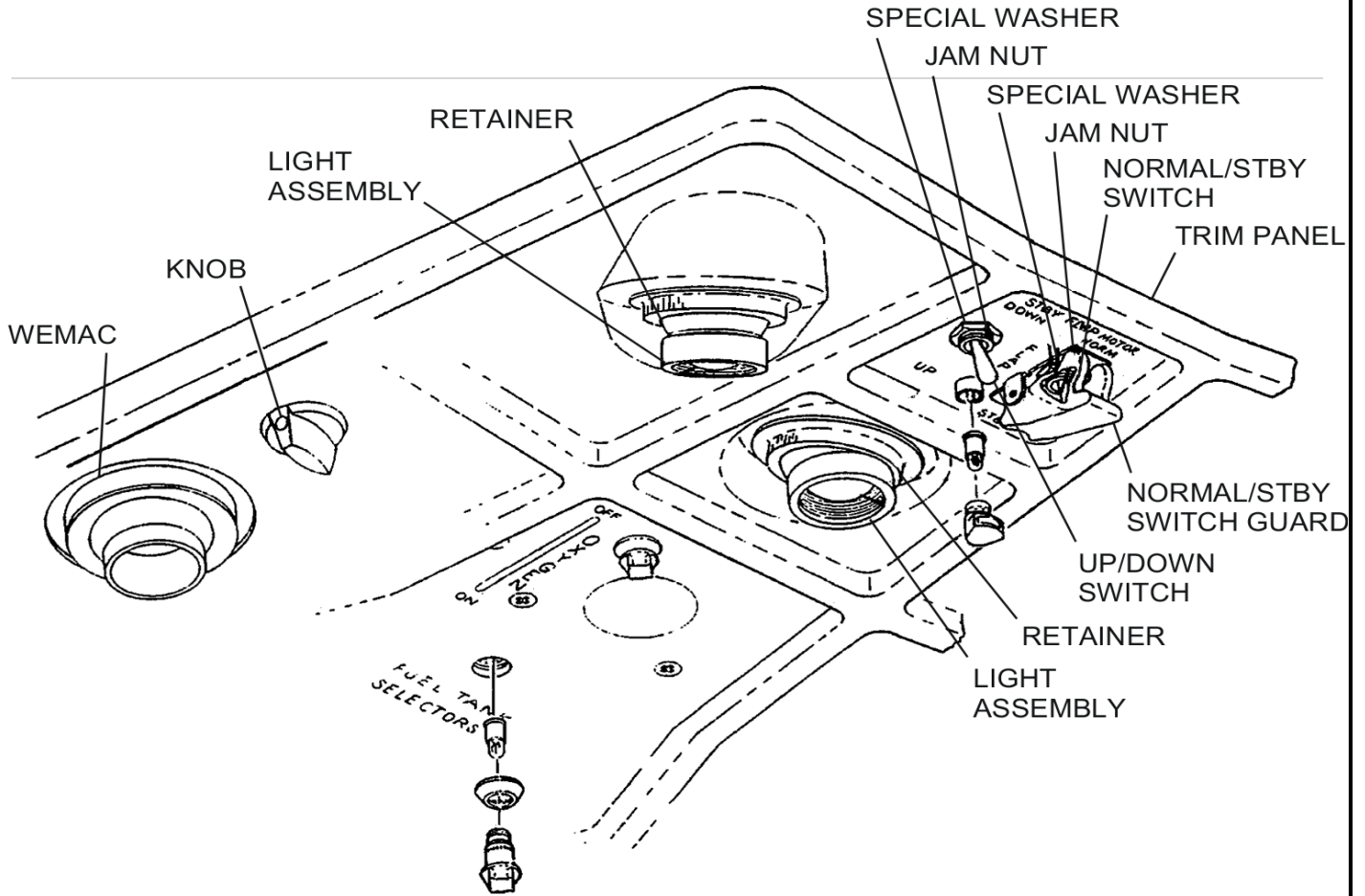


Figure 216 : Sheet 1 : Standby Flap Motor Switches

A22588

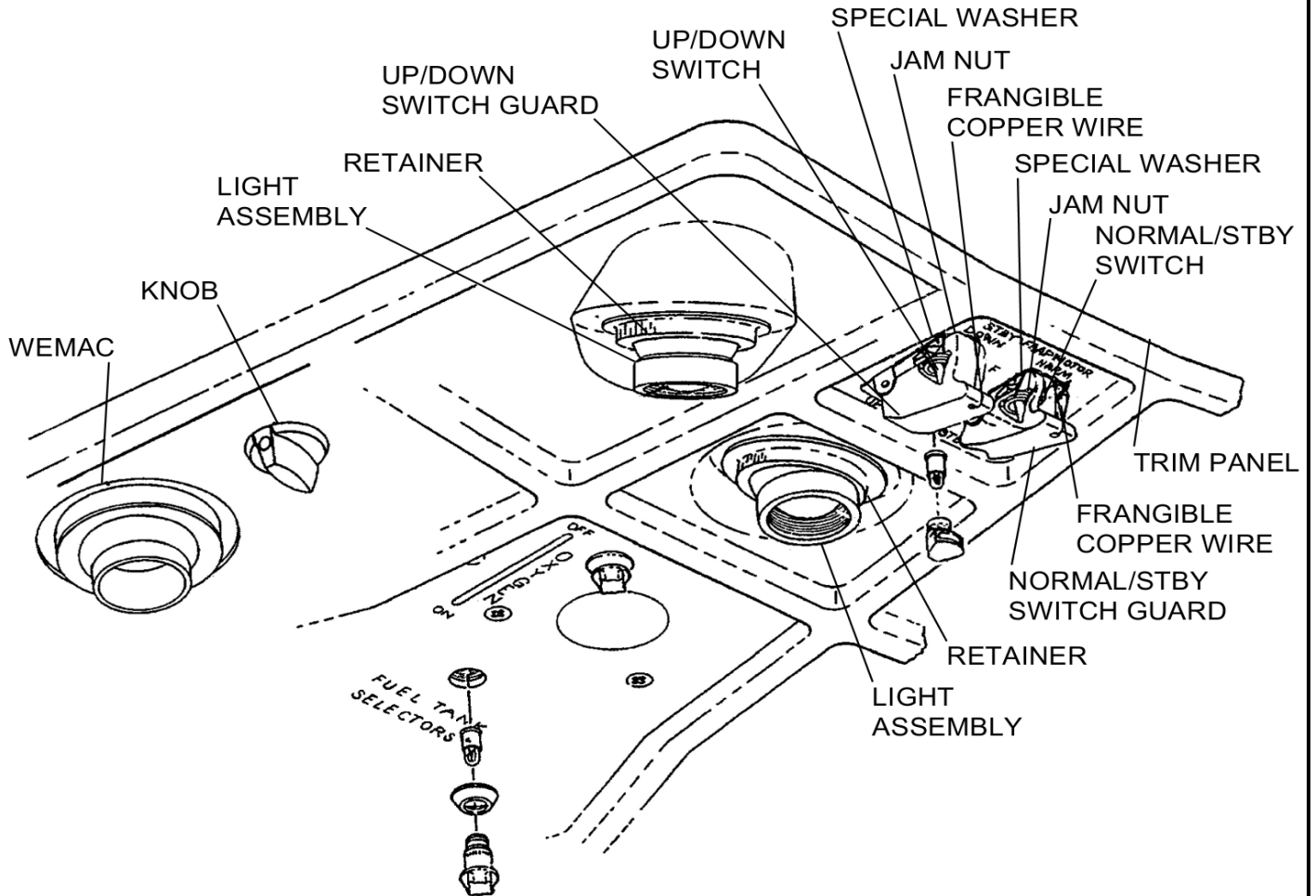


AIRPLANES 2080001 THRU 20800223 AND
AIRPLANES 208B0001 THRU 208B0326 NOT
INCORPORATING SK208-119

2618R3003

Figure 216 : Sheet 2 : Standby Flap Motor Switches

A22589



AIRPLANES 20800224 AND ON AND
 AIRPLANES 208B0327 THRU 208B2196 AND
 AIRPLANES 208B2198 THRU 208B4999
 AIRPLANES 20800001 THRU 20800223 AND
 AIRPLANES 208B0001 THRU 208B0326
 INCORPORATING SK208-119

2618R3003A

Figure 216 : Sheet 3 : Standby Flap Motor Switches

