

AILERON TRIM SYSTEM - MAINTENANCE PRACTICES

1. General

- A. This section includes information on removal, installation, and rigging of the aileron trim system. Also included are rebuilding procedures for aileron trim tab actuator. For lubrication requirements of the aileron trim system, refer to Chapter 12, Flight Controls Servicing.

2. Aileron Trim System Removal/Installation

- A. Remove Aileron Trim System (Refer to Figure 201).

- (1) Remove the screws and washers from aft and upper pedestal covers and pins from the trim wheel. Remove the wheel and aft cover from the pedestal; the upper cover can be moved out of the way without removing it from the pedestal.
- (2) Remove the windshield center post cover strip, loosen the overhead fuel console, and remove the access panels on the bottom of the wings to gain access to the trim system and the left wing aileron servo tab.
- (3) Remove the connecting links from chain and disconnect the up cable and down cable from the chain.
- (4) Loosen the screws and unseat the chain guards, allowing them to clear the chain drive sprocket. Disconnect the chain from the chain drive sprocket.
- (5) Remove the lock nuts from the unions at the supports.

NOTE: The up cables and down cables are routed through the channel in the windshield center post. Access to the center post channel is gained by removing the cover strip. The cover strip snaps on and off the center post channel and no fasteners are necessary. The strip is fabricated from aluminum and must be removed and replaced carefully.

- (6) Push the spring-loaded knurled ends of the connectors toward the up cable and down cable far enough to remove the ball-ends of the up cable and down cable from the connectors. Leave the connectors attached to the up cable and down cable.
- (7) Remove the cables from the system with the unions attached to both ends of the cables.
- (8) Remove ties from the cable mounts and the cables at the right wing ribs.
- (9) Remove lock nuts from the unions and disconnect the unions from the support.
- (10) Remove screws and disconnect the stop blocks from the cables.
- (11) At the left or right trim-tab actuator as applicable, remove the clip from the down cable turnbuckle.
- (12) Loosen the turnbuckle and disconnect the turnbuckle ends.
- (13) Remove the connecting links on the up cable and disconnect the cables from the chain.
 - (a) Remove the cables with the unions attached, from the left or right wing as applicable.

NOTE: To facilitate installation of the cables, attach a length of wire to the cables being removed from the airplane. Leave the wire in position, routed through the structure. Attach the cable to be installed to the wire and pull the cable in position with wire.

- (14) Remove actuator.
 - (a) Remove the bolt and spacer from the sprocket guard.
 - (b) Remove the cotter pins, nuts, washers, bolts, and bushings that attach the actuator pushrods to the right aileron trim tab. Disconnect the pushrods from the actuator and
 - 1 Remove the pushrods from the trim tab.
 - (c) Remove the cotter pins, nuts, washers, bolts, and bushings that attach the actuator pushrods to the left or right aileron trim tab actuator as applicable.
 - 1 Remove the pusrods from the trim tab actuator.
 - (d) Cut the safety wire and remove the bolts and washers from the actuator.
 - 1 Remove the actuator from the airplane and set it on bench.

- (15) Remove the connecting link from the chain and disconnect the chain from the primary sprockets.
- (16) Remove the groove pin and disconnect the secondary sprocket from the internal screw.

B. Install Aileron Trim System (Refer to Figure 201).

- (1) Put the left or right trim tab as applicable in a streamlined position.
- (2) Install the left or right actuator as applicable.
 - (a) Put the actuator in its correct position in the wing structure.
 - 1 Install the outboard bolt and washer that attach the trim-tab actuator to the airplane structure.
 - 2 Install the inboard bolt and washer that attach the trim-tab actuator to the airplane structure.
 - 3 Safety the bolts with wire.
 - (b) Put the pushrods in their correct position on the left or right aileron trim-tab actuator external screws as applicable.
 - 1 Install the bushings, bolts, nuts, and cotter pins that attach the pushrods to the trim tab.
 - (c) Rotate the secondary sprocket until the pushrods are aligned with the trim tab attach bracket.
 - (d) Put the pushrods in their correct position on the left or right aileron servo tab as applicable.
 - 1 Install the bushings, bolts, nuts, and cotter pins that attach the pushrods to the trim tab.
 - (e) Release the trim tab.
 - (f) Attach the chain to the secondary sprocket with the ends equidistant from the center of the sprocket.
 - (g) Replace the bolt and spacer on the sprocket guard.
- (3) Replace the cables, with unions and connectors attached, in the left or right wing as applicable.

NOTE: Before installing any cables in the system, lubricate the inside of the cable housings with Dow Corning Molykote DC 321R bonded lubricant spray.

NOTE: Make sure the cables are correctly routed through the wing ribs, and unions are installed in the supports. Tighten the lock nuts securely on both sides of the supports.

- (4) Find the cables on cable mounts in the wing ribs, and secure them with ties.
- (5) Attach the clevis end of the up cable to the chain and replace the connecting link.
- (6) Connect the trim-tab turnbuckle ends.
 - (a) Tighten the turnbuckle.
 - (b) When rigging procedures are complete, install a new clip in the turnbuckle.
- (7) Install stop blocks on the cables. Replace the screws, and the safety wire.

NOTE: For the location of the stop blocks, refer to Aileron Trim System Rigging.

- (8) Replace the cables with unions connected to each end of the cable.

NOTE: Make sure the cables are correctly routed from the pedestal through the windshield center post and the support. Tighten the lock nuts securely on both sides of the supports.
- (9) Attach the ball ends of the cables to the connectors. Attach the clevis ends of the cables to the chain. Replace the connecting links.

NOTE: If the chain has been removed from the sprocket, replace it with ends equidistant from center of the sprocket. Find the chain guards with dimples positioned in mating holes in the support. Tighten the screws.

- (10) Replace the windshield cover strip on the center post. Tighten the overhead fuel console, and replace the access panels on the bottom of the wings.
- (11) Install the aft and upper pedestal covers and replace the mounting screws and washers. Install the trim wheel and replace the roll pins.
- (12) Do the aileron trim system rigging. Refer to Aileron Trim System Rigging.

3. Aileron Trim System Rigging

A. Rigging Procedures (Refer to Figure 201).

- (1) Secure the right aileron trim tab in the streamlined position.
- (2) Remove the mounting screws from the aft upper pedestal covers, roll pins, and trim wheel.
- (3) Remove the roll pin and aileron trim indicator wheel from the shaft, set the indicator in the neutral position. Replace

the aileron trim indicator wheel and roll pin.

- (4) Loosen the screws in the stop blocks sufficiently to allow cables to move until either of the cables touches a union.
- (5) Release the right aileron trim tab and install an inclinometer set on zero degrees.
- (6) Turn the trim wheel counterclockwise until the inclinometer reads 15 degrees up, +2 or -2 degrees.
- (7) Move up the stop block to touch the union. Tighten the screw and safety wire.
- (8) Turn the trim wheel clockwise until the inclinometer reads 15 degrees down, +2 or -2 degrees.
- (9) Move down the stop block to touch the union. Tighten the screw and safety wire.
- (10) Remove the inclinometer from the right aileron trim tab. Remove the roll pin and disconnect the trim wheel from the shaft.
- (11) Install the aft and upper pedestal covers and replace the mounting screws.
- (12) Install the trim wheel on the shaft and replace the roll pins.
- (13) Rotate the trim wheel to stops in both directions and look at the clearance between the indicator and the aft cover. It can be necessary to hand form the indicator in order to clear the slot in the aft cover.
- (14) On Airplanes 20800001 thru 20800081, to set the cable tension at 3.0 pounds (13.34 N) maximum, adjust the locknut on the ends of the cable housings away from the bulkhead to increase tension, or toward the bulkhead to decrease tension.

NOTE: If adjustment of the cable housing does not cause tension in the cable, it is recommended that the 2660029-1 cable assembly be replaced with the 2660029-7 cable assembly.

- (15) Beginning with Airplanes 20800082 and On, to set cable tension at 3.0 pounds (13.34 N) maximum, rotate the barrel in the required direction. Use safety wire to attach the barrel.

NOTE: If barrel rotation does not cause tension in the cables, adjust the locknut on the ends of the cable housings away from the bulkhead to increase tension or toward the bulkhead to decrease tension.

CAUTION: Make sure the system is rigged correctly. Turn the trim wheel counterclockwise to move the trim tab up. Maximum misalignment between the ailerons and the aileron trim tab trailing edges must not exceed 0.0 inch, +0.5 or -0.5 inch (0.0 mm, +12.7 or -12.7 mm).

- (16) Make sure the system is correctly rigged.
- (17) Do the Aileron Trim System Lubrication. Refer to Aileron Trim System - Inspection/Check, and to Chapter 5, Inspection Time Limits, for the lubrication intervals.

4. Aileron Trim Tab Actuator Disassembly (Airplanes with 2660044-1 Trim Tab Actuator Installed)

A. Disassembly Procedures (Refer to Figure 202).

- (1) Cut the safety wire and remove the screws. Disconnect the chain guard from the actuator housing. Remove the plug button from the secondary sprocket. Disconnect the repair link and remove the chain from the secondary sprockets.
- (2) Remove the groove pins, and disconnect the primary sprocket and secondary sprockets from the internal screws.

NOTE: If necessary, apply heat to the sprockets to loosen the Loctite seal between sprockets and the internal screws.
- (3) Put index marks on the bearings and the actuator housing. Remove the groove pins from the actuator housing, and disconnect the bearings from the actuator housing. Remove and discard the O-rings from the bearings.

NOTE: If the bearings are to be reused, they must be replaced in the same location and relative position from which they were removed.
- (4) Tap the ends of the external screws on a hard surface to remove the bearings and the races.
- (5) Tap the internal screws at the location with groove holes to remove the bearings and races.
- (6) Remove the internal screws from the actuator housing and disconnect the bearings, races, and external screws from the internal screws.
- (7) Examine the condition of the bearings in the external screw and replace if necessary.

NOTE: Use an arbor press and mandrel.

NOTE: Clean the actuator components with solvent and dry thoroughly. Do not clean the bearings, and do not allow cleaned parts to touch lint or dirt.

5. Aileron Trim Tab Actuator Disassembly (Airplanes with 2661615-1 Trim Tab Actuator Installed)

A. Disassembly Procedures (Refer to Figure 202).

- (1) Cut the safety wire and remove the screws. Disconnect the chain guard from the actuator housing. Remove the plug button from the secondary sprocket. Disconnect the repair link and remove the chain from the secondary sprockets.
- (2) Remove the groove pins, and disconnect the secondary sprockets and the primary sprocket from the internal screws. Remove the screw and end plate.

NOTE: If necessary, apply heat to the sprockets to loosen the Loctite seal between sprockets and the internal screws.

- (3) Cut the safety wire from the screws and remove the screws and the end plate.
- (4) Tap the ends of the external screws on a hard surface to remove the wipers and bearings. If the bearings are to be reused, keep the two halves together as a pair as they are removed. Unscrew the external screw from the internal screws.

NOTE: If the bearings are to be reused, they must be replaced in the same location and relative position from which they were removed.

- (5) Tap the internal screws at the location with groove holes to remove bearings.
- (6) Remove the internal screws from the actuator housing.
- (7) Examine the condition of the bearings in the external screw and replace if necessary.

NOTE: Use an arbor press and mandrel.

NOTE: Clean the actuator components with solvent and dry thoroughly. Do not clean the bearings, and do not allow cleaned parts to touch lint or dirt.

6. Aileron Trim Tab Actuator Disassembly (Airplanes with 2661615- 9 or 2661615-10 Trim Tab Actuator Installed)

A. Disassembly Procedures (Refer to Figure 202).

- (1) Cut the safety wire and remove the two screws that attach the chain guard to the actuator.
- (2) Remove the chain guard.
- (3) Drive the groove pins from the secondary sprockets.
- (4) Remove the primary sprocket; plug button, secondary sprockets, and chain from the internal screws.

NOTE: If necessary, apply heat to the sprockets to loosen the Loctite seal between sprockets and the internal screws.

- (5) Cut the safety wire from the center screw and remove the center screw that secures the end plate.
- (6) Use a soft hammer to tap lightly against the externally threaded screws to remove the bearings.
- (7) Remove the screws that secure the end plate.
- (8) Use a soft hammer to tap lightly against the internally threaded screws to remove the split bearings.
- (9) Remove the externally threaded screws and the internally threaded screws from the actuator housing.
- (10) Separate the split bearings and remove them from the externally threaded screws.

NOTE: If the bearings are to be reused, they must be put back into the same relative position from which they were removed.

- (11) Remove and discard the O-rings from the bearings.
- (12) Remove the shank seal from the bearings.
- (13) Remove the externally threaded screws from the internally threaded screws.
- (14) Remove the wiper ring from the shaft of the externally threaded screw.
- (15) Examine the condition of the bearings in the external screw and replace if necessary.

NOTE: Use an arbor press and mandrel.

NOTE: Clean the actuator components with solvent and dry thoroughly. Do not clean the bearings, and do not allow cleaned parts to touch lint or dirt.

7. Inspection and Repair of Aileron Trim Tab Actuator

A. Inspection Criteria.

NOTE: Remove actuator from system. Clean, inspect, and lubricate detail parts. Replace any components that show damage or excessive wear. Refer to Chapter 5 for Time Limits.

- (1) Clean the detail parts with a solvent in a well ventilated area away from sparks or open flame. Avoid the inhalation of solvent vapors.
- (2) Dry the parts with dry, compressed air, lint free cloth or lint free disposable tissue.
- (3) Examine the parts visually, preferably under magnification. If any parts show wear or damage, do a dimensional examination and replace parts, if necessary.
- (4) If the finish on the actuator housing or chain guard has worn away or bare metal is exposed, apply Iridite to the part. Apply two coats of nonchromated primer and repaint with lacquer.
- (5) The finish must consist of vivid orange or white lacquer. For a list of Iridite, primers and paints required for the actuator, refer to Chapter 27, Flight Controls - General.

8. Lubrication and Assembly of Aileron Trim Tab Actuator (Airplanes with 2660044-1 Trim Tab Actuator Installed)

A. Lubrication/Assembly Procedures (Refer to Figure 202).

NOTE: Lubricate each detail part of the actuator assembly before installation, using 5565450-28 light consistency silicone grease.

- (1) Install the new O-rings in bearings.
- (2) Install the internal screws with the groove pin hole location up and the actuator housing in an upright position with the flat end face without screw hole location down.
- (3) Replace the races and bearings. Find the bearings on the index marks and lightly tap or press them into the actuator housing until the groove pins can be installed through the actuator and bearings.
- (4) Put the actuator housing in an upright position with the flat end face without screw hole location up.
- (5) Install the races and bearings in the actuator housing. Make sure the bearings are positioned on index marks, and lightly tap or press them into the actuator housing until the groove pins can be installed through the housing and bearings.

NOTE: Steps (2) through (5) are applicable if existing bearings are used. If new bearings are required, steps (6) through (15) are applicable.

- (6) Heat-soak the new bearings in SAE 20-weight oil for 20 minutes at 140°F (60°C). Cool the bearings to ambient temperature before installation.
- (7) Install the internal screws in the actuator housing with the groove pin hole location up and the actuator housing in an upright position with the flat end face without screw hole location down.
- (8) Install the races, bearings, and a 0.004 to 0.006 inch (0.102 to 0.152 mm) shim on the groove pin hole location of the internal screws.
- (9) Replace the bearings, press or tap them lightly until the bearings are flush with the end of the actuator housing.
- (10) Put the actuator housing in an upright position with the bearings on bottom.
- (11) Install the races and the bearings in the actuator housing. Press or tap lightly until the bearings are flush with the end of the actuator housing.
- (12) Put a clamp securely across the assembled bearings to prevent any linear movement of the internal screws.
- (13) Drill 0.094 inch (2.40 mm) diameter holes (4 positions) through the existing 0.062 inch (1.60 mm) diameter holes in the actuator housing and through the bearings.

NOTE: For an oversize groove pin, order Part Number GP3H094X0625-14.

- (14) Release the clamp and disassemble the actuator sufficiently to remove a 0.004 to 0.006 inch (0.102 to 0.152 mm) shim from the actuator housing.
- (15) Reassemble the actuator and install four 0.094 inch (2.40 mm) groove pins through the actuator housing and bearings.
- (16) Replace the external screws in the actuator housing at the flat end face without screw hole location.

NOTE: After the external screw threads touch the internal screw threads, make sure they are not cross-threaded, and turn the external screws all the way in. Engagement should be smooth with no tight spots. If the threads drag or tight spots are found, disassemble the actuator and

replace the internal and external screws.

- (17) Apply No. 609 Loctite to the mating surfaces of the primary sprocket, secondary sprockets, and internal screws. Install the sprockets and replace the groove pins and plug button.
- (18) Proceed to Inspection and Rigging Procedures - Aileron Trim Tab Actuator. (Airplanes with 2660044-1 Trim Tab Actuator Installed), and complete the assembly of the aileron trim tab actuator.

9. Lubrication and Assembly of Aileron Trim Tab Actuator (Airplanes with 2661615-1 Trim Tab Actuator Installed)**A. Lubrication/Assembly Procedures (Refer to Figure 202).**

- (1) Before assembly, apply a 0.118 inch (3.00 mm) coating of 5565450-28 light consistency silicone grease on the threads of the internal screws, outer surface of internal screws, and on the outside diameter of the external screws.
- (2) Install the internal screws with the groove pin hole location up and the actuator housing in the upright position with the flat end face without screw hole location down.
- (3) Install the bearings on the internal screws, then install the end plate on the actuator housing with the screw.

NOTE: After the installation of the end plate, the outer race of the bearing must not move in the actuator housing.

- (4) Lubricate the threads of the external screw.
- (5) Heat the wipers to make them more pliable.

NOTE: Be very careful not to damage the wipers, when installing them over the external screw threads.

- (6) Position the end plate and wipers over the external screws. Inspect the wipers to make sure the threads did not damage the wipers during installation. Make sure the flat side of the wiper is installed to face the bearing.
- (7) Connect the external screws to the internal screws.
- (8) Fill the bearing halves with 5565450-28 grease.
- (9) Position the bearing halves around the external screws and press the bearings into the actuator housing.
- (10) Install the wipers in the actuator housing, then install the end plate on the actuator housing using the screws.

NOTE: After the external screw threads touch the internal screw threads, make sure they are not cross-threaded and turn the external screws all the way in. Engagement should be smooth with no tight spots. If the threads drag or tight spots are found, disassemble actuator and replace the internal and external screws.

- (11) Safety wire the screws.
- (12) Apply No. 609 Loctite to mating surfaces of the secondary sprockets and the primary sprocket and install them on the internal screws using the groove pins.
- (13) Apply common RTV sealant to the plug button and the secondary sprocket and install the plug button in the secondary sprocket.
- (14) Work the screws all the way in and out 2 to 3 times. Wipe the excess grease from both ends after each cycle.

NOTE: There must be no end play between the bearings, inner race, internal screws and sprockets when the groove pins are installed.

NOTE: After the assembly, the maximum longitudinal movement of the external screws and the actuator housing is not to exceed 0.007 inch (0.177 mm).

- (15) Install the chain guard on the actuator housing using the screws. Apply No. 609 Loctite to the screws before installation. Proceed to Inspection and Rigging Procedures - Aileron Trim Tab Actuator (Airplanes with 2661615-1 and 2661615-9 Trim Tab Actuator Installed).

10. Lubrication and Assembly of Aileron Trim Tab Actuator (Airplanes with 2661615- 9 or 2661615-10 Trim Tab Actuator Installed)**A. Lubrication/Assembly Procedures (Refer to Figure 202).**

- (1) Before assembly, apply an 0.118 inch (3.00 mm) coating of 5565450-28 light consistency silicone grease on the threads of the internal screws, outer surface of internal screws, and on the outside diameter of the external screws.
- (2) Install the internal screws with the groove pin hole location up and the actuator housing in the upright position with the wiper end location down.

- (3) Install the bearings on the internal screws, then install the end plate on the actuator housing with the screw.
NOTE: After the installation of the end plate, the outer race of the bearing must not move in the actuator housing.
- (4) Lubricate the threads of the external screw.
- (5) Apply heat to the wipers to make them more pliable if necessary.
NOTE: Be careful not to damage the wipers, when installing them over the external screw threads.
- (6) Position the end plate and wipers over the external screws.
NOTE: Inspect the wipers to make sure the threads did not damage the wipers during installation. Make sure the flat side of the wiper is installed towards the bearing.
- (7) Position the new O-rings onto the external screws with 5565450-28 grease.
- (8) Turn the external screws into the internal screws.
- (9) Position the bearing halves over the O-rings around the external shafts and press the bearings into the actuator housing.
NOTE: Seal the shank of the bearing halves with Pro-Seal 870, Type X, Class B sealant, (U544044).
- (10) Install the wipers in the actuator housing.
- (11) Install the end plate on the actuator housing with the screws.
NOTE: After the external screw threads touch the internal screw threads, make sure they are not cross-threaded and turn the external screws in until seated. Engagement should be smooth with no tight spots. If the threads drag or tight spots are found, disassemble the actuator and replace the internal and external screws.
- (12) Safety wire the screws.
- (13) Apply No. 609 Loctite to mating surfaces of the secondary sprockets and the primary sprocket and install them on the internal screws using the groove pins.
- (14) Apply common RTV sealant to the plug button and the secondary sprocket and install the plug button in the secondary sprocket.
- (15) Operate the actuators through two to three complete cycles of travel. Wipe the excess grease from both ends after each cycle.
NOTE: There must be no end play between the bearings, inner race, internal screws and sprockets when the groove pins are installed.
NOTE: After the assembly, the maximum longitudinal movement of the external screws and the actuator housing is not to exceed 0.007 inch (1.77 mm).
- (16) Apply Loctite 609 to the screws, then install the chain guard on the actuator housing. Proceed to Inspection and Rigging Procedures - Aileron Trim Tab Actuator (Airplanes with 2661615-1 and 2661615-9 Trim Tab Actuator Installed).
- (17) Complete the Inspection and Rigging Procedures. Refer to Inspection and Rigging Procedures - Aileron Trim Tab Actuator (Airplanes with 2661615-1 and 5661615-9 Trim Tab Actuator Installed).

11. Inspection and Rigging Procedures - Aileron Trim Tab Actuator (Airplanes with 2660044-1 Trim Tab Actuator Installed)

- A. Inspection/Rigging Procedures (Refer to Figure 202).
 - (1) After assembling the detailed parts, turn the primary sprocket clockwise, then counterclockwise far enough to get approximately 0.75 inch (19.05 mm) linear movement of the external screws in each direction. Movement must be smooth in each direction with no torque change in one direction or the other.
NOTE: Starting torque of the primary sprocket must not exceed 4.76 inch-pounds (0.54 N.m) at the ambient temperature of 65°F (18°C).
 - (2) The bearings in the external screws must be aligned within 0.010 inch (0.254 mm) before installation of the actuator in the system.
NOTE: A surface plate or table, two threaded rods or bolts (10-24 NC 3A thread), V-blocks, an angle block, clamps, height gage and a dial indicator (or equivalent precision measuring equipment)

are necessary to perform this procedure.

- (3) Attach the bolts or threaded rods to both sides of the actuator housing at the location that contains bearings with O-ring. Bolts or rods must be tightened.
- (4) Mount the unit in V-blocks in a vertical position.
- (5) Turn one of the external screws in the required direction to allow the installation of the No. 11 drill rod (0.191 inch (4.85 mm)) through both of the bearings.
- (6) Examine the dimension from the top of the bolts or rods at the location that contains bearings with O-ring to the top of the No. 11 drill rod outside of each bearing.
- (7) Remove the No. 11 drill rod and turn one of the screws in the required direction. Replace the No. 11 drill rod through the bearings and examine the alignment. Continue to turn the screws as required to align the bearings within 0.010 inch (0.254 mm).

NOTE: If the bearings cannot be aligned to 0.010 inch (0.254 mm) with the chain removed, turn one of the secondary sprockets one or two teeth in the desired direction. Secondary sprockets have two sets of mounting holes positioned 75 degrees apart. It can be necessary to move the sprocket from one set to the other. If it is determined that the excessive free play of the aileron trim tab is caused by the actuator, internal screws and external screws must be replaced along with any detail part worn beyond dimensional tolerance. However, if special optical inspection equipment is available and it is verified that threads on the internal screw and external screw are not worn beyond dimensional tolerance, the screws can be installed again in the assembly.

- (8) Install the chain on the secondary sprockets and replace the connector link.
- (9) Install the chain guard on the actuator housing and replace the screws. Safety wire the screws.

12. Inspection and Rigging Procedures - Aileron Trim Tab Actuator (Airplanes with 2661615-1, 2661615-9, or 2661615-10 Trim Tab Actuator Installed)

A. Inspection/Rigging Procedures (Refer to Figure 202).

- (1) After assembling the detailed parts, turn the primary sprocket clockwise, then counterclockwise far enough to get approximately 0.75 inch (19.05 mm) linear movement of the external screws in each direction. Movement must be smooth in each direction with no torque change in either direction.

NOTE: The starting torque of the primary sprocket must not be more than three inch-pounds at the ambient temperature of 65°F (18°C).

- (2) Align the bearings in the external screws to within 0.010 inch (0.254 mm) before installation of the actuator in the system.

NOTE: A surface plate or table, two threaded rods or bolts (10-24 NC 3A thread), V-blocks, an angle block, clamps, height gage and a dial indicator (or equivalent precision measuring equipment) are necessary to do this procedure.

- (3) Attach the bolts or threaded rods to both sides of the actuator housing at the location that contains bearings with O-ring. The bolts or rods should be tightened.
- (4) Mount the unit in the V-blocks in a vertical position.
- (5) Turn one of the external screws in the required direction to allow installation of the No. 11 drill rod (0.191 inch (4.85 mm) diameter) through both of the bearings.
- (6) Measure the dimension from the top of the bolts or rods at the location that contains bearings with O-ring to the top of the No. 11 drill rod outside of each bearing.
- (7) Remove the No. 11 drill rod and turn one of the screws in the required direction. Replace the No. 11 drill rod through the bearings and examine the alignment. Continue to turn the screws as required to align the bearings within 0.010 inch (0.254 mm).

NOTE: If the bearings cannot be aligned to 0.010 inch (0.254 mm) with the chain removed, turn one of the secondary sprockets one or two teeth in the desired direction. The secondary sprockets have two sets of mounting holes positioned 75 degrees apart. It can be necessary to move the sprocket from one set to the other.

NOTE: If it is determined that the excessive free play of the aileron trim tab is caused by the actuator,

internal screws and external screws must be replaced along with any detail part worn beyond the dimensional tolerance. However, if special optical inspection equipment is available and it is verified that the threads on the internal screw and external screw are not worn beyond the dimensional tolerance, the screws can be installed again in the assembly.

- (8) Install the chain on the secondary sprockets and replace the connector link.
- (9) Install the chain guard on the actuator housing and install the screws. Apply No. 609 Loctite to the screws before installation.

Figure 201 : Sheet 1 : Aileron Trim Installation

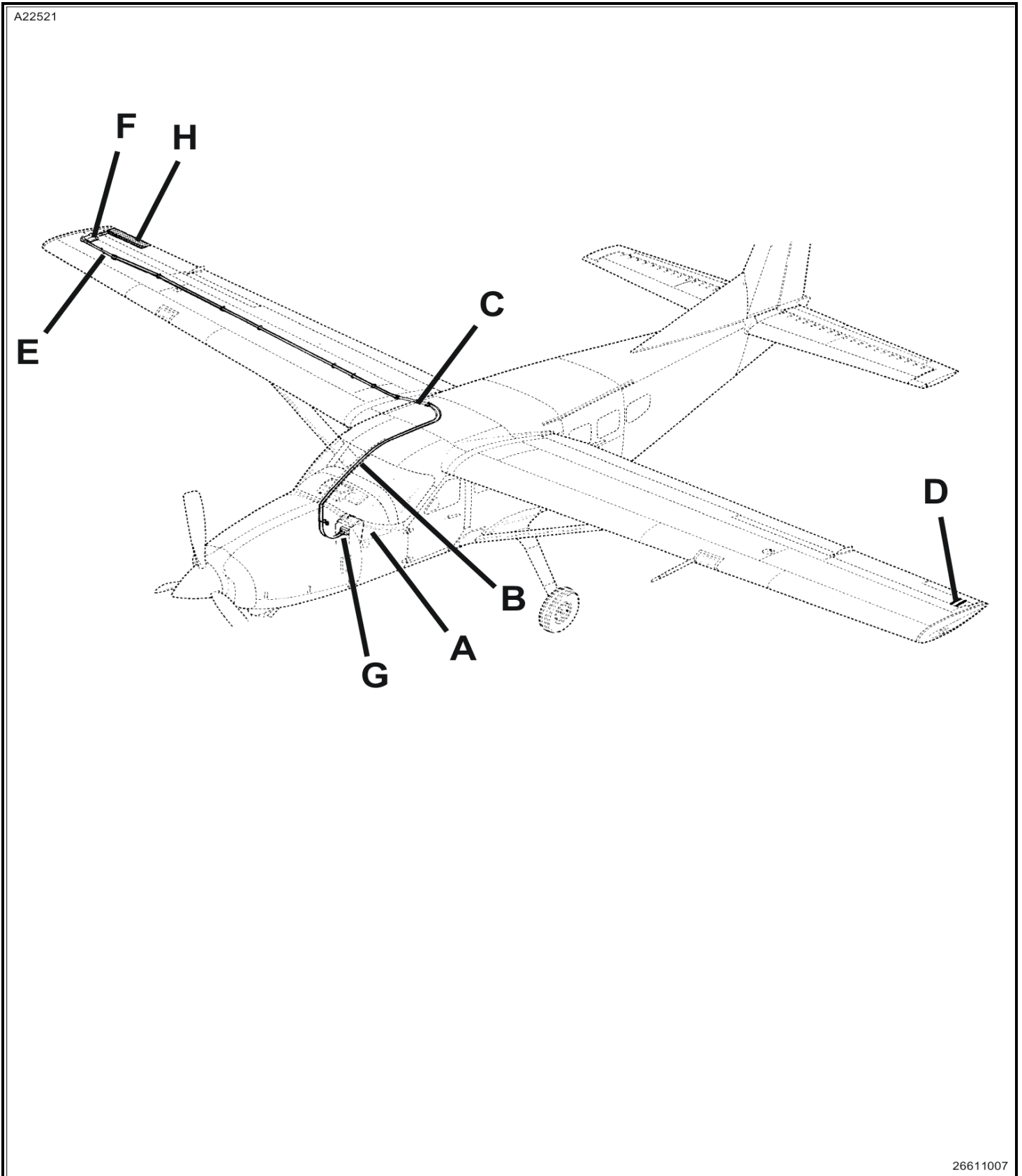
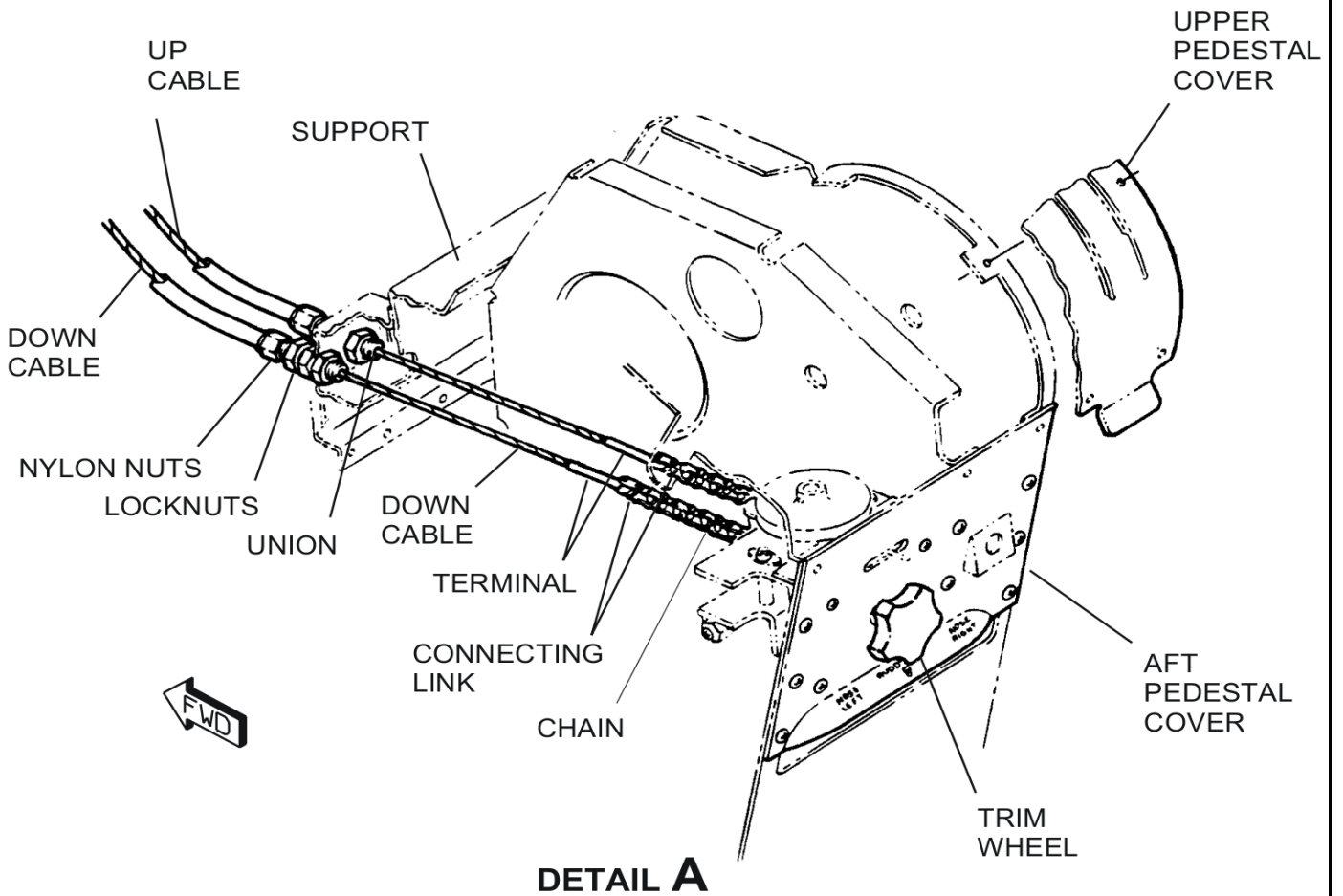


Figure 201 : Sheet 2 : Aileron Trim Installation

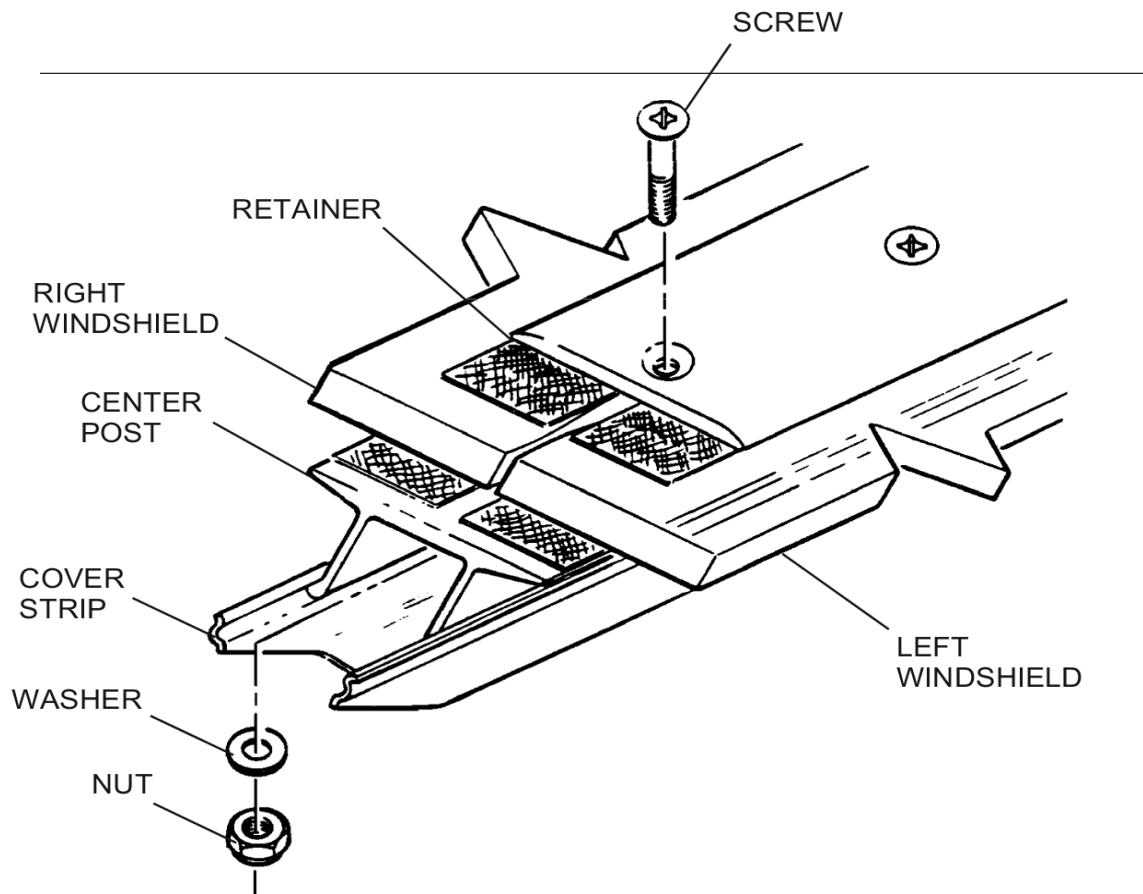
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Figure 201 : Sheet 3 : Aileron Trim Installation

A22524

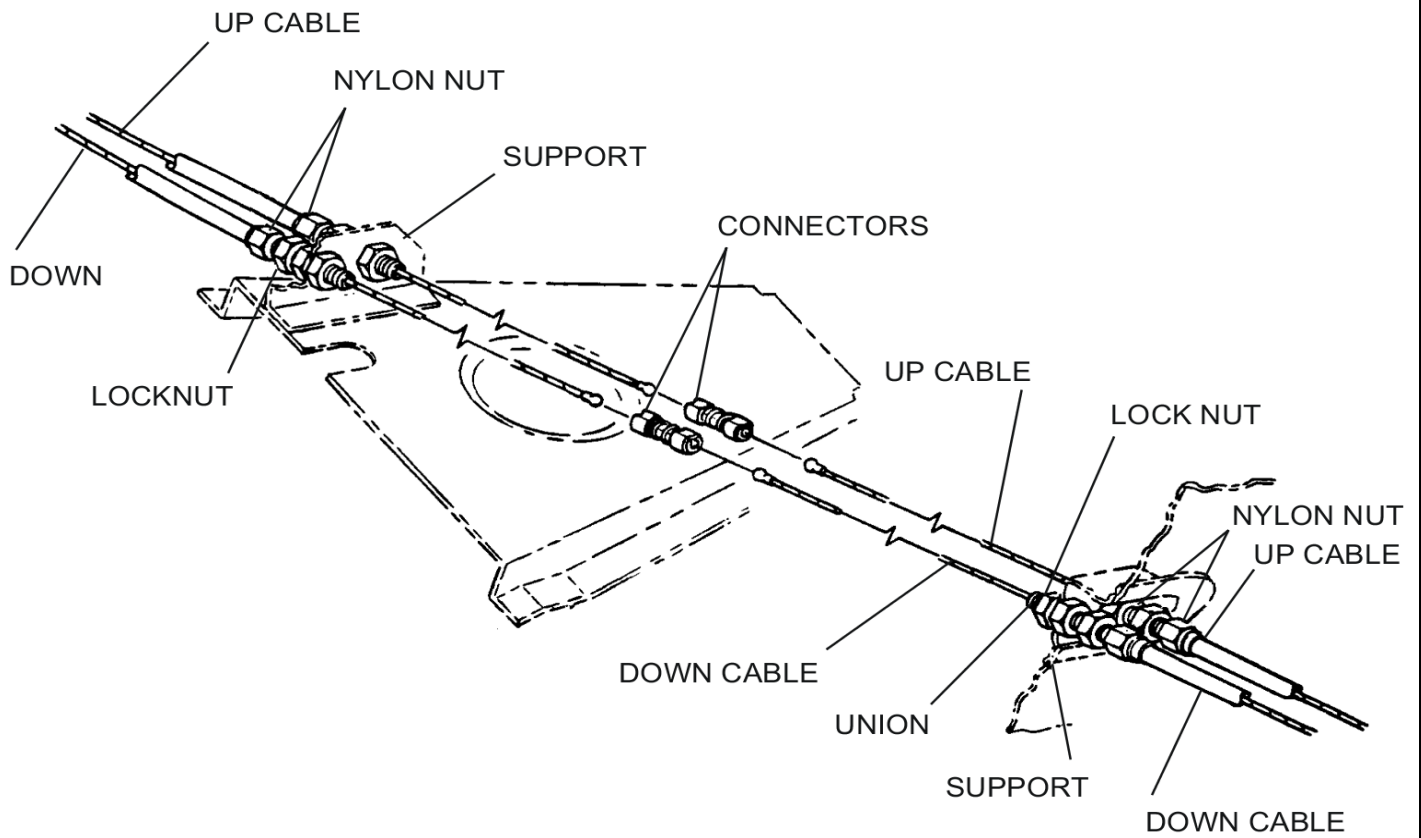


DETAIL B

B2661X1032

Figure 201 : Sheet 4 : Aileron Trim Installation

A22526

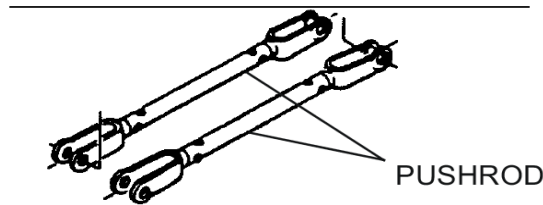
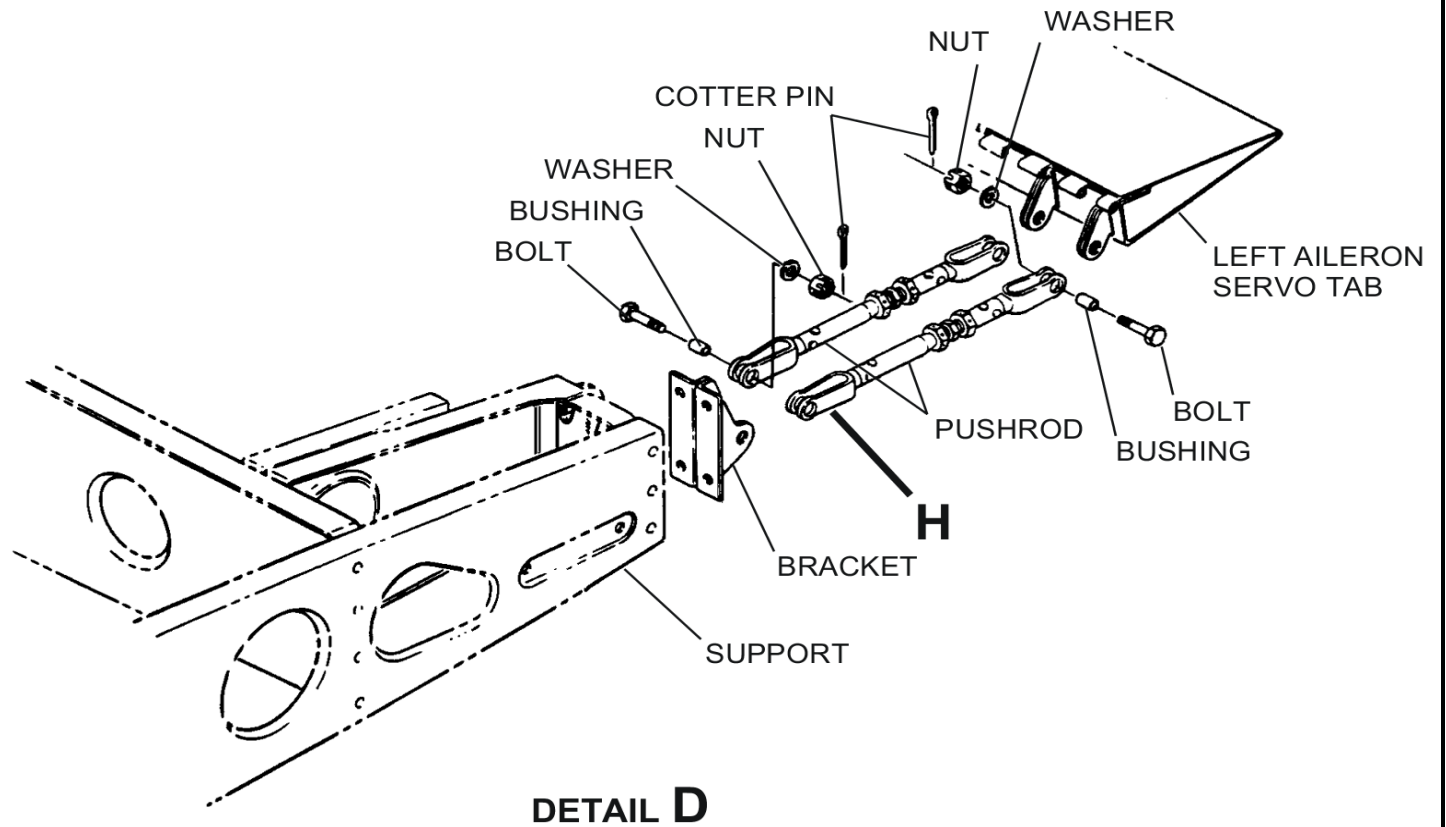


DETAIL C

C26612007A

Figure 201 : Sheet 5 : Aileron Trim Installation

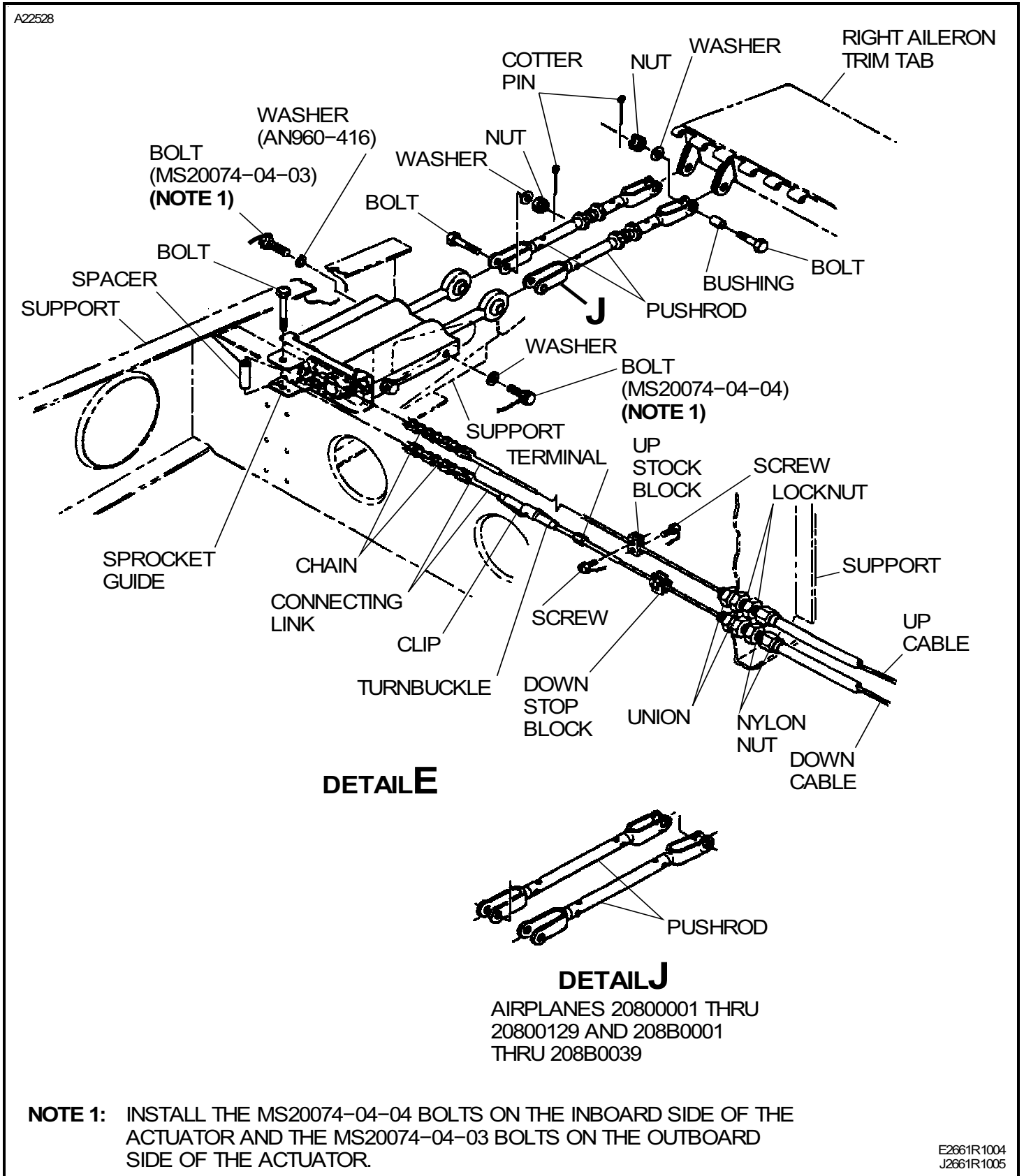
A22527



DETAIL H
AIRPLANES 20800001 THRU
20800129 AND 208B0001
THRU 208B0039

C26612007A

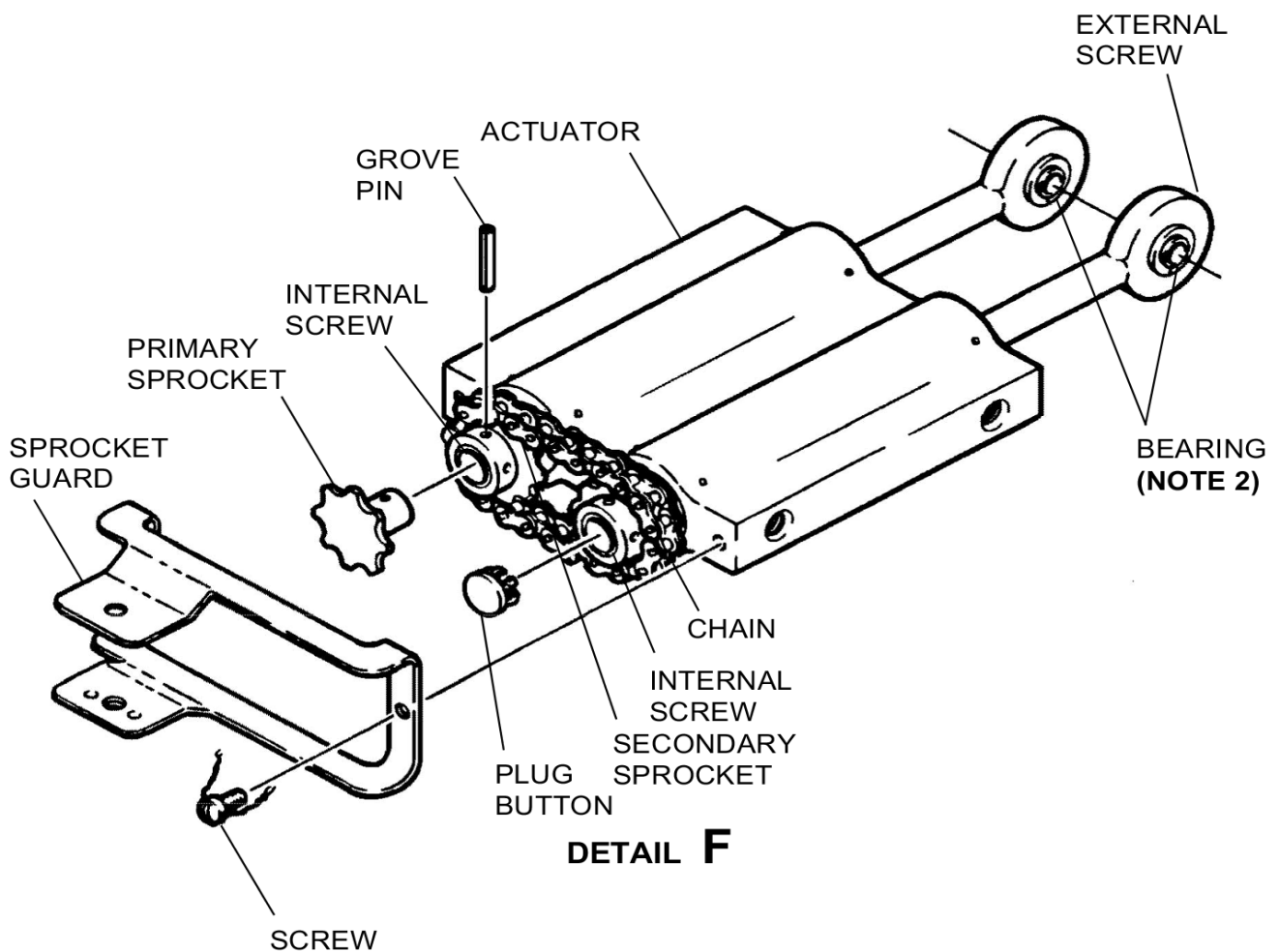
Figure 201 : Sheet 6 : Aileron Trim Installation



E2661R1004
 J2661R1005

Figure 201 : Sheet 7 : Aileron Trim Installation

A22529

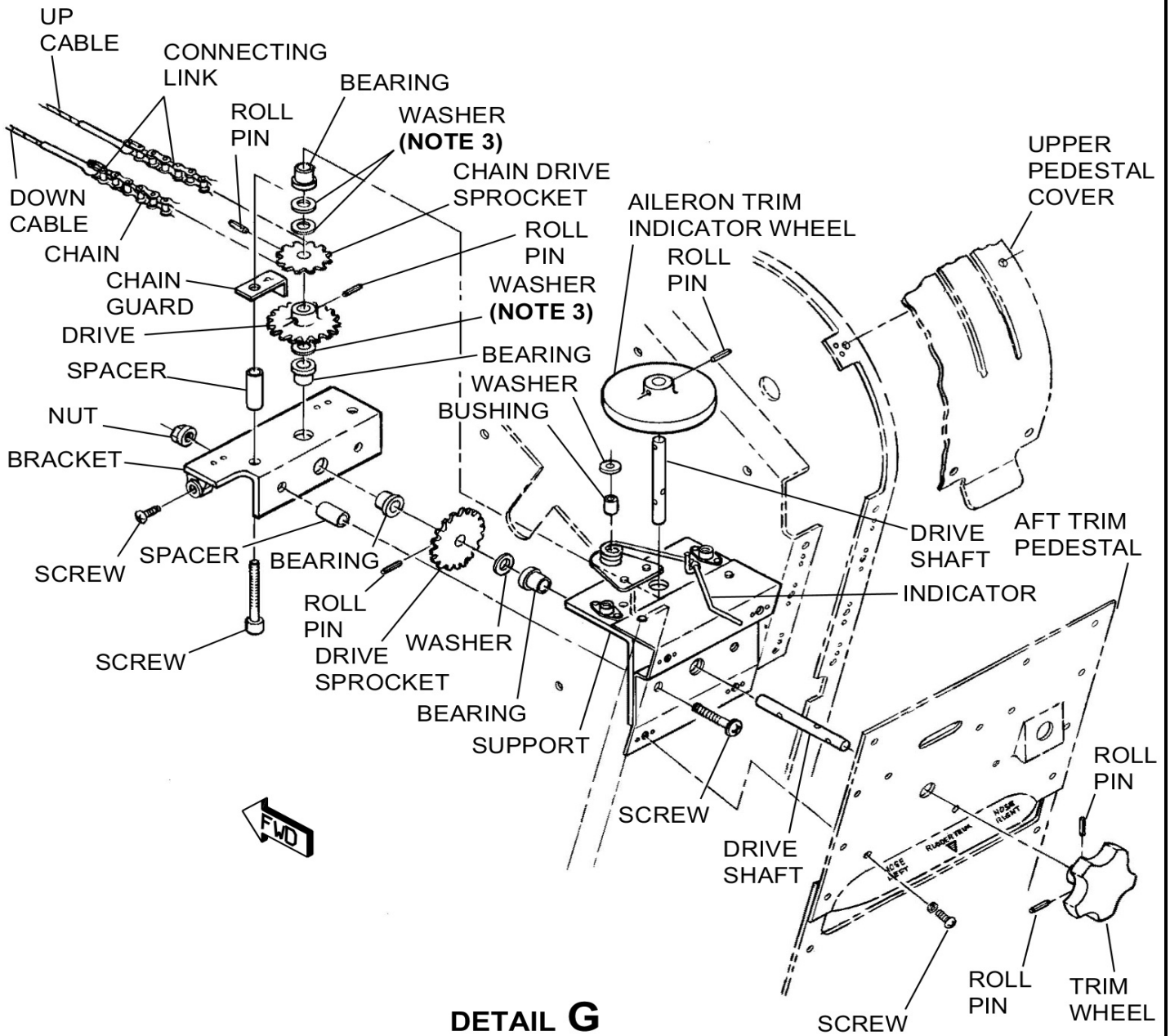


NOTE 2: THE BEARINGS IN THE EXTERNAL SCREWS MUST BE ALIGNED WITHIN 0.010 INCH TOTAL INDICATOR READING BEFORE INSTALLING THE ACTUATOR IN THE SYSTEM. INSTALL THE NUMBER 11 PIN THROUGH THE BEARINGS AND TAKE THE INDICATOR READINGS OVER THE TOP OF THE PIN.

F26612017

Figure 201 : Sheet 8 : Aileron Trim Installation

A22530

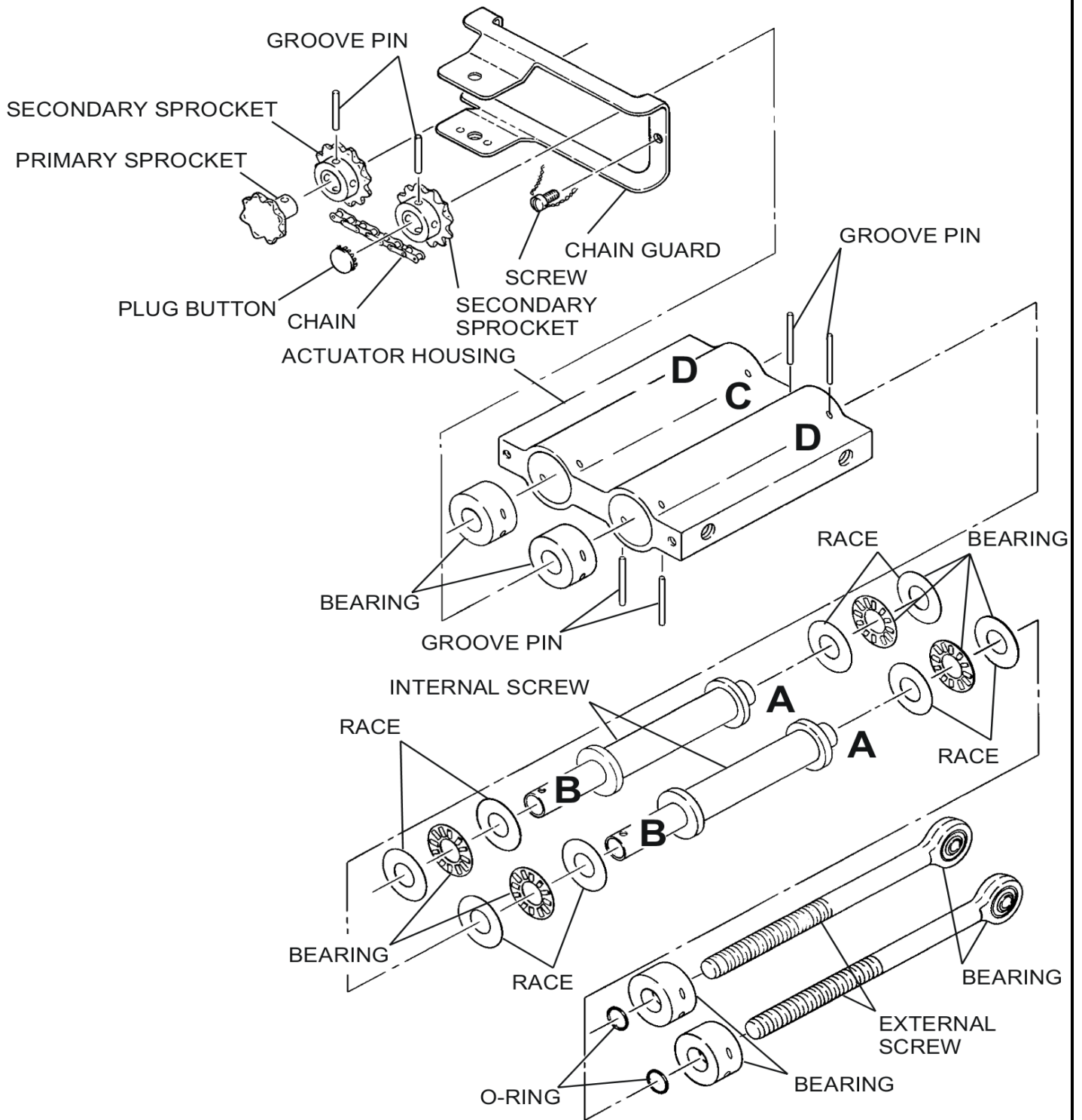


NOTE 3: SHIM THE TOP AND BOTTOM USING AN960-416 AND AN960-416L WASHERS AS REQUIRED TO PROVIDE PROPER ENGAGEMENT OF THE SPROCKET.

G26612010

Figure 202 : Sheet 1 : Aileron Trim Tab Actuator Disassembly/Assembly

A22532



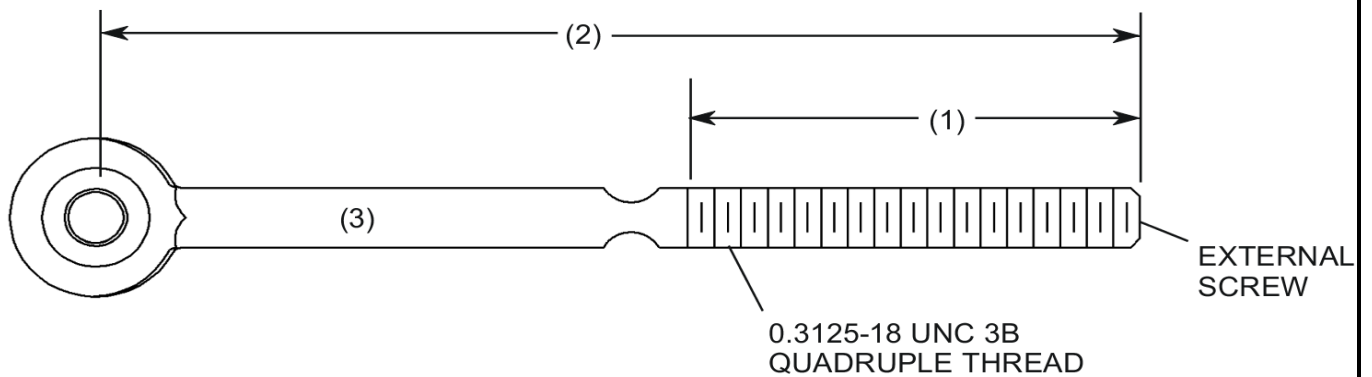
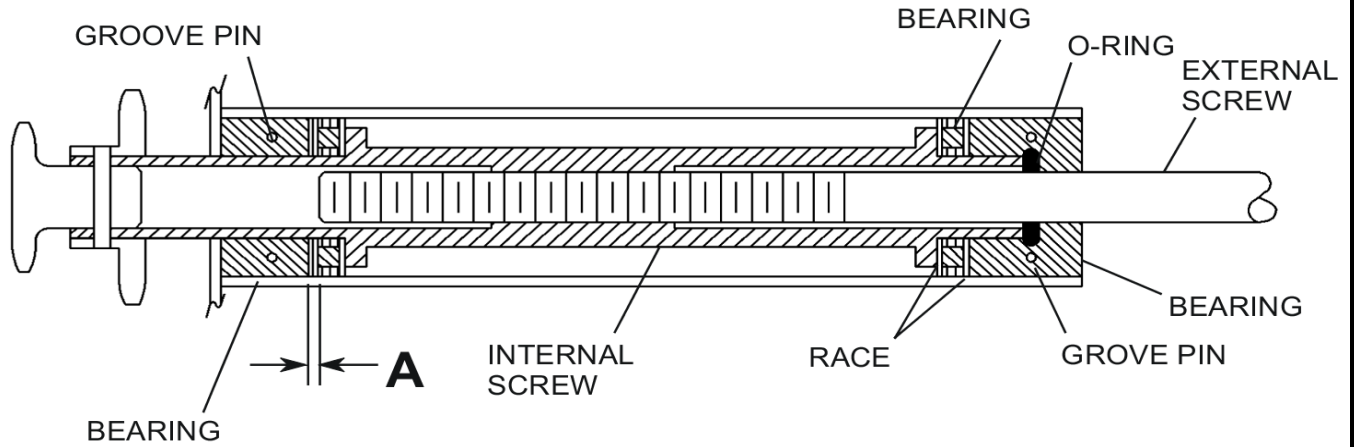
AIRPLANES 2080001 THRU 20800237
 AND 208B0001 THRU 208B0389

2660044-1 TRIM TAB ACTUATOR

265612002

Figure 202 : Sheet 2 : Aileron Trim Tab Actuator Disassembly/Assembly

A22533



ROD SHALL BE STRAIGHT WITHIN
 0.0003 INCH AND CONCENTRIC
 WITHIN 0.002 INCH TRUE
 INDICATOR READING.

- (1) 2.100 INCHES
- (2) 4.85 INCHES
- (3) 0.3075 INCH, +0.0010 OR -0.0000 INCH DIAMETER

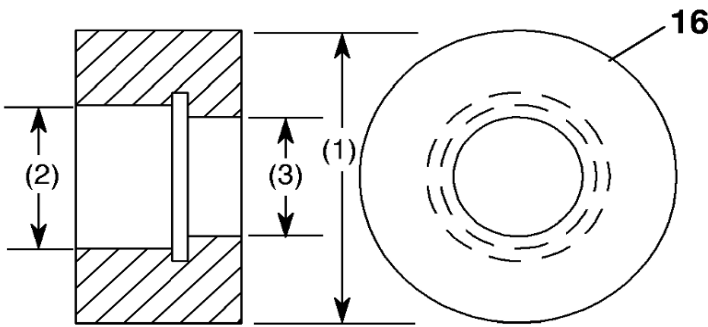
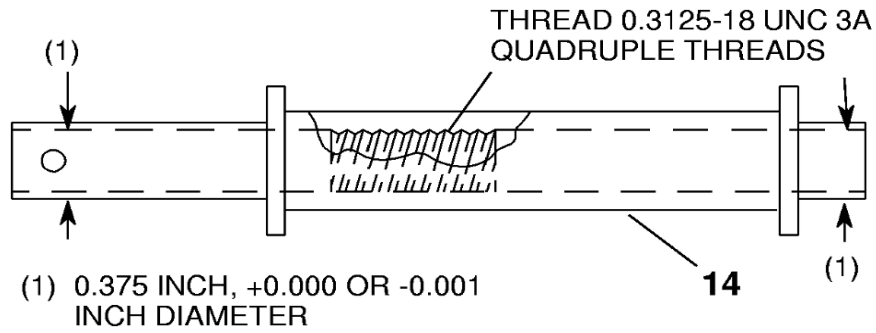
AIRPLANES 20800001 THRU 20800237
 AND 208B0001 THRU 208B0389

2660044-1 TRIM TAB ACTUATOR

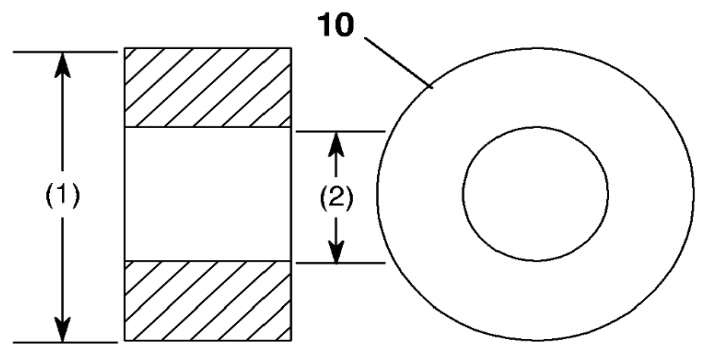
5596T1007
 5596T1022

Figure 202 : Sheet 3 : Aileron Trim Tab Actuator Disassembly/Assembly

A22535

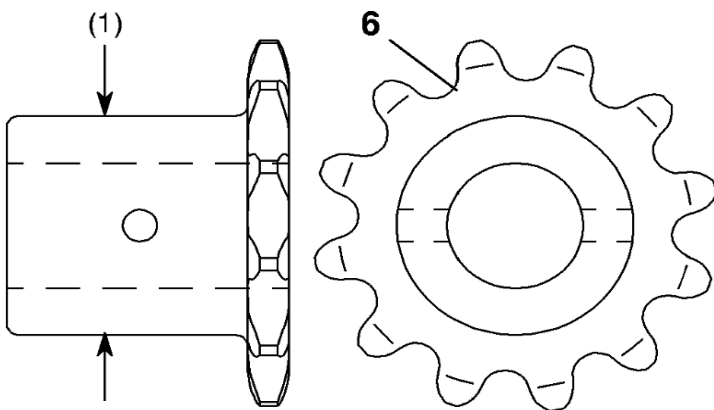


- (1) 0.828 INCH, +0.000 OR -0.001
 INCH DIAMETER (NOTE)
- (2) 0.383 INCH, +0.001 OR -0.001
 INCH DIAMETER (NOTE)
- (3) 0.311 INCH, +0.001 OR -0.000
 INCH DIAMETER (NOTE)

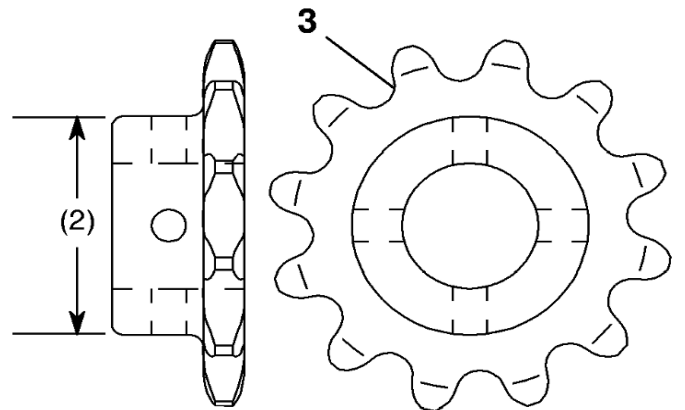


- (1) 0.828 INCH, +0.000 OR -0.001
 INCH DIAMETER
- (2) 0.383 INCH, +0.001 OR -0.001
 INCH DIAMETER

NOTE: (1) SHALL BE CONCENTRIC TO (2) AND (3) WITHIN
 0.002 INCH TOTAL INDICATOR READING.



- (1) 0.327 INCH, +0.000 OR -0.002
 INCH DIAMETER



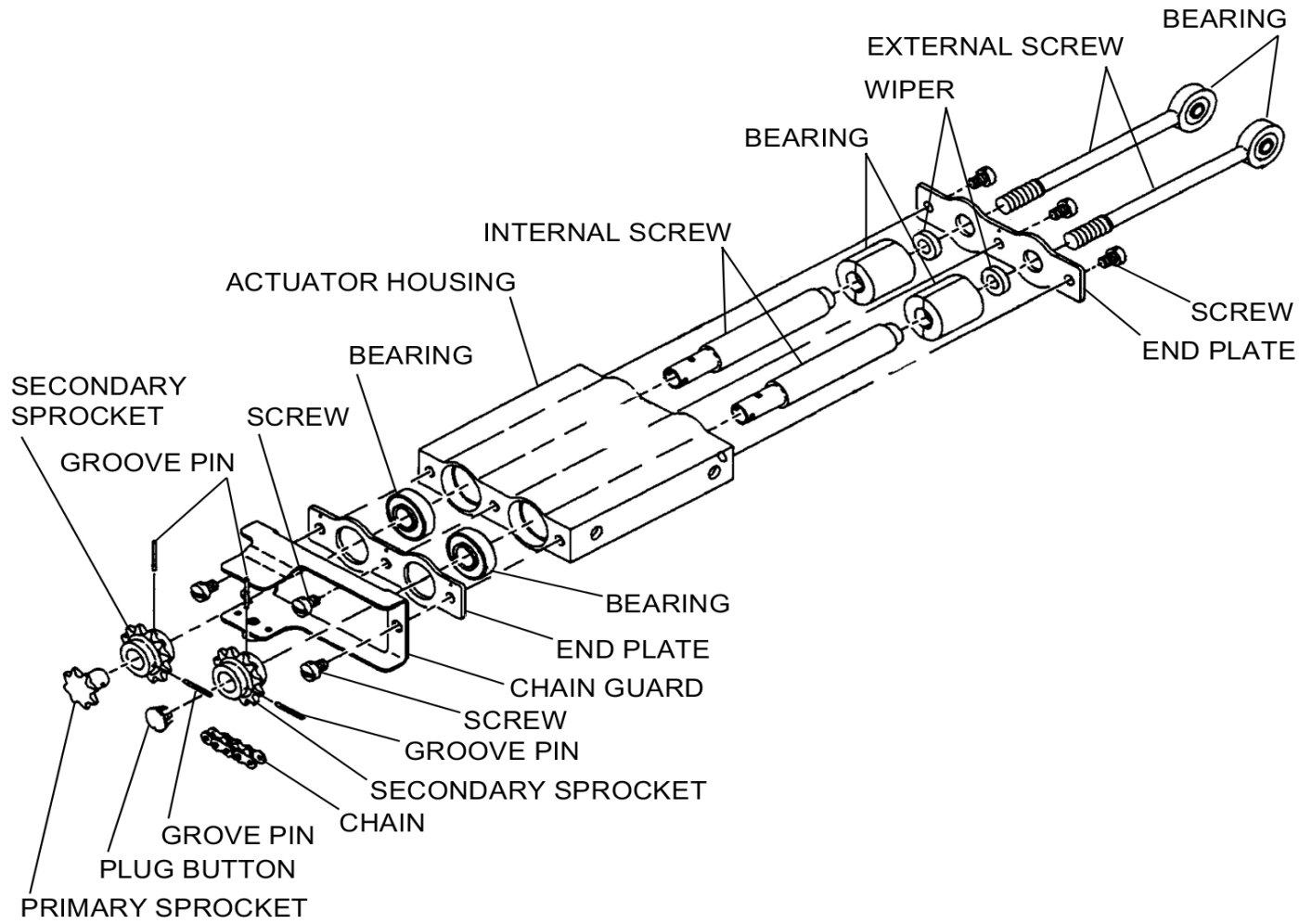
- (2) 0.3775 INCH, +0.000 OR -0.000
 INCH DIAMETER

AIRPLANES 20800001 THRU 20800237
 AND 208B0001 THRU 208B0389
 2660044-1 TRIM TAB ACTUATOR

5596C1009
 5596C1006
 5596C1006
 5596C1021
 5596C1021

Figure 202 : Sheet 4 : Aileron Trim Tab Actuator Disassembly/Assembly

A22536



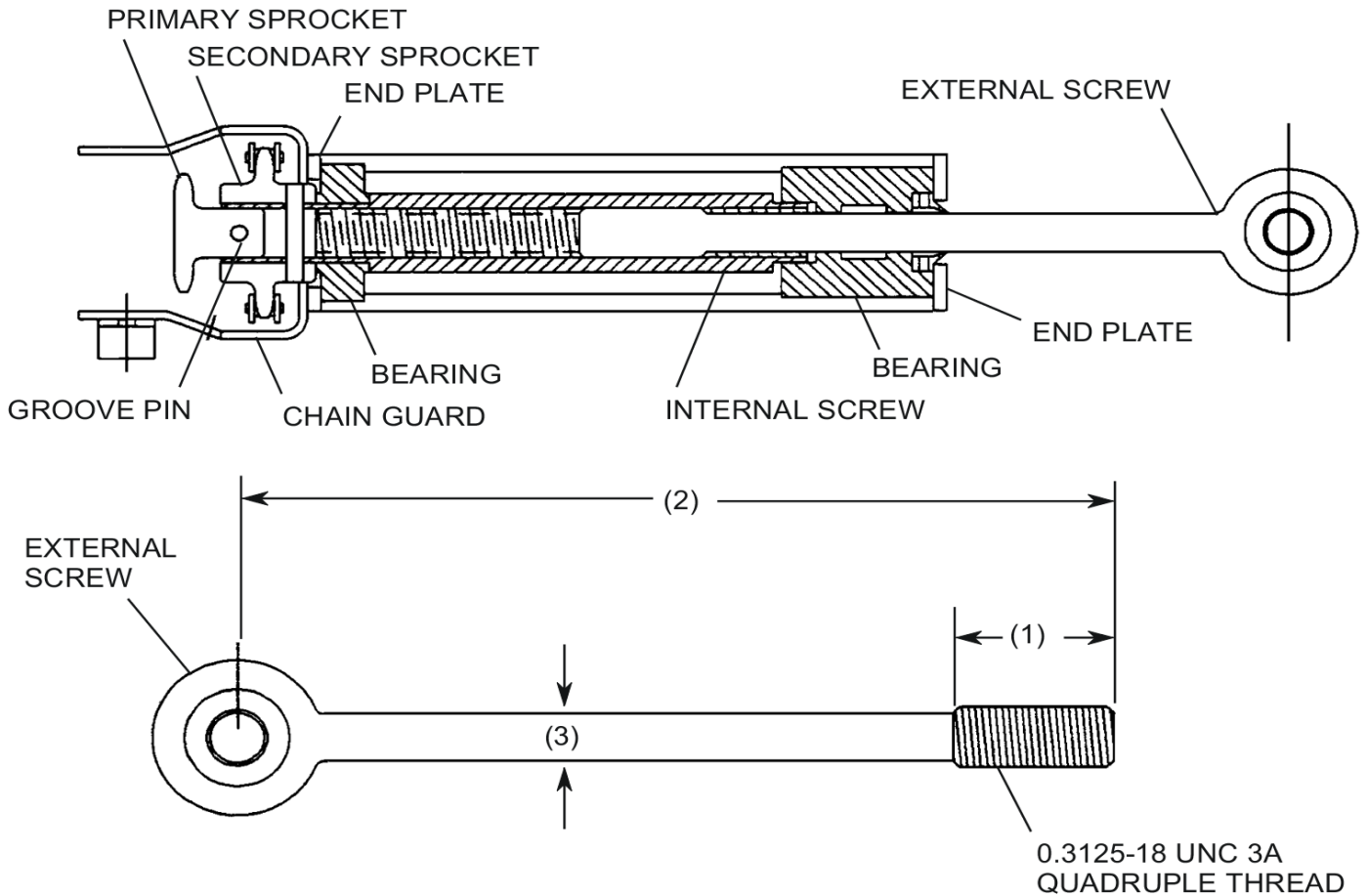
AIRPLANES 20800238 THRU 20800376
AND 208B0390 THRU 208B1055

2661615-1 TRIM TAB ACTUATOR

2661T1022

Figure 202 : Sheet 5 : Aileron Trim Tab Actuator Disassembly/Assembly

A22537



ROD SHALL BE STRAIGHT WITHIN
 0.003 INCH AND CONCENTRIC
 WITHIN 0.002 INCH TRUE
 INDICATOR READING.

- (1) 0.75 INCH
- (2) 4.14 INCHES
- (3) 0.244 INCH, +0.001 OR -0.001 INCH DIAMETER

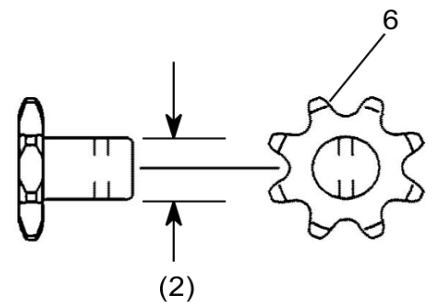
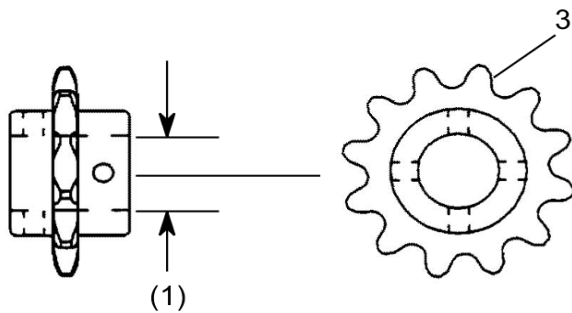
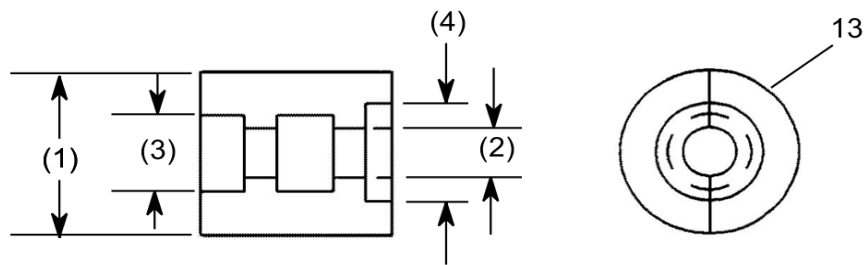
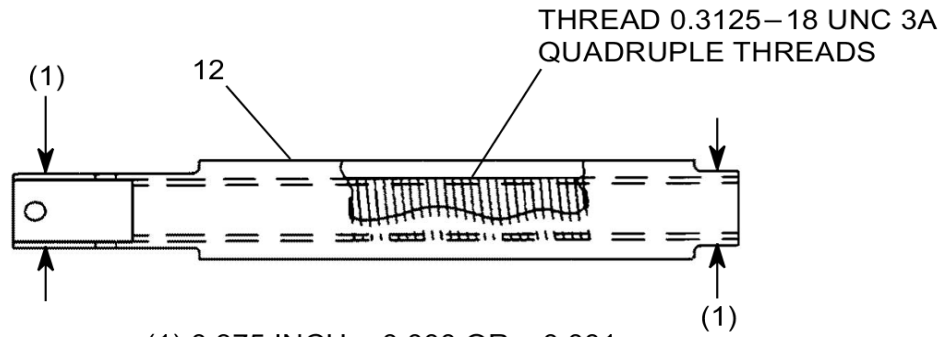
AIRPLANES 20800238 AND ON
 AND 208B0390 AND ON
 AND ALL SPARES

2661615-1 TRIM TAB ACTUATOR

2661T1024
 2661T1026

Figure 202 : Sheet 6 : Aileron Trim Tab Actuator Disassembly/Assembly

A22534



AIRPLANES 20800238 THRU 20800376 AND
 AIRPLANES 208B0390 THRU 208B1054

2661615-1 TRIM TAB ACTUATOR

2661R1025
 2661R1027
 2661R1028
 2661R1029

Figure 202 : Sheet 7 : Aileron Trim Tab Actuator Disassembly/Assembly

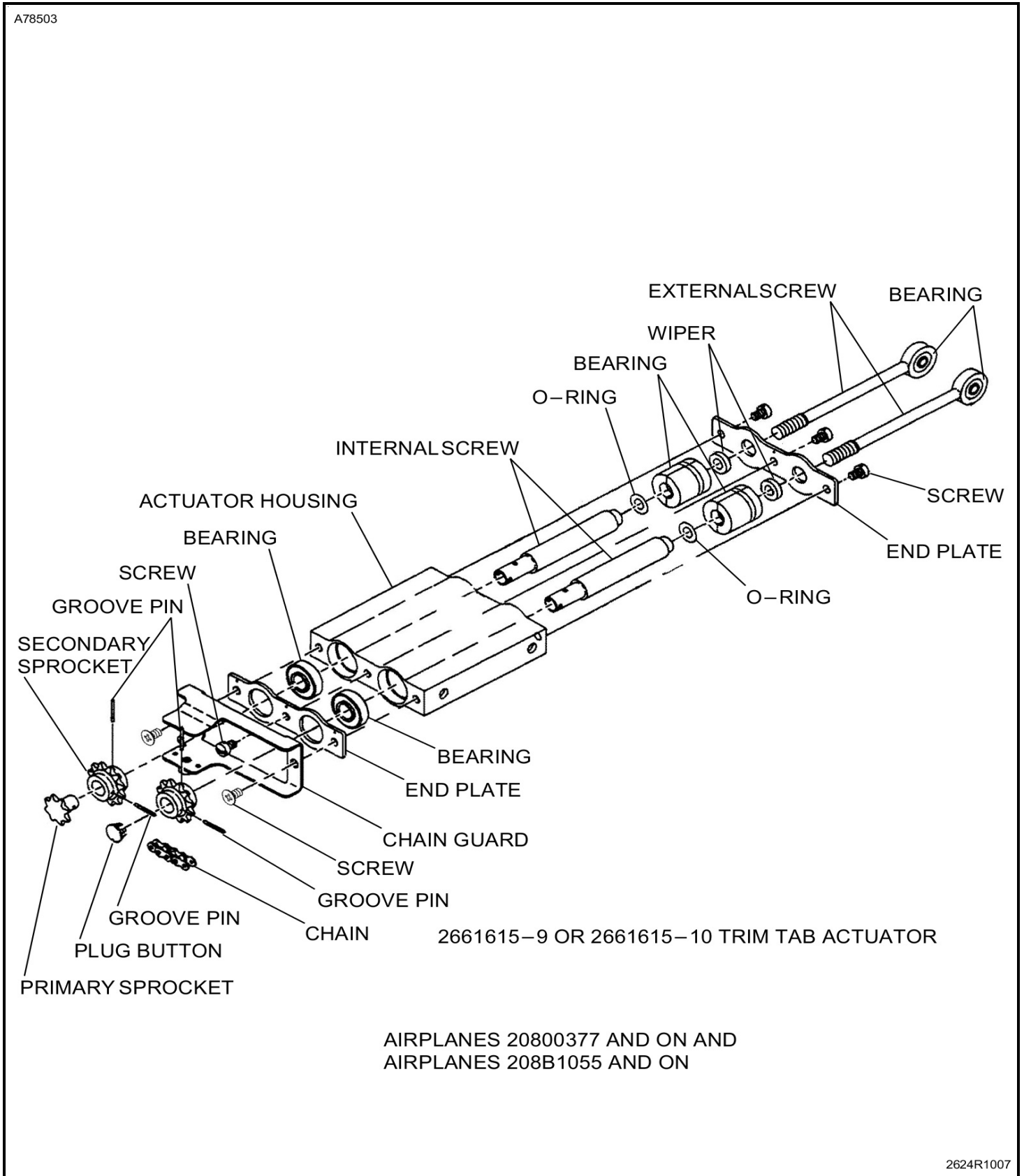
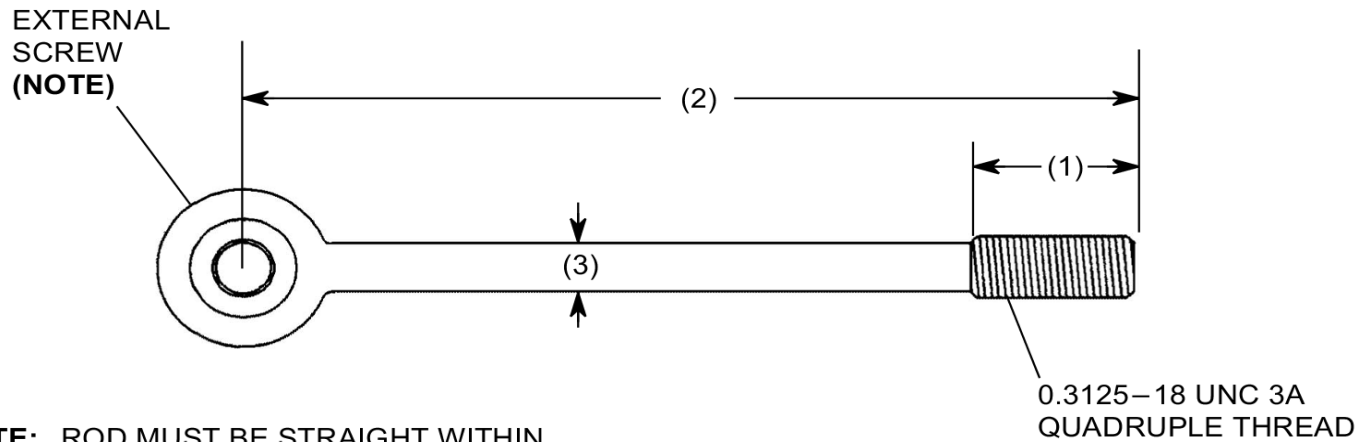
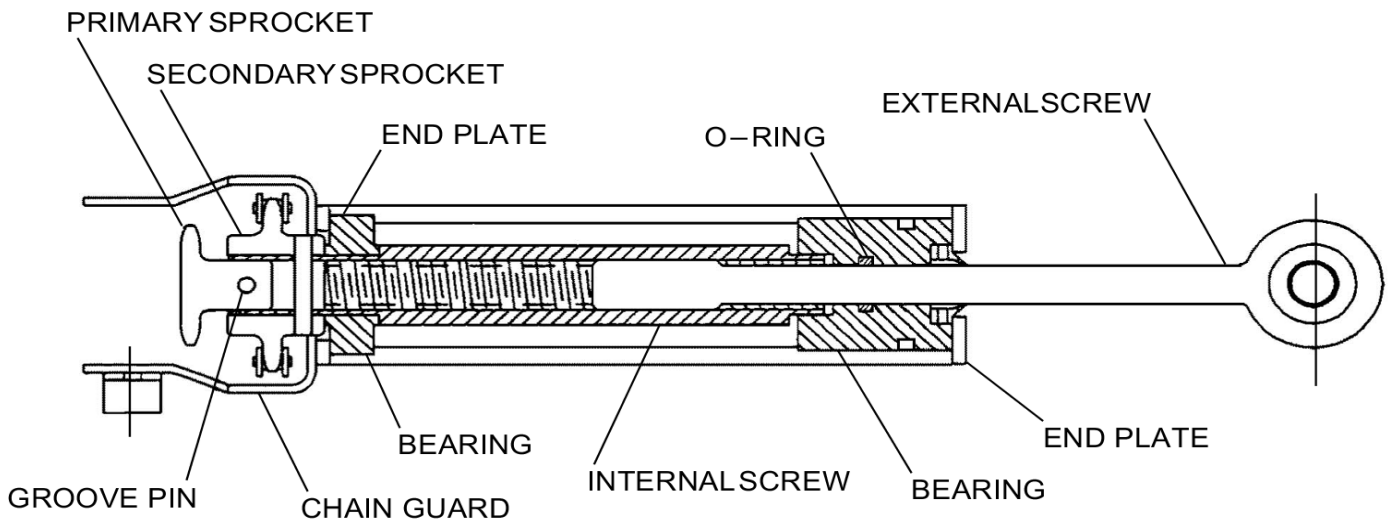


Figure 202 : Sheet 8 : Aileron Trim Tab Actuator Disassembly/Assembly

A78504



NOTE: ROD MUST BE STRAIGHT WITHIN 0.003 INCH (0.076 mm) AND CONCENTRIC WITHIN 0.002 INCH (0.051 mm) TRUE INDICATOR READING.

(1) 0.75 INCH (19.05 mm)

(2) 4.14 INCHES (105.16 mm)

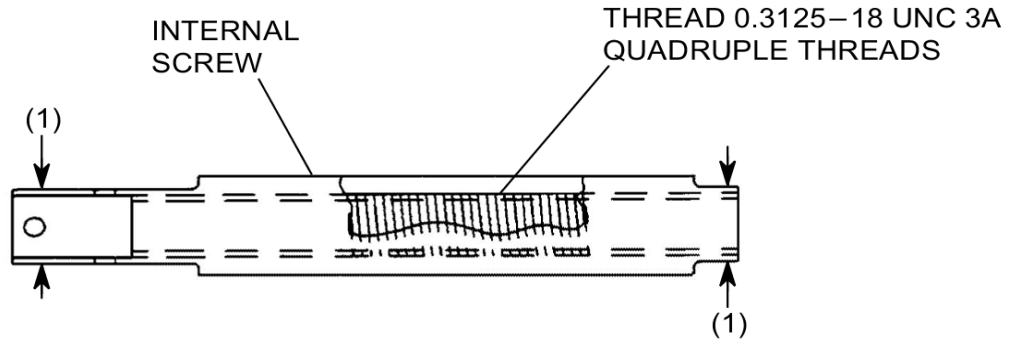
(3) 0.244 INCH, +0.001 OR -0.001 INCH (6.20 mm, +0.025 OR -0.025 mm) DIAMETER

AIRPLANES 20800377 AND ON AND
 AIRPLANES 208B1055 AND ON
 2661615-9 OR 2661615-10 TRIMTAB ACTUATOR

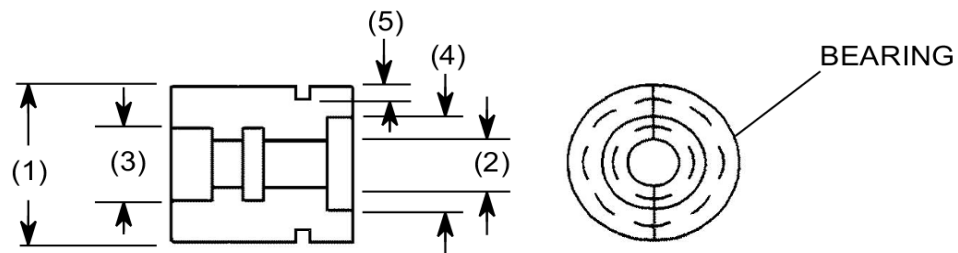
2624R1008
 2661R1026

Figure 202 : Sheet 9 : Aileron Trim Tab Actuator Disassembly/Assembly

A78505



(1) 0.375 INCH, +0.000 OR -0.001 INCH (9.525 mm, +0.000 OR -0.025 mm) DIAMETER



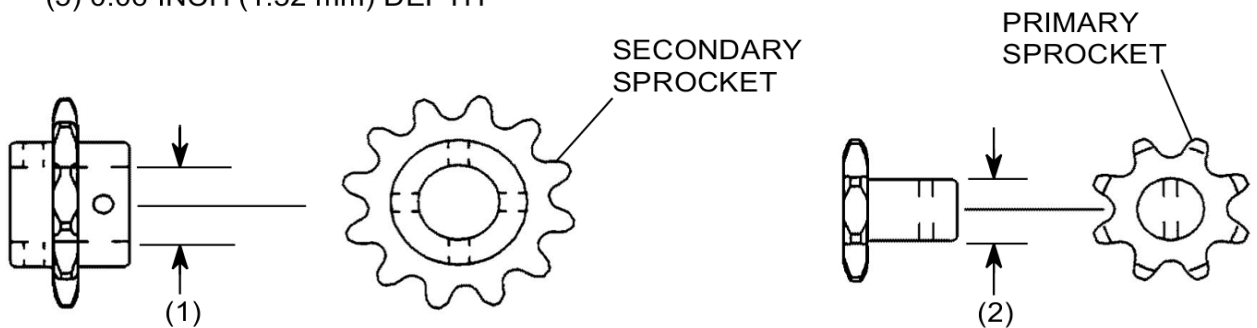
(1) 0.828 INCH, +0.000 OR -0.001 INCH (21.03 mm, +0.000 OR -0.025 mm) DIAMETER

(2) 0.250 INCH, +0.001 OR -0.001 INCH (6.35 mm, +0.025 OR -0.025 mm) DIAMETER

(3) 0.380 INCH, +0.001 OR -0.000 INCH (9.65 mm, +0.025 OR -0.000 mm) DIAMETER

(4) 0.497 INCH, +0.000 OR -0.000 INCH (12.62 mm, +0.000 OR -0.000 mm) DIAMETER

(5) 0.06 INCH (1.52 mm) DEPTH



(1) 0.376 INCH, +0.001 OR -0.001 INCH
(9.550 mm, +0.025 OR -0.025 mm) DIAMETER

(2) 0.3115 INCH, +0.001 OR -0.001 INCH
(7.912 mm, +0.025 OR -0.025 mm) DIAMETER

AIRPLANES 20800377 AND ON AND
AIRPLANES 208B1055 AND ON

2661615-9 OR 2661615-10 TRIM TAB ACTUATOR

2661R1025
2624R1009
2661R1028
2661R1029