PROPELLER (McCAULEY) - INSPECTION/CHECK

1. General

A. This section has the inspections and checks necessary to keep the McCauley propeller in a serviceable condition.

NOTE: For different views of the propeller and the spinner installation that are not included in this section, refer to Figure 201, in Propeller (McCauley) - Maintenance Practices.

TASK 61-11-00-720

2. McCauley Propeller Functional Check

A. General

(1) This task gives the information needed to do the functional check of the McCauley propeller.

B. Special Tools

(1) Mild Soap and Water.

(2) Stoddard Solvent or equivalent.

(3) Isopropyl Alcohol.

C. Access

(1) Remove the nose cap to get access to the propeller governor. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.

(2) Remove the upper left cowling door to get access to the overspeed governor. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.

D. Do a McCauley Propeller Detailed Inspection.

(1) Examine the propeller blades for any damage before you wash the blades.

CAUTION: Do not let the soap solution come into contact with the hub. The soap solution can contaminate the O-ring that is installed in the hub.

(2) Wash the propeller blades and the boots with mild soap and water before you start the inspection.

NOTE: The propeller spinner is removed after the propeller is washed for the inspection.

(3) Put a mark on the spinner and the bulkhead to record the alignment for the next installation.

(a) Do not use a lead pencil.

(4) Remove the propeller spinner. Refer to Propeller (McCauley) - Maintenance Practices.

(a) Make sure that you keep the front spinner support spacers for the next installation of the spinner.

(5) Be careful to not remove the spinner index mark when you clean the spinner and the bulkhead.

(a) Clean the spinner and the bulkhead with Stoddard solvent to remove all oil and grease before you start the inspection.

(6) If installed, clean the de-ice slip ring assembly and the de-ice brush block with isopropyl alcohol, Stoddard solvent, or equivalent.

E. Examine the Spinner and Bulkhead

(1) Examine the accessible surface of the bulkhead and the inner and outer spinner surface for condition, cracks, corrosion, and fractures.

(2) Examine the spinner bulkhead, spinner bulkhead support, spinner attach screws, and spinner attach nutplates for condition, corrosion, and wear.

(3) Examine the attach holes in the spinner for cracks and hole elongation.

(4) Examine the spinner fillets for condition, cracks, corrosion, and security.

(5) Examine the balance weights for condition, corrosion, security, and correct installation. Refer to Final Weight Installation found in Dynamic Balancing (McCauley) - Adjustment/Test.

(6) Visually examine the spinner dome surface and the bulkhead for burned spots, pits, or other signs of a lightning strike.

(a) If there are signs of a lightning strike, refer to Chapter 5, Unscheduled Maintenance Checks, Lightning Strike.

(7) If installed, examine the deice leads for condition, chafing, and security.

(8) For airplanes with TKS ,examine the feed shoes, slinger ring, propeller feed nozzle, propeller nozzle bracket, fitting, and propeller hose assembly for condition, corrosion, security, and correct installation. Refer to Chapter 30, TKS Anti-Ice Propeller (McCauley) - Maintenance Practices.

(a) Make sure that the feed nozzle is extended into the slinger ring channel with an edge distance of 0.10 to 0.15 inches (2.54 to 3.81 mm) from the slinger ring. If necessary adjust. Refer to Chapter 30, TKS Anti-Ice Propeller (McCauley) - Maintenance Practices.

(b) Turn the propeller slowly by hand and make sure that the distance between the slinger ring and the feeder tube stays in an alignment tolerance of 0.10 to 0.15 inches (2.54 to 3.81 mm). Refer to Chapter 30, TKS Anti-Ice Propeller (McCauley) - Maintenance Practices.

(c) Make sure that the propeller feeder nozzle has a 0.250 inch, +0.020 or - 0.020 inch (6.350 mm, +0.508 or - 0.508 mm) clearance from the propeller boot with the propeller in feather. Check for security of attachment.

F. Examine the Blades.

(1) Examine all blades and blade surfaces for condition, gouges, scratches, corrosion, erosion, cracks, nicks, evidence of lightning strikes, and security.

(a) If a propeller blade is found to have damage, refer to the McCauley MPC26 Owner/Operator Information Manual for repair procedures (refer to List of Vendor Publications).

(b) If there are signs of a lightning strike, refer to Chapter 5, Unscheduled Maintenance Checks, Lightning Strike.

(2) Examine all blade attachment points for oil leaks.

CAUTION: Oil leaks from the propeller or the engine can get on the wing, wing struts, and/or the horizontal stabilizer deice boots and cause damage.

(3) Examine the cylinder attachment point for oil leaks.

(a) If oil is coming from the area of the beta spring housing, the piston seal is possibly leaking. Remove the propeller from service and return it to a McCauley authorized repair facility. Refer to Propeller (McCauley) - Maintenance Practices.

(4) Examine the area around the beta rod (3 each) bushings for oil leaks.

NOTE: The propeller hub is filled with turbine oil of the same type that is used in the engine. There are NO grease fittings on this propeller.

NOTE: Oil leaks found around the propeller mounting flange can or can not come from the flange. Other items such as the governor beta valve, or prop shaft seal can cause the oil leaks.

(5) Examine the propeller mounting area for oil leaks.

(6) Examine the viewable area of the engine propeller shaft seal just aft of the spinner bulkhead.

(7) If installed, examine the anti-ice boots for abrasions, exposed heating elements, cuts, nicks, and security of attachment.

(a) Examine the wiring from the boots to the terminal strips on the spinner bulkhead for condition, chafing, correct routing, and security of attachment at all clamps.

(b) Examine the connector between the boot and the wire harness for security of attachment.

(c) Examine the wire harness connectors at the terminal strips for condition and security of attachment.

(d) Examine the boot edge dressing for condition.

1 If necessary, touch-up damaged or exposed areas.

(8) Examine the terminal strips for condition and security of attachment to spinner bulkhead.

(9) For airplanes with TKS, examine the feeder boots for abrasions, cuts, nicks, and security of attachment.

G. Examine the Hub (Refer to Figure 601).

(1) Examine the exposed area for condition, cracks, corrosion, and security of the components to the hub.

(2) Examine the hub for oil leaks at the blade butts and the mount flange.

(3) Examine the feathering spring housing for condition, cracks, corrosion, and security.

(4) Examine the cylinder for condition, oil leaks at mount flange, and security of attachment.

(5) Visually examine the propeller for security of installation.

(6) Examine the attach nuts for condition and that each stud has a spacer under the elastic attach nut.

(7) Visually examine the nuts for security.

NOTE: The nut installation is correct if the torque putty on the nuts is not broken.

(a) If you are not sure that the installation is correct, torque the nuts again, and apply new torque putty. Refer to Propeller (McCauley) - Maintenance Practices.

H. Examine the Beta System Feedback Collar (Refer to Figure 601).

(1) Examine the beta feedback collar for condition, corrosion, and security of installation.

(2) Examine the reversing lever for condition and security.

(3) Examine the reversing lever for free play.

(a) If there is free play at the beta valve, remove the clevis pin and examine the sleeve bushing for signs of wear at the attach location.

1 If there is wear, replace the bushing.

(b) If the lever has free play at the beta cable clevis, remove bolt at the clevis and examine the sleeve spacer for signs of wear at the attach point.

1 If there is wear, replace the spacer.

(4) Examine the alignment pin for condition and security.

(5) Examine the carbon brush for wear and signs of damage.

(6) To examine the carbon brush for wear, do the steps that follow:

(a) Hold the carbon brush against the feedback collar.

(b) Turn the feedback collar and measure the clearance between the carbon brush and the feedback collar around the full circumference of the feedback collar.

NOTE: The clearance between the brush and the feedback collar must not be more than 0.010 inch (0.254 mm) at any area around the full circumference of the collar.

CAUTION: Do not turn the elastic low pitch stop nuts installed on the beta rods.

(7) Examine the beta rods (3 each) for condition and security.

(a) The beta rod locknuts are installed correctly if the torque putty has not been disturbed.

(8) Examine the varistor installed near the center at the top of the forward side of the firewall for condition and security of installation.

(9) Examine the electrical connections for condition, routing, signs of chaffing, and security.

(10) Discoloration of the varistor or the electrical leads, or a failure can be a sign that a lightning strike has occurred.

(a) If you think that there was a lightning strike to the airplane, refer to Chapter 5, Unscheduled Maintenance Checks, Lightning Strike.

I. Examine the Propeller Governor (Refer to Figure 601).

(1) Examine the propeller governor for condition, oil leaks, and security.

(a) Make sure that the hardware is safety wired except for the four self-locking attach nuts.

(2) Examine the speed adjusting lever return spring for condition and security.

(3) Examine the air bleed link for corrosion, condition, and security.

(4) Examine the governor interconnecting rod for corrosion, condition, security and wear.

(5) Make sure that the rod end bearings turn freely and do not bind.

(6) Examine all hardware for corrosion, condition, and correct safety.

NOTE: It is not necessary to safety wire the four self locking mounting nuts.

J. Examine the Propeller Cable Terminal Rod End (Refer to Chapter 76, PT6A-114/-114A Engine Rigging - Adjustment/Test, Figure 510).

(1) Disconnect the rod end from the propeller speed adjusting lever. Refer to Chapter 76, Propeller Control - Maintenance Practices.

(2) Wipe the rod end clean with a clean lint-free cloth.

(3) Examine the rod end for corrosion, pitting, and cleanliness.

(4) Lubricate the rod end ball with MIL-L-7870.

(5) Connect the rod end to the adjusting lever. Refer to Chapter 76, Propeller Control - Maintenance Practices.

K. Examine the Overspeed Governor (Refer to Figure 601).

NOTE: Verify part number of governor to complete engine run portion of functional check.

(1) Examine the overspeed governor for condition, oil leaks, and security.

(a) Make sure that the hardware is safety wired except for the four self-locking attach nuts.

(2) Examine the electrical wiring and the electrical connection at the test solenoid for signs of damage, correct wire routing, and security.

(3) Examine the governor reset test solenoid for condition and security.

(4) Install the upper left cowling door. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.

(5) Install the nose cap. Refer to Chapter 71, Engine Cowling and Nose Cap - Maintenance Practices.

(6) Install the propeller spinner. Refer to Propeller (McCauley) - Maintenance Practices.

(a) Make sure that the correct number of spacers between feathering spring housing and spinner support are installed at the locations that were recorded during the removal of the spinner.

(7) Do the Propeller Overspeed Governor Functional Check. Refer to Propeller Control - Maintenance Practices.

L. Restore Access

NOTE: The propeller spinner, nose cap, and upper left cowling door were installed before the functional check.

(1) None

END OF TASK

Figure 601 : Sheet 1 : Propeller and Spinner Installation - McCauley

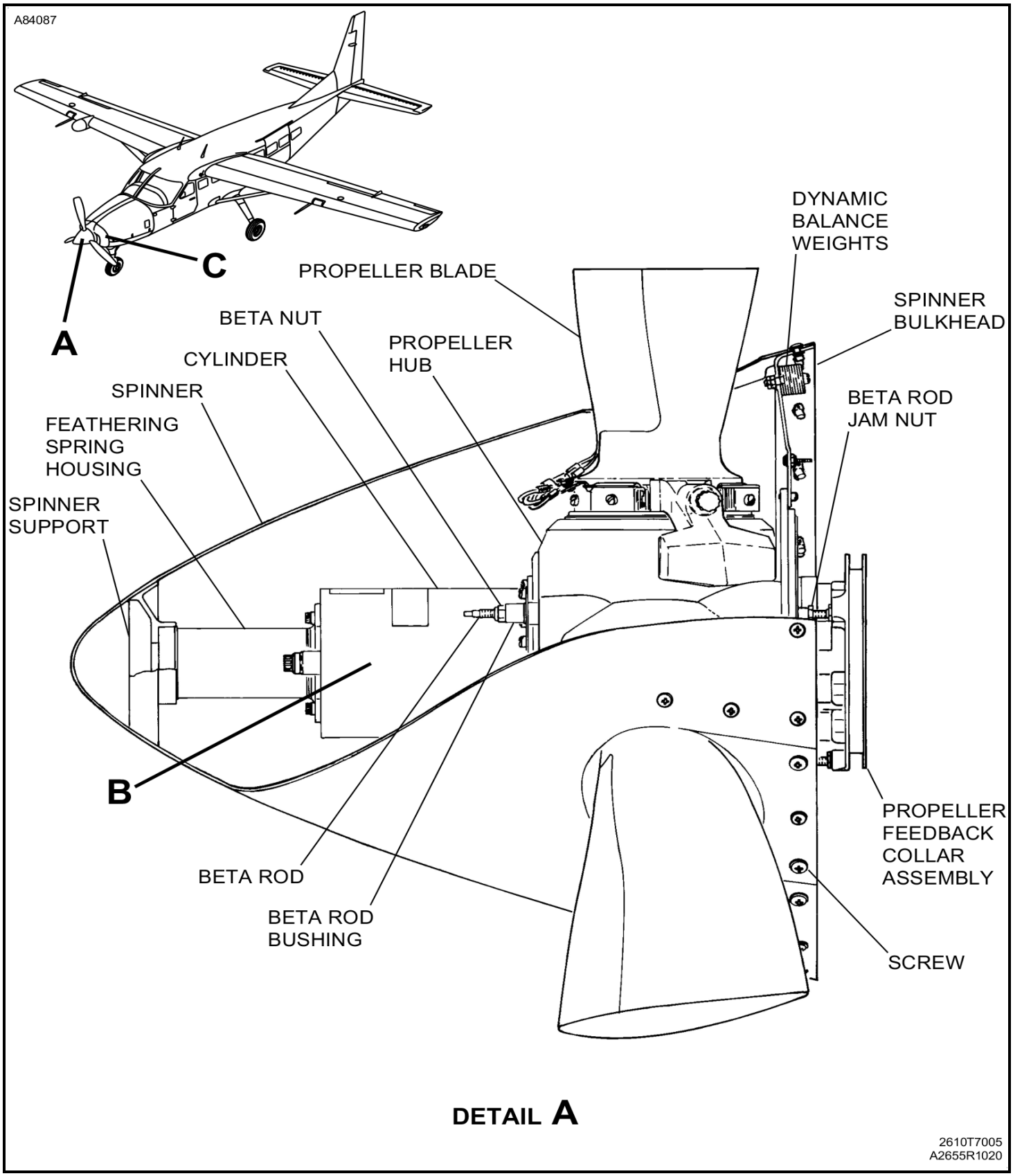


Figure 601 : Sheet 2 : Propeller and Spinner Installation - McCauley

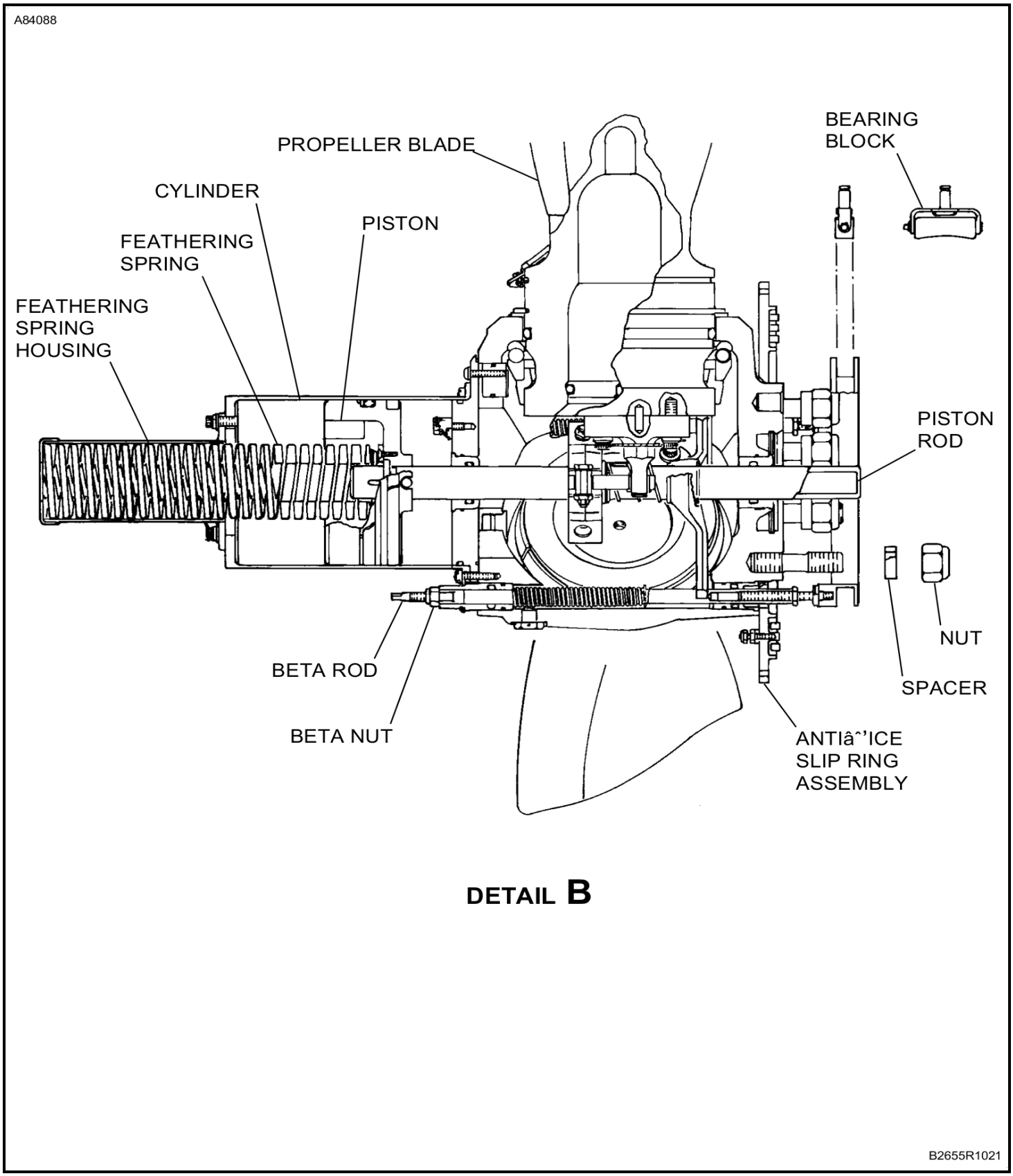


Figure 601 : Sheet 3 : Propeller and Spinner Installation - McCauley

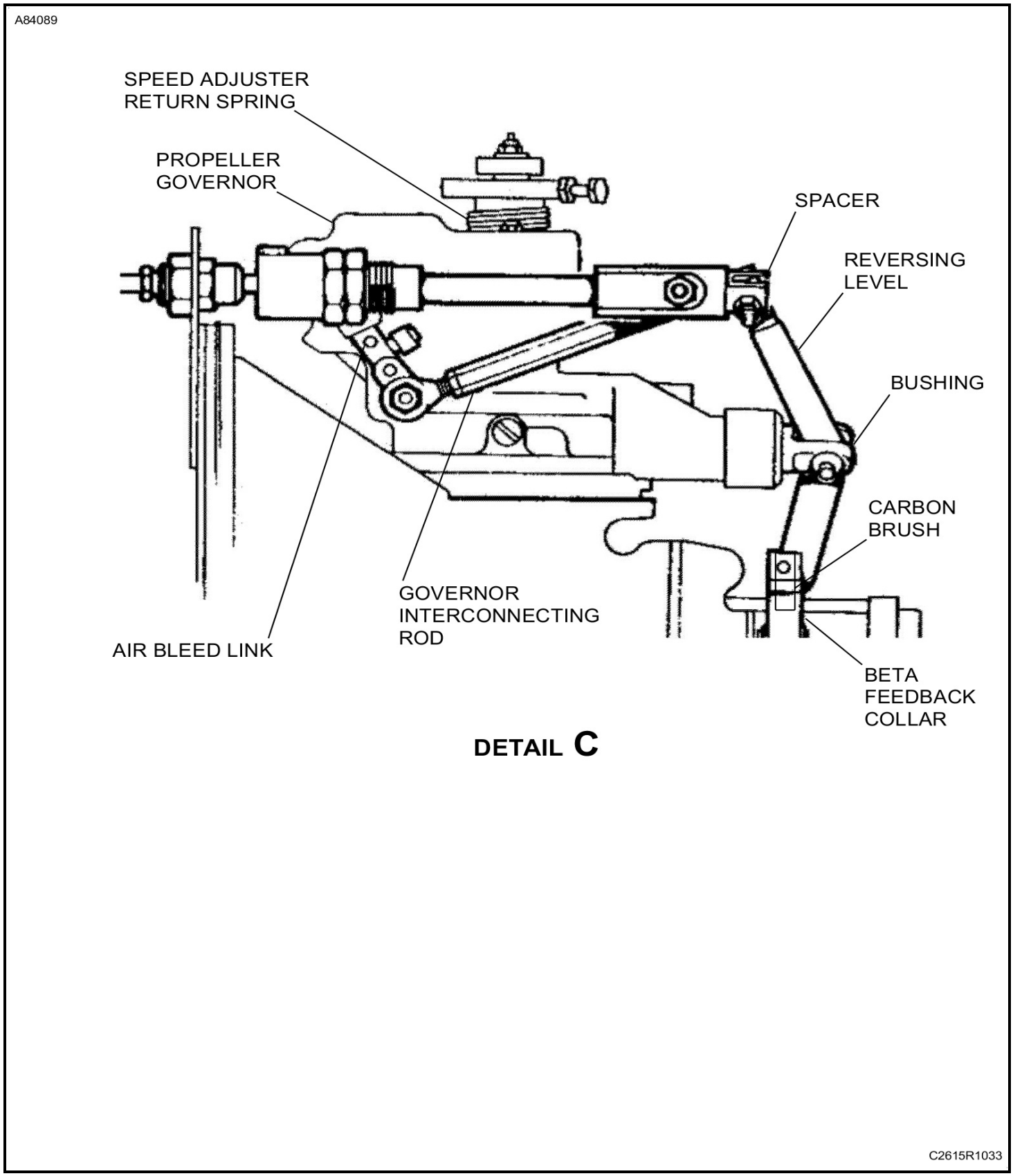


Figure 201 : Sheet 1 : McCauley Propeller Installation

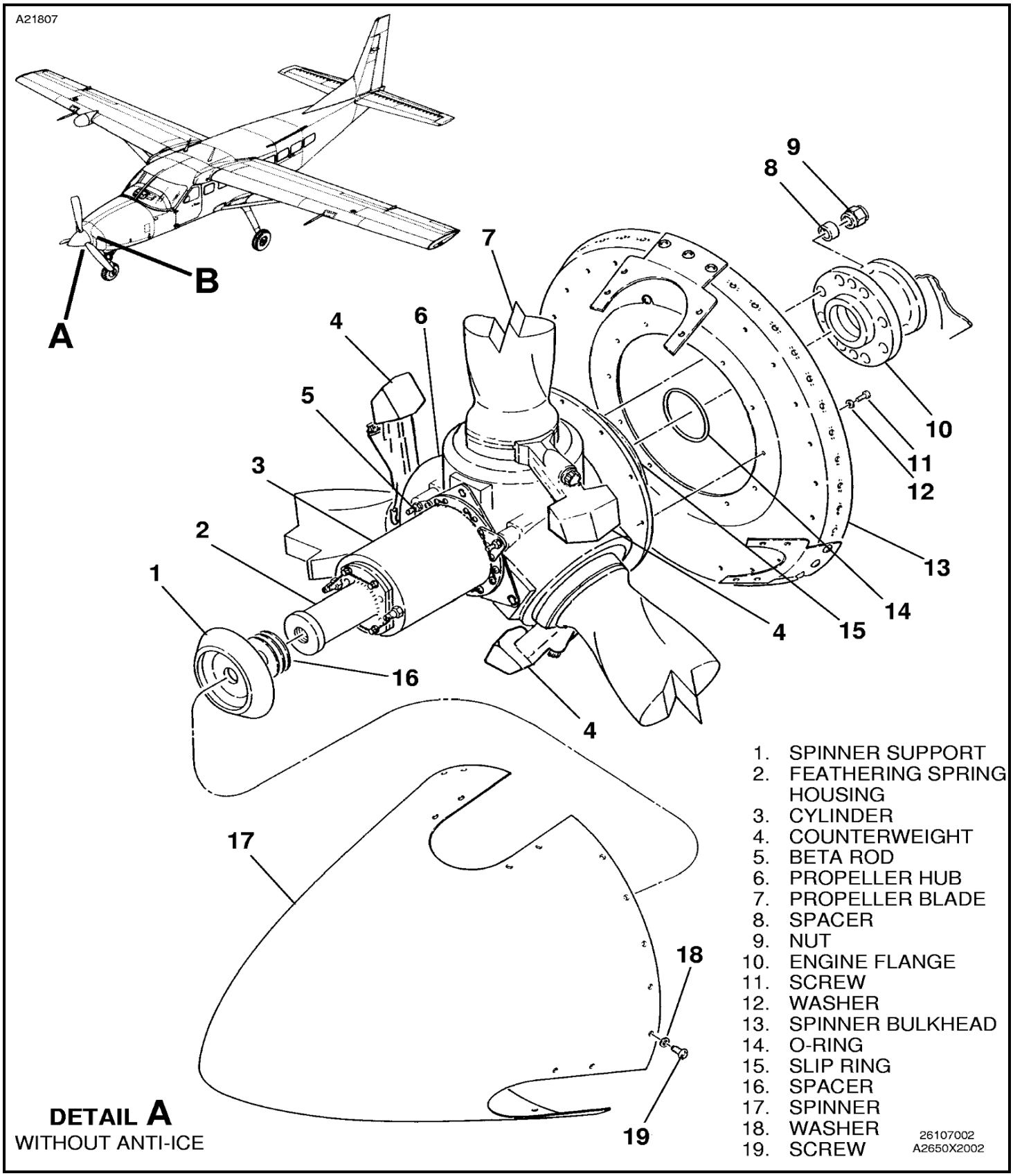


Figure 201 : Sheet 2 : McCauley Propeller Installation

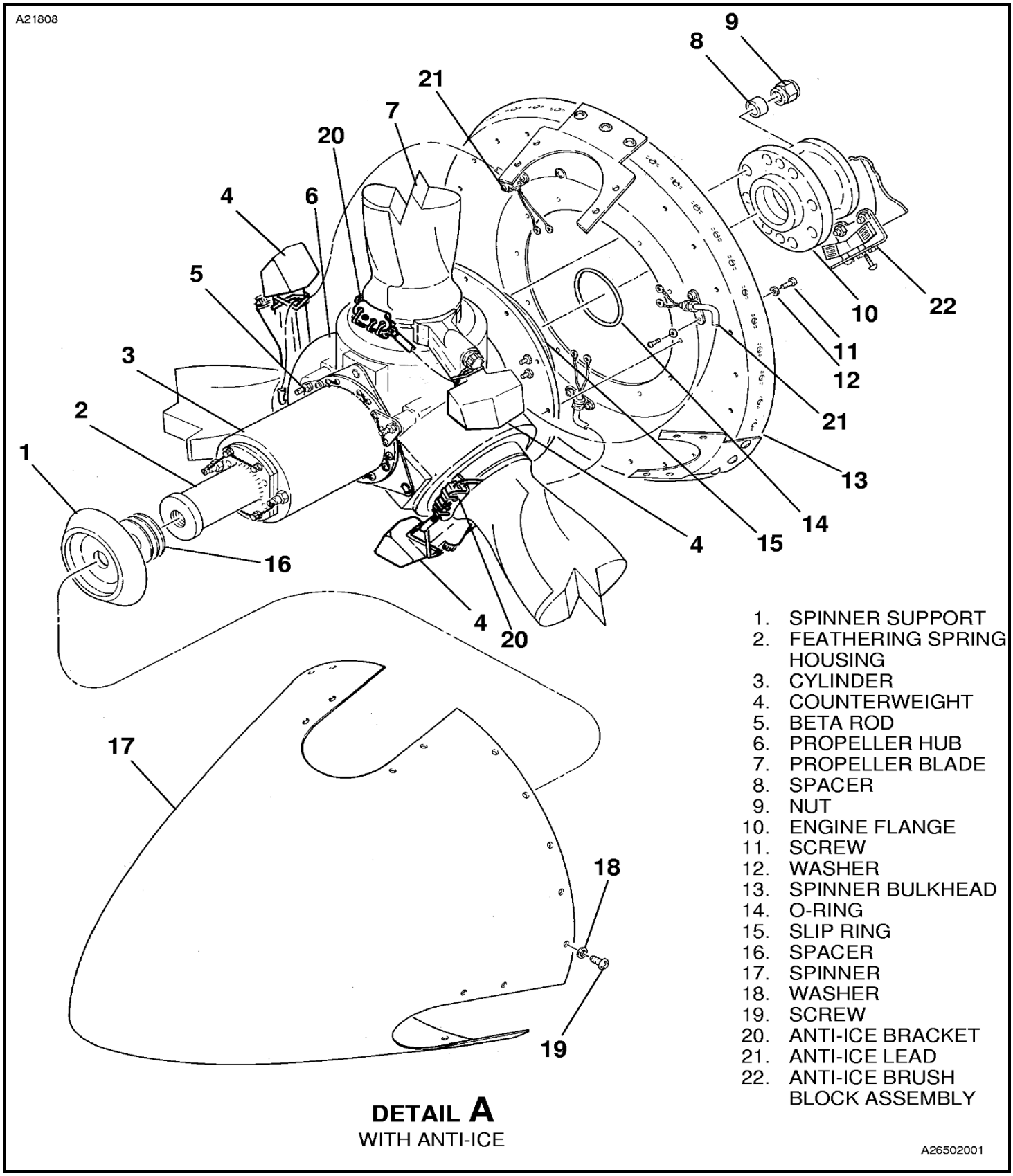
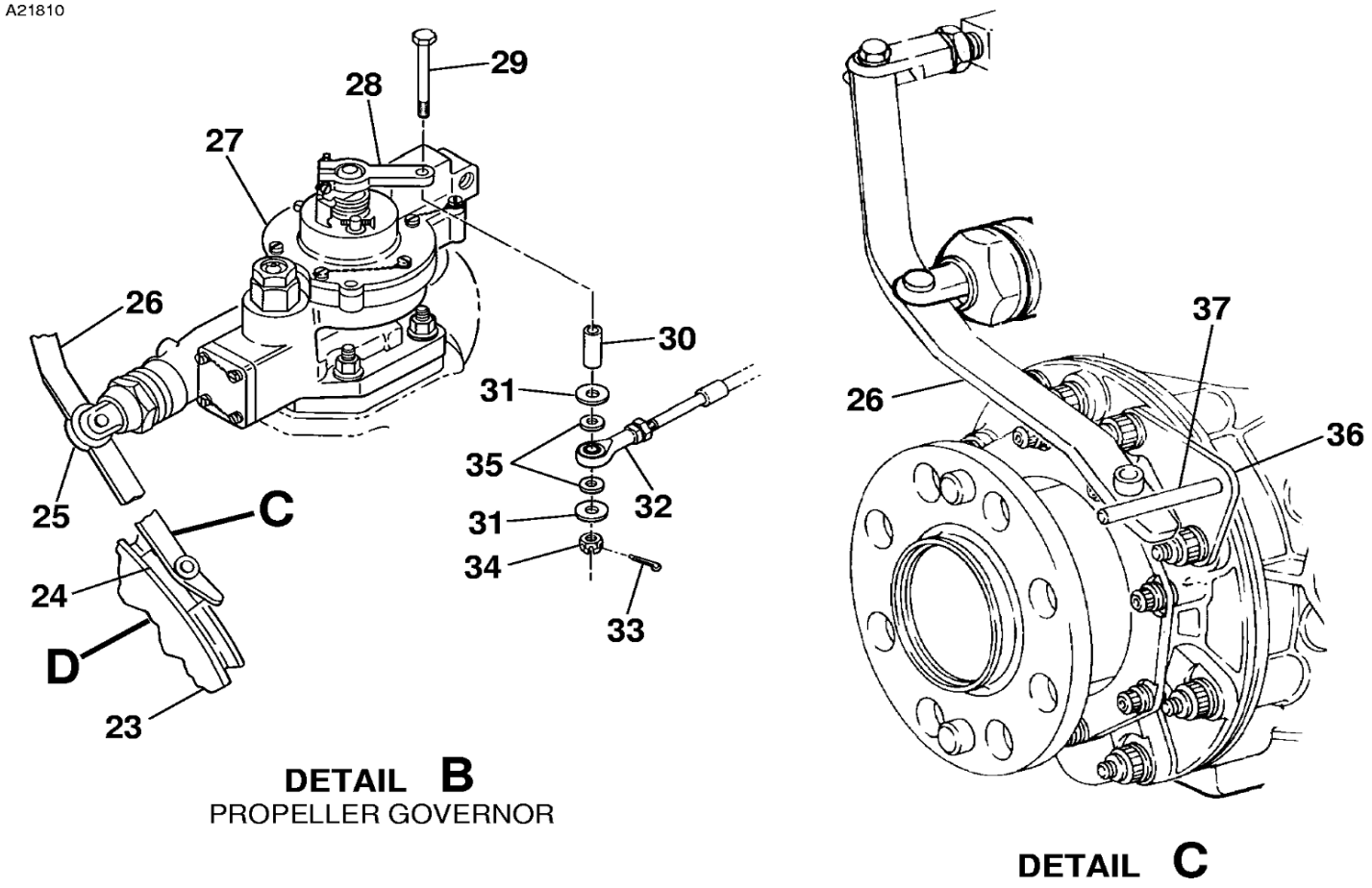


Figure 201 : Sheet 3 : McCauley Propeller Installation



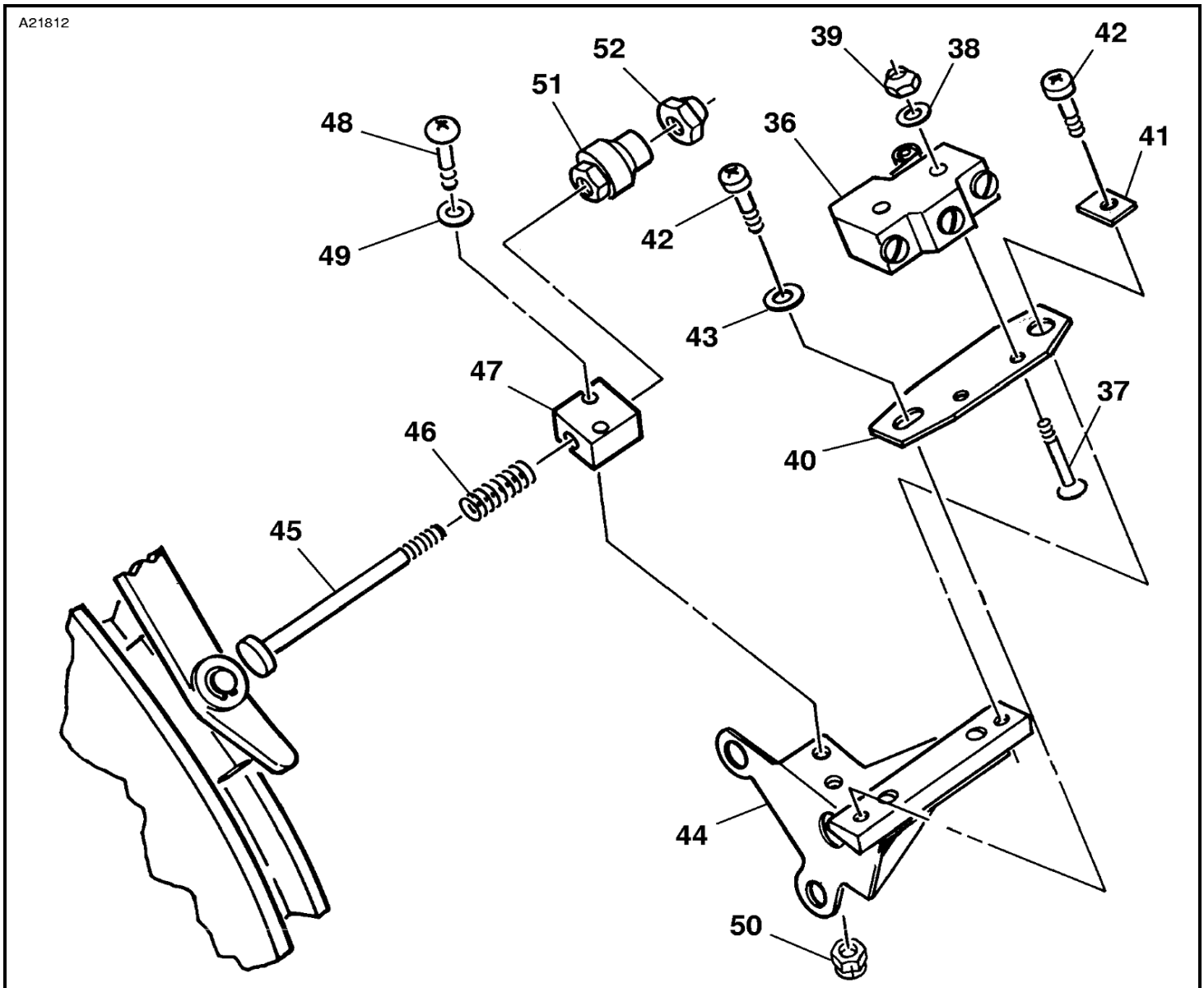
DETAIL B
PROPELLER GOVERNOR

DETAIL C

23. FEEDBACK COLLAR
24. CARBON BLOCK
25. BETA VALVE CLEVIS
26. REVERSING LEVER
27. GOVERNOR
28. SPEED ADJUSTING LEVER
29. BOLT
30. SPACER
31. WASHER
32. SPEED CONTROL CABLE ROD END
33. COTTER PIN
34. NUT
35. WASHER
36. GUIDE PIN BRACKET
37. GUIDE PIN

B26532001
C2655R1040

Figure 201 : Sheet 4 : McCauley Propeller Installation



36. BETA SWITCH
37. SCREW
38. NUT
39. WASHER
40. PLATE
41. AFT PLATE
42. SCREW
43. WASHER
44. BETA SWITCH BRACKET
45. PLUNGER
46. SPRING
47. BLOCK
48. SCREW
49. WASHER
50. NUT
51. CAM
52. JAM NUT

DETAIL D

BRAZILIAN AND BRITISH CERTIFIED AIRPLANES
BETA INDICATING SYSTEM

C59551002A