#### **CARGO DOOR - MAINTENANCE PRACTICES**

#### 1. General

A. The cargo door, located on left side of fuselage just aft of leftwing, consists of an upper and lower section. When opened, upper section swings upward and lower section swings forward. The upper section of cargo door incorporates a conventional outside door handle with a key-operated lock, a pushbutton type exterior door release, and a conventional interior door handle. Two gas spring cylinders are utilized to lift door to the full open position.

# 2. Upper Cargo Door Removal/Installation

- A. Remove Upper Cargo Door (Refer to Figure 201).
  - (1) Remove cotter pin and pin securing pullstrap to door.
  - (2) Remove screws securing trim plate on upper door jamb and remove trim plate.
  - (3) Remove upholstery trim around upper door jamb.
  - (4) Remove safety clips (18A) from both ends of gas springs (14) and remove gas springs from ballstuds (18B).

NOTE: If gas spring cyclinders are to be replaced with new parts, the replaced parts must be disposed of in accordance with Gas Spring Cylinder Disposal.

- (5) Remove screws (3) attaching upper cargo door hinge (4) to fuselage above door jamb.
- B. Install Upper Cargo Door (Refer to Figure 201).
  - (1) Align holes in upper door hinge (4) with holes in fuselage above door jamb and install screws (3).
  - (2) Place ends of gas spring cyclinder (14) over ballstuds (18B) and install clips (18A).
  - (3) Install trimplate on upper door jamb.
  - (4) Install upholstery trim around upper door jamb.
  - (5) Connect pullstrap to door using pin and cotter pin.
  - (6) Make sure the door gap is correct. Refer to Cargo Door Gap Adjustment in this section.

# 3. Upper Cargo Door Latching Mechanism Removal/Installation

- A. Remove Upper Cargo Door Latching Mechanism (Refer to Figure 201).
  - (1) Remove roll pin (42), inside handle (41) or boss (41A), and washer (43).
  - (2) Remove door window trim molding.
  - (3) Remove roll pin (21), handle (19) and washer (20).
  - (4) Remove cotter pin (61), pin (54), and remove latch pin assembly (60).
  - (5) Remove cotter pin (62) and pin (50) to remove pushrod (53).
  - (6) Remove cotter pin (32) and pin (34) and remove latch pin (33).
  - (7) Remove cotter pin (62) and pin (50) to remove pushrod (31).
  - (8) Remove screw (22), nut (65), washer (66), and escutcheon (23).
  - (9) Remove cotter pin (27), washer (28), lockpin (67), and guide (68).
  - (10) Remove cotter pin (51), pin (29), washers (63), and spindle (44).
  - (11) Remove bellcrank (52).
- B. Install Upper Cargo Door Latching Mechanism (Refer to Figure 201).
  - (1) Insert spindle (44) through hole in support assembly (36) and install bellcrank (52) on spindle using pin (29) and cotter pin (51).
  - (2) Install washers (63) on spindle (44), install escutcheon through hole in door and over spindle, then install screw (22) in aft hole.
  - (3) Align holes in lock pin guide with holes in door and escutcheon and secure with screw (64), screw (22), washer (66), and nut (65).
  - (4) Insert locking pin (67) into guide (68) and attach to door lock cam using washer (28) and cotter pin (27).
  - (5) Install washer (20), handle (19) and secure with roll pin (21).
  - (6) Install latch pin (33) and connect to pushrod (31) using pin (34) and cotter pin (32).
  - (7) Connect pushrod (31) to bellcrank (52) using pin (50) and cotter pin (62).

- (8) Install latch pin assembly (60) and connect to pushrod (53) using pin (54) and cotter pin (61).
- (9) Connect pushrod (53) to bellcrank (52) using pin (50) and cotter pin (62).
- (10) Install door window trim molding.
- (11) Install washer (43) over spindle (44) and install handle (41) using roll pin (42).

NOTE: On airplanes 20800001 Thru 20800100 if the door lock on the cargo door does not operate properly, cam (74) may be modified.

## 4. Upper Cargo Door Lock Assembly Removal/Installation

- A. Remove the Upper Cargo Door Lock Assembly (Refer to Figure 201).
  - (1) Unlock and open the door.
  - (2) Bend lockwasher tab away from the nut.
  - (3) Remove the two screws, lockwashers, cam (74), nut and lockwasher from the back of the lock assembly.
  - (4) Remove the key lock assembly (24) from the door.
- B. Install the Upper Cargo Door Lock Assembly (Refer to Figure 201).
  - (1) Position lock assembly (24) through opening in front of door.
  - (2) Assemble the lock as follows:
    - (a) Install lockwasher and nut on the lock assembly; tighten nut. To prevent nut from loosening, bend lockwasher tab against one flat of the nut.

# CAUTION: Do not use too much Loctite 242 adhesive or it could get into the lock and ruin it.

- (b) Put one drop of Loctite 242 on the two screws and install cam (78), lockwashers and screws on the lock assembly; tighten screws.
- (3) Turn the key and lock to make sure that the cam (74) and pin (67) engages and disengages the latch.
- (4) Operate door linkage from outside to ensure proper operation.
- C. For Key Lock Lubrication, refer to Chapter 12, Key Locks Servicing Servicing Key Lock Lubrication.

# 5. Lower Cargo Door Removal/Installation

- A. Remove Lower Cargo Door (Refer to Figure 201).
  - (1) With upper and lower cargo doors open, support lower door.
  - (2) Remove cotter pins (2) and washers (3) from upper and lower hinge pins (7).
  - (3) Remove hinge pins (7) from upper and lower hinges (6).
- B. Install Lower Cargo Door (Refer to Figure 201).
  - (1) Align hinges on lower cargo door to hinges on fuselage.
  - (2) Install hinge pins (7) through hinges.
  - (3) Secure hinge pins with washers (3) and cotter pins (2).
  - (4) Make sure the door gap is correct. Refer to Cargo Door Gap Adjustment in this section.

### 6. Lower Cargo Door Latching Mechanism Removal/Installation

- A. Remove Lower Cargo Door Latching Mechanism (Refer to Figure 201).
  - (1) Remove roll pin (40), handle (38), and washer (39).
  - (2) Remove two screws (41) and escutcheon (37).
  - (3) Remove lower cargo door upholstery panel.
  - (4) Disconnect pushrod assembly (25) by removing cotter pins (26), (22), and pins (43), (68) attaching pushrod (25) to bellcrank (28) and latch pin assembly (21).
  - (5) Remove latch pin assembly.
  - (6) Disconnect and remove pushrod assembly (65) by removing cotter pins and pins attaching pushrod to bellcrank (50) and bellcrank (67).
  - (7) Remove latch pin assembly (63).
- B. Install Lower Cargo Door Latching Mechanism (Refer to Figure 201).

- (1) Install latch pin assembly (63) and insert bellcrank (50) into slot in latch pin assembly.
- (2) Connect pushrod assembly (65) to bellcrank (50) using pin (51) and cotter pin (64).
- (3) Install latch pin assembly (21) and insert bellcrank (67) into slot in latch pin assembly.
- (4) Connect pushrod assembly (65) to bellcrank (67) using pin (46) and cotter pin (45).
- (5) Connect pushrod assembly (25) to latch pin assembly (21) and bellcrank (28) using pins (43), (68) and cotter pins (26), (22).
- (6) Install lower cargo door upholstery panel.
- (7) Install escutcheon (37) using two screws (41).
- (8) Install washer (39), handle (38) and secure with roll pin (40).

## 7. Upper and Lower Cargo Doors Adjustment/Test

#### A. Cargo Door Gap Adjustment

CAUTION: Do not adjust the bonded door flange or the airplane structure with force. The bonded areas and the structural components can be damaged.

(1) Determine the existing gap by fully closing and latching the cargo door.

NOTE: The gap between the door and adjacent fuselage skin should be 0.06 inch, +0.03 or -0.00 inch (1.52 mm, +0.76 mm or -0.00 mm).

- (2) If the door gap is incorrect, trim the door as needed to achieve the correct gap.
- (3) Close and latch the cargo door and recheck gap. Repeat the trim procedure as needed to obtain the correct gap.
- (4) After trimming the door, prime and paint to match surrounding area. Refer to Chapter 12, External-Cleaning/Painting.
- B. Adjust Upper and Lower Cargo Doors (Refer to Figure 201).
  - (1) With door handles (41 and 19) in their locked position, adjust clevis ends of pushrods by loosening jamb nuts to obtain 0.91 inch, +0.10 or -0.10 inch from outer edge of door rails to ends of latch pins. After adjusting, tighten jam nuts. Refer to Figure 202.
  - (2) Adjust plunger (73) in outer end of handle (19) using slot screwdriver. To tighten, turn clockwise; to loosen, turn counterclockwise. Adjust plunger (73) until 10 pounds, +5 or -0 pounds of force, applied at 0.55 inch from end of handle (19), is required to disengage plunger (73) from catch plate (71).

### 8. Gas Spring Cylinder Disposal

WARNING: When removed, depressurize gas spring as described in the following steps before discarding. Protective eye covering must be worn while performing these steps.

- A. Dispose of Gas Spring Cylinder (Refer to Figure 203).
  - (1) Place cylinder horizontally in bench vise and tighten vise.
  - (2) Place several layers (4 layers minimum) of shop towels or rags over end of cylinder in vise.
  - (3) Measure 1.50 inches in from fixed end of cylinder, and using a scratch awl or pointed center punch and hammer, drive awl or punch through the towels and into the cylinder until the gas begins to escape.
  - (4) Hold towels and scratch awl in place until all gas has escaped (a few seconds). Then slowly remove scratch awl. Escaping oil will be absorbed by the towels.
  - (5) While still holding towels over hole, push bright shaft completely into cylinder to purge remaining oil.
  - (6) Remove gas spring from vise and discard.

### 9. Gas Spring/Upper Door Test Procedure

- A. When gas spring operation problems are suspected on upper cargo door, the following test procedure should be used. The forces are measured with a spring ambient temperature of 68°F, +2 or -2°F, with piston rod extending downwards.
  - (1) Obtain direct reading sensitive scale.
  - (2) Remove pneumatic extender from airplane.
  - (3) Grasp extender by cylinder in a vertical position with piston rod end down, and place on sensitive scale.
  - (4) Compress device fully four or five times with piston rod end down. (This lubricates seals and piston.)
  - (5) Compress approximately 1.5 inch and relax pressure slightly to allow piston rod to extend slowly until it is approximately 0.20 inch from full extension. Hold steady and read pressure.

(6) An acceptable extender will read between 42 and 52 pounds on scale.

A22247 208B PASSENGER TYPICAL CARGO DOOR 26141050 26141056

Figure 201 : Sheet 1 : Upper and Lower Cargo Door Installation

A22248 3 18C 10 18 12 18**D** 13 14 15 VIEW A-A 16 17 18H 18E 18**G** 18F 18H 16 18E 18**G** DETAIL A NOTE: WINDOWS NOT INSTALLED 15 ON CARGO AIRPLANES 18 **HINGE PIN** 14. GAS SPRING CYLINDER 1. **ROLL PIN** 2. 15. NUT **SCREW WASHER** 3. 16. **UPPER HINGE WASHER** 4. 17. 18**B** 5. NUT **UPPER DOOR** 18. 6. NUT 18A. SAFETY CLIP 7. **WASHER** 18B. **BALLSTUD** 8. **WASHER RUBBER TAPE** 18C. 9. **LOWER HINGE** 18D. **SEAL** 10. **SCREW** 18E. **COTTER PIN** 11. **WASHER** 18F. **CABLE SPACER** 12. 18G. PIN **MOUNTING EYE BOLT** 18A 13. 18H. **PLATE** DETAIL F 2614X1189 26144005 MODELS 208 AND 208B PASSENGER 2614X1188

Figure 201 : Sheet 2 : Upper and Lower Cargo Door Installation

A22249 23 24 27 25 21 26 32 68 31 74 30 19 35 29 28 20 36 37 67 38 73 47A 66 64 39 72 40 63 65 69 70 71 61 44 62 60 43 59 52 50 49 53 51 41 48 54 55 56 46 42 DETAIL B 58 **FILE THIS** 19. **HANDLE** 42. **ROLL PIN AREA** 20. **WASHER** 43. WASHER (NOTE) SPINDLE 21. **ROLL PIN** 44. **SCREW** 22. 45. **SCREW** 23. **ESCUTCHEON SCREW** 46. VIEW B-B 24. **KEY LOCK** 47. WASHER 25. **BUTTON** 47A. COLLAR 65. NUT **SPRING WASHER** 26. 48. 66. WASHER **COTTER PIN** 27. 49. NUT NOTE: **USE CAUTION** 67. LOCK PIN 50. 28. WASHER PIN TO MAINTAIN 68. **GUIDE** 29. PIN 51. **COTTER PIN** HOLE EDGE 69. **UPPER DOOR** 30. **WASHER** 52. **BELLCRANK DISTANCE** 70. **WASHER** 31. **PUSHROD** 53. **PUSHROD CATCH** 71. **COTTER PIN** 32. 54. PIN 72. **SCREW** 33. LATCH PIN 55. **ROLL PIN** 73. **PLUNGER** 34. PIN 56. SPACER 74. CAM 35. PIN 57. SPRING 36. SUPPORT ASSEMBLY 58. **WASHER** 44 37. **SCREW** 59. **WASHER** 38. **LOCKPLATE** 60. **LATCH PIN** 41A 39. **SCREW** 61. **COTTER PIN** 40. **PLUNGER** 62. **COTTER PIN** DETAIL D 41. **HANDLE** 63. **WASHER** 41A. **BOSS** 64. **SCREW** MODELS 208, 208B, 208 CARGOMASTER, B26142022 AND 208B SUPER CARGOMASTER BB2614X1190 D26141057

Figure 201 : Sheet 3 : Upper and Lower Cargo Door Installation

A22250 9 10 19B 11 19C 19F 12 19A 13 19D 19E 19G 19H DETAIL E MODEL 208B ONLY 16 (NOTE) 15 (NOTE) Н 19 (NOTE) 19L 18 (NOTE) (NOTE) **19**I 19M NOTE: THESE ITEMS INSTALLED ON AIRPLANES 20800001 THRU 20800131 AND 208B0001 THRU 208B0054 14 (NOTE) DETAIL C 19N **LOWER CARGO** 19F. 13. **NUT SCREW** 1. **DOOR** 14. STRAP (NOTE) 19G. **WASHER** NUT SCREW (NOTÉ) 19H. 2. **COTTER PIN** 15. **WASHER** SPACER (NOTÉ) TRIM PANEL 3. 19I. 16. WASHER (NOTE) **SCREW** 17. 19J. STAPLE 4. 19K 5. **SCREW** 18. WASHER (NOTE) 19K. **SCREW** 6. HINGE HALF 19. NUT (NOTE) 19L. **SPACER** 19J 7. **CLIP** HINGE PIN 19A. 19M. SCREW 8. **SCREW** 19B. **SCREW** 19N. LATCH ASSY DETAIL G **SPIRA CERT** 9. HINGE HALF 19C. **WASHER WASHER** 10. 19D. AIRPLANES 20800132 AND ON C26144004 11. NUT 19E. NUT E26141049 AND 208B0055 AND ON 12. **WASHER** G2614C1070

Figure 201 : Sheet 4 : Upper and Lower Cargo Door Installation

A22252 31 32 30 33 28 38 34 27 35 26 37 25 39 23 22 42 36 21 43 20 68 45 41 46 70 40 48 69 67 20. **BUSHING** 46. PIN 66 **LATCH PIN SUPPORT** 21. 47. 65 22. **COTTER PIN** 48. **SCREW** 47 49 23. **SPACER** 49. **SCREW** 24. **SCREW** 50. **BELLCRANK** 25. ROD 51. PIN 52. 26. **COTTER PIN BUSHING SUPPORT** 27. **WASHER** 53. 28. **BELLCRANK** 54. **SCREW** 29. PIN 55. **SCREW** 50 **SUPPORT** 30. 56. PIN 64 **ASSEMBLY** 57. **ROLL PIN 52** 31. **SCREW** 58. **SPACER** 53 32. **WASHER** 59. **WASHER** 33. **WASHER** 60. SPRING 54 34. NUT 61. **WASHER** 35. **SCREW** 62. COTTER 59 36. **SPINDLE** PIN 37. **ESCUTCHEON** 63. LATCH PIN 60 38. **COTTER HANDLE** 64. 55 39. **WASHER** PIN **PUSHROD ROLL PIN** 65. 40. 57 41. **SCREW** 66. **BUSHING** 58 **BELLCRANK** 42. **WASHER** 67. 43. PIN 68. PIN DETAIL H 61 **COTTER PIN** 69. **ROLL PIN** 44. 45. **COTTER PIN** 70. **SPACER** AIRPLANES 20800001 THRU 20800107 H26143015

Figure 201 : Sheet 5 : Upper and Lower Cargo Door Installation

A22253 31 23 32 30 33 27 34 38 28 26 35 DETAIL J 37 AIRPLANES 20800001 THRU 20800102 39 25 23 22 42 36 21 43 20 68 45 46 70 48 69 67 20. **BUSHING** 47. SUPPORT **LATCH PIN** 21. **SCREW** 48. 22. **COTTER PIN** 49. **SCREW** 66 23. **SPACER** 50. **BELLCRANK** 65 24. **SCREW** 51. PIN 47 49 25. ROD 52. **BUSHING** 26. **COTTER PIN** 53. SUPPORT 27. **WASHER** 54. **SCREW** 28. **BELLCRANK** 55. **SCREW** 29. PIN 56. PIN 30. **SUPPORT** 57. **ROLL PIN ASSEMBLY** 58. SPACER 31. **SCREW** 59. WASHER 50 64 **WASHER** 32. 60. SPRING **52 WASHER** 33. **WASHER** 61. 53 34. NUT 62. COTTER 35. **SCREW** PIN 62 36. **SPINDLE** 63. LATCH PIN 37. **ESCUTCHEON** 64. COTTER 59 38. **HANDLE** PIN 39. **WASHER** 65. **PUSHROD** 60 40. **ROLL PIN** BUSHING 66. **SCREW** 41. 67. **BELLCRANK** 55 42. **WASHER** 68. PIN 43. PIN 69. **ROLL PIN** 57 58 **COTTER PIN** 44. 70. SPACER COTTER PIN 45. **SPACER** 71. DETAIL H 46. PIN 72. **STRAP** H26143015 AIRPLANES 20800108 AND ON J26143015

Figure 201 : Sheet 6 : Upper and Lower Cargo Door Installation

Figure 202 : Sheet 1 : Upper and Lower Cargo Doors Adjustment

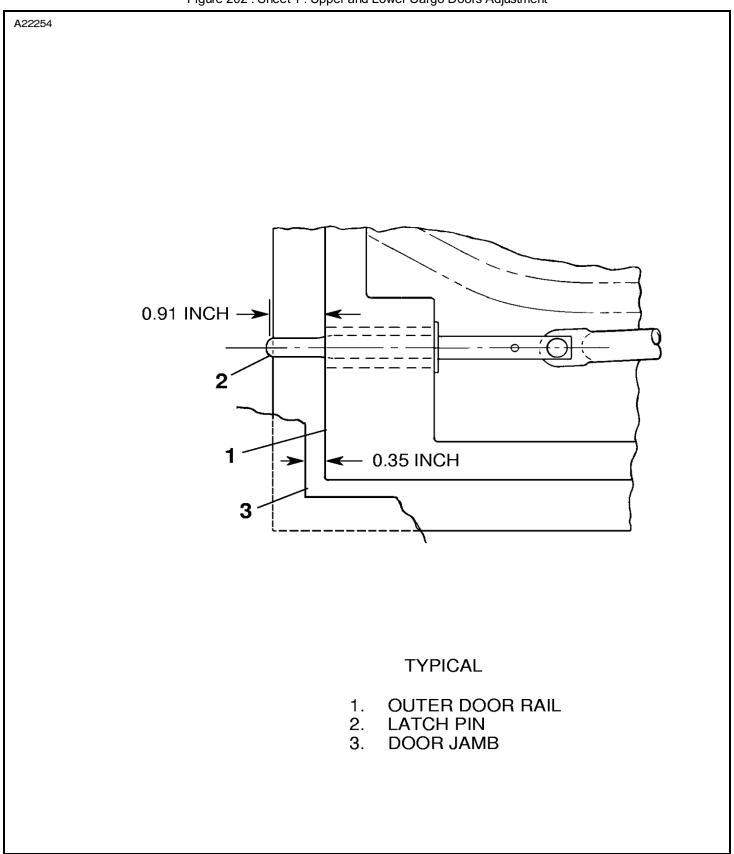


Figure 203 : Sheet 1 : Gas Spring Cylinder Disposal

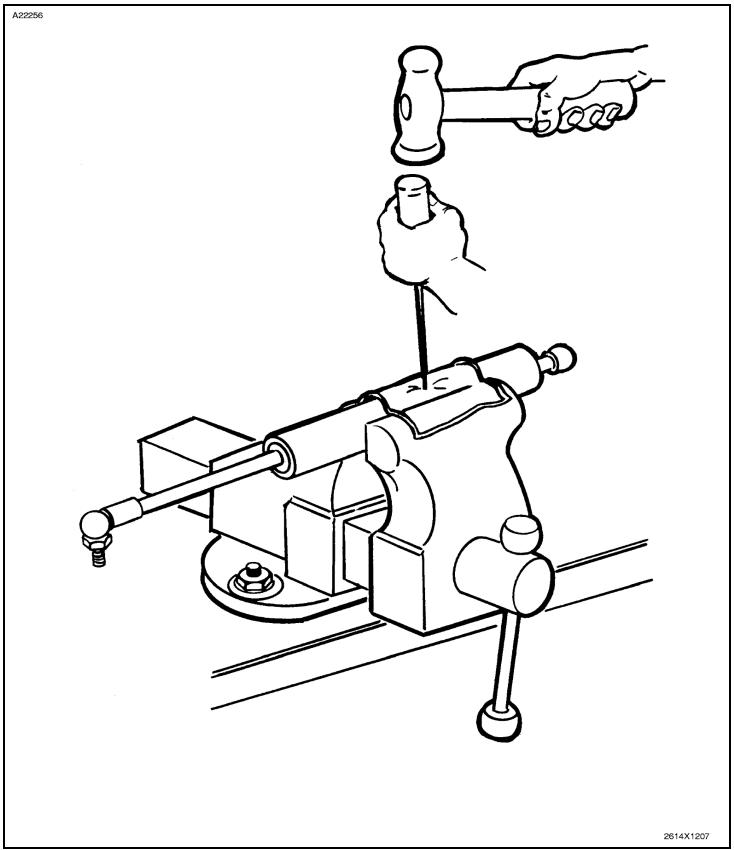
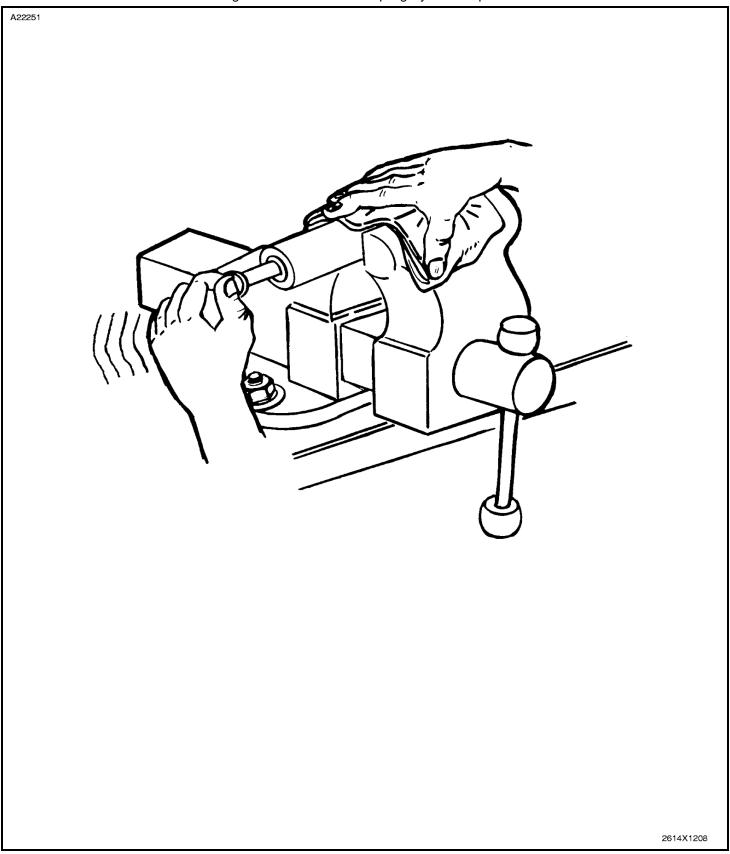


Figure 203 : Sheet 2 : Gas Spring Cylinder Disposal



Page 13 of 13 Print Date: Mon May 15 14:19:14 CDT 2023