

CHAPTER 52

DOORS

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DOORS – DESCRIPTION/OPERATION

1. General

The doors covered in this chapter consist of a sliding canopy that provides access to the pilot and passenger seats, and a baggage door that provides access to the baggage compartment.

2. Canopy

The canopy is a formed aluminum structure containing side windows of plexiglas, and a latching mechanism to lock the canopy in the closed position.

3. Baggage Door

The baggage door is located on the left side of the fuselage at approximately Fuselage Station 150. It provides access to the baggage compartment.

4. Assist Handle

An assist handle is provided on each side of the fuselage at Fuselage Station 111.00 immediately beneath the canopy rail.

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CANOPY-DESCRIPTION/OPERATION

1. General

The canopy consists of a formed aluminum structure, mounted on tracks extending along the sides of the fuselage. When positioned in its aft limit of travel the canopy opening provides an entry opening approximately 34 to 40 inches in area. This allows entry into both front and rear seats of the airplane. Fixed windows on each side of the canopy provide lateral visibility. The canopy is held in the closed (forward) position by a latch mechanism that can be actuated by handles from either inside or outside the airplane. A key actuated lock is provided to lock the canopy from outside the airplane.

CANOPY – MAINTENANCE PRACTICES

1. Servicing

A. Rail Lubrication

**WARNING:** USE SOLVENTS IN A WELL VENTILATED AREA. AVOID BREATHING FUMES. KEEP AWAY FROM FLAMES.

- (1) Use isopropyl alcohol and a small brush to clean the teflon runners inside the canopy outer tracks. Ensure that the tracks are clean and free of residue.
- (2) Inject a small amount of non oil base spray lubricant (E-Z-Free by XIM Products, Inc., 1169 Bassett Road, Westlake, Ohio 44145, or equivalent) into the sliding surfaces.
- (3) Open and close the canopy several times to distribute the lubricant.

B. Latch Lubrication

Lubricate latch in accordance with Chapter 12.

2. Canopy Removal/Installation

A. Canopy Removal (See Figure 201.)

- (1) Remove bottom row of Phillips screws (1) on each side of canopy.
- (2) Lift canopy straight up and remove from aircraft.

B. Canopy Installation (See Figure 201.)

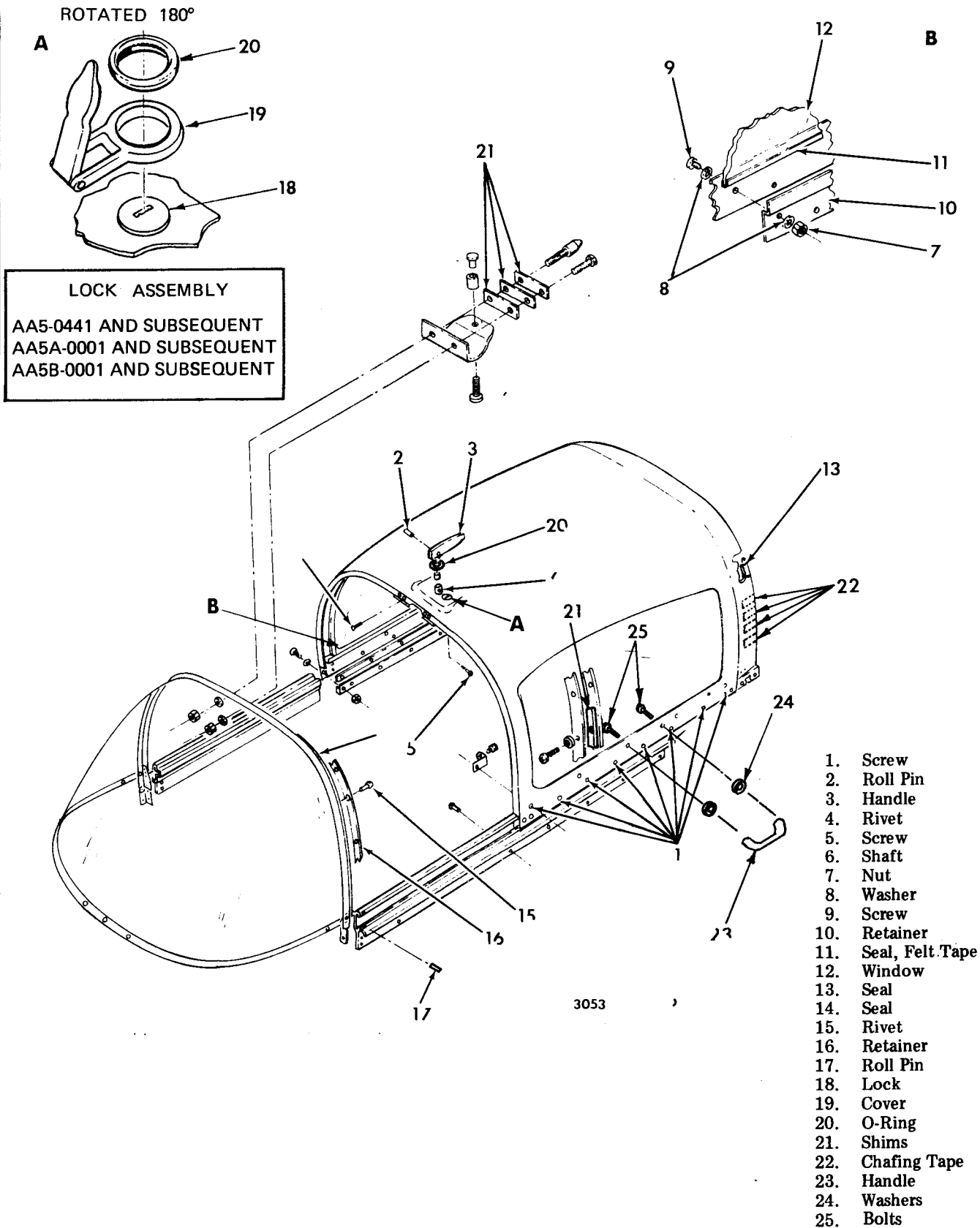
- (1) If the original canopy is being reinstalled, proceed as follows:
  - (a) Lower canopy straight down and align holes in canopy with holes in rails.
  - (b) Install bottom row of Phillips screws (1) through canopy into track.
- (2) If new canopy is being installed proceed as follows:

On aircraft serial AA5-0230 and subsequent, AA-5A and AA-5B canopy, attach holes are jig drilled prior to canopy installation on the aircraft. Aircraft prior to this serial number have canopy attach holes located during canopy installation. Replacement canopies supplies for these aircraft will not have attach holes drilled, nor will the lower edge be trimmed to size. The following is provided to assist the mechanic making the installation.

- (a) Remove existing canopy and hardware that is to be replaced. This canopy may be used as necessary to determine hole size and approximate locations during installation of the replacement canopy.
- (b) Preliminary Fit: With inner track assemblies located in the closed position, temporarily locate canopy on aircraft. Line up canopy outer forward skin with windshield contour and "C" clamp forward canopy bow to windshield bow. Tighten or loosen clamps as necessary to obtain 1/8 inch clearance in both upper corners between the aft canopy bow and the turtle-back skin. The clearance along the area below the corners should be equal on both sides.

**NOTE:** Forward and aft canopy bow lower ends may bottom out on the outer track assemblies attached to the fuselage. File as necessary to achieve the above fit. Remove canopy from aircraft.

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Canopy Removal/Installation  
Figure 201

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- (c) Final Fit: Temporarily attach window retainers to the inner tracks and locate tracks in closed position on the aircraft. Place canopy over tracks and locate as stated in Step (b).
- (d) Mark lower canopy skin and bow ends for final trimming. The trim line should correspond to the lower edge of the retainers.
- (e) From inside cabin, back drill 10 (five each side), holes through the canopy skin, using the upper holes in the retainers for locations.

**NOTE:** Hold canopy skin flat to avoid wrinkles while back drilling.

- (f) Remove canopy from aircraft and trim lower edges per lines established in Step (d).
- (g) Attach retainers to the canopy using holes drilled in Step (e). Locate and drill remaining 16 (eight each side), lower attach holes using the retainers for hole location.
- (h) Install canopy on aircraft. Install additional hardware items and interior to complete the installation.

**NOTE:** To obtain a right seal between the windshield and canopy bows, the windshield may be loosened and slightly shifted. The ideal condition is achieved when the gap (canopy not in locked position), between the bows is slightly greater at the top.

**3. Canopy Latch Removal/Installation**

**A. Canopy Latch Removal (See Figure 201.)**

- (1) Remove roll pin (2) from exterior door handle (3).
- (2) Remove latch cover and center canopy trim panel. Refer to Chapter 25.
- (3) Use a small drift punch to drive out the mandrel in the center of the rivets (4).
- (4) Use a number 30 drill (0.1285 inch diameter) to drill out the rivets (4).
- (5) Remove the screws (5) securing latch to canopy.
- (6) Remove latch from canopy.

**B. Latch Disassembly (See Figure 202.)**

- (1) Disconnect spring (1) from cotter pin (2).
- (2) Use a 3/8 inch wrench and Phillips screwdriver to remove nuts (3) and washers (4 and 5) from screws (6).
- (3) Remove link (7) from screws (6).
- (4) Remove spacers (8) and washers (9) from screws (6).
- (5) Remove guide (10) and screws (6) from housing (11).
- (6) Disconnect spring (12) from cotter pin (2).
- (7) Remove screw (13) washer (14) and nyliner (15) from housing (11).
- (8) Lift lever assembly (16) from housing and remove washers (17) from lever assembly shaft.
- (9) Use a 3/8 inch wrench and Phillips screwdriver to remove nut (18) from screw (19).

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- (10) Remove washers (20), spacer (21), and lever assembly (16) from screw (19).
- (11) Remove screw (19) from hook (22).
- (12) Remove nut (23) from screw (24).
- (13) Remove washer (25). Then remove spacer (26), spring (12), and washer (27) from screw (24).
- (14) Remove screw (24) from hook (22).
- (15) Press rivet (28) from lever assembly (16).
- (16) Remove screws (29), then remove handle (30) from lever assembly (16).

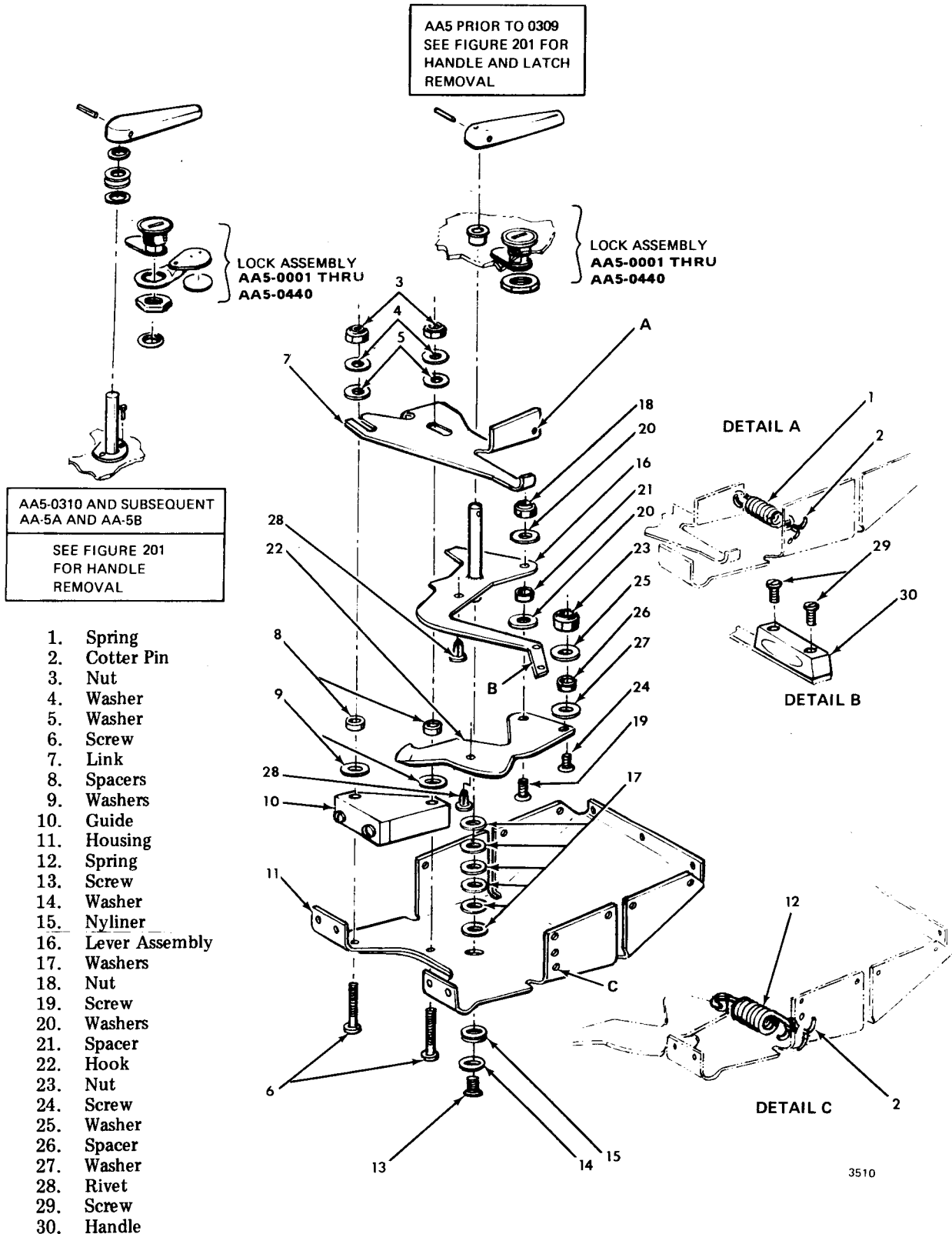
**C. Latch Assembly (See Figure 202.)**

- (1) Position handle (30) on lever assembly (16) and secure with screws (29).
- (2) Press rivet (28) into lever assembly (16).
- (3) Insert screw (24) into hook (22) and install washer (27) and spacer (26) on screw (24).
- (4) Place end of spring (12) over spacer (26). Install washer (25) and secure with nut (23). Tighten nut to standard torque value, per Chapter 91.
- (5) Install screw (19) in hook (22).
- (6) Install washer (20) and spacer (21) on screw (19).
- (7) Place lever assembly (16) over spacer (21) and install washer (20) and nut (18), tighten nut.
- (8) Place washers (17) over hole in housing (11) and slide bottom shaft of lever assembly (16) through washers (17) and housing (11).
- (9) Install nyliner (15) washer (14) and screw (13), tighten screw.
- (10) Connect spring (12) to cotter pin (2).
- (11) Position guide (10) on housing (11) and install screws (6).
- (12) Place washers (9) and spacers (8) on screws (6).
- (13) Install link (7) on spacers (8).
- (14) Install washers (4 and 5) and nuts (3) on screws (6), tighten nuts.
- (15) Connect spring (1) to cotter pin (2).
- (16) Lubricate moving parts of latch with a light film of lubriplate  $\frac{1}{2}$ 501, or equivalent.

**D. Latch Installation (See Figure 201.)**

- (1) Position latch assembly in canopy with shaft of lever assembly (6) extending through the door handle opening, and the guide end of the latch assembly facing forward.
- (2) Secure the aft end of the latch assembly to the canopy by installing the screws (5).
- (3) Secure the forward end of the latch assembly to the canopy with Avex rivets (4) (Part No. 1604-0412).

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- 1. Spring
- 2. Cotter Pin
- 3. Nut
- 4. Washer
- 5. Washer
- 6. Screw
- 7. Link
- 8. Spacers
- 9. Washers
- 10. Guide
- 11. Housing
- 12. Spring
- 13. Screw
- 14. Washer
- 15. Nyliner
- 16. Lever Assembly
- 17. Washers
- 18. Nut
- 19. Screw
- 20. Washers
- 21. Spacer
- 22. Hook
- 23. Nut
- 24. Screw
- 25. Washer
- 26. Spacer
- 27. Washer
- 28. Rivet
- 29. Screw
- 30. Handle

Canopy Latch Disassembly/Assembly (Sheet 1 of 2)  
Figure 202



- (4) Install handle (3) and O-ring (3) on shaft of lever (6) and secure with roll pin (2).

**NOTE:** The canopy latch assembly can be adjusted for a tighter seal between the canopy and windshield by installing additional shims (Figure 201), as required.

**NOTE:** It is necessary to remove the canopy latch from the canopy in order to remove the key lock assembly.

#### 4. Window Removal/Installation

##### A. Window Removal (See Figure 201.)

- (1) Remove canopy inner trim, as applicable. Refer to Chapter 25.
- (2) Remove nuts (7), washers (8), screws (9), and retainers (10) securing glass to canopy.
- (3) Remove glass.

##### B. Window Installation (See Figure 201.)

**CAUTION:** NEVER USE GASOLINE, BENZINE, ALCOHOL, ACETONE, CARBON TETRACHLORIDE, FIRE EXTINGUISHER FLUID, ANTI-ICE FLUID, LACQUER THINNER OR GLASS CLEANER TO CLEAN PLASTIC. THESE MATERIALS WILL DAMAGE THE PLASTIC AND MAY CAUSE SEVERE CRAZING.

**WARNING:** USE SOLVENTS IN A WELL VENTILATED AREA. AVOID BREATHING FUMES. KEEP AWAY FROM FLAMES.

- (1) Use Stoddard solvent or equivalent to clean all foreign material from the window in an area approximately one inch wide around the edge of the window.
- (2) Install seal felt tape (11) (Part No. 7402) around edge of window.
- (3) Position window (12) in canopy and secure with retainers (10), screws (9), washers (8) and nuts (7).
- (4) Seal area between window (11) and canopy with Presstite Sealer, or equivalent.
- (5) Reinstall canopy inner trim. Refer to Chapter 25.

#### 5. Rear Canopy Seal Removal/Installation (See Figure 201.)

**WARNING:** USE SOLVENTS IN A WELL VENTILATED AREA. AVOID BREATHING FUMES. KEEP AWAY FROM FLAMES.

##### A. Rear Canopy Seal Removal

**NOTE:** Methyl Ethyl Ketone (MEK) will attack the paint on the surfaces to which the seal is cemented. After removal of the seal, it will be necessary to repaint this area prior to installation of a new seal.

- (1) Use a cloth moistened with Methyl Ethyl Ketone to soften the cement holding the seal (13) to the canopy.
- (2) Use a fiber scraper to lift the seal as the cement softens and slowly peel from canopy.
- (3) Use the moistened cloth to remove remaining cement from canopy.

##### B. Rear Canopy Seal Installation

- (1) Clean and repaint area of seal on canopy. Refer to Chapter 20. Allow paint to dry thoroughly prior to installing a new seal.

- (2) Cement new seal (Part No. 1803-4) to canopy with A851-B adhesive, B. F. Goodrich Inc., (or equivalent).

## 6. Canopy Front Seal Removal/Installation (See Figure 201.)

### A. Canopy Front Seal Removal

- (1) On early Model AA-5 aircraft, use a number 30 drill to drill out the rivets (15), thereby releasing the retainer (16) and seal (14). Late Model AA-5 and AA-5B aircraft utilize screws and nuts to attach the retainer.

### B. Canopy Front Seal Installation

- (1) Install a new seal (14) retainer (16) and secure. Use new rivets (15) part number MS20470AD4-6 on early Model AA-5 aircraft.

NOTE: If holes are enlarged or deformed as a result of drilling out rivets, use a number 21 drill and enlarge the holes to 0.159 inch diameter, and install new rivets, part number MS20470AD5-6.

- (2) Adjust canopy latch as required for proper seal.

## 7. Adjustment/Test

### A. Track Adjustment

Field experience has shown that after extended operation, the canopy may become difficult to open and close. The following suggestions are provided to aid in maintaining satisfactory freedom of operation of the canopy.

- (1) DO NOT use the canopy as a hand hold during entry to and exit from the aircraft as bending of the inner tracks can result.
- (2) The inner canopy tracks must be perfectly straight. If the tracks are bent, they should be straightened or replaced.
- (3) The sliding surfaces of the canopy inner tracks and the teflon runners in the canopy outer tracks must be kept clean and lightly lubricated. Smoother operation may be achieved by cleaning the sliding surfaces with isopropyl alcohol and a small brush and then injecting a small amount of spray lubricant into the sliding surfaces. Production aircraft canopy tracks are lubricated with E-Z Free lubricant which is available in 6 or 16 ounce spray cans from the Customer Service Department or from XIM Products, Inc. 1169 Bassett Road, Westlake, Ohio 44145.
- (4) If external cleaning and lubricating does not satisfactorily eliminate canopy sticking or binding, the canopy should be removed from the tracks and the tracks slid completely out of the aircraft. All sliding surfaces should then be carefully cleaned with isopropyl alcohol and relubricated with a very thin film of lubricant. If the teflon runners are galled or severely worn, they should be replaced. The teflon runners are secured in the outer tracks with roll pins (Item 17, Figure 201), Esna part number 52-012-062-0500, inserted at the forward end of each channel.
- (5) A canopy track sizing tool part no. ST-1064 is available which may be used to resize the teflon runners when the tracks are removed for cleaning or when the teflon runners are replaced in the field. This tool is simply inserted into the outer track in place of the sliding inner track and forced through the entire length of the outer track to force the teflon runners tightly into the retaining channels. Properly installed teflon runners allow a 1/32 inch to 1/16 inch vertical clearance between the inner canopy track and the runners. This clearance can be checked with the canopy installed by moving it up and down and measuring the inner track movement. Clean lubricated teflon runners installed with the correct clearance are essential for smooth, free canopy operation.

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8. Cleaning/Painting

A. Plexiglas Cleaning

**CAUTION: NEVER USE GASOLINE, BENZINE, ALCOHOL, ACETONE, CARBON TETRACHLORIDE, FIRE EXTINGUISHER FLUID, ANTI-ICE FLUID, LACQUER THINNER OR GLASS CLEANER TO CLEAN PLASTIC. THESE MATERIALS WILL DAMAGE THE PLASTIC AND MAY CAUSE SEVERE CRAZING.**

- (1) If large deposits of mud and/or dirt have accumulated on the plexiglas, flush with clean water. Rubbing with your hand is recommended to dislodge excess dirt and mud without scratching the plexiglas.
- (2) Wash with soap and water. Use a sponge or heavy wadding of a soft cloth. DO NOT rub, as the abrasive action in the dirt and mud residue will cause fine scratches in the surface.
- (3) Grease and oil spots may be removed with a soft cloth soaked in kerosene.
- (4) After cleaning, wax the plexiglas surface with a thin coat of hard polish-wax. Buff with a soft cloth.
- (5) If a severe scratch or marring occurs, jeweler's rouge is recommended. Follow directions, rub out scratch, smooth, apply wax, and buff.

B. Painting Metal Surfaces

Refer to Chapter 20 for metal cleaning and painting procedures.

BAGGAGE DOOR-DESCRIPTION/OPERATION

1. General

The baggage doors installed on aircraft AA5-0406, and subsequent, AA-5A, and AA-5B aircraft and are located on the left side of the fuselage at approximately fuselage Station 150. This hinge-mounted door provides an opening measuring approximately 24 by 12 inches for access to the baggage compartment. The door is hinged on its forward end and provided with a chain type restraint to prevent damage to hinges due to over-travel. Door opening from outside the aircraft is accomplished by actuating the latch mounted at the rear of the key-actuated lock mounted on the door. The door can be opened from inside the aircraft by actuating a slide-type latch.

BAGGAGE DOOR — MAINTENANCE PRACTICES

1. Servicing

A. Hinge Lubrication

Refer to Chapter 12 for hinge lubrication procedures.

B. Latch Lubrication

Refer to Chapter 12 for latch lubrication procedures.

2. Baggage Door Removal/Installation

A. Baggage Door Removal (See Figure 201.)

- (1) Remove interior trim surrounding baggage door. Refer to Chapter 25.
- (2) Use a number 30 drill to remove the eight rivets (1) securing the baggage door to the aircraft.
- (3) Remove cotter pin (2), washer (3), and clevis (4) from aircraft.
- (4) Open baggage door latch (5) and remove baggage door from the aircraft.

B. Latch Disassembly (See Figure 204.)

- (1) Remove trim panel from inside of door. Refer to Chapter 25.
- (2) Disconnect spring (1) from cotter pin (2) and clip (3).
- (3) Remove cotter pin (4), washer (5) and clevis pin (6).
- (4) Remove cotter pin (2), washer (7) and clevis pin (8), then remove link (9).
- (5) Remove bolt (10) and washer (11), then pull slide (12) from under clip (3). Remove washer (13).
- (6) Remove screw (14), lockwasher (15) and link (16) from camlock (17).
- (7) Unscrew camlock retainer nut (18) and remove camlock (17).

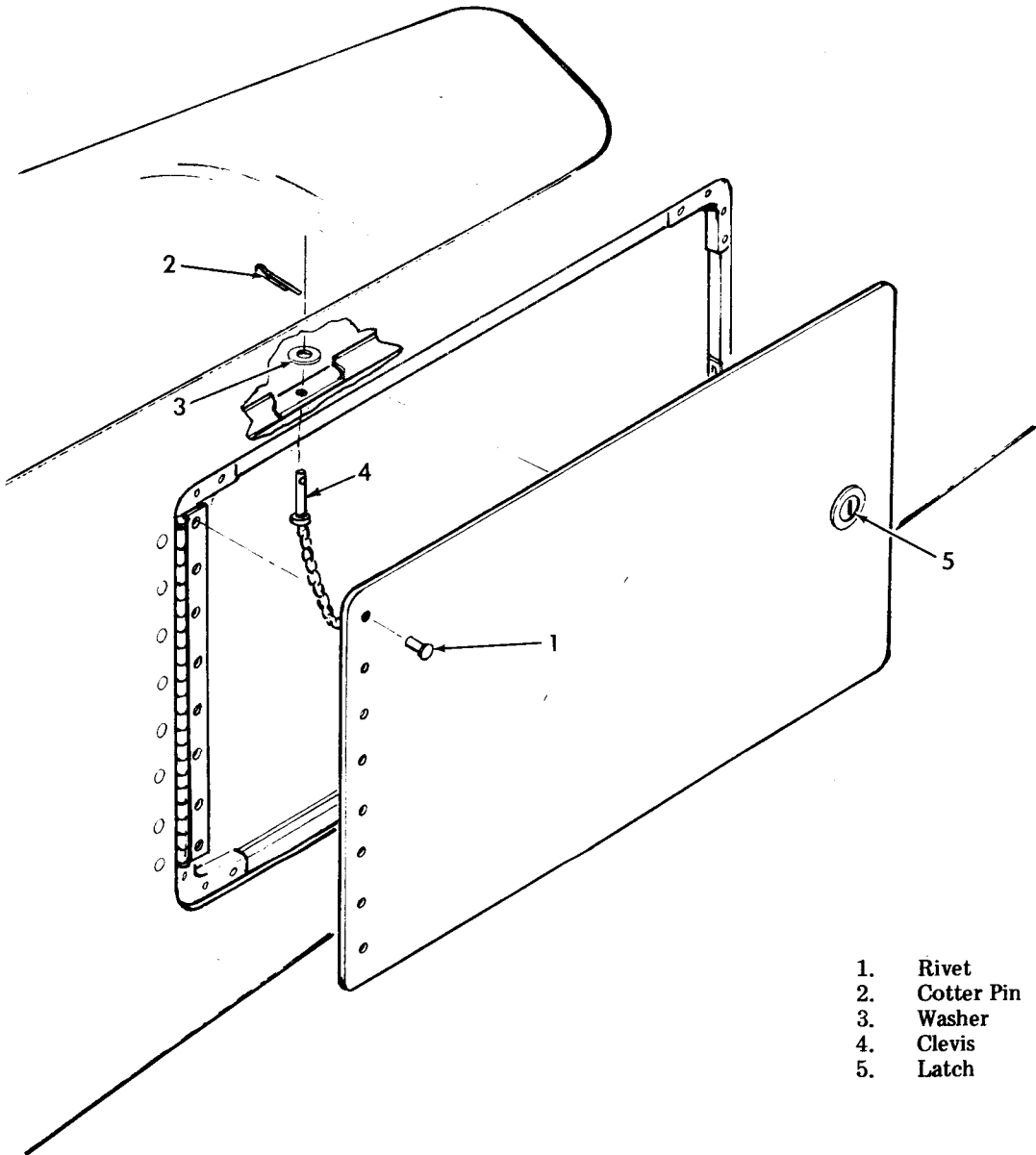
NOTE: If clip (3) is to be removed, it is necessary to drill out the rivets (19) retaining it. Replacement will require use of blind fasteners.

- (8) Remove clip (3) by drilling rivets (19) out with a number 30 drill.

C. Latch Assembly (See Figure 204.)

- (1) Place camlock (17) in door so that key slot will be vertical when door is installed. Secure with retainer nut (18).
- (2) If clip (3) has been removed, position clip (3) over mounting holes and secure with two blind rivet fasteners.
- (3) Place clevis pin (8) through matching holes in slide (12) and link (9). Secure with washer (7) and cotter pin (2).
- (4) Place clevis pin (6) through matching holes in link (16) and link (9). Secure with washer (5) and cotter pin (4).

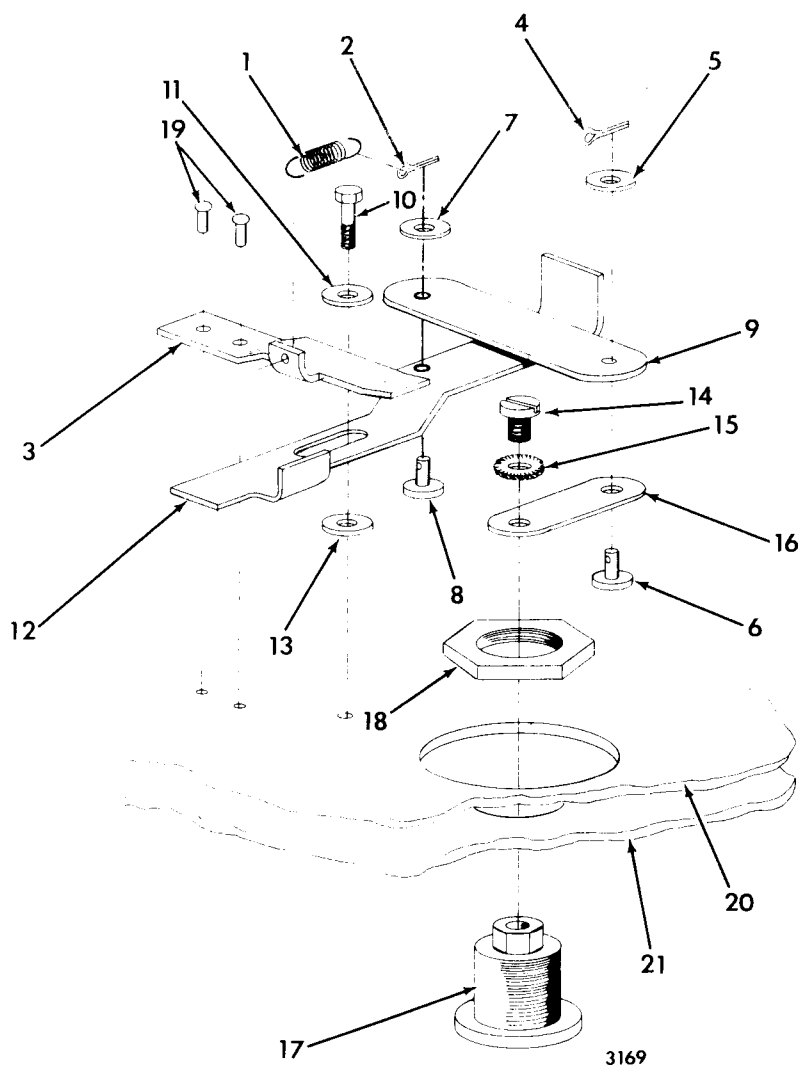
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1. Rivet
2. Cotter Pin
3. Washer
4. Clevis
5. Latch

Baggage Door — Removal/Installation  
Figure 203

AA-5 SERIES  
MAINTENANCE MANUAL



1. Spring
2. Cotter Pin
3. Clip
4. Cotter Pin
5. Washer
6. Clevis Pin
7. Washer
8. Clevis Pin
9. Link
10. Bolt
11. Washer
12. Slide
13. Washer
14. Screw
15. Lockwashers
16. Link
17. Camlock
18. Retainer Nut
19. Rivets
20. Pan
21. Door Skin

Baggage Door Latch Disassembly/Assembly  
Figure 204

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- (5) Place washer (13) over bolt hole in pan.
- (6) Place slide (12) over washer (13) so that their holes are aligned with bolt hole and so that slide (12) is under clip (3).
- (7) Install washer (11) and bolt (10) and torque bolt to allow 0.032 inch end play for slide.
- (8) Install spring (1) on cotter pin head (2) and clip (3).
- (9) Position link (16) so that it is parallel with slide (12), and hold in position while securing with washer (15) and screw (14).

D. Door Installation (See Figure 205.)

NOTE: If the door is being reinstalled, omit Step (3).

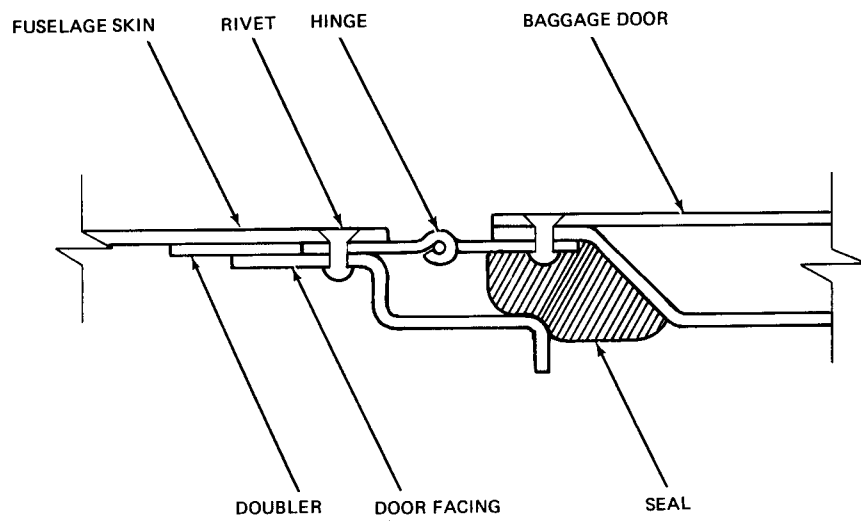
- (1) Position door so that its hinge fits between fuselage skin and the baggage door facing.
- (2) Adjust door so that it fits within door facing with a clearance of 0.06 inch between the door and the aircraft skin.
- (3) While holding the door in this position, drill 0.098 inch holes in hinge to match holes in skin and facing.
- (4) Secure door to aircraft with eight MS24026AD3-3 rivets.
- (5) Install clevis (4, Figure 203) washer (3) and cotter pin (2).
- (6) Install interior trim. Refer to Chapter 25.

3. Cleaning/Painting

Refer to Chapter 20 for metal cleaning and painting procedures.



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Baggage Door Installation  
Figure 205