

FRESH AIR DISTRIBUTION - MAINTENANCE PRACTICES

1. General

- A. Fresh air ventilation is provided for airplane via a series of hoses and ducts. Primary ventilation system picks up ram air at upper end of each wing strut and distributes it to a central plenum located in the cockpit headliner area. From plenum, various ducts are used to distribute fresh air throughout cockpit and cabin/cargo area. Control knobs, located in overhead console, provide a means to modulate fresh air flow from each ram air source before it reaches the plenum.
 - (1) Model 208 and 208B passenger ventilation systems include wemac valves and associated duct work for pilot, copilot and each passenger seat position.
 - (2) Model 208B, 208 Cargomaster and 208B Super Cargomaster ventilation systems include wemac valves and associated duct work for pilot and copilot seat positions only.
 - (3) Model 208 and 208B Passenger may be equipped with optional blowers upstream of the plenum. These blowers can be used in ground and/or flight operations to draw additional fresh air into the plenum.
- B. Fresh air may also be drawn into cockpit area by small inlet doors located on the left and right side of forward fuselage. These doors are cable-actuated and open or close to allow a variable amount of ram air to flow into cockpit. Ducts connect doors to adjustable outlets (left and right) on the instrument panel, which further directs flow of fresh air in cockpit area.

2. Tools, Equipment and Materials

- A. For a list of required tools, equipment and materials, refer to Air Conditioning - General.

3. Inlet Door Removal/Installation

- A. Remove Inlet Doors And Associated Components (Refer to Figure 201).
 - (1) Cut straps securing duct to door inlet and instrument panel inlet.
 - (2) Remove duct from airplane.
 - (3) Remove screen from between duct and door inlet.
 - (4) Remove nut, bolt and washer securing end of control cable to door lever.
 - (5) Remove screw and clamp securing control cable to door inlet.
 - (6) Drill out rivets which attach door inlet to fuselage. Remove door inlet from airplane and discard seal.
 - (7) Place door inlet on work bench.
 - (8) Remove cotter pin, washer and pin. Disconnect door lever from door.
 - (9) Remove adjustable outlet from instrument panel.
 - (10) Remove instrument panel inlet from instrument panel. Clean sealant from mating surfaces of instrument panel inlet and instrument panel.
- B. Install Inlet Doors and Associated Components (Refer to Figure 201).
 - (1) Attach door to door inlet. Install pins, washers and cotter pins.
 - (2) Attach door lever to door. Install pin, washer and cotter pin.
 - (3) Locate and rivet door inlet (with new seal) to forward fuselage.
 - (4) Attach control cable to door lever; secure with bolt, washer and nut.
 - (5) Attach control cable to door inlet using clamp and hardware.
 - (6) Prime mating surfaces of instrument panel and instrument panel inlet with SS4155 and apply thin bead (maximum thickness shall not exceed one- quarter inch) of sealant, RTV-102, to mating surfaces.
 - (7) Attach instrument panel inlet to instrument panel using screws, washers and nuts.
 - (8) Clean screen.
 - (9) Install cleaned screen between duct and door inlet.
 - (10) Secure duct at both ends using sta-straps.

4. Cabin Air Ventilation System Valves and Controls Removal/Installation

- A. Remove Valves (Refer to Figure 201).

NOTE: Wing-mounted valves control volume of air allowed to pass into cabin ventilation system.

- (1) Remove lower wing access panel 501AB/601AB to gain access to wing-mounted components. Refer to Chapter 6,

Access Plates and Panels Identification - Description and Operation.

- (2) Disconnect control cable at cabin air control valve elbow by loosening lock nut.
- (3) Remove screws connecting outboard duct to elbow.
- (4) Remove nuts, bolts and washers securing elbow to inboard duct.
- (5) Remove nut, bolt and clamp securing control cable to elbow.
- (6) Remove elbow from airplane.
- (7) Remove nuts and screws securing butterfly to shaft.
- (8) Remove pin which secures control arm to shaft.
- (9) Disassemble and remove shaft from elbow. Note position of friction washers and nylon washers for later reassembly.

B. Install Valves (Refer to Figure 201).

- (1) Install shaft to cabin air control valve elbow. Ensure friction washers and nylon washers are in correct position.
- (2) Attach butterfly valve to shaft using screws and nuts.
- (3) Attach control arm to shaft using pin.
- (4) Install cabin air control valve elbow to inboard duct using nuts, bolts, washers and shims.
- (5) Install outboard duct to elbow using screws.
- (6) Attach control cable to elbow using clamp, nut and bolt.
- (7) Attach end of control cable to arm using washer and new lock nut.
- (8) Check for freedom of movement and full travel by rotating cockpit control knob to extreme positions. Valve should fully open and close with control knob movement.

- (9) Install removed access panel 501AB/601AB . Refer to Chapter 6, Access Plates and Panels Identification - Description and Operation.

C. Remove Controls (Refer to Figure 201).

NOTE: Controls are mounted overhead and are manually connected to wing-mounted fresh air ventilation valves using cables.

- (1) Unzip headliner and remove overhead console to gain access to controls.
- (2) Loosen setscrew on control knob and remove knob from converter.
- (3) Remove screws and nuts securing control cable to converter.
- (4) Disconnect control cable from converter.
- (5) Remove screws securing converter to cabin top structure.
- (6) Unscrew wemac valve from wemac retainer.
- (7) Remove hardware which secures wemac retainer to duct.

D. Install Controls (Refer to Figure 201).

- (1) On early models, position wemac retainer in channel and install duct using spacers, washers, nuts and screws.
- (2) On later models, position retainer in channel and install duct using spacers, washers, nuts and screws.
- (3) Screw wemac valve into wemac retainer.
- (4) Attach converter to cabin top structure using spacers, washers and nuts.
- (5) Attach control cable to converter using nuts, screws and brackets.
- (6) Attach control knob to converter and tighten set screw.
- (7) Rotate control knob and verify full travel of converter.
- (8) Replace overhead console and close headliner.

5. Cabin Air Outlet Valve Removal/Installation (Model 208 only)

A. Remove Valve (Refer to Figure 201).

- (1) Unzip headliner to gain access to outlet valves.
- (2) Remove control knob from shaft by loosening set screw.
- (3) Remove screws securing cover and plate to air outlet plenum. Remove cover and plate.

- (4) Remove pin from index and disconnect index from shaft.
- (5) Disconnect transition from duct.
- (6) Disconnect coupling from plenum.
- NOTE: It is not necessary to disconnect transition from coupling.**
- (7) Drill rivet from butterfly, and disconnect shaft from plenum and butterfly.
- (8) Remove butterfly from plenum.

B. Install Valve (Refer to Figure 201).

- (1) Install butterfly in plenum.
- (2) Install shaft in plenum and butterfly. Place new rivet in butterfly and shaft.
- (3) Connect transition and coupling to duct and plenum.
- (4) Clean sealant from mating surfaces of plenum, duct, transition and coupling with a cloth moistened in aliphatic naphtha. Cloth should be folded each time surfaces are wiped in order to present a clean area and avoid smearing the adhesive being removed. Wipe cleaned surfaces with a clean dry cloth before the naphtha evaporates.

NOTE: A1186B clear adhesive may be used for resealing component parts. Mix eight (8) parts A1186B with one (1) part catalyst by volume. Shelf Life: One year, below 80°F, Work Life: Eight (8) hours at 75°F. Maximum Cure Time: 24 hours at 75°F. Accelerated Cure Time: 20 minutes at 200°F.

- (5) Apply A1186B sealant to mating surfaces of plenum, duct, transition, and coupling with caulking gun in one- quarter inch bead overlapping edges of mating parts.
- (6) Connect index to shaft and install pin.
- (7) Connect plate and cover to plenum using screws.
- (8) Connect control knob to transition shaft and tighten setscrew.
- (9) Close headliner.

6. Cabin Air Outlet Valves Removal/Installation (Model 208B Passenger)

- A. Remove Cabin Air Outlet Valves (Refer to Figure 201).**
 - (1) Unscrew wemac valve from outlet assembly by turning counterclockwise.
- B. Install Cabin Air Outlet Valves (Refer to Figure 201).**
 - (1) Screw wemac valve into outlet assembly by turning clockwise.

7. Cabin Ventilation Fans and Switches Removal/Installation (Model 208 and 208B Passenger)

- A. Remove Cabin Ventilation Fans and Switches (Refer to Figure 202).**
 - (1) Remove lower wing access panels 501AB and 601AB to gain access to wing mounted blower. Refer to Chapter 6, Access Plates and Panels Identification - Description and Operation.
 - (2) Disconnect electrical plug from fan.
 - (3) Remove hardware which secures fan to inboard and outboard ducts.
 - (4) Remove fan from wing area.
 - (5) Unzip headliner and remove overhead console.
 - (6) Disconnect electrical leads from switch and remove switch from overhead assembly.
- B. Install Cabin Ventilation Fans and Switches (Refer to Figure 202).**
 - (1) Attach fan to inboard and outboard ducts using screws, nut and washers.
 - (2) Connect electrical connector to fan.
 - (3) Reinstall lower wing access panels 501AB and 601AB . Refer to Chapter 6, Access Plates and Panels Identification - Description and Operation.
 - (4) Install switch to overhead mount using screws.
 - (5) Connect electrical leads to switch and ensure switch operates properly.

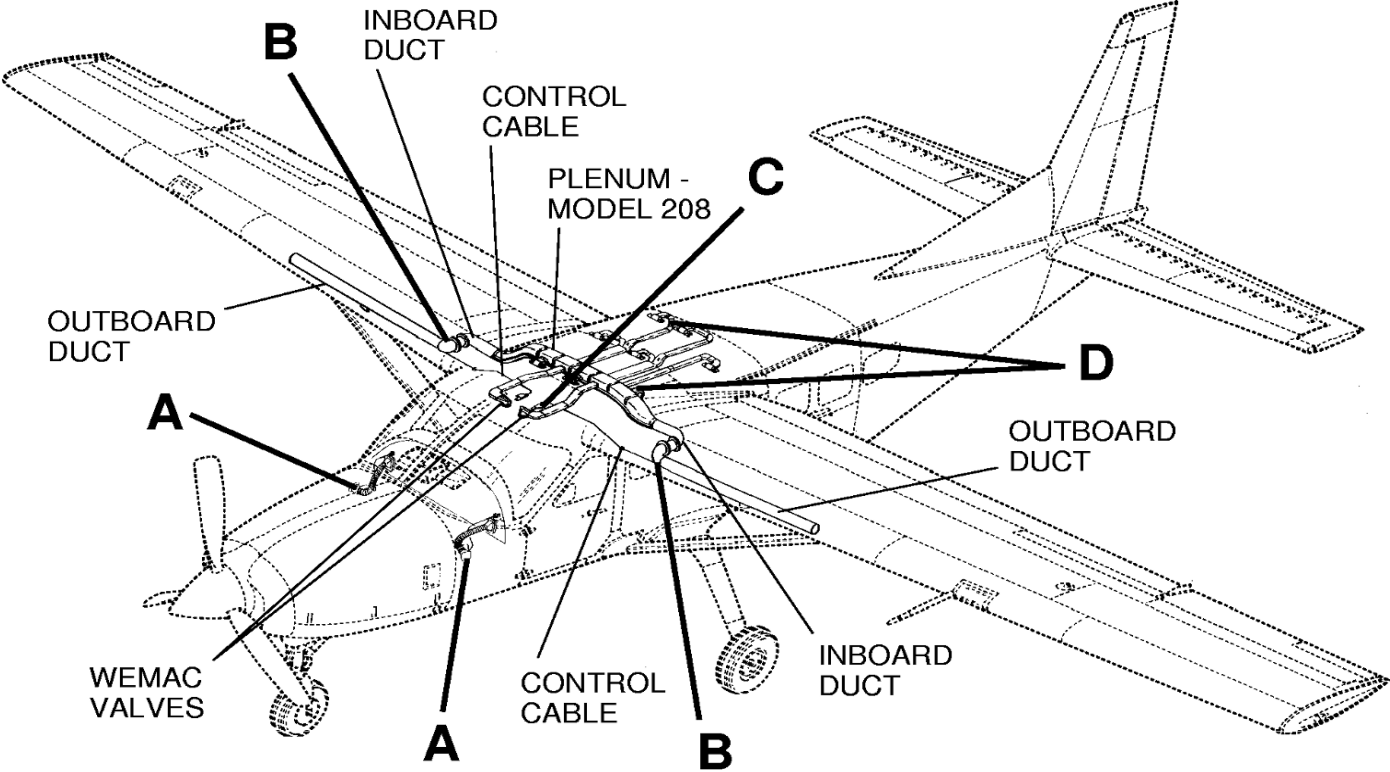
NOTE: Switch is actuated by a lug on converter. Lug contacts the switch when wing-mounted butterfly valve is approximately three-quarters open. When lug contacts switch, fan should

begin operating.

- (6) Install overhead console and zip headliner.

Figure 201 : Sheet 1 : Cabin Air Ventilation System

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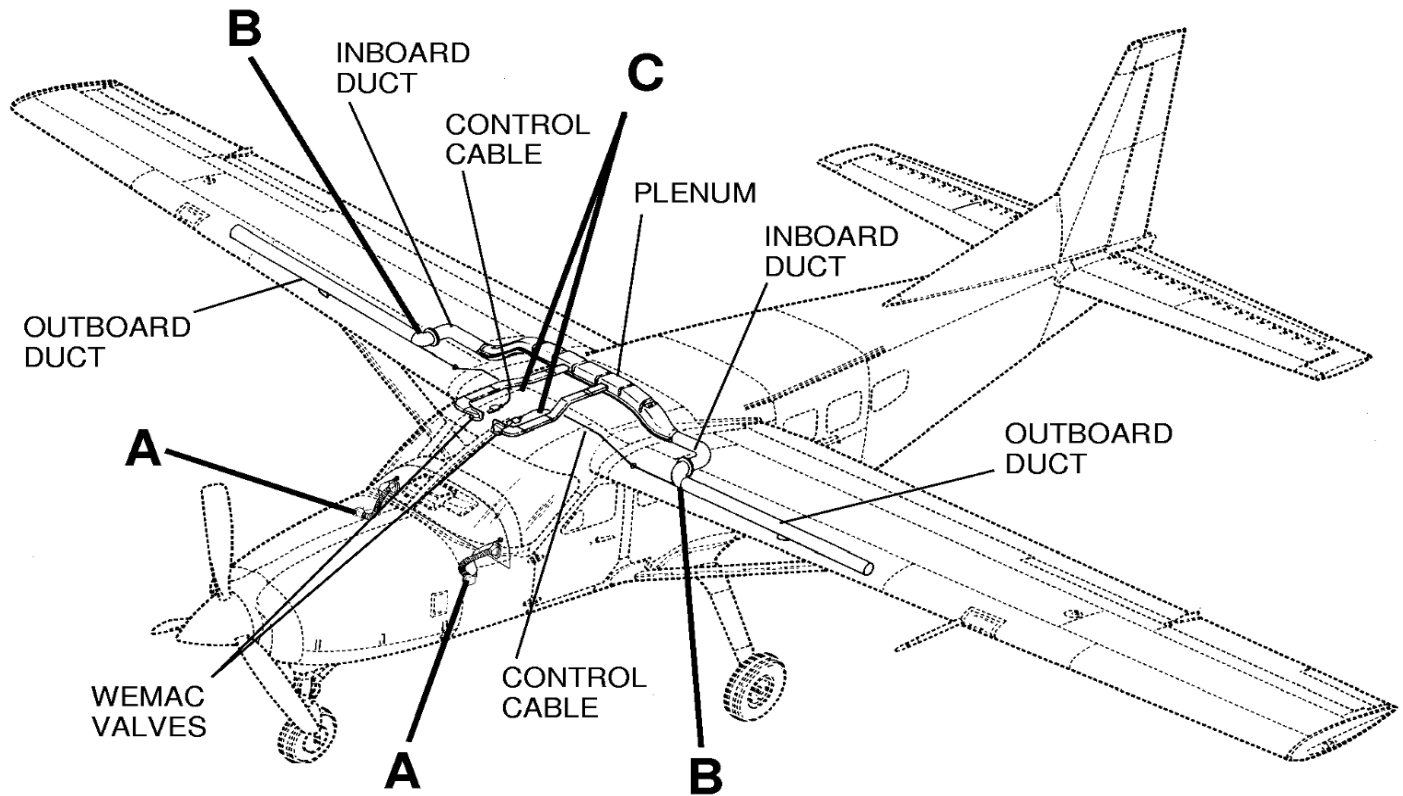


MODEL 208 ONLY

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Figure 201 : Sheet 2 : Cabin Air Ventilation System

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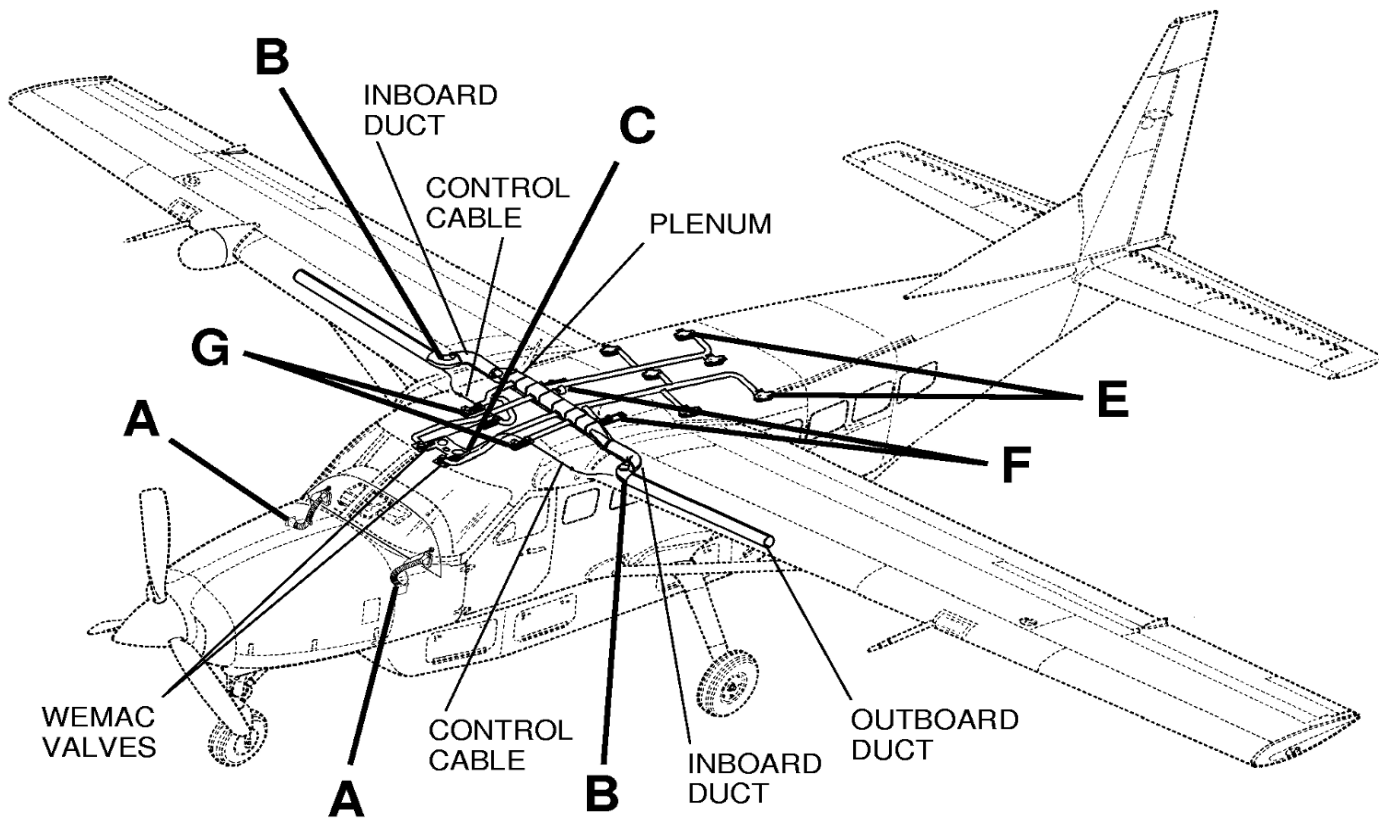


MODELS 208B AND CARGOMASTER

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Figure 201 : Sheet 3 : Cabin Air Ventilation System

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MODEL 208B PASSENGER

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Figure 201 : Sheet 4 : Cabin Air Ventilation System

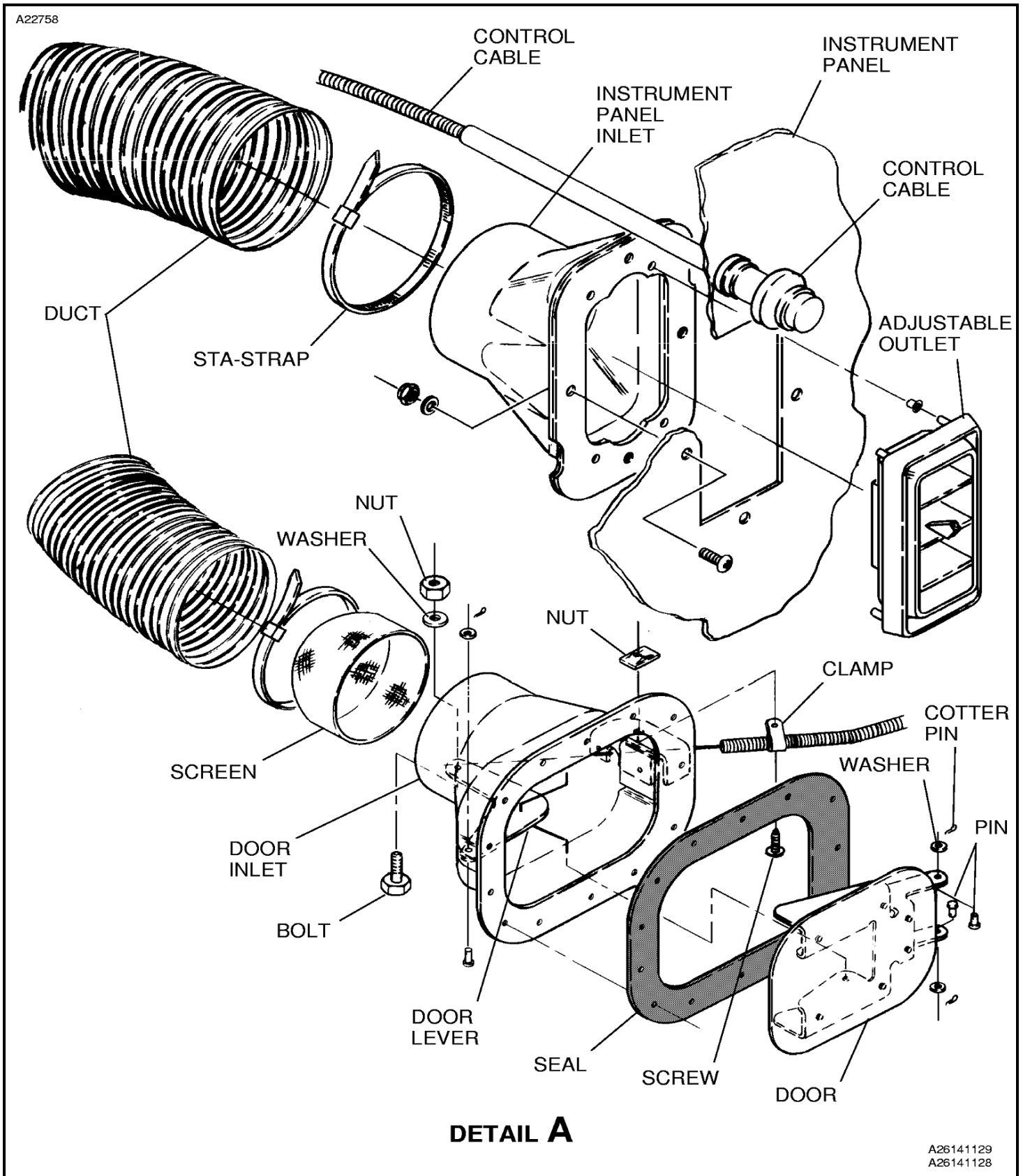
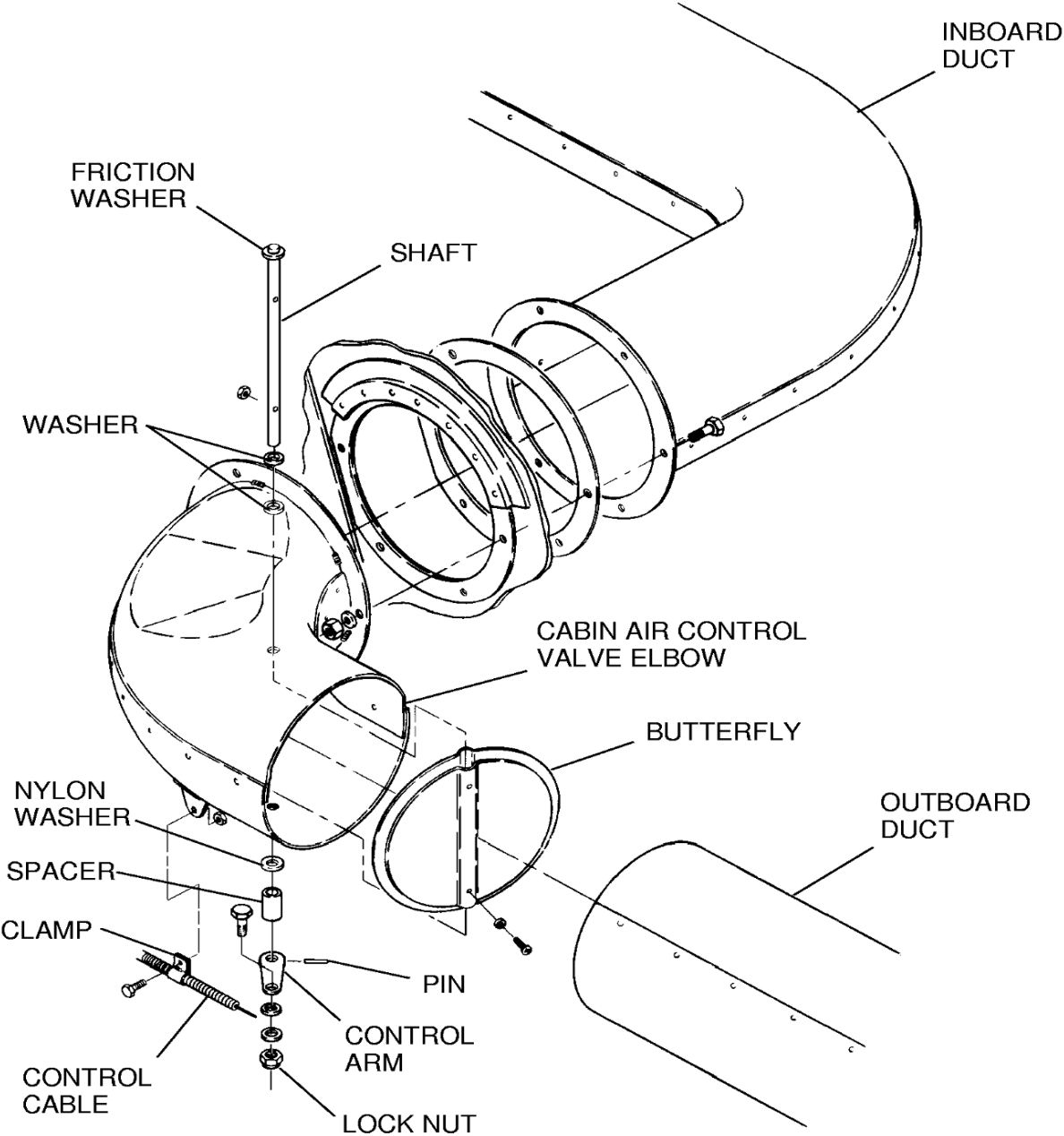


Figure 201 : Sheet 5 : Cabin Air Ventilation System

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DETAIL B

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Figure 201 : Sheet 6 : Cabin Air Ventilation System

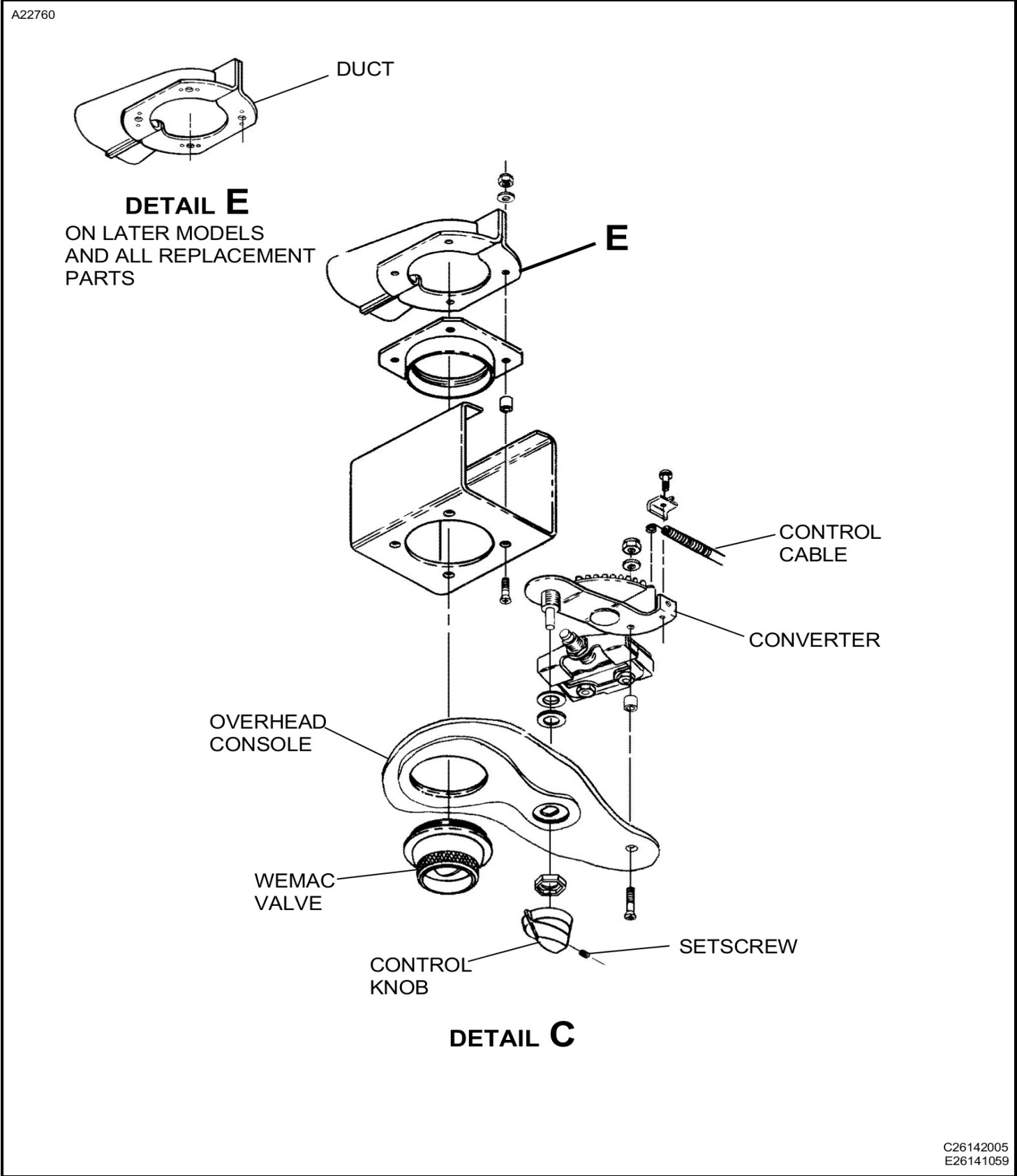
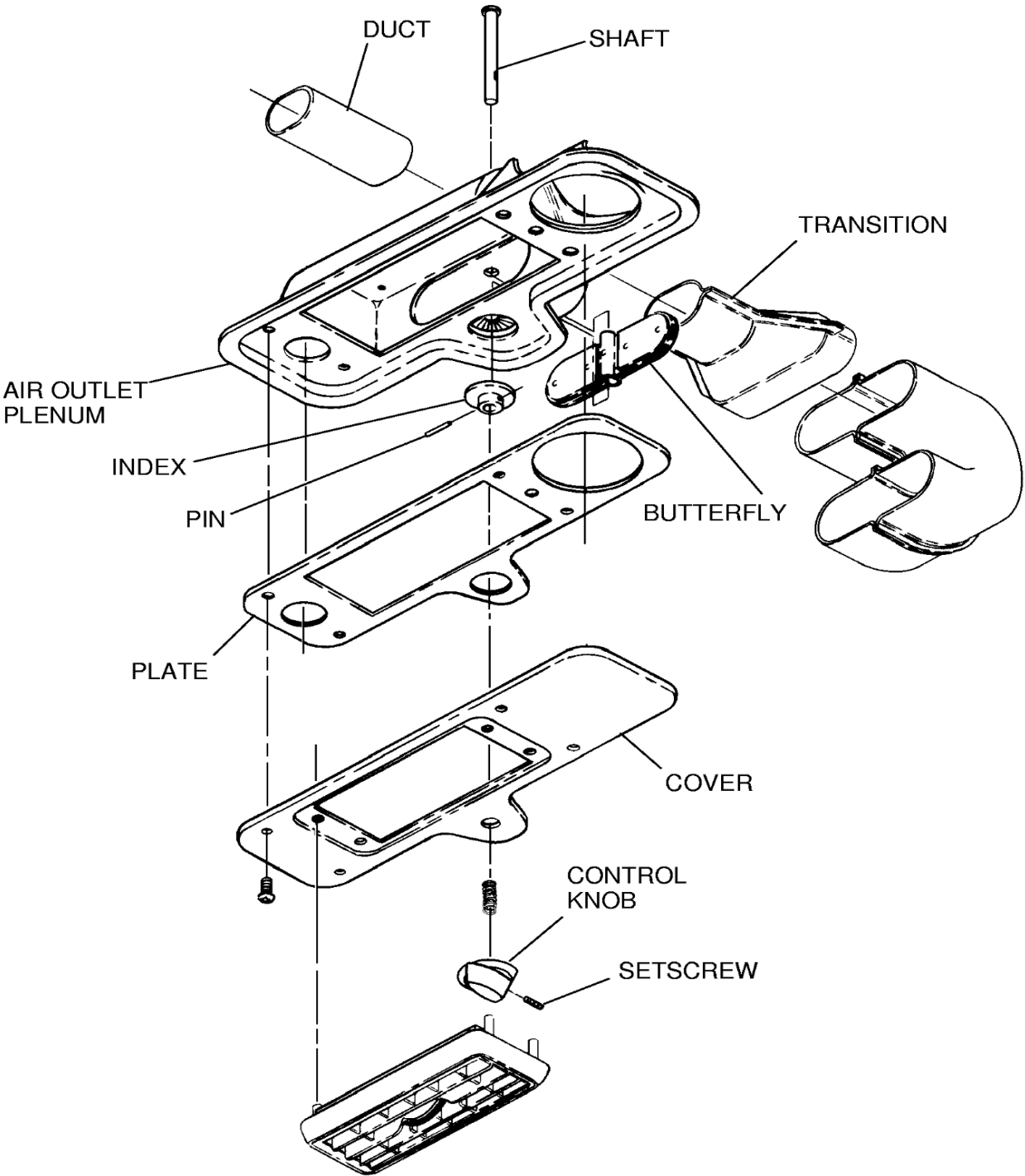


Figure 201 : Sheet 7 : Cabin Air Ventilation System

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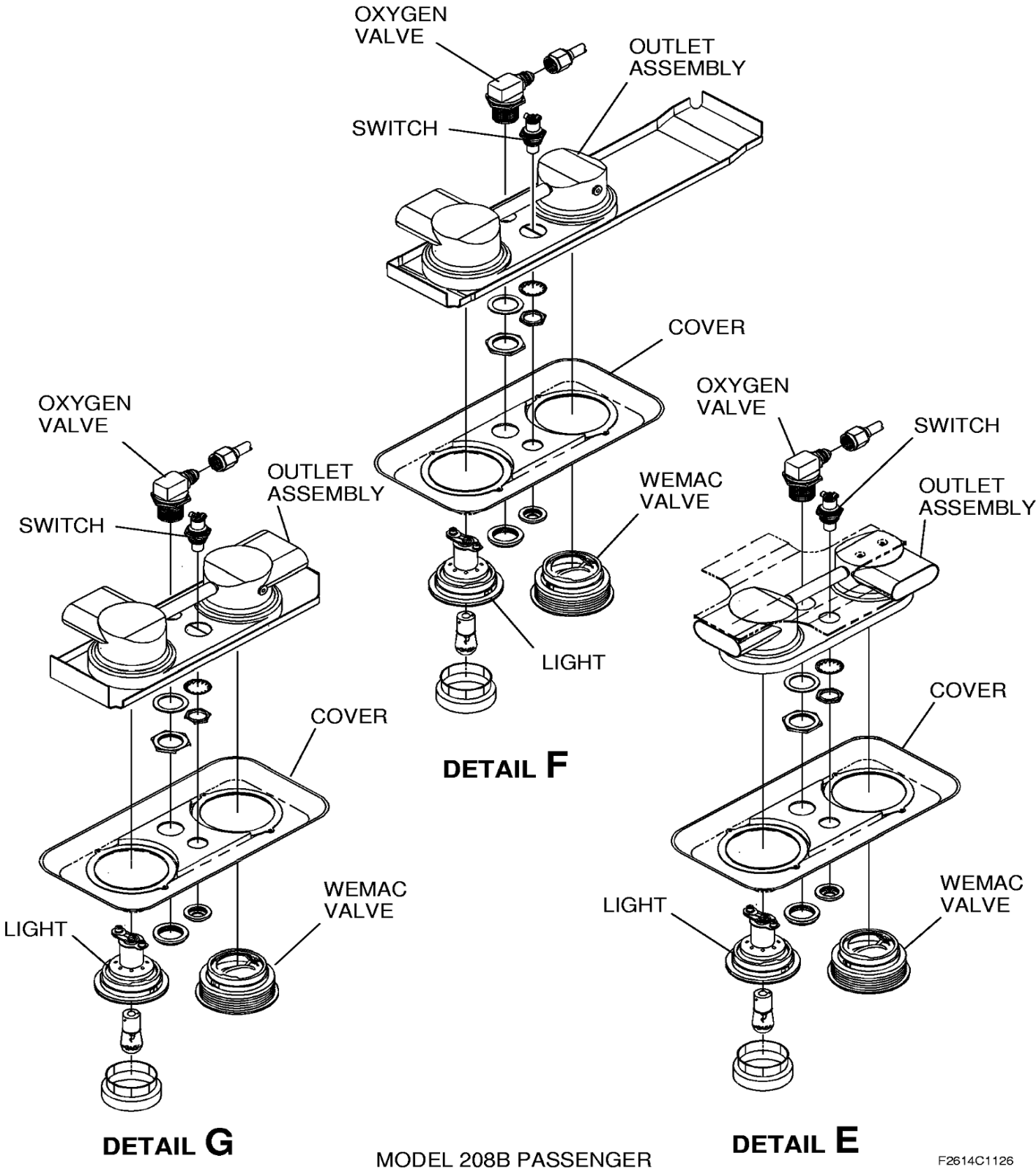


DETAIL D
MODEL 208 ONLY

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Figure 201 : Sheet 8 : Cabin Air Ventilation System

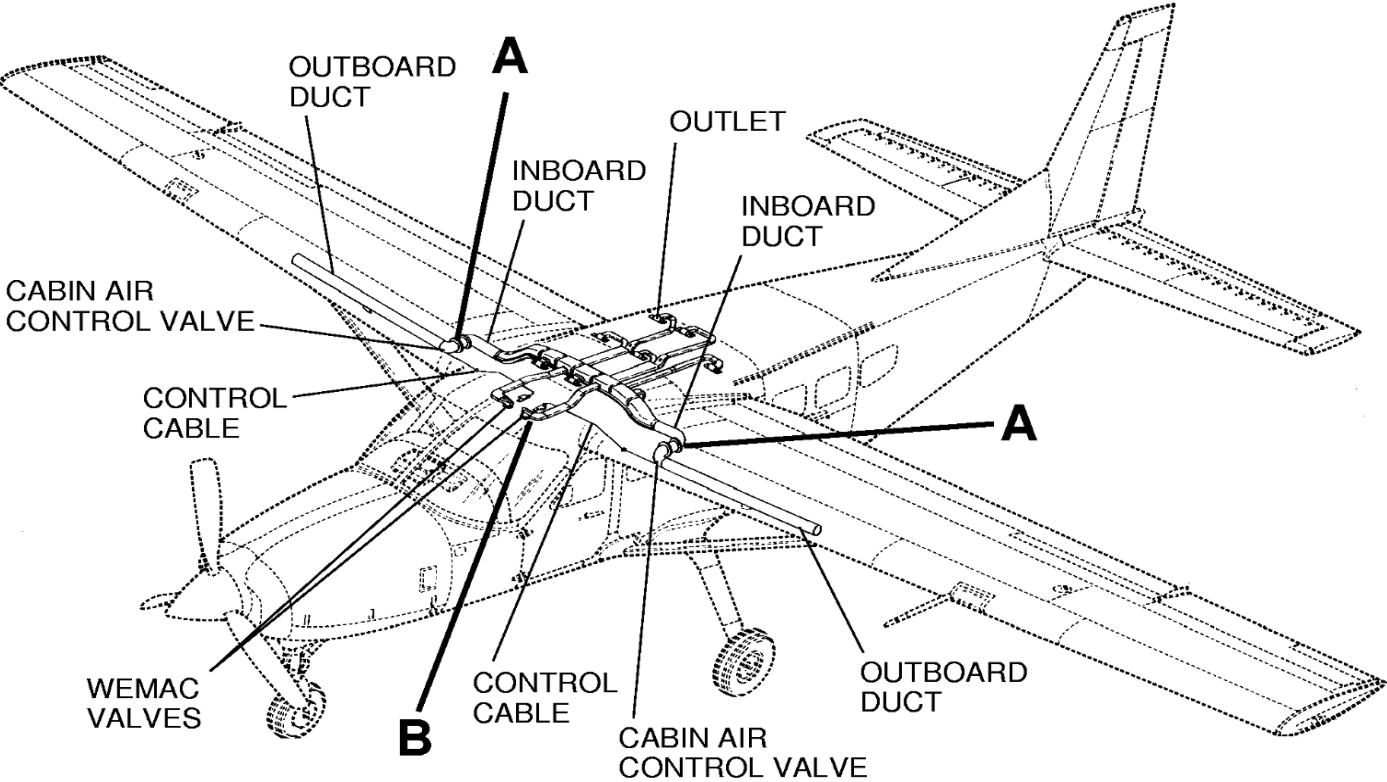
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Figure 202 : Sheet 1 : Cabin Air Ventilation Fans Installation

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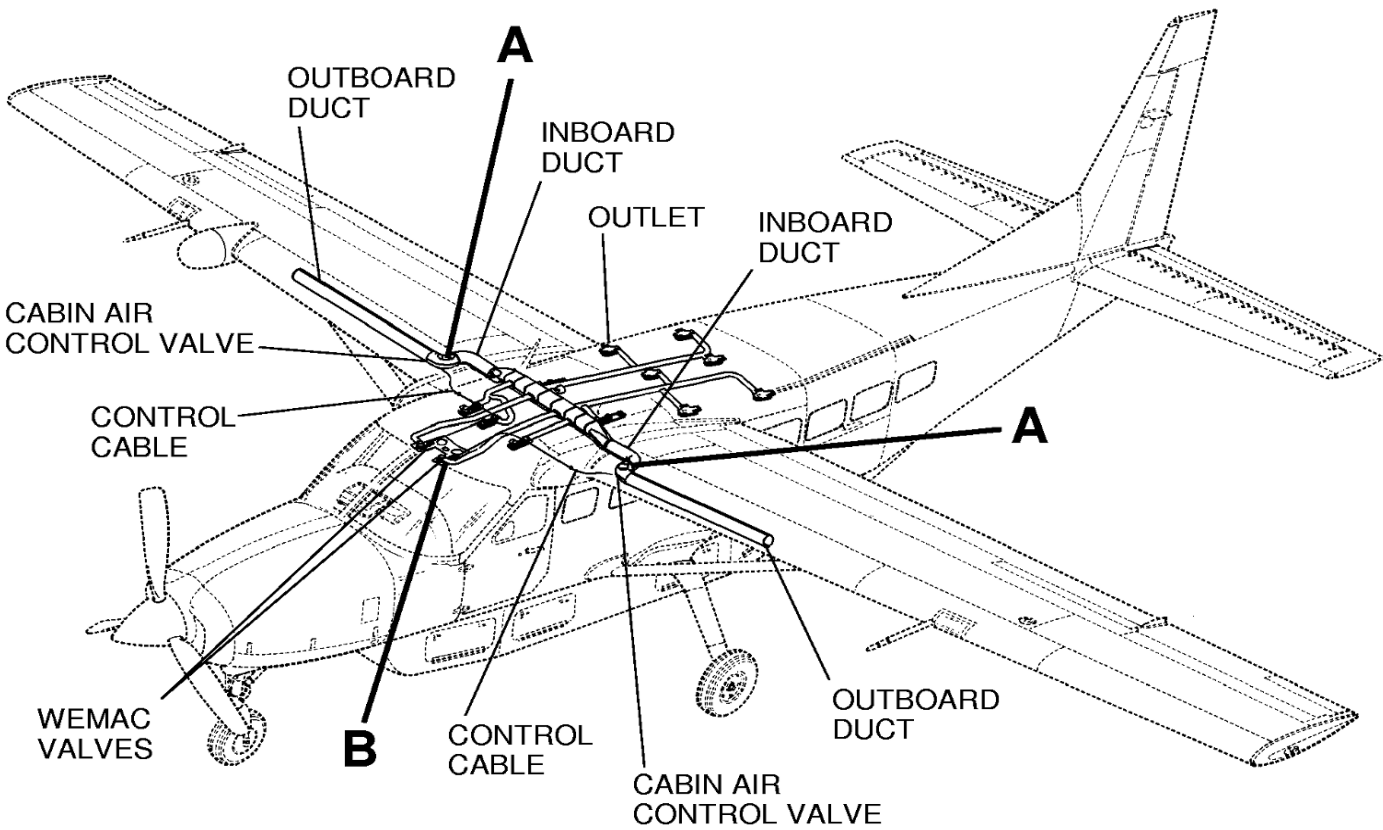


MODEL 208 ONLY

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Figure 202 : Sheet 2 : Cabin Air Ventilation Fans Installation

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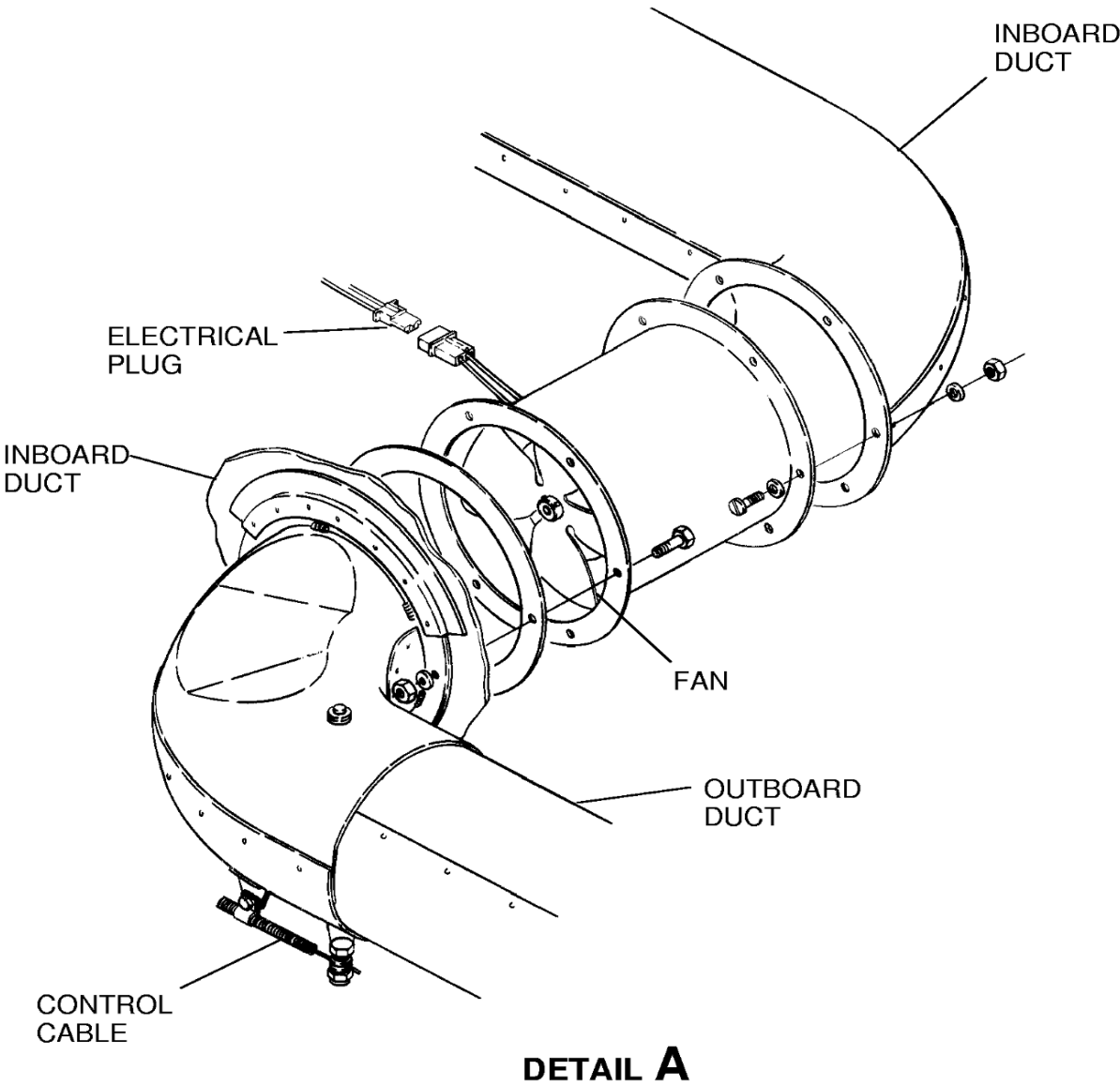


MODEL 208B PASSENGER

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Figure 202 : Sheet 3 : Cabin Air Ventilation Fans Installation

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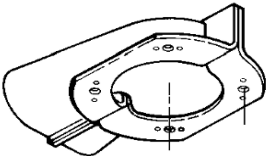
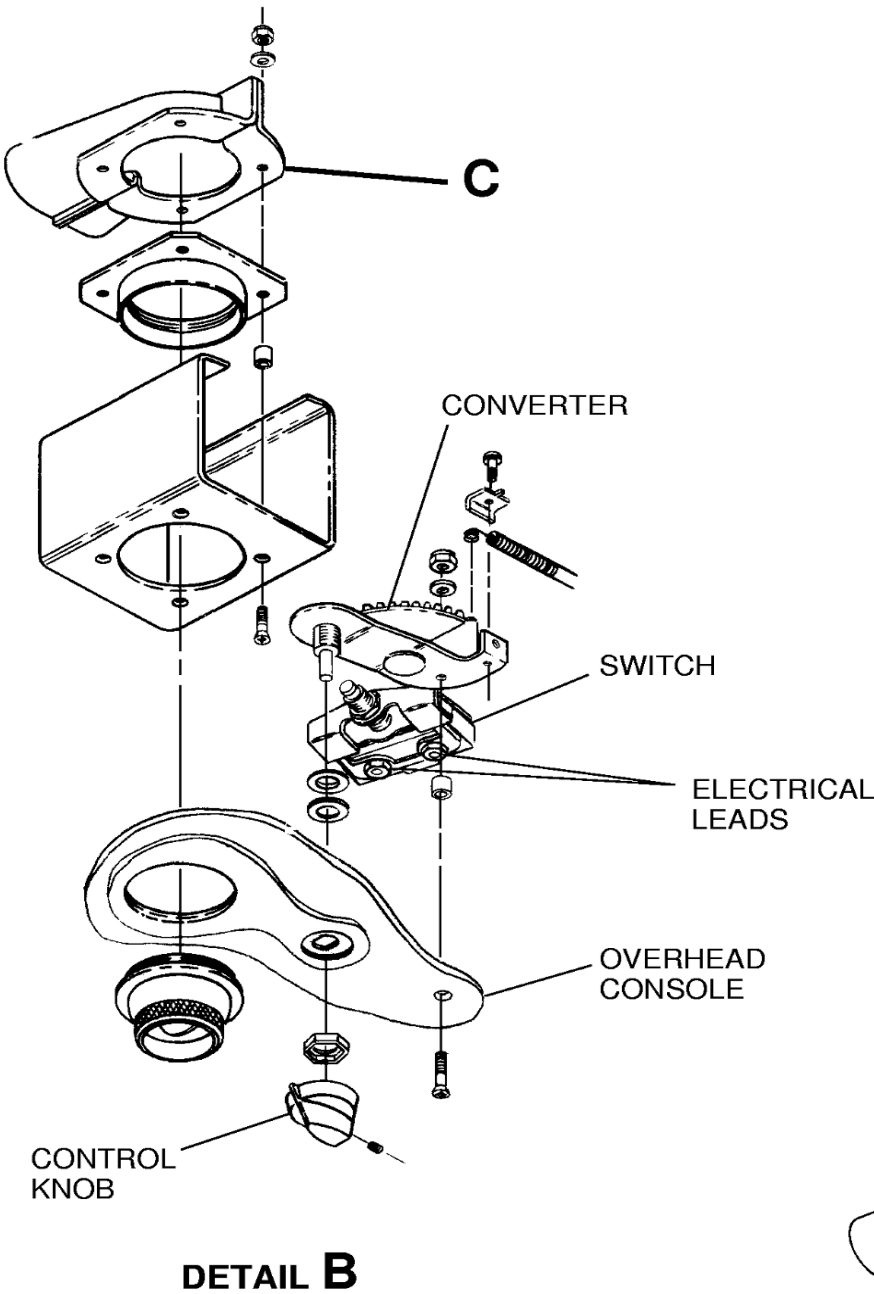
DETAIL A

MODEL 208 AND 208B PASSENGER

26143012

Figure 202 : Sheet 4 : Cabin Air Ventilation Fans Installation

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DETAIL C
ON LATER MODELS
AND ALL REPLACEMENT
PARTS

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Figure 7 : Sheet 1 : Left Lower Wing Panels

