
SERVICE INFORMATION LETTER

NO. SI40NG-094

NO. SI40-171

NO. SIF4-008

NO. SID4-200

NOTE: Service Information Letters are used only:

1. To distribute information from Diamond Aircraft Industries Inc. to our customers.
2. To distribute applicable information/documents from our suppliers to our customers with additional information.

NOTE: Typically there is no revision service for Service Information Letter (SIL). Each new information or change will be sent along with a new SIL.

1. TECHNICAL DETAILS

1.1 Aircraft Affected

Aircraft: All DA 40 NG, DA 40-180, DA 40-FP and DA 40-TDI airplanes

1.2 Subject

Closing and latching the passenger door.

ATA-Code: 52-00

1.3 Reason

Diamond Aircraft has received reports about un-latched passenger doors. In some cases this has led to separation of the door in flight. This Service Information aims to increase the awareness of pilots, operators and maintenance organizations on the importance of correct latching procedures.

Diamond Aircraft encourages all pilots to familiarize themselves with the content of this Service Information, all operators and maintenance organizations to distribute the content within their organizations.

Key Knowledge Items:

Do not try to close the passenger door in flight, when found unlatched.

When the passenger door is found unlatched, land as soon as practicable.

Verify before each flight, that the passenger door is fully closed and latched by:

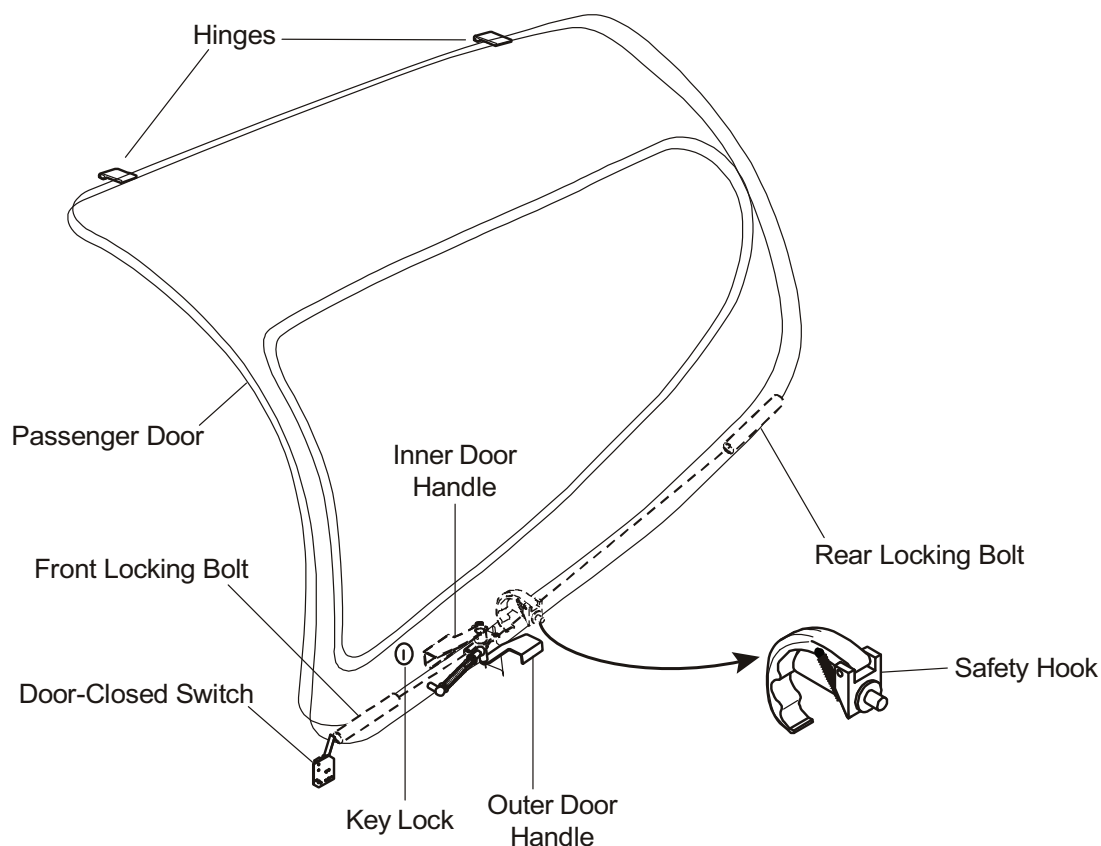
- touching it from the inside,
- visually checking that the door handle is in the properly latched position and,
- the DOOR OPEN warning on the Primary Flight Display (PFD) is extinguished.

1.4 Information

Closing and Latching the Passenger Door:

The passenger door for the DA 40 airplanes must be closed and properly latched during ground and air operation.

The door latching mechanism consists of the red door handles, the latching mechanism, the red safety hook and the key lock.



When the passenger door is closed but un-latched, the red safety hook engages with the bracket on the airframe. The red safety hook is a safeguard against the door departing should the passenger door become unintentionally unlatched in flight. As part of the regular maintenance procedure, the smooth operation of the button is checked. A poorly maintained button could result in the hook remaining stuck in the open position and not engaging with the bracket. (see AMM 52-10-10)

If MÄM 40-139 is not installed, the door handle features an over-centering device with a mechanical spring. If MÄM 40-139 is installed, the door handle features an over-centering device with a gas spring. When the door handle is rotated past the center point, the force from the mechanical/gas spring keeps the latch closed and guards against vibrations in flight from moving the handle back out. You can observe this by slowly moving the door handle to the closed position and seeing that the door handle snaps into the closed position by itself at least 10 mm (measured from the outermost point of the lever) before reaching the end position. The function of these springs are checked as part of regular maintenance procedure (see AMM 52-10-00). To latch the passenger door from the inside, the red door handle must be moved in flight direction until a noticeable stop is reached. When the door handle is in the fully latched position, the inside door handle points towards the front of the airplane. Refer to the picture below.

Initial design of door latching mechanism - MÄM 40-139 not installed



properly latched



not latched

New design of door latching mechanism - MÄM 40-139 installed



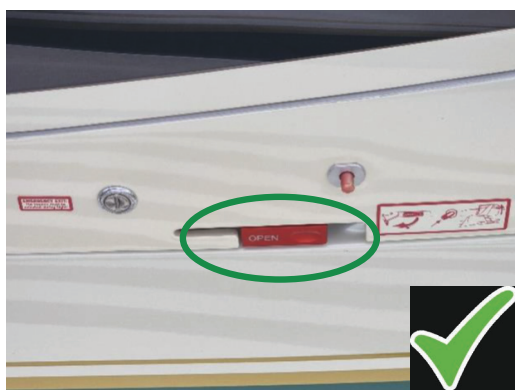
properly latched



not latched

To latch the passenger door from the outside, the red door handle must be moved to the aft of the airplane until a distinct stop is reached. In the latched position the face of the door handle is essentially parallel to the fuselage shell, refer to the pictures below.

When you verify that the door handle is in the fully latched position, make sure that the face of the door handle is essentially parallel to the fuselage shell and the handle has reached the distinct stop.



properly latched



not latched

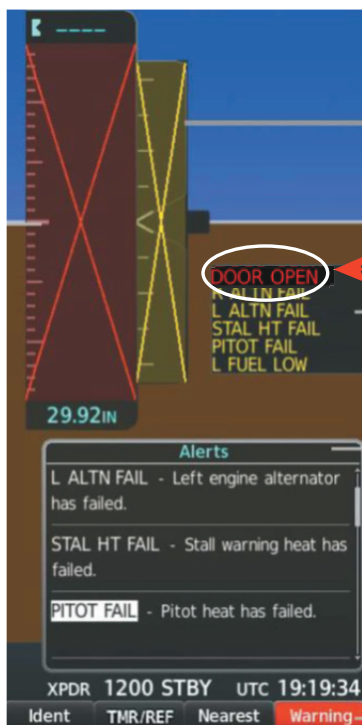
When the keylock is locked, the passenger door is secured against unauthorized access from the outside. The passenger door can be opened from the inside by pulling the lever inside the opening handle. During flight the keylock must be unlocked at any time to allow access from the outside to emergency services and first responders.

DOOR OPEN warning:

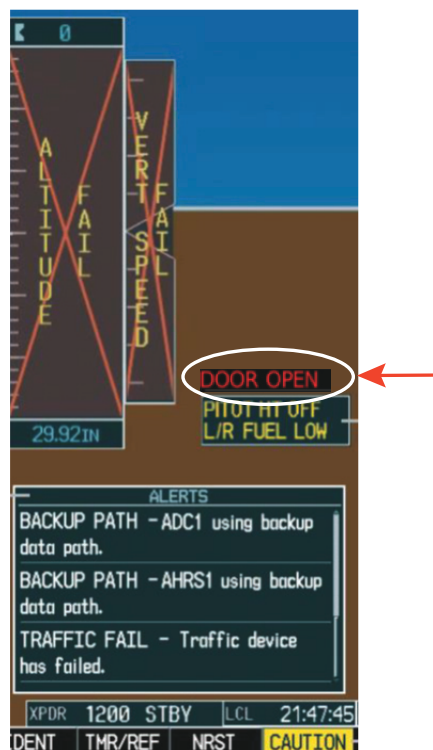
DOOR OPEN

When the front locking pin of the passenger door engages into the door frame, an electric contact is closed. This contact is connected to the red DOOR OPEN warning displayed on the PFD. When the canopy, the passenger door or the nose baggage compartment is not latched the DOOR OPEN warning is displayed. When the system starts to display the DOOR OPEN warning alert, it is additionally accompanied by a continuous aural tone. The DOOR OPEN warning is an additional means to warn against an unlatched passenger door or canopy door. The aural warning can be acknowledged. When the door open warning is present during G1000 system start-up, the aural warning will be automatically acknowledged.

Using the canopy slightly opened will cause the DOOR OPEN warning to illuminate and can reduce the alertness to the DOOR OPEN warning. If the DOOR OPEN warning persists after closing and latching the canopy, the aural warning will not sound again.



G1000 NXi DOOR OPEN warning



G1000 DOOR OPEN warning

Operating Procedures:

The normal operating procedures 4A.6.2 BEFORE STARTING ENGINE and 4A.6.6 BEFORE TAKE-OFF instruct to verify that the passenger door is closed and latched and that the DOOR OPEN warning is not displayed before each flight. It is important to follow each step of the operating procedures.

Pilots should make sure that they:

- Confirm that the passenger door is properly latched before each flight by visually checking the inner door handle position.
- Verify that the DOOR OPEN warning is not displayed on the PFD before each takeoff.

Door - Handle- Warning - Check (Initial design - MÄM 40-139 is not installed)

1. Check the door.
Touch the door from the inside firmly. The door must not move.



2. Check the door handle position. Visually confirm that the door handle of the passenger door is in the fully latched position.



3. Check the Warning on the G1000.
Confirm that the DOOR OPEN Warning is not shown on the Garmin G1000 notification window.



Door - Handle- Warning - Check (New design - MÄM 40-139 is installed)

1. Check the door.
Touch the door from the inside firmly. The door must not move.



2. Check the door handle position.
Visually confirm that the door handle of the passenger door is in the fully latched position.



3. Check the Warning on the G1000.
Confirm that the DOOR OPEN Warning is not shown on the Garmin G1000 notification window.



What to do, when the passenger door is found unlatched in flight:

AFM Emergency procedure UNLOCKED DOORS in the appropriate AFM lists the instructions how to proceed, if the passenger door is found unlatched during flight:

3.9.3 UNLOCKED DOORS

1. Airspeed reduce immediately
2. Canopy check visually if closed
3. Rear door check visually if closed

(a) Canopy Unlocked

4. Airspeed below 140 KIAS
5. Land at next suitable airfield.

END OF CHECKLIST

(b) Rear Door Unlocked

4. Airspeed below 140 KIAS
5. Land at the next suitable airfield.

WARNING

Do not try to lock the rear door in flight. The safety latch may disengage and the door opens. Usually this results in a separation of the door from the airplane.

NOTE

If the rear door has been lost the airplane can be safely flown to the next suitable airfield.

END OF CHECKLIST

It is important to point out that by adherence to this procedure the risk of inadvertent opening of an unlatched passenger door is minimized.

The emergency procedure warns against the attempts to close and latch the passenger door and instructs to reduce airspeed and to land at the next suitable airfield.

WARNING: Do not try to latch the passenger door, if found unlatched during flight.

Attempts to latch an unlatched passenger door in flight may lead to disengaging the safety hook. This can lead to inadvertent opening and separation of the passenger door during flight.

The reduced airspeed will lower

- the forces acting on the passenger doors,
- vibration and buffeting,
- the effects of gust encountered during flight, and
- noise entering the cabin.

With an unlatched passenger door the DA 40 airplane can still be operated without appreciable effects on flight performance and flight characteristics. The procedure instructs to land at the next suitable airfield. A completion of the planned flight is not recommended unless the unlatched door is detected when the planned destination is considered the next suitable airfield.

Recommendations to pilots:

Make it a habit to board the airplane as last person and check yourself that the door is closed and fully latched from the outside. Before taking seat, even when flying alone, walk back on the wing and check physically with your hand and by visually checking that the door is actually closed and the passenger door handle is in the correct position. Feel that the door sits snug and tight, and that the outer door handle is essentially parallel with the fuselage shell and at its distinct stop.

Include verification that the passenger door is in the fully latched position and that the DOOR OPEN warning is extinguished in each Before Take-Off Check (**Door – Handle – Warning – Check**). It is vital for safe operation to be familiar with and to follow the procedures in the Airplane Flight Manual.

Before using the canopy cooling gap position, verify visually that the passenger door is closed and that the handle is in the fully latched position. Next, close and latch the canopy door to confirm the DOOR OPEN warning is extinguished. When re-opening the canopy door and using the cooling gap position, the DOOR OPEN warning will illuminate again.

NOTE: Using the canopy cooling gap position will cause the DOOR OPEN warning to illuminate and can reduce the alertness to the DOOR OPEN warning.
If the DOOR OPEN warning persists after closing the canopy, the aural warning will not sound again.

After closing the canopy reassure yourself that the passenger door is closed and fully latched by visually checking the door handle position and that the DOOR OPEN warning is extinguished.
(**Door – Handle – Warning – Check**)

Recurring familiarization with the emergency procedure for unlatched doors.

Include in each passenger briefing not to attempt to close the passenger door in-flight, if found unlatched.

A key-locked passenger door restricts outside access by emergency services and first responders in case of an emergency. Always open a key-locked passenger door with the key from the outside before flight.

Recommendations to operators:

Include the following items in the initial familiarization and recurring training programs for DA 40 aircraft to emphasize the pilot's focus on:

Visual verification that the passenger door is in the fully latched position and that the DOOR OPEN warning is extinguished in each Before Take-Off Check
(Door – Handle – Warning – Check).

Before using the canopy cooling gap position, verify visually that the passenger door is closed and that the handle is in the fully latched position. Next, close and latch the canopy door to confirm the DOOR OPEN warning is extinguished. When re-opening the canopy door and using the cooling gap position, the DOOR OPEN warning will illuminate again.

NOTE: Using the canopy cooling gap position will cause the DOOR OPEN warning to illuminate and can reduce the alertness to the DOOR OPEN warning.

If the DOOR OPEN warning persists after closing the canopy, the aural warning will not sound again.

After closing the canopy pilots shall reassure that the passenger door is closed and fully latched by visually checking the door handle position and that the DOOR OPEN warning is extinguished. **(Door – Handle – Warning – Check)**

Recurring familiarization with the emergency procedure for unlatched doors.

Recommendations to maintenance technicians and organizations:

Pay particular attention to the passenger door latching functions and the associated inspection and maintenance procedures. Refer to AMM Sections 05-28-50 and 52-10.

Make sure that the latching mechanism works correctly. Refer to AMM Section 05-28-10.

Make sure that the safety hook engages correctly into the retaining block on the fuselage when the door is closed but unlatched.

Check the function of the safety hook button per AMM Section 52-10 and lubricate to ensure proper function per AMM Section 12-20.

OTHERS:

In case of doubt contact Diamond Aircraft Industries.

2. OTHER DETAILS

To obtain satisfactory results, procedures specified in this service information letter must be accomplished in accordance with accepted methods and current government regulations. Diamond Aircraft Industries Inc. cannot be responsible for the quality of work performed in accomplishing the requirements of this service information letter. Diamond Aircraft reserves the right to void continued warranty coverage in the area affected by this service information letter if it is not incorporated. If you no longer own the aircraft to which this service information letter applies, please forward it to the current owner and send the name of the current owner to Diamond Aircraft Industries Inc. at the address below.

Diamond Aircraft Industries Inc.
1560 Crumlin Sideroad, London, Ontario, Canada
N5V 1S2

Customer Support
Phone: (519) 457-4041, Fax: (519) 457-4045
Email: support-canada@diamondaircraft.com

Technical Publications
Email: techpubs@diamondair.com