

## SERVICE INFORMATION No. SI 40-092

**NOTE:** SI's are used only:  
1) To distribute information from DAI to our customers.  
2) To distribute applicable information/documents from our suppliers to our customers with additional information.  
Typically there is no revision service for SI's. Each new information or change of that will be sent along with a new SI.

### I. TECHNICAL DETAILS

#### 1.1 Airplanes affected:

All DA 40 aircraft equipped with GARMIN G1000 System and SVT (Synthetic Vision Technology), see also Section 2.1.

All DA 40 F aircraft equipped with GARMIN G1000 System and SVT (Synthetic Vision Technology), see also Section 2.1.

#### 1.2 Subject:

GARMIN: Service Advisory No. 0826 Rev. B  
ATA-Code: 34-00

#### 1.3 Reason:

GARMIN has issued a revision of the Service Advisory No. 0826 which identifies instances during which traffic symbols appear to be partially or fully obscured (or cropped) by other elements of the PFD display.

#### 1.4 Information:

For detailed technical information see GARMIN Service Advisory No. 0826 Rev. B.

## **II. OTHERS**

### **2.1 STC Information:**

The GARMIN G1000 system and its associated systems, components, and software are installed in the DA 40 and DA 40 F airplanes under one of the following known GARMIN STC's:

- FAA STC No.:
  - SA01254WI-D (G1000 System)
  - SA01444WI-D (G1000 System and GFC 700 A/P System with optional WAAS installation)
  - SA01480WI-D (Synthetic Vision Technology, SVT);
  
- EASA STC No.:
  - EASA.IM.A.S.01023 (G1000 System).

Additionally to the above mentioned STC's further GARMIN STC's may be approved.

The applicability of the attached GARMIN publication must be checked. For this purpose refer to the related airplane documentation, contact your responsible GARMIN Service Centre or your local authority.

### **2.2 Miscellaneous:**

The GARMIN Service Advisory No. 0826 Rev. B is attached to this SI.

In case of any doubt contact GARMIN.



## SERVICE ADVISORY

**NO.: 0826 Revision B**

**TO:** All Garmin G1000 Customers

**DATE:** 09 September 2008

**SUBJECT:** Traffic Symbols on GDU Displays with SVT (Synthetic Vision Technology) may appear to be cropped.

**REVISION B:** Added information regarding the displayed altitude of traffic symbols on SVT enabled systems.

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### AFFECTED PRODUCTS

All Garmin Integrated Flight Deck systems with Synthetic Vision Technology (SVT) installed are affected by the potential display of cropped traffic symbols.

Garmin Integrated Flight Deck systems with GDU Software v9.00 to v9.02 with SVT installed are affected by the potential for traffic displayed by SVT to be affected by differences in barometric altitude vs. GPS altitude.

### ISSUE

Garmin's Integrated Flight Deck Systems with SVT feature three-dimensional representations of traffic symbols which are shown on the PFD's main window. There are instances (described below) during which these traffic symbols appear to be partially or fully obscured (or cropped) by other elements of the PFD display.

Potential differences between barometric altitude and GPS altitude may cause intruder aircraft displayed by SVT to appear higher or lower than the aircraft will appear when the pilot is looking outside the cockpit at the intruder aircraft.

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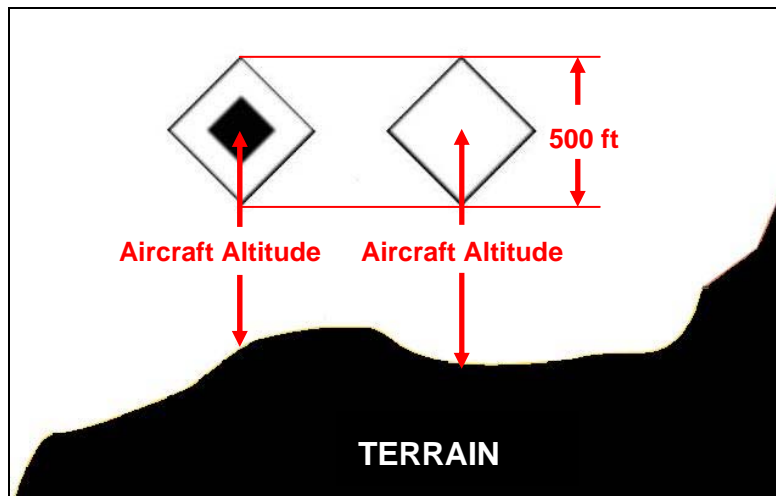
## **DESCRIPTION**

When SVT is enabled, the system displays three-dimensional representations of traffic symbols on the PFD's main window. Two cases where the traffic symbols are either partially or completely obscured by other display elements on the PFD are identified below:

- Case 1: Traffic symbols may appear partially or fully cropped when traffic is within 500 feet of the ground. This condition is more apparent when both host and target aircraft are in close proximity of each other.
- Case 2: Traffic symbols may appear partially or fully cropped when being displayed close to the upper-most (persistent sky) portion of the PFD.

### Case 1:

Garmin traffic symbols have a maximum edge-to-edge dimension of 500ft. The center of the symbol indicates the altitude of the corresponding aircraft, as shown in Figure 1 below.



**Figure 1 - SVT Traffic Symbol Size**

Based on the depiction in Figure 1, it is apparent that the traffic symbol may be partially or completely cropped if the aircraft altitude is within approximately 500 feet of the ground. Examples of cropped traffic symbols are shown in Figure 2, following.



Cropped Traffic Symbols

Figure 2 – Examples of Cropped Traffic Symbol

Case 2:

The upper portion of the PFD's main display window consists of a blue persistent sky band. This band is integrated as a safety feature to provide pilots with a clear visual reference to recover from extreme aircraft nose-down attitudes (see Figure 3). The band is displayed even when the aircraft is flying in non-extreme attitudes, including straight-and-level flight.

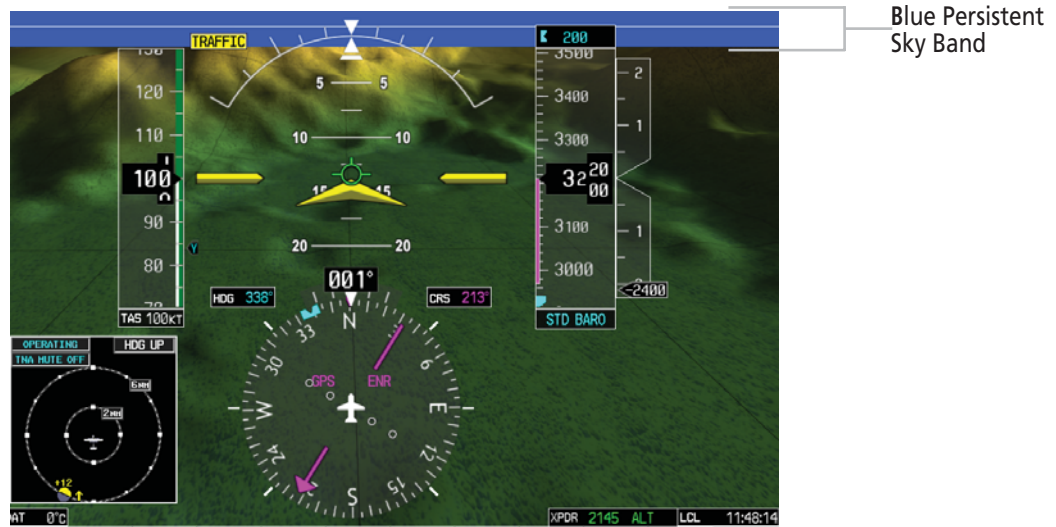


Figure 3 – Persistent Sky Band

If a traffic symbol (or a portion of it) is supposed to be displayed in the band reserved for persistent sky, it will appear to be partially or fully cropped, as shown in Figure 4, following.



**Figure 4 – Traffic Symbol Cropped by Persistent Sky Band**

Other points to consider regarding the appearance of Traffic symbols:

- Traffic displayed on the SVT display is provided for situational awareness only. It is advisory information, intended to draw the flight crew's attention to the presence of potentially conflicting traffic.
- Traffic symbols on the PFD are not depicted if the traffic is within 250 feet laterally of the aircraft's current location. This is to avoid depicting a symbol big enough to obscure a large portion of the display, and to limit screen clutter while flying in a traffic pattern.
- Traffic symbols displayed on the PFD are advisory only, and are provided to assist the pilot in visually acquiring the aircraft outside the cockpit. As such, the pilot should not maneuver the aircraft based solely on the PFD traffic display.
- Items depicted on the PFD that may obscure traffic symbols include: the selected altitude window, the baro setting window, the heading window, etc.
- Refer to the MFD traffic display for additional information and orientation regarding traffic.

## **RESOLUTION**

The flight crew must use the relative altitude provided on the MFD Traffic Display or the PFD inset Traffic Display to determine intruder altitude relative to own-ship altitude and must not rely on the SVT traffic image for relative altitude.

Enhancements to the display of SVT traffic have been made in GDU Software v9.03 and higher, to adjust for the differences between barometric and GPS altitude.

Future software releases will further refine the SVT traffic symbols displayed on the PFD.