



The New Piper Aircraft, Inc.
 2926 Piper Drive
 Vero Beach, Florida, U.S.A. 32960

SERVICE No. 1083 B BULLETIN

**PIPER CONSIDERS
 COMPLIANCE MANDATORY**

Date: January 11, 2002

(S,M)

This Service Bulletin SB 1083B supersedes SB 1083A in its entirety. Replace Service Bulletin SB 1083A with SB 1083B. SB 1083B adds missing mailing instructions for returning auto pilot computer to S-TEC.

SUBJECT:

S-TEC System 55X Autopilot

MODELS AFFECTED:

SERIAL NUMBERS AFFECTED:

PA-28-181 Archer III

2843415 through 2843426,
 2843429 through 2843437,
 2843439 through 2843445, 2843447,
 2843449 through 2843462, 2843464,
 2843466, 2843467, 2843469 through
 2843471, 2843479 through 2843483

PA-28R-201 Arrow

2844049 through 2844054

PA-32R-301 Saratoga II HP

3246181 through 3246197

PA-32R-301T Saratoga II TC

3257198 through 3257248

PA-34-220T Seneca V

3449195 through 3449226

PA-44-180 Seminole

4496044, 4496047 through 4496051

COMPLIANCE TIME:

To coincide with the next scheduled maintenance event but not to exceed the next fifty (50) hours time in service.

APPROVAL:

The alteration as specified in the INSTRUCTIONS section has been shown to comply with the applicable Federal Aviation Regulations and is FAA approved.

PURPOSE:

It has been determined that the above mentioned aircraft that are equipped with the S-TEC 55X Autopilot System **and** require compliance with Piper Service Bulletin No. 1083, **do not** have the additional wire(s) (located in the computer side of the autopilot harness at the computer plug) that are required to complete the GPSS Inhibit Installation called for in Piper SB 1083

This Service Bulletin announces the availability of an Autopilot Steering Information Kit Revision "A"(per aircraft model), which, when installed, will correct this condition.

Left unchanged, this will lead to the GPS Steering Mode not being inhibited when the VOR/LOC or NAV position is selected with the Nav Source Selector Switch(CDI).

(OVER)

ATA: 2218

INSTRUCTIONS:

1. Referencing the instructions provided in the S-TEC System 55X Autopilot Pilot's Operating Handbook, S-TEC p/n 87109, pages 19 through 21, revised April 3, 2001, determine if the above condition is present in the aircraft autopilot system. If the described condition is **not** present, no further action is required, proceed to Step 4.

NOTE: An S-TEC System 55X Autopilot Pilot's Operating Handbook is provided with each aircraft at the time of factory delivery. Owner/Operators should thoroughly familiarize themselves with this manual along with the Garmin 430/530 Operators Manual prior to any initial in flight operation of this equipment.

2. If the described condition **is** present, order and install the appropriate Revision "A" Autopilot Steering Information Kit.

Kit No. 767-316 Revision A (PA-28-181)

Kit No. 767-317 Revision A (PA-28R-201),

Kit No. 767-318 Revision A (PA-32R-301/301T)

Kit No. 767-319 Revision A (PA-34-220T)

Kit No. 767-320 Revision A (PA-44-180)

NOTE: The revised kit will contain all the of the material included in the original kit along with the Revision A material required to complete the installation. Use all the provided material if SB 1083 **has not** been complied with previously.

3. Return the autopilot panel mounted computer to S-TEC for a Hardware upgrade in connection with the installation of the appropriate Piper Kit to the address below.

Note: Autopilot panel mounted computers having a S/N of **AB/AB** or later need not be returned as they already incorporate the hardware upgrade, only the Piper wiring kit will be required in this instance.

S-TEC / Meggitt Corporation
One S-TEC Way
Municipal Airport
Mineral Wells, Texas 76067-9236 USA
Attn: Customer Services
Phone: (940)-325-9406
Fax: (940)-325-8808

4. Make a logbook entry indicating compliance with this Service Bulletin.

MATERIAL REQUIRED: One each, see Step 1. above for appropriate Kit Number.

AVAILABILITY OF PARTS: Your Piper Field Service facility.

EFFECTIVITY DATE This Service Bulletin is effective upon receipt.

SUMMARY: Applicable Factory Participation is limited to new aircraft in warranty at the time of compliance. Factory Participation will remain in effect for a period of time not to exceed 180 days from the date of this Service Bulletin.

Please contact your Factory Authorized Piper Service Facility to make arrangements for compliance with this Service Bulletin in accordance with the compliance time indicated.

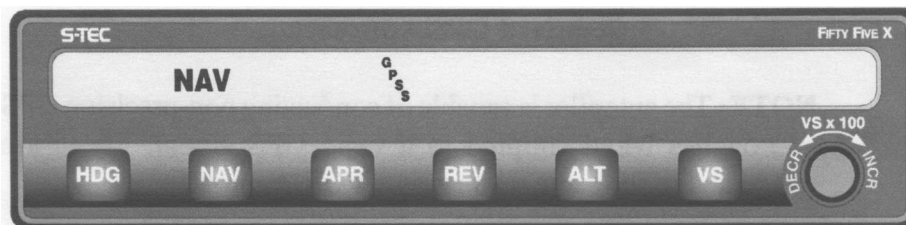
NOTE: If you are no longer in possession of this aircraft, please forward this information to the present owner/operator and notify the factory of address/ownership corrections. Changes should include aircraft model, serial number, current owner's name and address.

Corrections/changes should be directed to:

THE NEW PIPER AIRCRAFT, INC.
Attn: Customer care
2926 Piper Drive
Vero Beach, FL 32960

(This page is a copy from S-TEC System Fifty Five X Autopilot Pilot's Operating Handbook, p/n 87109)

As the aircraft nears the on-course turn point, the HDG annunciator will extinguish.



NOTE: Some Fifty Five X Autopilot installations inhibit the use of the **GPSS** mode when the NAV source selector switch on the GPS navigator is in the **VOR/LOC** position or the external NAV selector switch (as appropriate) is in **NAV** position. To determine how your system operates conduct the following preflight test:

1. Provide power to the autopilot.
2. Observe a ready (**RDY**) indication on the annunciator.
3. Select **VOR/LOC** on the GPS navigator or select the **NAV** mode on the external NAV selector switch (as appropriate). Channel an invalid **VOR** frequency.
4. Press the autopilot **NAV** button twice. If flashing **NAV** and steady **FAIL** is annunciated, the system is inhibited from entering the **GPSS** mode with the NAV source selector switch in the **VOR/LOC** or **NAV** position. If flashing **NAV**, **GPSS** and steady **FAIL** is annunciated, the system is **not** inhibited from entering the **GPSS** mode anytime the NAV button is pressed twice. The following CAUTION will apply to those systems.

CAUTION

With the autopilot in the **GPSS** Mode, **NAV** and **GPSS** will be annunciated. In this mode, guidance is received directly from the GPS Navigator regardless of what may be displayed on the NAV indicators (HSI, CDI ...). If the GPS Navigator has a valid flight plan active and the autopilot is in the **GPSS** Mode, the autopilot will follow that flight plan. If no flight plan is active, the autopilot will annunciate a flashing **NAV**, **GPSS** and **FAIL** will be steady. The aircraft will continue straight, wings level.

(This page is a copy from S-TEC System Fifty Five X Autopilot Pilot's Operating Handbook, p/n 87109)

NOTE: For all autopilot navigation operations not utilizing GPSS, ensure that GPSS is **NOT** annunciated.

Standard GPS Approach

NOTE: The autopilot is capable of conducting non-precision GPS approaches when coupled to a valid GPS signal. These are conducted in the same manner as a VOR Approach:

1. When the autopilot is interfaced with an HSI or DG it is capable of intercepting and tracking a valid GPS course.
2. Place the Course Pointer on an HSI or HDG bug on a DG on the bearing to the waypoint.
3. Select the APR Mode. The autopilot will intercept and track the GPS signal.
4. If desired, the pilot can use the pilot selectable intercept angle procedure as described on the following pages.
5. For procedure turns, the pilot must select the HDG Mode and fly the aircraft through the procedure turn with the heading bug.
6. Once established on the inbound course to the Final Approach Fix select the APR Mode.

GPS Steering (GPSS) Approach

NOTE: When operating in the **GPSS** Mode, the autopilot requires no further inputs from the HSI or DG (i.e. heading or course changes) as the approach progresses.

1. Program the desired approach into the GPS Navigator.
2. Press the autopilot **NAV** button twice to access the **GPSS** Mode. Verify that **GPSS** is displayed on the autopilot annunciator panel.
3. Verify the aircraft begins a turn toward the initial approach fix or that segment of the approach that transitions to the selected approach.
4. Monitor the autopilot as it moves around the approach using vertical speed and altitude hold to fly the vertical elements of the approach.
5. Select **HDG** to accomplish a procedure turn.
6. Engage the **GPSS** again to complete the approach.

(This page is a copy from S-TEC System Fifty Five X Autopilot Pilot's Operating Handbook, p/n 87109)

Reverse (REV) Mode

The Reverse Mode provides roll commands for intercept and tracking the localizer back course inbound or the localizer front course outbound.

Vertical Speed (VS)

To engage vertical speed, the autopilot roll axis must be engaged. Selecting **HDG** Mode or any roll mode will satisfy this requirement.

With any roll mode engaged, the pilot may select **VS** Mode by pressing the **VS** Mode select switch. The autopilot will synchronize with the aircraft's vertical speed at the time the mode is selected and the corresponding vertical speed will be indicated in the Programmer/Computer display. Vertical speed may now be modified in 100 ft increments by rotating the **VS** knob clockwise or counter clockwise.



The + (positive) symbol annunciation indicates a vertical speed climb selection. Clockwise rotation of the **VS** knob increases the rate of climb and counter clockwise rotation decreases the rate of climb to 0. The - (negative) symbol annunciation indicates a vertical speed descent selection. Counter clockwise rotation of the **VS** knob increases the rate of descent and clockwise rotation decreases the rate of descent to 0. Maximum selectable VS limits are ± 1600 Feet Per Minute (FPM) in most aircraft (see the AFMS for your installation).

NOTE: If the **VS** Mode annunciator flashes while in the **VS** Mode, this is an indication of excessive error between actual vertical speed compared to selected vertical speed (usually in a climb) and the pilot should adjust aircraft power or reduce the vertical speed command as appropriate.