

Sportsman Service Bulletin 66A - Corrective Action

Subject: VHF COM Interference Check with Garmin 430W / 530W series GPS / COM units

Applicability: IFR equipped “Two Weeks to Taxi” Sportsmans with Garmin 430W or 530W series GPS/COM installations

Issue: VHF/COM interference with the GPS signal on Garmin 430W and 530W equipment

Compliance Time: Prior to IFR flight with these installations.


Background Information: We issued Service Bulletin 66 when it came to our attention that, when transmitting on their COM radio, some customers were experiencing VHF interference with the GPS signal to their new WAAS capable Garmin 430W and 530W equipment, resulting in a partial or complete loss of the GPS signal. The loss of GPS signal when transmitting may affect your autopilot if it is in GPS tracking mode. If you lose the GPS signal, the autopilot will shift from GPS tracking to NAV tracking.

Glasair Aviation performed a series of tests with various antenna and ELT locations to determine the best type and location of antennas and ELT units to avoid VHF interference of the GPS signal with WAAS capable Garmin 430W/530W series GPS/COM units. Based upon our testing, we have the following recommendations for antenna/ELT placement.

Corrective Action: Customers with the new WAAS capable Garmin 430W/530W series GPS/COM units can avoid possible VHF interference of the GPS signal by either:

- (a) Replacing the 121.5 MHz ELT with a new 406 MHz ELT, or
- (b) Replacing existing internal dipole antennas with new, external mounted whip antennas.

NOTE: We expect it will be less expensive for you to install new external whip antennas rather than purchasing a new 406 MHz ELT which currently costs approximately \$1000. However, keep in mind that the Government is scheduled to stop monitoring the 121.5 and 243 MHz ELT frequencies with satellites in early 2009. Thus, it might be wise to make the investment in a 406 MHz ELT now, rather than replace your dipole antennas and then have the expense of updating your ELT in a year or so anyway.

	Model: TWTT Sportsman with Garmin 430W / 530W GPS/ COM Units	Document: Service Bulletin 66 Corrective Action	Revision: -	Date: 2/11/08	Page: 1
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Choose *either* remedy below:

Remedy 1: Install a 406 MHz ELT and Retain Existing Dipole Antennas

We determined that the close proximity of the COM dipole antennas to the 121.5 MHz ELT unit mounted behind Bulkhead A causes radiation of the VHF radio transmit signal through the ELT, resulting in a possible loss of GPS signal as discussed in Service Bulletin 66. Despite exhaustive tests, we were unable to find a satisfactory arrangement between the COM dipole antenna(s) and 121.5 MHz ELT unit to reliably avoid GPS signal issues. However, our testing revealed that simply installing a 406 MHz ELT resolved the interference issues (likely because the 406 MHz ELT operates on a far higher frequency compared to the 121.5 MHz ELT).

If you wish to replace the 121.5 MHz ELT with a 406 MHz ELT, the process is very easy. The 406 ELT will mount to the existing ELT shelf and you will need to replace the existing mounting bracket with a new one supplied with the 406 MHz ELT.



Note: Two Weeks to Taxi Sportsman have an Ameriking 121.5 MHz ELT. Unfortunately Ameriking does not yet offer a 406 MHz ELT. However, Artex offers several 406 MHz ELTs. The specific Artex kit that you need to avoid any re-wiring or modifications to your instrument panel is as follows:

- Artex 455-6614 406 MHz ELT
- 455-6603 Base pack
- Remote switch (that fits into the exiting ELT remote switch cut-out in panel)
- Module interface box
- Phone cord

The Artex 406 MHz ELT Kit can be purchased directly from Pacific Coast Avionics. (800-353-0370)

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--	--	---	----------------	------------------	------------

NOTE: Following the installation of the new 406 MHz ELT, a VHF COM interference check must be accomplished prior to IFR flight. See Service Bulletin 66 for instructions on completing the required testing. You should log successful completion of the test in your airframe logbook.

Remedy 2: Retain 121.5 MHz ELT and Install New External Whip Antennas

Should you choose not to install a 406 MHz ELT, our testing revealed that the 121.5 MHz ELT can be retained if the existing internal dipole antennas are disconnected and external whip antennas are installed on either the upper wing skin, or the forward belly section of the fuselage.

If you choose to install new external antennas, we recommend using the R.A. Miller AV530 stainless steel whip antenna above the wings or the angled AV17 stainless steel whip antenna on the belly.

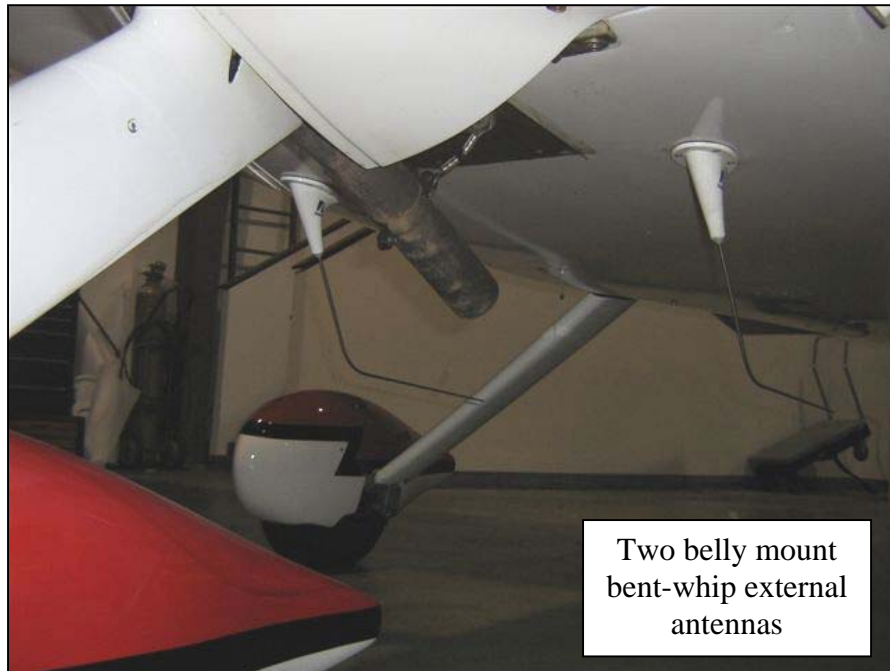


Note: In the second half of 2007 on TWTT Aircraft, we moved the ELT forward to a location just behind Bulkhead A on the left side of the fuselage in an attempt to gain more separation from the dipole COM antenna. If this is your case, there will not be enough separation between the 121.5 ELT and forward, belly mounted whip antennas. The easiest remedy for this configuration is to switch to the 406 MHz ELT.

Note: External whip antennas will result in a slight amount of additional parasitic drag, but will also result in some improved radio coverage and range since the internal dipole antennas suffer slight performance loss due to shadow effects of the steel cage, vertical fin spar and rudder. Also, external whip antennas have proven to be less affected by p-static build up and are more often recommended for IFR operations.

If your choice is to install external whip antennas, please note that we installed two AV17 bent-whip antennas on the belly of our Factory Demonstrator with good success as long as we had a minimum of a 10-foot separation between the ELT and the antennas. The reasoning behind our choice for the belly location is they are less noticeable and use far less co-ax cable; therefore simplifying the installation.

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--	--	---	----------------	------------------	------------




Some antenna experts express concern about belly mounted antennas having diminished range when on the ground. Our tests did reveal higher VSWR numbers at the low end of the frequency range (on the ground only) for the belly mounted antennas; however, we found no difficulty with ground communications on tower and ground frequencies at the airfields in our area.

If you wish to eliminate all concerns for antenna performance, the most optimum set-up is to install a RA Miller AV530 straight-whip antenna on the upper surface of either wing and dedicate this as a COM 1 to be used for ground communications. A second, belly mounted AV17 antenna could be installed and dedicated to COM 2.

NOTE: Following the installation of the new antennas, a VHF COM interference check must be accomplished prior to IFR flight. See SB66 for instructions on completing this test. You should log successful completion of the test in your airframe logbook.

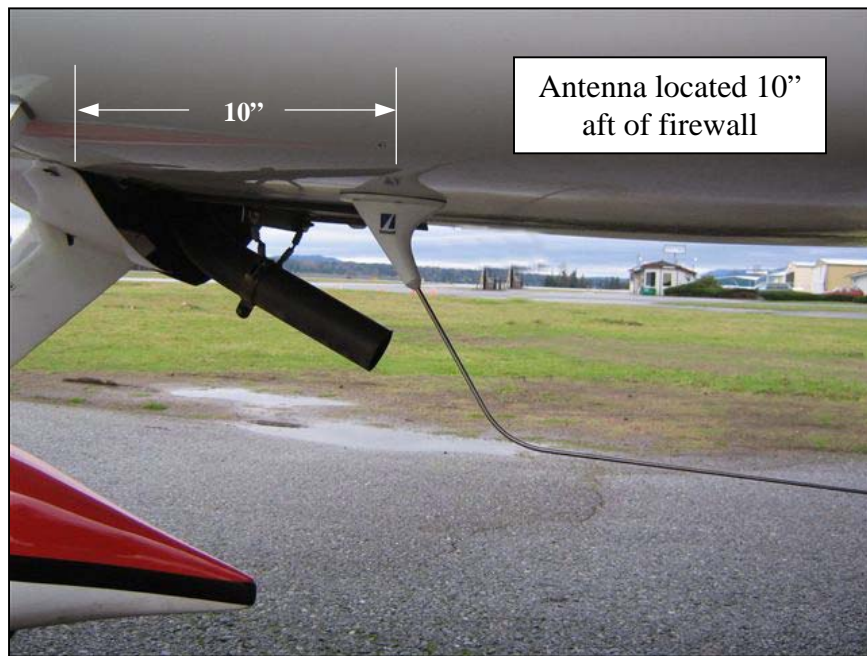
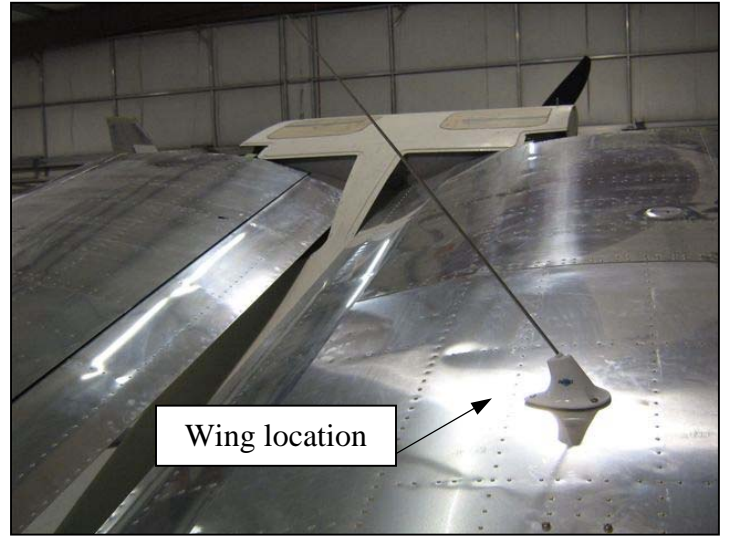
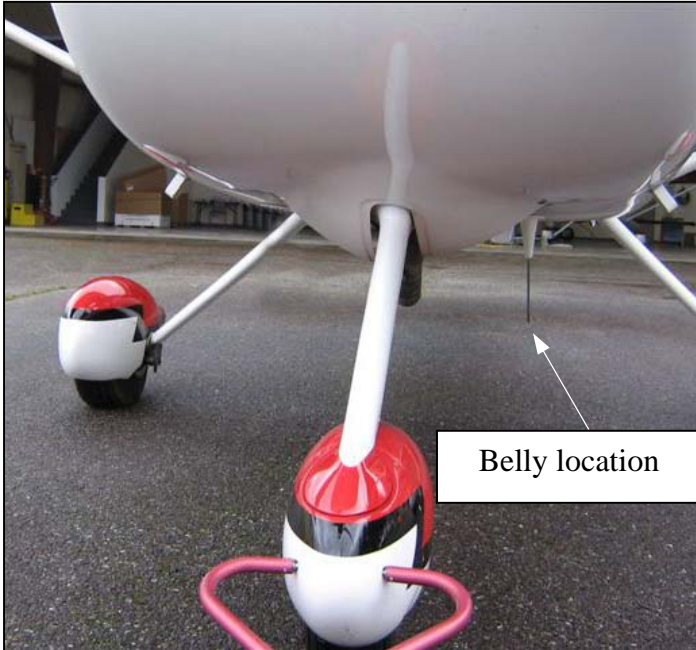
For antenna installation details, please see the attached Antenna Mounting Instructions 039-04905-80.


	Model: TWTT Sportsman with Garmin 430W / 530W GPS/ COM Units	Document: Service Bulletin 66 Corrective Action	Revision: -	Date: 2/11/08	Page: 4
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Enclosures:

ELT Mounting Instructions, 039-04915-80 (Task 5900)

Antenna Mounting Instructions 063-09074-01



	Model: TWTT Sportsman with Garmin 430W / 530W GPS/ COM Units	Document: Service Bulletin 66 Corrective Action	Revision: -	Date: 2/11/08	Page: 5
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