

Small Radios now Available for Ultralights and Light Aircraft



A QuickSilver GT-500 similar to the one with the instrument panel.



The Becker AN Y201 transceiver is visible in the lower left corner of the front seat instrument panel of the QuickSilver GT-500.



Top view of Sigtronics intercom mounted between front and rear seats. The Becker CU 5209 remote control head is mounted below intercom. The CU 5209 is only 4.2 inches long.

According to FAR Part 103, ultralights can only be flown in rural areas. Therefore, most ultralight pilots do not need a radio when they fly, since they rarely go into general aviation airports. When a pilot does want to use a radio, he normally carries a hand-held one, such as the ICOM A-22.

The FAA maintains that one of the advantages of the proposed Sport Pilot initiative is that ultralights will be transformed into "Light Sport Aircraft," and thereafter will be allowed to fly into congested areas, including city airports that have a control tower (Class "D" airspace.)

When flying into Class D airspace, radio communication is required. Handheld radios often pick up engine static or are not powerful enough for communication in a sophisticated general aviation environment. However, many ultralights are so small that they do not have enough instrument panel space to mount a general aviation radio.

Ultralights, such as the open-air tube and fabric QuickSilver Sprint, have no fuselage to accommodate even the relatively small Micro Air radio. Although the Micro Air has a control head only 2 1/2 inches in diameter, its length is 7 1/2 inches—too long for a small instrument pod. The inexpensive Van Com 760 transceiver is even longer at 12.5 inches.

Becker Avionics has come up with the solution to fitting a radio (or "transceiver," as it's called in aviation) into an instrument panel with limited space, or a small instrument pod that's bolted to the frame of an ultralight. The answer is to separate the control head, which changes the frequencies, from the "body" of the transceiver, which actually processes the electronic radio waves. In other words, the transceiver comes in two parts—the control head and the remote transceiver.

The Becker RT 3209 transceiver may be mounted anywhere on or in the airplane, and is connected with the CU 5209 control head by a serial RS 422 cable. The RT 3209 transceiver weighs 2.6 pounds. The dimensions are 5.4 inches by two inches by 10 inches long. The size of the transceiver is fairly standard, but the uniqueness of the Becker system is the control head, which may be mounted as far as 30 feet away from the transceiver.

The CU 5209 control head is smaller than a pack of cigarettes, approximately 2.5 inches in all dimensions (length, width, and height.) When the 15-pin RS 422 male connector is attached to the back of the CU 5209 the total length is 4.2 inches, a full three inches shorter than the Micro Air. The small size of the control head allows it to be mounted practically anywhere, no matter how small the available instrument space.

The Becker radio provides for 20 different memory channels. It has an adjustable squelch and a backlight. It also has an intercom feature.

I instruct in a two-seat tandem QuickSilver GT-500. The airplane came equipped with a Terra radio mounted in the instrument panel in front of the forward seat. Since all my instruction is done from the rear seat, it was impossible for me to change frequencies, adjust the squelch, etc., with the Terra out of reach in the front. I was always prompting the front-



The Becker CU 5209 control head mounted in cross-tube between front and rear seats. Next to the CU 5209 is the vertical speed indicator. The Sigtronics SPA-400 intercom and front/rear control switch is mounted on top of cross tube.



Rear view of CU 5209 remote control head, showing the transceiver, which is 2.5 inches long. The RS 422 connector plugged into the CU 5209 is 1.7 inches long and connects to the remote transceiver in the rear of the aircraft.

seat student to change frequencies, and adjust the volume or the squelch. It was very difficult to give introductory flights with first-time fliers who didn't know how aircraft radios work.

I desperately wanted to have a radio which I could use in the back seat. But no conventional radio would fit in the small space between the back of the front seat and the rear seat control column. I was thrilled to discover that the remotely mounted Becker control head would fit into the small space available to the rear pilot.

I first saw the Becker radio at their booth at Sun 'n Fun 2003. The sales representative, Ralph Schneider, was kind enough to take the display radio to the Quicksilver tent in the ultralight area to be certain that it would fit in the Quicksilver GT-500. When we determined that it would fit, I purchased the radio from Aircraft Spruce and Specialty Company at Sun 'n Fun.

The radio was installed by the Aircraft Spruce Avionics shop at Chino Airport in California. I told the avionics technician, Craig Johnson, that not only would I like to have a Becker installed in the rear seat, but I would also like to be able to shift control of the radios from the rear seat to the front seat. That way an experienced student could operate the radio in the front, but if he became confused or encountered problems I would be able to take control in the back.

The idea of being able to shift control turned out to be quite a challenge. We learned that it would not be possible to shift control between the Becker radio in the back and the Terra radio in the front. However, I would be able to shift control between two Becker radios.

So Craig removed the Terra radio in the front and replaced it with a Becker. Since the front instrument panel was large enough to accept a normal general aviation radio, I installed a Becker AN 4201, rather than the RT 3209. The AN 4201 has both the transceiver and the control as a single unit, instead of a separate control head. Then Craig installed a toggle switch that allows me to switch the "active" radio from the rear to the front or vice versa. Both pilots have a push-to-talk switch, so either pilot can transmit whether the front seat or the rear seat has control of the radio.

Since the old Terra previously controlled the airplane intercom, Craig installed a new SPA-400 Sigtronics intercom, compatible with the Becker radios. The intercom has a "hot" or "cold" feature, which allows the pilots to choose between voice activation or push-to-talk communication between each other.

New antenna wiring was installed, with the front radio going to the upper antenna and the rear radio to the lower antenna. Craig and the other technicians at Aircraft Spruce Avionics spent many hours designing and installing the new configuration. The total cost was \$2,900. I owe them a debt of gratitude for their patience and expertise.

Becker Avionics also sells a transponder, a VOR/ILS navigation system, and even an ADF that can be installed in two parts—a small control head and a remote transceiver. The transponder receiver is called the ATC 5401. The associated 2 1/4 inch control head is the CU 5401. The ADF transceiver is the RA 3502. The ADF control head is the CU 5502.

The VOR/ILS can be sold with or without a glide slope. The VOR/LOC (without glide slope) is the RN 3330. The RN 3320 contains both the VOR and a localizer with a glide slope. The same CU 5301 control head is used with both the RN 3330 and the RN 3320. Naturally, the RN 3320 costs several hundred dollars more than the RN 3330.

Thanks to Becker Avionics, a light sport aircraft, even with limited panel space, can be equipped with radio communication, an intercom, a transponder, a VOR navigation system and even an ADF.

Aircraft Spruce Avionics has now merged with another avionics shop at Chino. The new facility is called Advantage Avionics. Craig Johnson's new telephone number is 877-447-7823, ext 334. His e-mail is craigjohnson@aircraftspruce.com. A limited selection of Becker avionics may be seen in the Aircraft Spruce catalogue, available no charge from 877-4-SPRUCE (877-477-7823.)

The full line of Becker avionics may be seen on their web site at <http://www.beckerusa.com>.

Jon Thornburgh is a periodic contributor to UltraFlight magazine. His previous articles are archived at <http://www.ultraflight.com/jonThornburghFrame.htm>