Sonex 1170 Equipment List Choices

Hi, All; I've been asked to provide some information on the choices I made on my avionics and panel, so here goes.

MGL Enigma EFIS
Purchased through Sonex
Included all CHT & EGT probes as well as Sonex fuel level sensor.
SP4 AHRS added later

The only regret I have about the Enigma is that I purchased it too early in my build. Life got in the way in 2010, which resulted in very little (relatively speaking) being done that year.

Timing the purchase of your avionics can be tricky. On one hand, you'd like to have the installation templates and information on required wiring, but you can always just download the installation document and use those values. On the other hand, if you *don't* purchase your systems and just use online documentation, you may miss out on last-minute changes. Additionally, in my case MGL came out with TWO new systems (Extreme and iEFIS) between the time I purchased my system and the time I had installed the final panel. Both of the newer systems had nice features and a better graphics engine, but the Enigma was still a nice all-in-one package that is still hard to beat. If I had cut my panel for one system and then bought a later one, significant rework would have been required.

Installation of the Enigma is straight forward. As with any aircraft wiring, it's best to separate the data lines from the RDAC from the power, ground, and GPS antenna wire, but most importantly, keep them all separate from any RF antenna leads.

After I had purchased the system, I decided that I'd really like to have the AHRS unit which provides the artificial horizon and slip indicators. The AHRS needs to be mounted in the direction of flight, as close to the roll axis of the plane as possible. I placed mine under the seat, mounted on a pad of soft foam rubber to provide vibration isolation.

The MGL units provide battery backup capability; I purchased a small 12V 1 amphr battery which should give me plenty of time to find an airport should my main battery or electrical system experienced failure. This, too, is mounted under the seat pan.

The Enigma panels are extremely tailorable for everything from operational preferences to the number and placement and style of graphical elements on each of 9 display screens.

Falcon Vertical Card Compass
Purchased from Aircraft Spruce

I figured too many electronic systems needed some mechanical backup, so I chose a standard aviation compass. I went with a vertical card model to provide a mini-directional gyro capability and mounted this on the top of my glareshield. My model is non-TSO'd, which saved about $100. I had originally done the calibration with the engine off, and - surprise - things changed quite a bit when the engine was started. A few minor tweaks and all is well. I also purchased a compass card and compass card holder from ACS, which was affixed to the compass mount with double sided tape. Many builders do not use a compass card; some DARs require it, and some don't. Mine did.

MicroAir Tranceiver and Transponder
Purchased from Sport Flying Shop (aka MGL US distributor)

While I was not building a show plane, I wanted a nice, clean panel. I was fortunate that I had solda C-172 in order to purchase my kit, so I had the funds to build it the way I wanted. That meant I wanted the 2.25" micro units mounted in the panel. The micro units, regardless of brand, are expensive in comparison to traditional rack-mount avionics. My price for the pair was about $3500, which included Enigma harnesses for the comm and xpndr. The comm cable allows the Enigma to directly load airport frequencies into the tranceiver at the push of a button. The xpnder cable allows the Enigma-resident altitude encoder to provide Mode C for transmittal.

If regular panel units are desired, there is no space behind the panel to install a traditional 14" deep tray, so some builders have mounted theirs under the existing panel lower lip.

One nice feature is that the comm has an embedded VOX intercom in it. Earlier versions had some issues, but the "Q" or newer revisions appear to be quite bulletproof. Both intercom squelch as well as RX squelch work well once adjusted properly.

RV-10 Rear Seat Vents (aka RV-12 vents)
Purchased from Van's Aircraft

Ventilation is required, regardless of where you live. Here in the DFW area, it's essential to life. Some builders have incorporated NACA vents as per the Sonex plans. Some folks have routed the air from them via scat tubes to individual eyeball vents. Some builders have used the inexpensive plexiglass popout vents that install in a circular hole cut in the windshield or canopy.

I, however, went with the Van's RV-10 rear seat vents. They were inexpensive (around $15 if I recall), easy to install, and provide huge volumes of outside air. They are mounted just in front of the forward spar attach bracket on each side, and in 80 degree weather, I only open one.

AmeriKing 450 ELT
Purchased from Aircraft Spruce

I life in the flat part of Texas, and most of my flying is done from DFW to Kansas, with the intent of continuing on to Oshkosh. If I were flying in more rugged terrain, I would definitely go with the newer GPS-enabled devices. They're still a bit pricey, but I went with the AmeriKing because it will allow a seamless upgrade to the newer models should I ever decide to go that route. I installed the remote panel switch. Another nice feature is that this model allows the use of Duracell D-cells, helping to keep condition inspection costs low.

**GS-Air Strobes / Nav / Position Lights**
Purchased from GS-Air

At the time, these were the most cost-effective all-in-one units. Nav and Position lights are LEDs. Strobes are standard tubes. I initially purchased Van's Aircraft strobe mounting pods, but ended up giving these away to another builder - they were "cupped" and I didn't want to spend time re-glassing them to fit a flat wingtip. I ended up buying the GaugePod Sonex-specific strobe mounting pads and was thrilled with their quality.

Installation note: Strobe installation can be tricky. If you use a centrally-mounted strobe driver, you'll need to run shielded cables out to the strobe units to minimize RF interference. The central units are nice, however; several (most?) allow programmable strobe patterns.

Another builder tipped me off on a different way of handling the wires: QuickStrobe drivers from Nova Strobe. The QuickStrobe drivers are small (about the size of 1/2 a pack of cigarettes), and can be mounted on the triangular stiffener that goes behind the fiberglass wingtip. They are not adjustable, however. They only provide a fixed 4-pulse grouping. Nova Strobe products are aimed at the emergency vehicle market. As such, they do not sell directly to the consumer, but they provide a list of authorized distributors. I selected one in TX just for proximity reasons. With the QuickStrobes, you will need a driver for each wingtip. Wired in parallel to the switch, I cannot detect any latency between one unit firing before the other.

Panel Powered Up (no glareshield cover in place yet)
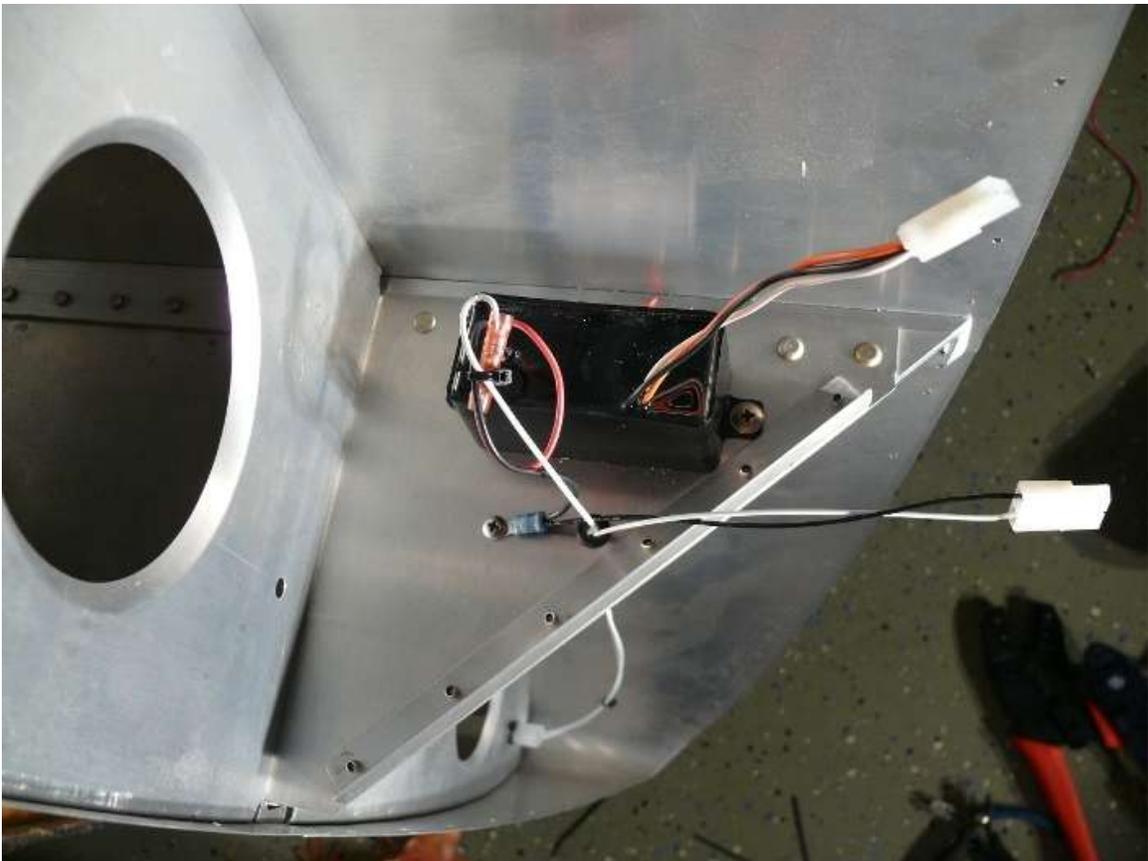
QuickStrobe driver mounting location (black & white wires to nav/pos light portion of GS-Air all-in-one)