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R/C Report

Flyzone Sensei fs

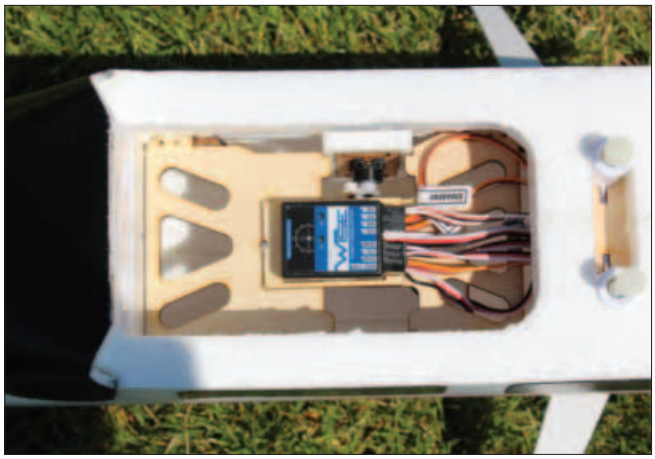
Trainer aircraft are a staple product of every hobby dealer.

Over the years radio control trainer aircraft have been offered in every possible size and power combination known to man, but they all share one common feature, and that is a high-wing configuration combined with light weight, resulting in a low wing loading. This combination provides the student with an aircraft that likes to float along as it's flying, and it also has a certain amount of pendulum stability, so when a turn is made, the airplane has a tendency to right itself, with little to no input by the student.

Every single individual who becomes involved in radio control aviation has to start somewhere, and this is why trainer aircraft are so popular. I think all of us have dealt on some occasion with the consumer who drove past a local flying field, and now wants to purchase the fastest turbine he can get his hands on, one that fires rockets and drops bombs as well.

Many dealers have attended events where nationally known modelers will perform a routine. Someone in the audience always makes the comment, "He was born with a transmitter in his hands," but we all know this isn't true. Everyone begins the same, and it all starts with a learning process. First we learn our names, then how to spell our names, and then we learn how to hold a pencil and write our names. It's a normal progression of life's skills.

The same holds true for radio controlled aircraft, and Flyzone has introduced a new product into the trainer arena, and this is the Sensei fs (flight stabilization). With a wing span of 58 inches, and a length of 48 inches, the Sensei is a nice size for a trainer. It's not too large of a model to conveniently transport, and it's not so small that the student is constantly plagued with making turns to keep the model orientated. Manufactured from the company's AeroCell, the Sensei is by no means the largest molded foam aircraft, but it is relatively large for a foam product, and as stated, it's a nice size for a trainer.



The heart of the Sensei fs is the WISE stabilization system.

Available as either a Rx-R (Receiver-Ready) or RTF (Ready-To-Fly)package, both versions come with a pre-installed outrunner motor and ESC (no specifications are listed). Also included are five pre-mounted servos, including the necessary pushrods. The airframe of either package is identical. The Rx-R will require the purchaser to supply his own radio control equipment, a six channel system is the minimum required. Included with the RTF package is a rudimentary cell balancing battery charger, and a 3S 2100 mAh lithium battery. Also included with the RTF is a Tactic TR624 Receiver and Tactic 610 transmitter.

Assembly couldn't be easier. Basically the wing panels slip over a pre-made joiner assembly, and a plastic connector snaps in place, locking the panels together. The tail assembly is keyed to the fuselage and held in place with a single screw. I kept telling myself to stop and take photos, but before I knew it, within minutes the airplane was completely assembled and ready to fly, only waiting for the battery to charge.

Beyond the WISE stabilization system, the Sensei incorporates additional aerodynamic aides, such as the Horner wingtips.

This is a perfect time to become familiar with the one product that makes the Sensei fs different from most of the other trainer aircraft currently available. The WISE (it's not an acronym) gyro and stabilization system is also preinstalled at the factory. Offering three modes of operation, Beginner, Intermediate and Advanced, the system has already been programmed, leaving nothing for the end user to mess up due to his lack of understanding (or a modelers natural desire to tinker). Another feature that's part of the WISE system is a bailout function. Should the pilot get so confused he can no longer determine the aircraft's orientation, all he has to do is pull the trainer toggle, and the aircraft will return to straight and level flight.

Prior to the first flights, quite a bit of time was spent comparing the WISE system in operation to the manual, learning the ins and outs and if any quirks would be encountered. The system worked exactly as stated. The one thing I did notice however, was if the WISE system was initialized in the beginner mode, switching to the advanced mode was near instantaneous. When the system was initialized in the advanced mode, then switched to the beginner mode, it seemed to take a moment or two before the gyro's electronics were able to interpret the command, and respond accordingly. This was certainly nothing earth shattering, simply an observation made of the review aircraft, but because of this, the system is always initialized in the beginner mode, and then it's switched over to the desired flight mode accordingly.

Having flown one or two radio control aircraft previously, the first flights were made in the advanced mode. It's pretty routine really, apply throttle and take to the air. In the advanced mode the Sensei is extremely easy to fly.

A colorful trim scheme, to help in visual orientation, is as important to the new pilot as the electronic stabilization.

Landings, which always scare a neophyte pilot, are simple. Point the airplane at the field and cut the power. WISE does the rest.

The airplane's light weight, combined with aerodynamic aides, such as the Horner wing tips, provide for an very stable aircraft.

Now that the aircraft's quirks were noted (there are none), the transmitter was set to the beginner mode. According to the manual, in this mode, after applying power, the Sensei will take off and proceed in level flight without any further input on the part of the new pilot. Wow, it really does work. Landings are pretty much the same. Line the aircraft up with the runway and reduce power. The Sensei will land itself. The only complaint, if you can call it that, with the beginner mode is the aircraft does not care for any pilot initiated abuse. In this mode it doesn't care to be knocked around and WISE will overpower the pilot's ill-inputted commands.

After a few flights, most newer pilots will most likely select the intermediate mode. This is a really good mode for pilot's who are learning, but still making a few too many mistakes. This is also a really good feature for pilots who have experience, but due to other limiting factors, such as health issues, or hand injuries as examples, are unable to participate in the R/C aviation hobby. Bank angle is still limited, but the pilot is able to actually fly the model, instead of simply pointing it somewhere.

Hobby dealers who were present at the outdoor flying demos that were part of the NRHSA show, will remember while I was piloting the Sensei there was an unfortunate fly-away. We never recovered the airframe, so the only conclusion was the incident must have been caused by a loss of signal. This was an issue that bothered me, so after photos, the review model was flown in a widening circular pattern (visualize a large funnel). It didn't take too long, and I didn't have to fly that far away, before the review model, the RTF version, began to respond erratically to commands. The difference was this

time I was purposely looking for a signal loss, and had put the aircraft in a position where the control link would quickly reestablish itself and the Sensei was brought in for a successful landing.

The receiver included with the RTF is the Tactic TR624. This is an outstanding product, and has been successfully used in a number of reviews, but the factory manual states it is a limited range receiver and it is recommended only for park flier applications. Perhaps it's because of the light wing loading that mimics that of a small park flier that the product engineers felt the TR624 would be a proper receiver, but as stated at the beginning of the review, the Sensei fs is a larger airplane, a good size for a trainer aircraft, and new pilots have a tendency to fly a little further away from themselves than experienced pilots.

For this reason, the TR624 was swapped out for a TR625. The TR625 is a full-range twin antenna receiver.

The Sensei fs is a stable aircraft and is a good choice for anyone from a rank beginner to the pilot who's had a few flights.

Using the manual as a guide, changing the servo connections only took minutes. From there one antenna lead was run horizontally along the servo tray and one was run vertically through a hole that already exists in the fuse behind the wing saddle, most likely for older 72Hz equipment. Since the conversion, the Sensei has been flown to the absolute limits of visual orientation, without the slightest hint of signal loss. The TR625 is extremely economical, and it might be worth suggesting one to the purchaser as part of an add-on sale. The TR624 can be saved for future use in one of the many Tx-R park flier aircraft Flyzone offers.

Trainer aircraft are a mandatory part of any dealer's inventory. The Sensei fs by Flyzone will do a superb job in filling this role and can be recommended to a number of modelers besides beginners. Flyzone products are available only through Great Planes Distributors. **HM**

Multiple Roles That Can Be Filled Beyond A Simple Trainer

Almost immediately after testing began, a Tactic TTX850 transmitter was linked to the receiver, and the TTX610 transmitter, which is included with the RTF, was set up as a wireless buddy box. Anyone who asked was allowed to fly the airplane, even people just beginning in the hobby, and the combination has worked flawlessly. But the Sensei actually has much more to offer besides that of a simple trainer aircraft.

Increasing control throw will result in an aircraft that becomes mildly aerobatic (in the advanced mode). The proper way to do this is to relocate the quick-connects to the outer hole on the servo arm. This will maintain the proper mechanical advantage. I'm not one to recommend reusing the plastic retaining washer once it's been pried free, so the way to solve this is to simply replace the whole connector (GPMQ3870). A quick and cost effective solution, especially if one of the old snap washers comes loose and the whole airplane is lost.

Not mentioned in the review, but included with the aircraft, is a set of "bomb bay" doors which are activated by the transmitter's fifth channel. The bay can be loaded with just about anything from candy, as the illustration on the box shows, to something like tiny fishing bobbers should the pilot (or field rules) choose not to drop food products.

As mentioned early in the evaluation, one of the attributes that make the Sensei such a good trainer is it's large wing area, and light wing loading. Added to this is the WISE gyro and stabilization system. WISE doesn't just keep the airplane headed in one direction, it is constantly correcting all three axis, roll, pitch and yaw, for outside influences like wind gusts. This means the aircraft is extremely stable, and can easily be adapted to a camera platform.

Thoughts along the lines of center drilling the wing joiner for a standard 1/4X20 bolt that's part of every camera's mounting system were entertained, and perhaps if two or three joiners were on hand to experiment with, this option would have been looked into more seriously. Not having extra wing joiners, the easiest solution was to simply use industrial strength hook and loop to secure the camera to the top of the wing.

Action cameras are available in a variety of sizes and price ranges. The wing loading of the Sensei is so light it can easily lift the extra weight of a small camera. And in testing, the extra weight, along with the drag, produced by mounting a camera to the wing, did not seem to have much, if any, affect on battery endurance.

As of late we've become so focused on the multi-rotor as a way of taking aerial photos we sometimes forget how easy it is to adapt a fixed wing aircraft to a camera platform. Try it, it's fun, and the Sensei is a perfect choice. **HM**