

.40 Sized Trainers.

The most **popular trainer** seen at many flying fields today is the .40 sized ARF (Almost Ready to Fly), and it's choice is a wise one when one considers the initial cost, the time necessary to assemble one, as well as their fine flying ability. Most of these aircraft will fly adequately with an inexpensive plain bearing .40 size engine, and a simple four channel radio. These ARF's all consist of a plane that has a wing mounted high on the fuselage, tricycle landing gear, (that is fitted with a nose wheel, not a tail wheel), and have operating ailerons, elevator, rudder, and engine control (throttle).

The choice of a proper sized engine for your trainer is usually printed on the box, and is frequently listed in the advertisements. For example, a typical .40 sized trainer lists the engine recommendations as .40-.46 2-stroke. As a new entrant into this sport, you will have to make many decisions at this early stage, and your engine choice can have implications on your **second** aircraft, so it may be wise to get some advice from your instructor, **before** making any major purchases.

There are two basic types of 2-stroke engines – plain bearing and ball bearing. The plain bearing engine will cost less, but is less powerful than a ball bearing engine. These plain bearing engines often start very easily, and have a long functional life, due in part to the fact that the crankshaft is supported in the engine with a bushing type bearing. A ball bearing engine, as the name implies, has the crankshaft supported in an arrangement of ball bearings. This permits the engine to develop more power, partly because of less internal friction, and in turn the motor might come with a more sophisticated carburettor.

You will notice the wing is often held in place with rubber bands, but screws are also used on some trainers. With the wing removed, access into the fuselage is possible, as that is where the servos, receiver and battery are located. The use of rubber bands on a trainer permits the wing to separate from the fuselage when an accident occurs. With most beginners, this usually happens when they are learning to land and a wing dips, striking the ground. By quickly separating from the fuselage, less damage occurs to both the wing and the fuselage. As a side note, very few trainees crash while being instructed – it's after they are on their own that “things happen!”

The use of a tricycle landing gear arrangement on Trainers is to assist the novice pilot learning to take off. But with this setup, the firewall can sustain damage if the nose wheel strikes the ground too hard, (this usually happens when learning to land), ending the day's activities.

A conventional landing gear setup does not use a nose wheel, but consists of a tail wheel placed under the rear portion of the aircraft, and requires using a slightly different technique during takeoff. Many instructors prefer this configuration because there is less chance of additional damage to the nose area of the aircraft when the trainee is practicing landings.

One rule of thumb in aviation is that almost everything is a compromise – so most manufacturers try their best to make a trainer be just that – a trainer – and for every positive move, there is an off-setting negative effect. That's what makes aviation such a great discipline – very few only rules, but many compromises.