Model Aviation's Sport Aviator
The e-zine for the new model pilot

ParkZone T-28 Trojan

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The North American T-28 Trojan was a piston-engined military trainer aircraft used by the United States armed forces in the 1950s on into the early 1980s. Today, it is one of the most sought-after ex military airplanes in the civilian market. The military T-28 was primarily used by the U.S. Navy in the training of student naval aviators. The last U.S. T-28 training flight was in early 1984.

Many T-28s were subsequently sold to private civil operators and due to their reasonable operating costs are often found flying as warbirds today. In the COIN role (counter insurgency), the T-28 saw extensive service during the Vietnam War in VNAF hands (Vietnam Air Force), as well as in the Secret War in Laos. They were also supplied to the Congo by the CIA to support Moise Tshombe's regime.

France used locally remanufactured T-28s in close-support and patrol roles in Algeria. In the Philippines, T-28s, known locally as "Tora-Toras", figured prominently in a series of coups in the 1980s and were employed as dive bombers by rebel military forces. In the Vietnam War the USAF lost 23 T-28s to all causes with the last two losses occurring in 1968. North American had built total of 1,948 of these three versions (T-28A, B and C).

Aircraft Specifications:

Armament: Two .50-cal. machine guns, plus 1,800 lbs. of bombs or rockets
Maximum speed: 346 mph
Cruising speed: 230 mph
Range: 1,060 miles
Ceiling: 37,000 ft.
Span: 40 ft. 7 in.
Length: 32 ft. 6 in.
Height: 12 ft. 7 in.

The Park Zone T-28 Trojan is another fine addition to their line of Ready-To-Fly (RTF), semi-scale Park Pilot-type aircraft models. Others include the P-51 Mustang (every manufacturer/distributors has to have one of these!) a Spitfire and its German counterpart, the FW-190. The model can be assembled (and charged) in less than 1 hour by anyone with any modeling experience. Though it is a scale model of a training aircraft, this airplane should *not* be considered as a first-time aircraft. Anyone who has mastered R/C flight with any other rudder/elevator/throttle aircraft could graduate to this model as their first “aileron trainer”.

The Park Zone T-28 Trojan meets all the aircraft requirements of the Academy of Model Aeronautics’ (AMA) Park Pilot Program. The aircraft weighs less than 2 pounds (the Program’s

upper weight limit) and has a level top speed under 60 mph (the Program's upper speed limit). For complete Park Pilot aircraft details, follow this link.

The AMA Park Pilot Program offers non-AMA members the opportunity to become AMA members at a much reduced cost. Park Pilot membership includes a great magazine "Park Pilot", $500,000 personal liability insurance, $2.5 million liability insurance for the flying field owner (see insurance details) *and* membership in the world's largest sport aviation association – the AMA. For complete information and details about Park Pilot membership, just click here.

Photo 1 Photo 2

The model parts are secured to a foam cradle that slides out of one end of the cardboard box. Carefully remove the pull ties and/or the tape that secures each part. The model comes adorned with all the decals in place. The motor, Electronic Speed Control (ESC), servos, receiver and pushrods are all installed at the factory. Once out of the box, what little the modeler needs to do is accomplished quite quickly. The instructions are well thought-out, but lack some detail in the description of the supplied radio and programming the ESC.

Though no programming of the ESC is required to fly *this* airplane (the default settings are adequate), if the ESC is ever moved to another aircraft, the user would be left in the dark as to using the built-in programmable features. The model is also supplied with a 72 MHz, 5-channel Park Zone ZX10 transmitter and 8 AA alkaline batteries. A charging jack is provided on the side of the transmitter should the pilot wish to upgrade to Nickel Cadmium (Ni-Cd) or Nickel Metal Hydride (Ni-MH) batteries. No transmitter charger is provided.

Photo 3

The ZX10 transmitter has non-adjustable Dual Rates on a single switch which will reduce the elevator and aileron control throws to some pre-programmed amount. (*Ed. Note, Mine measured at about 70% movement on low rate*.) The transmitter also has servo reversing switches at the

base of the case, but they do not have to be used for this aircraft. Everything was set correctly at the factory.

Like the ESC, the descriptions of the transmitter's functions are not complete. A feature to the transmitter is left unexplained. It is called "X-Port". I had to go out to the Park Zone website to find out: *"Several ParkZone aircraft are equipped with the exclusive X-Port™ accessory system. X-Port lets you add exciting capabilities like air-to-air combat and a parachute release simply by attaching and plugging in optional accessories like the Sonic Combat Module™ and Aerial Drop Module™".* The T-28 does not use X-Port functions which is probably why they were not explained.

Photo 4

The last piece of equipment provided for in the complete package is a simple to use 2 or 3 cell "balancing" Lithium Polymer (Li-Poly) charger. So many "Park Pilot" airplanes do not include a balancing charger that constantly monitors each individual cell in the pack. The T-28 does and it is a far superior charging system.

The 12-volt hookup lead is a little on the short side. Lithium Polymer (Li-Poly batteries should be charged outside of your vehicle for complete safety. I suggest going to your local electronic or auto supply store and getting a 5-foot extension cord designed for "cigarette lighter" connection.

I did find that the charger worked extremely well. But remember; please, always place your Li-Poly battery in a fire resistant CLOSED container such as a Pyrex® bowl with a lid or an old ammo box while charging. (*Ed. Note: Sport Aviator contributor Bob Karasiewicz had a great idea for such a container. He bought a used crock pot, with lid, at a lawn sale for $2. Works great.*)

The 3-cell Li-Poly battery supplied is rated at 15C and 1800mAh ("C" means the rated battery capacity, here 1.8 Amps). Since the maximum current I measured on the pack using the supplied motor and propeller was 17 amps, this puts the actual use of the battery at a little under 10c (the "10" here, like the "15" above, means "10 times the capacity"). This is very good for long battery life.

It is never wise to run ANY battery from ANY manufacturer/distributor up the quoted maximum "C" (discharge) limit, for extended periods or even for repeated short bursts on any one flight. The 1800 mAh rating is probably accurate. After a deep discharge flight, I consistently put 1700 mAh back into the pack as measured on both my FMA Cell Pro 4s and 10S chargers. The connectors provided between the battery and ESC are high quality and polarized to keep the modeler from inadvertently plugging them in the wrong way. However, to do diagnostics, I had to change them to my long time favorites, the Anderson Power Poles, aka Sermos, connectors.

T-28 Assembly

The instructions would like you to start by installing the wing first. I would rather do that last. Why have the 44" span model spinning around your small shop banging into the lights and other hard things while you install the landing gear and horizontal tail! You should actually start by installing the AA dry cells in the transmitter and charging the 3-cell, 1800 mAh Li-Poly battery pack as you

will need both of these items before long! Follow the directions in the manual and you will not have any trouble with either.

I do, however, warn the reader that you should NEVER charge a Li-poly battery unattended. If you cannot charge the motor battery in your shop close by where you are assembling the model, take your time to either charge first and assemble the model later, or assemble first and charge later.

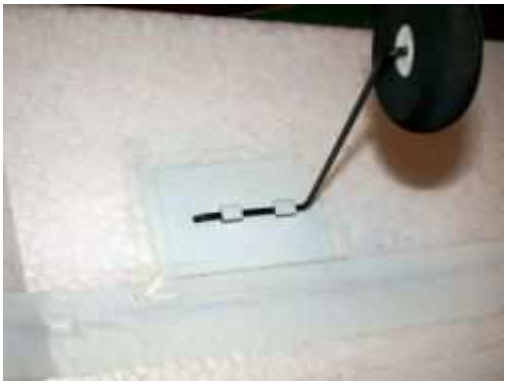

Photo 5

I started the assembly of the model with step 4 (Installing the landing gear). The main gear leg slips into receptacles in the bottom of the wing. A 5 second job each side!

Photo 6

The nose gear takes a bit more effort. The wire must be slid into the hole provided, with the spring coil on the aft side and the flat ground into the shaft facing forward. This “flat” must line up with the screw attached to the steering arm. Make sure the steering arm is also in place before inserting the shaft of the nose gear wire into the model. Run a Phillips head screw driver though the dummy engine and onto the screw that secures the steering arm to the wire nose gear and tighten the screw.

Photo 7

Slide the horizontal stabilizer with the pre-hinged elevator through the slot provided in the fuselage. Make sure to send the end that does not have the elevator horn through first! Place the four pieces of clear tape (provided) on the stabilizer and the mount, two on top (left and right) and two on the bottom (left and right). This is all that is required to hold the stab and elevator on! It works! I would, however, check this taped connection occasionally, especially if you live in a damp climate. Attach the elevator and rudder clevises to the horns, but do not be concerned with "trim" or centering at this point.

Photo 8

Now we can put the wing on. Slide the two aileron servo connectors though the hole provided in the wing saddle as you position the wing on the fuselage. Place the plastic pins in the aft part of the wing into the two holes provided in the fuselage. Insert the long, 3mm screw into the hole at the leading edge of the wing and without any pressure, turn the screw. There is a nut glued into the fuselage at the bottom of the hole in the fitting (above photo).

If you have to "push" to start the thread, you may push the nut out of place. Be careful applying pressure. The nut can be replaced but that takes a bit of effort to get the nut back in place. Be aware of this each time you take the wing off and put it back on. Do not store the bolt in the fuselage as is common practice to prevent accidentally knocking out the fuselage nut.

Photo 9

Plug the aileron servo cables into the y-harness provided and in my case, factory installed in the correct channel on the RX. The rudder and elevator servo cables were already plugged into the RX also, but check the connection.

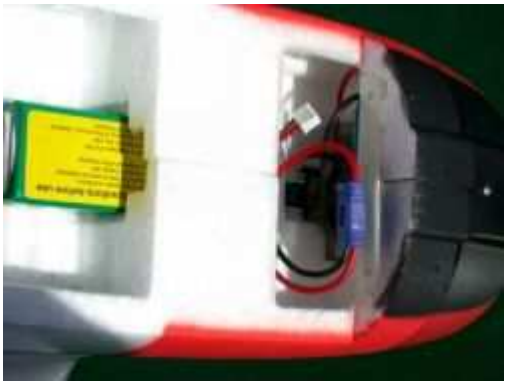

Photo 10

If you jumped ahead and installed the propeller on the shaft, take it off! Install the battery into the slot in the forward fuselage provided. Make both connections (power leads and charging node connector make it into the forward bay). Turn on the Transmitter with the throttle stick in the “low” (idle/off) position and connect the charged battery to the ESC. The system has no “switch”.

The radio and motor will be “live” as soon as the connection is made. Though it has no consequence to this model, the instructions “imply” that the ESC can be programmed for a number of features. Though these features are mentioned and entry into the programming mode is described, the instructions do not give specific instructions on how to accomplish a change to the default programming and what each feature is offering the user. A quick search of the Horizon website found the manual for the ESC at: http://www.horizonhobby.com/ ProdInfo/Files/EFLA1025_manual.pdf.. You will need this manual if you wish to move this ESC to another aircraft and want to take advantage of some of the other features built into this ESC.

Photo 11

Check the control position and movements of all the devices. Check to see if all the controls are centered with the trims on the Transmitter centered. If the rudder, elevator and ailerons are not centered, un-clip the clevis and screw them in or out to adjust the neutral position. Make sure you replace the clevis into the outermost hole on the horn. This will ensure proper control deflections in both the Hi and Low rate modes available on the transmitter.

Try the throttle once you have finished with the flight controls. If the motor does not run (but the servos work) then you may have to reduce the trim on the throttle to the lowest position to get the ESC to “arm” the motor. If this fails, unplug the battery pack, assure yourself that the transmitter is on (green light is lit on the transmitter) and that both the throttle stick and trim lever are at the lowest position. Plug in the battery again. You should hear 3 short beeps signifying that the ESC “sees” a three cell battery pack. Try to run the motor again. Once assured that everything works as expected, the last thing to do is install the propeller!

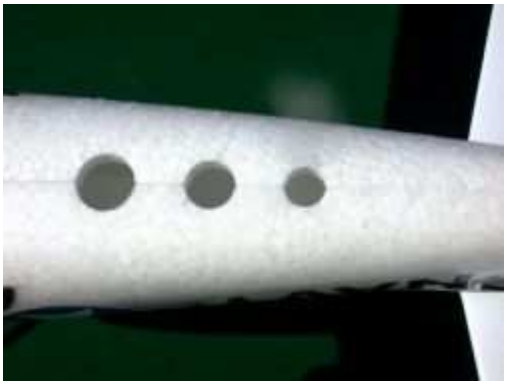

Photo 12

Before we go out flying… I would like to mention…. ***These are NOT hand launching holes!*** They are cooling air exit holes. If you choose to fly the model without the landing gear, it will not be easy to launch if you have a small hand. The fuselage is wide! Grass take-off performance at my field was so good however, that I didn't need to hand launch and you probably won't need to either.

Photo 13

Normally in any flying model (ARF, RTF or kit), the Center of Gravity (CG) is specified in the instructions. Park Zone has chosen not to provide this information. I intentionally took it for granted (because of the highly pre-fabricated nature of the model) that as long as I had the battery pack in its proper place, the model would balance properly. To skip ahead, yes, it flew well, but just in case you would like to know, the CG should be 2 5/8" behind the front wing joint with the fuselage.

Flight Performance

Photo 14 Photo 15

What can I say about a semi-scale model of a training aircraft with as good a reputation as the full scale vehicle! It flies great! Right out of the box as they say. My choice of day for the first flight was not the best; overcast and quite breezy. After checking all the controls again and doing a motor-off and motor on range check (both strongly suggested!) I put the model down pointed straight into the wind. I left the transmitter on “high rates” as I was originally concerned with the small control deflections on the “low rate” side (which later were unfounded).

Photo 16 Photo 17

I advanced the throttle slowly to see how it would steer on the ground and promptly flipped it over when I got crosswind! I told you it was breezy! Well, enough of that. I set it back on its legs and off I went! The model was in the air long before I got to full throttle. I kept it at full throttle though into the stiff breeze to maintain solid control and until I got enough altitude to “ring it out”. At 94 watts/lb (in excess of what I would call a “trainer” power loading) the model is quite sprightly.

Photo 18 Photo 19

Power-on and power-off stalls are soft and quick to recover, owing mostly to the airplane's low wing loading of 14 oz/sq. ft. The aircraft showed no tendency to fall off on a wing during the stalls. Intentional spins, initiated during stalls, were more like very nose down spirals. They were actually tighter with the power off!

Photo 20

Rolls in either direction have a very scale-like "barrel" look to them which can be made a little more axial with application of rudder. Stall turns were good but the airplane's dihedral does cause some roll-coupling. Holding a little opposite aileron during the stall turn rotation makes for a pretty maneuver.

Photo 21

With the generous sized rudder and deflections, the model does snap roll quite violently, but recovery is as fast as one can neutralize the controls. Loops can be big and round without falling out at the top (due to the high power loading and the low wing loading) and they can be almost as tight as you want without snapping out.

Photo 22 Photo 23

Inverted flight only requires a small amount of "push" (down elevator) when upside down. The big fuselage with its large, tall canopy, allows knife edge flight at full throttle. But, be careful to control both the elevator and ailerons while in this position to maintain heading.

Photo 24 Photo 25

Landings can be made at very low speeds, making this truly a small field aircraft. Just a little power would keep the Trojan just off the ground, floating in ground effect. Cutting the power drops the model down at any point the pilot desires. The tricycle landing gear absorbs even the harshest lands. Taxiing in anything but a stiff breeze is easy. My home field is not the smoothest and even with the small wheels, the excess power available pulled the model around very easily on the ground.

Photo 26 Photo 27

The novice and experienced pilot alike will enjoy the Trojan. Its scale looks and great flying qualities are credit to the full scale aircraft! I am really enjoying flying my T-28 and especially like showing off with the easy spot landings. My thanks go to Ray Juschkus for his excellent airborne photos.

For more information on this fine product, please go to:
http://www.masportaviator.com/activedit/../redirect.asp?website=ArticleLink_ParkZone_Trojan

Specifications

Manufacturer: Park Zone

Length: 36 in. **Wingspan:** 44 in.
Radio: ZX10 5-channel 72 MHz **Wing Area:** 316 sq. in.
Servos: 4 mini servos **Wing Loading:** 14 oz. /sq. ft.
Motor: PKZ 480 960Kv outrunner **Weight:** 30.7 ounces.
Airfoil: Semi-Symmetrical

Cost: $220.00

Special Airframe Features: Factory assembled Ready-To-Fly. Great second airplane performance. Colorful and attractive

Notable Positives
Extremely fast assembly
Very good looks
Very light flying weight
Really fun and easy to spot land
Has honest aerobatic performance better than most Park Flyers

Notable Negatives
Fuselage wing mount bolt could be more secure

Aircraft Specifications

Prop: 9.5 x 7.5 **Max RPM:** 7,500 RPM
Max Watts: 187 W **Power Loading:** 94 W/lb.
Max Voltage: 12.2 V **Motor Current:** 17 Amps
ESC: E-flite® 25A brushless (EFLA1025)
Battery: 3-cell 1800mAh Li-Po battery (PKZ1031)
Charger: Park Zone 2-3 cell, 2 Amp max Cell-balancing Li-Poly charger