TISSAN HAIFA 'BARNASH'

A remarkably complete and superbly engineered 52" (1320mm) span four-channel R/C trainer kit from Israel, reviewed by Peter Miller

The Tissan Haifa 'Barnash' is one of the best R/C trainerkits in the world. I say 'one of' because Tissan Haifa make a range of kits and to my mund, they all qualify for such an accolade!

The 'Barnash' is a trainer and is the largest model in this Israeli-manufactured range, being intended for .25 to .40 size engines. Just to whet your appetite, although these are traditional balsa and ply kits that you have to build yourself from a set parts, they go together almost as fast as an ARTF.

Consider these facts. You do not need a knife to build them. All the holes are drilled, every single one. All the slots are cut for the hinges in all control surfaces. All that you need is some sandpaper and the kit provides that.

Why BUILD a trainer?

In these days of the ARTF, some people might wonder why bother building a model. Well, there are several good reasons - you can place them in any order that you like. First, if you build a model and have the plans, you can repair it. I know of ARTF types who snapped a fuselage and couldn't even repair a clean break. I know of a model shop which has a back room full of broken ARTF trainers waiting to be repaired. If you build, it you have a good idea how to repair it.

If you build it, you know that there is enough glue in the joints and the wood is of the right quality. I have seen too many ARTFs break up in the air for those reasons.

There is the sheer enjoyment of building. Real modellers will tell you that building is just as much fun as flying and it does fill those Sundays when the rain is lashing down and the wind is howling round the chimney.

This is what 'complete' really means!

These kits are aimed at local Israeli modellers who don't have a model shop just down the road or in the next town. The box is full when you get it. Of course, it has all the wood parts as you would expect, but it also has everything that other kits do not provide.

You get the three wheels, you get a *Sullivan* fuel tank. You get a high quality spinner. Well, some of the better kits will supply these. You also get the rubber bands to hold the wings on, the fuel tube to plumb the engine in to the tank, the wing seating tape. You get a Sanwa servo tray and they even supply a big sheet of 1/2" thick foam to pad the receiver and batteries. You get a custom-made engine mount pre-drilled for the engine and those holes are counter-bored for blind nuts. No self-tappers to hold your engine in, proper nuts and bolts.

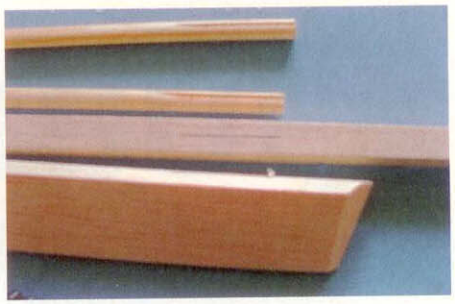
Then you get the real bonus items. Clear polythene to cover the plans with and plastic gloves so you don't get CA glue on your hands. There is even a packet of pins to pin the parts down to the board. You get a

sheet of sandpaper and a small board with sandpaper glued to each side; one side is coarse and the other fine. They even provide a sheet of foam plastic to wrap your receiver and battery in and also pad the tank bay.

The plans are on two sheets; the fuselage is clearly laid out on one sheet while the wing is on a separate sheet. This is because the fuselage is common to the three and four-channel kits. There is a large instruction book very clearly drawn with detailed instructions for every stage, including installation and covering.

What don't you get? Well, you have to provide the radio, engine and propeller and covering material. You will also need glue. The kit makes use of CA glue in thick and thin versions and balsa cement. In fact, I used my normal aliphatic resin wood glue for the complete model.

Now let's look at some of the fine detail. The pushrods are made from 1/4" dowel. They are pre-drilled for the wire ends, of course, but they are also grooved so that the wires lie flush with the surface of the dowel. You get a reel of strong thread to bind the wire ends in place. The wire ends which connect to the tail controls are a very complex shape - not to worry, they are pre-bent to the correct shape.



ABOVE LEFT: *This is what 'complete' really means, right down to a servo tray, sandpaper and plastic gloves!* **ABOVE RIGHT:** *Pre-slotted and drilled pushrods and ailerons slotted for the hinges. They don't come any better.*

The formers are all cut out and the front former is fully pre-drilled and even has a depression machined in to clear the steering arm of the nose leg. This former has a chamfer on the bottom to match the down-thrust angle.

The top sheet for the rear of the fuselage has a rebate cut round the edge so that it is half sunk into the top of the fuselage. I could go on but let's start building.

Assembling the model

I followed the instructions to the letter, step by step. I wanted to see how a beginner would get on. One starts with the wings. Lay the lower spars down as described. They are colour-coded so you know which are the top and bottom spars. These are sawn from spruce or similar hardwood.

The leading edge and trailing edge are pinned down. Note that the wider groove for the root rib goes at the root. Next you pin down the lower centre section sheet. This is marked 'bottom' and is cut exactly to size. You will find that all the ribs fit perfectly, in fact one could assemble the wing dry and lift it off the board. That is how good the fits are.

One tip: the spars are a tight fit in the ribs and I did have to deepen the slots by a fraction. When fitting the top spar, sandpaper a slight radius on the corners that you feed into the slots, it makes installing the spar in all the ribs at once much easier.

The second wing is built and then they are joined with a dihedral brace. The brace is a positive fit between the spars and in the slot in the roots of the wings. It was here that I found the only discrepancy in the whole model. I doubled checked the root rib angles with the template when the glue was wet and after it had dried. I checked the brace and it was a perfect fit between the spars and lay flush with the top of the slots in the roots.

The instructions state that one wing tip should be propped up 75 mm. When my joint was perfect in every way I only got 50 mm of dihedral. I doubt if it will make any noticeable difference to the flying, possibly a fraction less positively stable.

I contacted the manufacturer who confirmed that I was right and that they would change the dimension in the next print run of the instruction book.

The fuselage is another simple operation. The kit provides jigs to set the formers at the correct angles. Just take care that they are perfectly matched to the bottom of the fuselage.

The only tricky job that I found was joining the sides to the bottom with its formers. The bottom is liteply and may be twisted. Make absolutely certain that it is flat on the building board over its entire length before gluing the sides on. I did get a slight twist in the fuselage but was able to correct this because I was using aliphatic resin and could separate the joint before it was completely hard.

I did make one very small modification at this point. The tailplane is glued into a slot in the rear of the 1/16" ply sides. Now I prefer a bit more gluing area than the edge of a few inches of 1/16" ply. It may survive flight loads but a knock in transit can loosen a tailplane. I filled the fuselage under the tailplane location with scrap 3/8" balsa sheet.

The tail surfaces are all pre-cut and slotted for the hinges, one just has to sand the edges round and they are ready to fit.

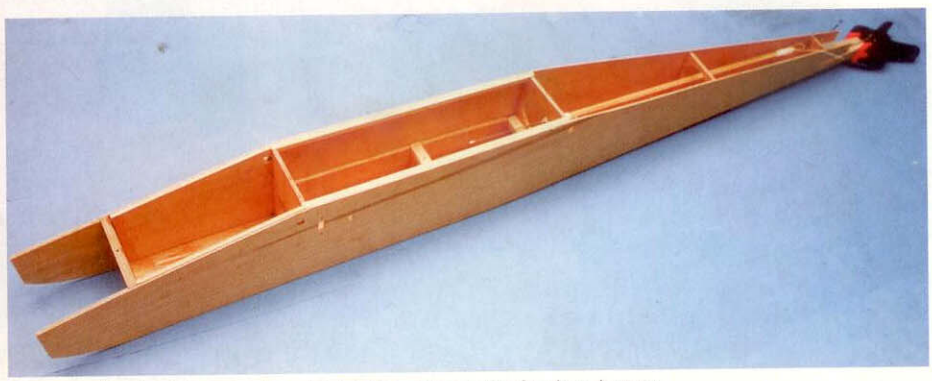
Covering

There are detailed instructions on how to cover the wing, however these instructions simply tell you to apply five coats of dope to the fuselage and tail assembly. No mention is made of fuel-proofer...

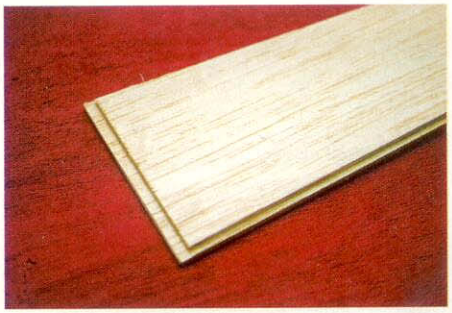
I chose to cover the whole model with Solarfilm Supershrink Polyester. I covered the tail components before attaching. Be very careful when cutting away the covering in the areas to be glued not to cut into the tailplane and fin. I fuel-proofed the engine and tank bay with polyurethane varnish.

R/C installation

The illustrations for installing the radio are very clear. If one uses the servo tray and matches the position of the output arms and connects the pushrods in the indicated holes



The only slightly tricky operation, joining the sides to the fuselage bottom.



ABOVE LEFT: *The fuselage top sheet is rebated for a strong and perfect joint.* **ABOVE CENTRE:** *Everything fits, even the sheet is cut to size and marked 'top' or 'bottom'.* **ABOVE RIGHT:** *Simple, strong wing is easy to build and easy to repair.*

you end up with suitable control throws and the controls working in the right direction. The latter is subject to the servo reverse switches being in the right place on the transmitter.

All the holes are drilled for the horns, etc. The pushrods are connected to the servos with pushrod connectors; these allow for instant and exact positioning of the pushrod.

The tank if fitted into its bay and padded out with foam. The tank provided is not the same as shown on the plan. I found that one should bend the pipes up slightly to help with feeding the fuel tubes through F-1. The tank bay is covered by a hatch which is retained by two hooks under the front wing dowel and a single screw at the front. Brilliant! This hatch has a machined hardwood block which fairs in the wing and also prevents the front from lifting if one gets carried away in a steep dive.

The engine is mounted on a custom-made nylon mount which has built in side-thrust. My only complaint is with this mount. It is drilled to suit O.S. 40 engines and cannot be adapted to suit .25s. I understand that the three-channel version has the engine mount drilled for the smaller engines.

The only options if you want to use a smaller engine are to fit a different mount which will involve a lot of work because the nose leg is designed for this one and all the holes in F-1 are pre-drilled. The other option is to file out the holes on the mounting lugs, something I hate doing but which would be simpler.

The completed model weighed 4lb. 3oz. and the balance point came out right on the button with the O.S. FP 40.

Into the wide blue yonder

After waiting for weeks for a Sunday which was not bitterly cold, blowing half a gale, snowing, raining or any combination of these, we had a day which was merely cold. and coincided with flying from our concrete strip.

With the O.S. 40 FP on song, the model was released and departed down the runway at speed. It was soon in the air and once I had added quite a lot of 'up' trim and some left aileron it flew straight and level.

I first checked out the low speed handling and as I throttled back, the nose came up a lot until the speed had bled off - not a problem for me, but something to be aware of. I suspect that the engine has a little too much down-thrust. The model could be slowed right down with no tendency to drop a wing and in fact the stall was a non-event.

I then tested the stability. The model is totally neutral in stability, in other words it stays in whatever position it is until the pilot does something about it. That includes spiral dives and banked turns.

After that, I started to investigate the aerobatics. Loops and rolls are very easy, but inverted flight needs some down elevator. It does not want to do outside loops and flick rolls are sluggish. These could be improved with more control throws. The glide was long and very flat with a nice smooth landing at the end.

Stuart Pickett, my pilot while I take the flying shots, was eager to fly the model because he wanted to get his reflexes tuned up before test-flying his new jet-powered model. After a very few moments getting used to the 'Barnash' he was making low and close passes for the camera. Once we had the shots in the bag he was allowed to play with the model.

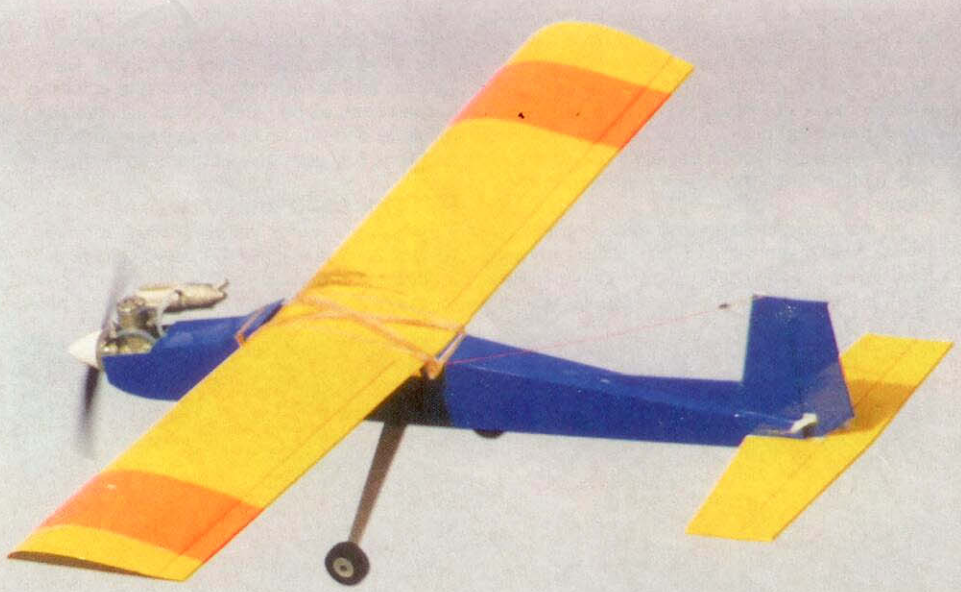
Stuart was impressed with its vertical performance, climbing straight up into the blue sky and doing aerobatics all over the place. Having thrown it around for a while he felt ready to fly his own model.

Summary

Having sat back overnight to think about it, I can say that, as a kit, the 'Barnash' is perfect. Everything fits and the instructions are complete in every way. Anyone who can't build this model from the kit would have serious difficulty assembling an ARTF...

In flight I can say that the model is very smooth and not twitchy. On low rates, it is quite docile but on high rates with a .40, it is fast and aerobatic. As a trainer it should be flown on a smaller engine as the slower speed would give the novice more time to think. If flying with a .40 I would suggest that the instructor should be connected to the pupil with a buddy box lead as the thinking time is reduced.

For the more experienced pilot the 'Barnash' makes a great trainer for basic aerobatics. ■



Specification

MODEL:
Barnash
TYPE:
R/C Trainer
MANUFACTURER:
Tissan Haifa
UK DISTRIBUTOR:
Al's Hobbies
RETAIL PRICE:
£79.95
WINGSPAN:
52"
FUSELAGE LENGTH:
41"
ENGINE SIZE:
.25 to .40
ENGINE USED:
O.S. 40 FP
NO. OF CHANNELS:
Four
CONSTRUCTION:
Balsa and ply built up from a kit of parts
ALL-UP WEIGHT:
3lb. 12oz.