



The North American BT-14 in USAAC markings, seen over Randolph Field, Texas circa 1940.

Belcher Bits BK3: North American BT-14

Introduction

North American's NA-16 trainer was the sire of a long line of military trainers, the AT-6 Texan being the most famous. However, there were many other variations on the same airframe. The first USAAC use of this trainer was the BT-9 family. These aircraft used the R-975 engine with its distinctive forward exhaust collector ring, had fabric covered fuselages and all employed the early wing with its straight trailing edge and rounded wingtips. Several attempts were made to improve the nasty stall characteristics of these early variants...the final answer was new outer wing panels with a slight forward sweep to the trailing edge, a 6" longer fuselage and a different shaped rudder.

The BT-14 was very much an interim aircraft between BT-9 and AT-6, incorporating the improved aerodynamic features mentioned above, but retaining the fixed landing gear. What makes it unique is that it alone among all other North American trainers used the R-985 engine. The reason for this may have been to achieve engine commonality with the Vultee BT-13 and Beechcraft C-45 which entered service about the same time in training units. However, the

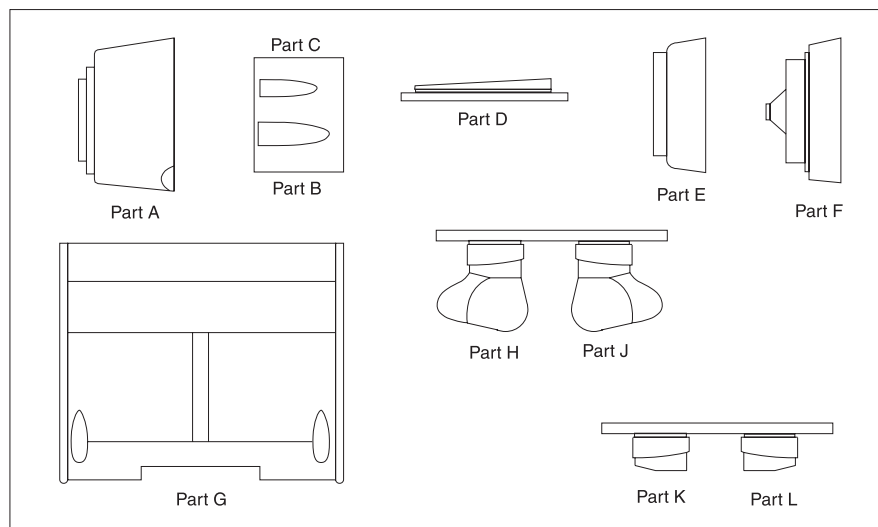
success of the North American BC-1A / AT-6 with its R-1340 engine essentially halted any further interest in the BT-14, and it became a minor player in USAAC training plans.

The Kit

This kit includes a complete Occidental Harvard Mk II kit, necessary resin parts to convert the kit to a BT-14,

a set of EZ Mask canopy masks and a decal sheet with schemes for four BT-14s. For those of you who are now wondering what you are going to do with that Monogram Texan kit you bought years ago with the idea of making a BT-14, the decal sheet also contains one scheme for a BC-1A (virtually identical to the AT-6 Texan).

Resin Parts Guide



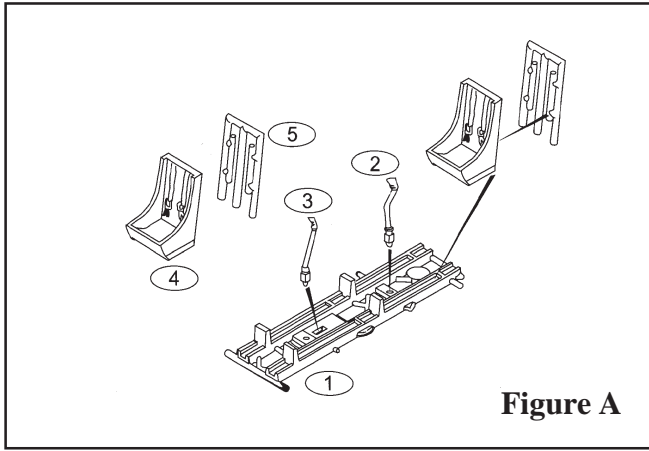


Figure A

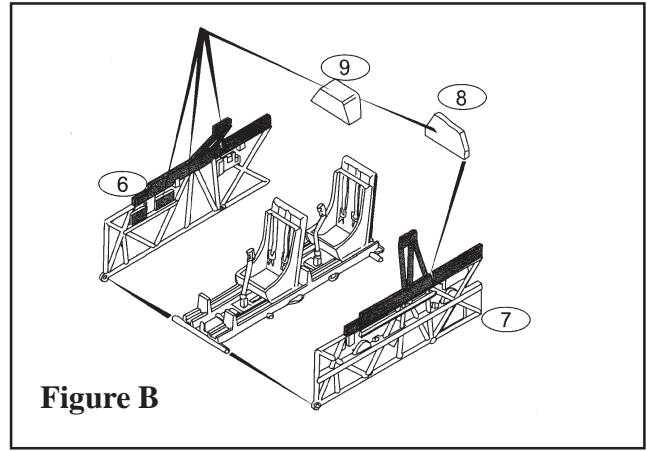


Figure B

Fuselage

Assemble the kit interior, using Figs A and B. Interior colour is aluminum lacquer; zinc chromate primer didn't come into use until later in the war. Seats would have been bare metal; the

pilots used seat pack parachutes. Paint the instrument panels and side consoles black; the instruments can be picked out with a white pencil, or by careful drybrushing.

Glue the fuselage halves together

with the upper cowling piece (part 15) and forward instrument panel (part 12) using Fig. C. Part 10 may need a little trimming to allow the fuselage halves to mate properly. If you glue on part 15 so it lines up with the front of the fuselage halves, there will be a small gap at the leading edge of the canopy rail. Fill this gap with small scraps of plastic because the canopy will not fit if you glue part 15 further back. I would also recommend leaving off the tailwheel until the end.

Using Fig. D, cut off the forward fuselage where indicated. Glue on the accessory section (resin part A); the protrusions on the back of this part should key in with the lower section of the fuselage. Fill seams in the upper cowling area. I would recommend filling and rescribing the panel lines for the three small panels aft of the cut ... they are not scribed the same on both sides of the kit parts, and it would probably look better if they were symmetrical.

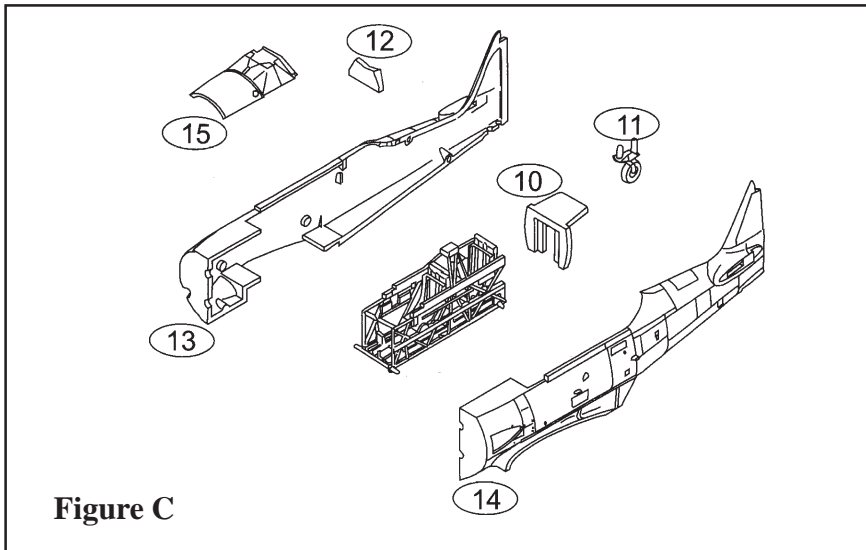


Figure C

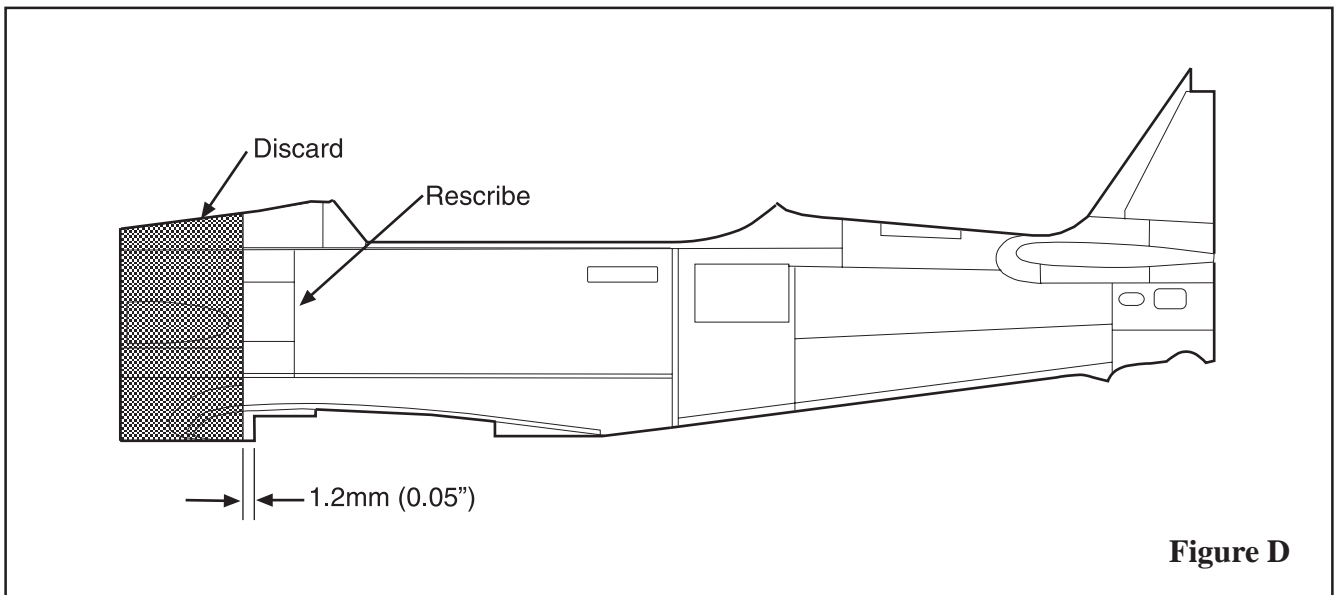
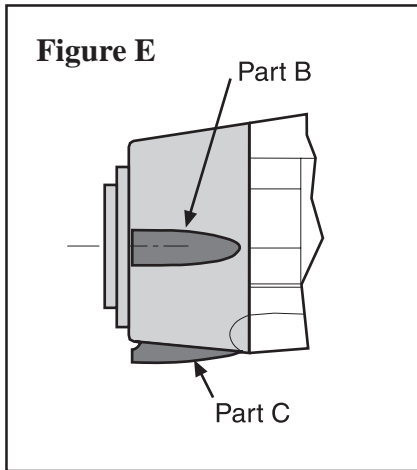


Figure D



Glue the carburetor air intake (resin part B) on the port side of the accessory section, and the oil cooler air intake (resin part C) on the bottom. Fill seams as necessary. See Figure E.

The starboard side of the accessory section has a slot for the exhaust pipe which looks very much like that on a Texan only somewhat smaller. Modify the kit exhaust pipe end, cutting a small stub exhaust at a 45 angle and glue in place. Ensure that the stub sticks out less than 1 mm (0.040") and that the forward end does not foul the fit of the cowling.

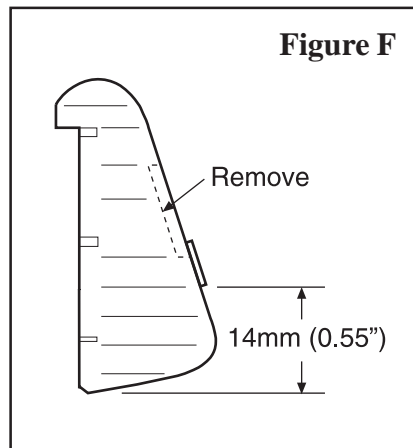
BT-14s used a tall antenna mast fitted on the forward cowling area, just to the port side of the centreline. Fit resin part D after all other work is completed to avoid breaking during handling.

Cowling

The cowling is supplied in two pieces (the forward cowling as part E and the rear cowling and engine face as part F). I would suggest painting the engine before assembly. The interior of the cowling was also probably natural metal, but could have been zinc chromate primer. Remove the moulding ring from the front cowling, sand the cowling lip to a smooth radius and glue to the rear part, lining up the keyed slot at the top. Fill the seam between the two. This whole assembly can be painted and attached later if you prefer ... the cowling assembly has a small hole on its back face which registers with a small protrusion on the accessory section to ensure the cowling only fits one way.

Tail Area

The port (part 28) and starboard (part 27) elevators can be glued in place and seams filled. The BT-14 did not have rudder-mounted tail lights or an adjustable rudder trim tab; instead it used a small external metal tab which was ground-adjusted. This is good because the Occidental rudder has a very thick trailing edge. By careful sanding of the trailing edge, you can sand off the lights and the scribed trim tab AND reduce the thickness at the same time. You will also remove some of the fabric details of the rudder but like most kits, these are a little too prominent anyways ... besides, the rudder is going to be painted with all those red and white stripes! Once the rudder is sanded, cut a piece of 0.010" x 0.030" styrene strip, 6.3 mm (0.25") long. Glue this to the trailing edge of the rudder where indicated in Figure F. It is probably better to paint the rudder separately and glue it on later.



Wing

I recommend doing the wing separately from the fuselage ... since it involves gluing the outer wing panels on a new centre section, it will be easier to ensure the same dihedral on both wings. Glue the kit wing upper and lower halves

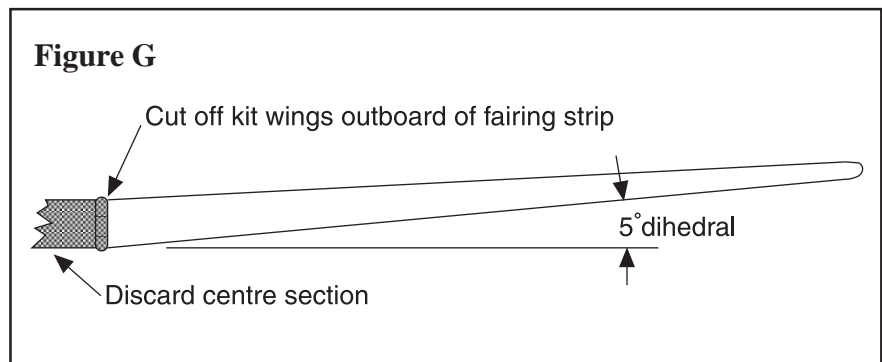
(parts 32, 33 and 34) together. When dry, cut the outer wing panels off as indicated in Fig. G, and carefully file the cut edges flat. Glue these to the replacement centre section (resin part G). Note that the resin part incorporates the complete fairing strip, so the outer wing parts are centred on the butt edge. The resin centre section is moulded with the centre flap section raised, so it would probably be best to glue the outboard flaps (kit parts 29 port and 30 starboard) raised as well ... if you want to drop the flaps, kit part 31 (the centre section flap) can be used if shortened by 1/4" (6.3mm), but the resin centre section must be modified.

When dry, fit the completed wing to the fuselage. Some filling will be required at the joint between the wing and the resin accessory section, as well as a bit along the root.

Landing Gear

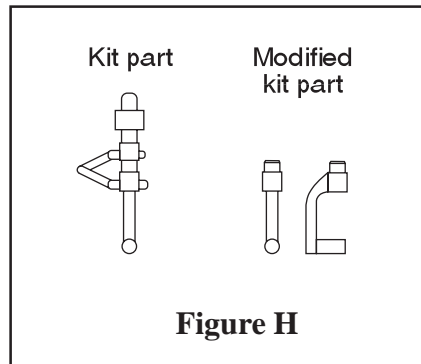
Check your references ... early BT-14s were seen with full spats, while later on, the lower section was removed. Usually, the spats were the same colour as the fuselage, so it may make sense to paint these items separately and glue in place when the model is completed; note the open sections face outboard.

If you are opting for full spats, cut off the spats (resin parts H starboard & F port) from their base and paint. The Occidental kit provides three tires, one with a diamond tread pattern. Toss it in the spare box, and sand the line tread patterns off the other two tires ... if you can reduce their width slightly, they will look better. Reduce the thickness of the wheels (part 35) by sanding the back face. The wheels and their covers (part 36) can be glued together and painted separately from the tire. The inner face of the tire should be natural metal. The final step is to glue the tire into the spat.



For those a/c with lower section of the spats removed, abbreviated fairings are also provided. Cut off resin parts K (port) and L (starboard) from their base; again, you may wish to paint these separately and glue on later. Modify the kit landing gear as shown in Fig.H. These shortened gear legs (painted natural metal) fit into the holes in the fairings. The wheels and tires are finished as above, and fit on the kit axles.

The tail wheel from the kit (part 11) is used without modification.

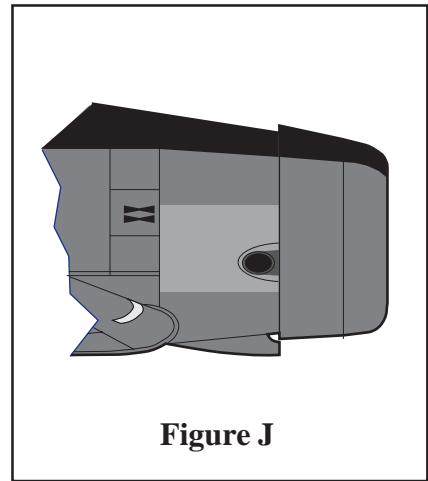


Canopy

Depending on the way you like to deal with canopies, you may want to fit the fixed portions such as the windscreen (part 49) and the rear canopy section (part 53a) prior to painting. The Occidental kit includes optional canopy sections for early and later Harvards; be sure to use the early ones with the addi-

tional canopy frames; kit parts 50a (front), 51a (middle) and 52a (rear).

This kit includes a set of EZ Mask canopy masks for your convenience. This self-adhesive film is pre-cut to fit the Occidental kit canopy, and will definitely save you time in masking. Mix a small amount of detergent with water, use a sharp knife to lift the canopy mask section off the backing and a pair of tweezers to dip it in the soapy water. Place it where indicated on the canopy; the soapy water will allow you to move it into position. Once the mask is properly positioned, press it in place and pat it dry. Once all the masks are positioned and dried, the canopy is ready for painting.



Final Steps

Following painting, clear wing landing light covers part 48 (starboard) and 48a (port) are glued in place on the port and starboard wings respectively. The Occidental kit does not make any attempt to show the lamps; these could be made from small bits of sprue or railroad lamp lenses.

On the starboard side just aft of the accessory section are two small venturi. Too small for resin parts, you should make these up from stretched sprue ends (see Figure J).

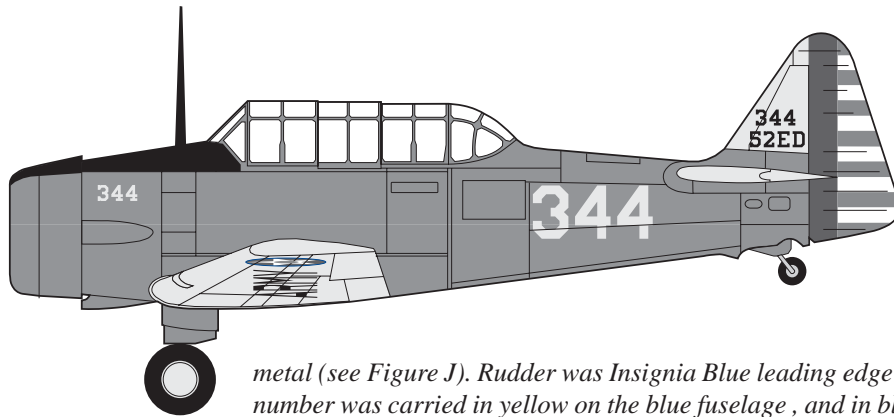
Glue the pitch control weights (parts 24A) to the kit prop (part 24) hub. The prop is natural metal with black on the rear faces of the blades.

References:

1. **North American Aircraft 1934-1998 Vol. 1**, by Norm Avery, published by Narkeiwicz / Thompson
2. **North American NA-16/AT-6/SNJ**, Warbird Tech Series Volume 11, by Dan Hagedorn, published by Specialty Press
3. **T-6 Texan in Action**, by Larry Davis, Squadron/Signal Publications.
4. **Harvard!** by Dave Fletcher and Doud Macphail, publisher DCF Flying Books.
5. **Riding Herd on the Thundering Texan** by Peter Bowers, Wings October 1986 (Part I) and Dec 1986 (Part II)
6. **The Empire Builder** by Owen Gault and Vital Ferry, Air Classics October 1976.
7. **Air Force Colors Vol. 1** by Dana Bell, Squadron/Signal Publications

Decal Sheet Guide

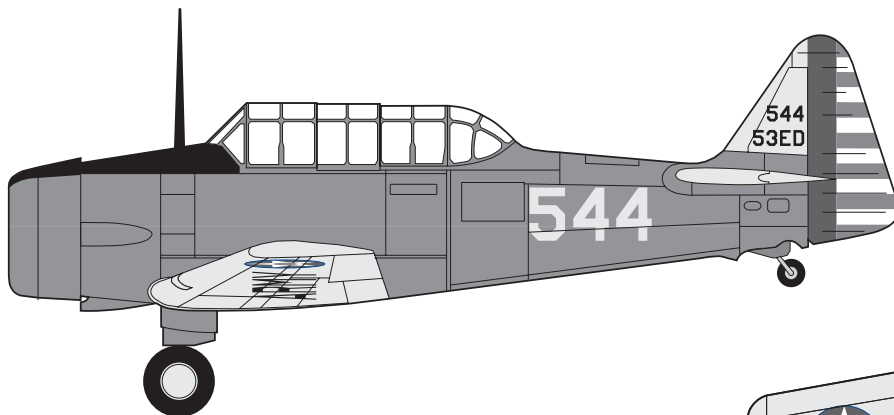
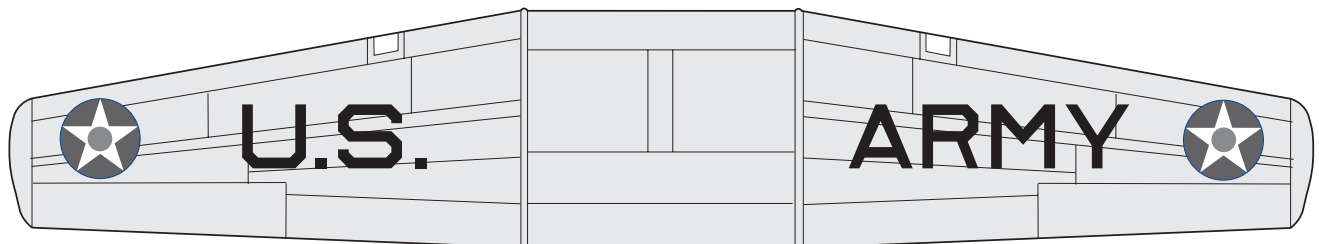
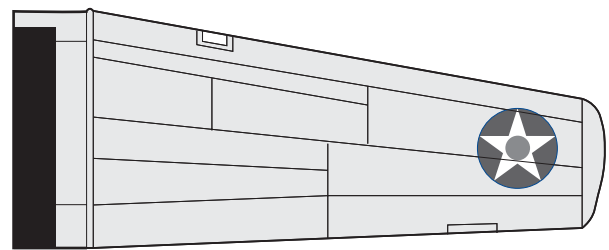
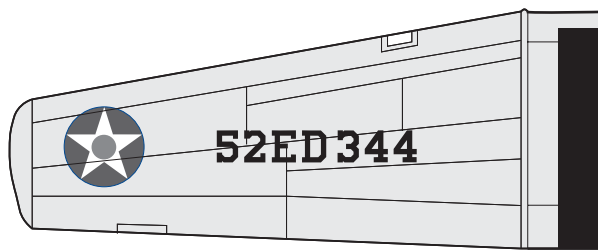
	Belcher Bits BK3: BT-14	U.S. ARMY				
53 ED	53ED 544	[Four stars in circles]				COMMON
52 ED	52ED 344	[Faded 344]	[Faded 52ED]	[Faded 344]	[Faded 544]	32 BS
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	217G	217G	01112	01112	[Two bee logos]	[Two 100 logos]
	BT-14 '217G'	53 ED	BC-1A			



BT-14 of the 52nd School Squadron, Randolph Field, Texas ca.1940. Common to USAAC aircraft of this period, fuselage was USAAC Light Blue (similar to True Blue FS 15102), with Yellow (similar to Orange Yellow FS 13538) wings, fin, elevators and wheel discs. The anti-glare panel forward of the windscreen was black. Around the exhaust, a panel on the starboard side of the nose behind the cowling is natural

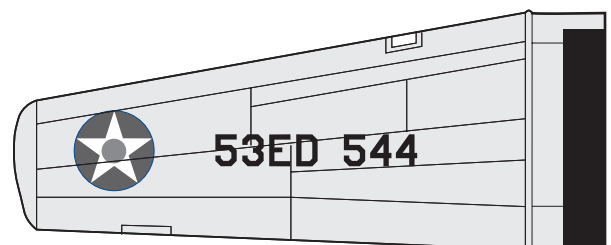
metal (see Figure J). Rudder was Insignia Blue leading edge and 13 red and white stripes. The aircraft number was carried in yellow on the blue fuselage, and in black on the tail and on wing leading edges centred between the landing light and the fairing strip covering the outboard wing joint. The squadron designator and a/c number was also carried on the top of the port wing only ... note the unusual style of lettering.

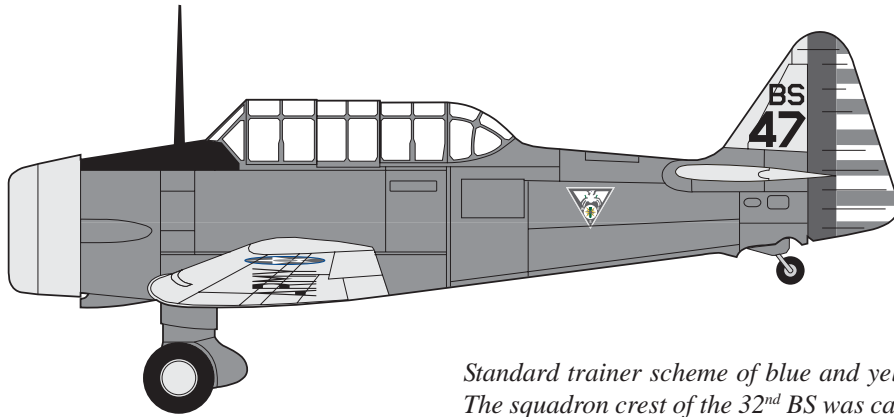
Ref: T-6 in Action, p.11



BT-14 of the 53rd School Squadron, Randolph Field, Texas ca.1940. Identical markings to those of 52 ED, except that the lettering on the fin and wing top is standard USAAC clip corner style. A bit of North American trivia; the AT-6 was named the Texan, not because so many training fields were in Texas, but because the majority of AT-6s were built in Dallas.

Ref: Wings, Dec 86, cover





BT-14, squadron hack of the 32nd Bombardment Squadron, Albuquerque, NM ca.1941.

The 32nd BS flew out of March Field, CA from 1935 until June 1941 when as part of 19th Bombardment Group they moved to New Mexico. In Sept 1941, the group was sent to Clark Field in the Phillipines ...32nd BS ended up stopped in transit in California, and eventually was attached to 301st BG in Europe flying B-17s.

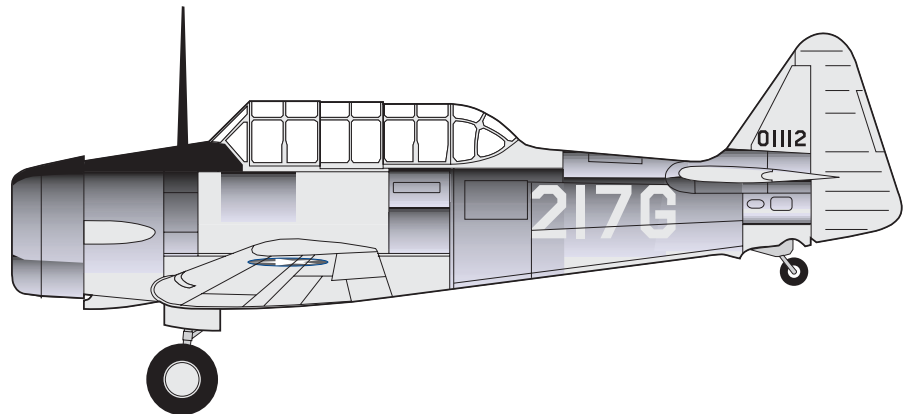
Standard trainer scheme of blue and yellow, with the yellow cowl of the 19th BG. The squadron crest of the 32nd BS was carried on both sides of the rear fuselage. It is assumed that no markings were carried on the top of the port wing.

Ref: *T-6 Texan in Action*, p.12 and 32nd BS history courtesy of Boyd Thompson's website <www.valleyva.com/32nd>

BT-14 of unidentified training unit ca. 1943.

By 1941, USAAC aircraft were being delivered in natural metal overall. This BT-14 looks like it is suffering from a bad dye job; in fact, it appears to be stripped back to natural metal, with some areas being done better than others. The rudder and ailerons would have been re-doped, likely in aluminum. The a/c number on the side is likely yellow; just a guess from a single monochrome photo. Also a guess is the wing markings which would have been stars without red centres or bars, carried above and below on both wings.

Ref: *North American NA-16/AT-6/SNJ* p.45



BC-1A, 110th Observation Squadron, Missouri NG ca. 1941

For those of you who bought an AT-6 Texan kit with the plan to eventually convert it to a BT-14, I am including markings for a BC-1A (virtually identical to the AT-6A) circa 1941. These markings cannot be used for this resin kit; the BC-1A had the larger R-1340 engine, retracting gear and movable rear canopy section of the Texan.

Use the Monogram or the Occidental kit of the T-6 you have sitting on your shelf, and add a large ring type DF loop under the wings between the landing gear wells.

Overall natural metal with striped rudder. US ARMY under wings, red-centred stars above and below wings. The 110th OS crest is carried on the rear fuselage both sides.

This aircraft has been photographed being roughly overpainted with water-based camouflage for exercise.

Ref: *Air Force Colors Vol 1*, p.74

