

CONSOLIDATED FLEETSTER 20-A

Category: Scale Articles

Created on Sunday, 03 June 2012 02:43

Written by Ron Peterka

Hits: 428

CONSOLIDATED FLEETSTER 20A

Ron Peterka

Fleetster Model 20A A parasol Wing airplane with a monocoque aluminum fuselage and a cantilever wooden wing. A total of seven Model 20A craft were produced and sold to Transcontinental & Western Air, Inc. (TWA) in 1932



Specifications – Wingspan 50 ft Overall length: 34'2"

Engine: P&W Hornet R-1860 575 HP

Max gross weight : 6800 Lb Max load = 7 pass + pilot

Cruise speed: 145 mph Fuel capacity: 160 US Gal

Registration #: NC 13208 thru NC12214 TWA # 50 thru 56

Wing and Horiz. Stab equipped with Goodrich pulsating De-icing rubber boots

Color: Aluminum lacquer --Fwd Fuse, horiz stab, elevator, and wing lower surface

Red – fuse from near cowl aft, fin & rudder, cabane & tail struts, tail wheel fairing & TWA letters under RH wing.

Black – NC reg # & fleet numbers on fin, ¼" outlines on TWA letters on wing & fuse, US Mail lettering and back of prop.

Gold – (bronze) --- top of wing and center-section fuel tank, fuse TWA letters

History: Flown by TWA from 1932 to 1935 when the Dept. of Commerce (pre-FAA) regulations changed to ban night flights using single engine aircraft on scheduled commercial flights. The seven aircraft were withdrawn from service in 1935. Aircraft were sold to various small operators, three to Spain, and two to Russia for back country operations. The final disposition of all the Model 20As is not known.

AS A SCALE MODEL

Dedicated competitive scale modelers are always on the look-out for a "different" aircraft to model to garner an extra point or two and unless they have a specific favorite aircraft to work with, they might start evaluating any interesting airplane for possible modeling. I was doing just that when I found three views and history of an intriguing plane in the Skyways Journal of the Airplane 1920 – 1940, October 1993 edition.

PROS

Here is what drew me to the design. Good aerodynamic features – the generous wing area and tail surfaces, long moment arm of fuselage, simple design with no flaps to deal with, fixed gear with no retracts to contend with, conventional landing gear (tail dragger) and a parasol-wing design which would normally offer some pendulum stability. No wheel pants to manufacture.

The color scheme is striking with red, bronze, silver, and black details. As a side-note, I worked for TWA for a short time when I began my aircraft mechanic career.

CONS

I found three design concerns that could be problematic.

1. The tail surfaces had an unusual corrugated surface to reproduce.
2. The fuselage would require some engineering to carry the landing gear, wing loads, and engine thrust/torque loads.
3. The parasol struts would have to tie in to the fuselage and some way would need to be found to carry wing aileron servo leads along the struts to the receiver.

I decided to cut the two parasol struts out of 3/16" thick aluminum sheet and file some airfoil shape into them. Time consuming, but not too bad. The final aerodynamic shape of the struts was filled out with 'Bondo' with soda straw sections imbedded in the 'Bondo' to carry servo wires. The struts would be bolted to aluminum 'L' brackets on a 1/4" ply plate running between two plywood circular fuselage formers. A second 1/4" ply floor along the fuselage ties the parasol and landing gear loads to the fuselage with great rigidity.

The corrugated surfaces were accomplished by gluing a pattern of small diameter music wire onto a piece of plywood at the proper spacing and having plastic skins vacuum molded over the pattern and cut to fit the sheeted tail surfaces.

The fuselage is built by gluing formers in position on a crutch and then planking over the former with 1/8" thick x 1/2" sheeting. For this to work you need to glue a plank on one quadrant and the on the opposite quadrant to prevent building a 'banana' shape. The thick planking allows considerable sanding to smooth the exterior shape. Even after glassing with light fiberglass the fuselage is very light.

Be sure to install linkages and servos before closing up the final planks.

The wing is flat with no dihedral except for the taper on the lower surface. It is tapered which calls for a lot of layout for the ribs. The wing is a three-piece design to allow removing the wings for transportation. A small aluminum strip overhangs the joining edge of the center section so when the wings are installed no join line is visible. The attach screws and wiring plugs are in the center section with a magnetically latched cover so no wires are visible. All control horns and pushrods are internal.

The overall construction is fairly straightforward, but not a beginners model by any means. There are no exotic materials, but you need to know how to skin a wing with balsa and bend a fairly heavy wire landing gear. The cowl can be made on a simple foam form shaped on a drill press and glassed. The foam form is then removed by carving or melted with gasoline (messy).

To be honest, my model has not been flown yet, but is on the bench for final radio installation and testing. It will be the next new model in my flyable collection.

Ron Peterka ron3180x@aol.com