

FLIGHT-WATCH

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By: Alan Armstrong, Esq.

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GETTING THE KATE READY FOR THE 2014 AIR SHOW SEASON

An Ambitious Condition Inspection

Last year, the Kate's condition inspection ran from February until sometime in the summer because the condition inspection became more of an IRAN (inspect and repair as necessary). Last year, we identified problems with the covering on the control surfaces that had begun to crack due to a dissimilarity between the dope on the control surfaces and the enamel paint. We tried, unsuccessfully, to remedy this by partially removing some of the enamel, and repainting the control surfaces. However, the cracks in the paint on control surfaces returned.



The Kate is presently down for another condition inspection. Generally, we found nothing of concern in the aircraft, but the control surfaces have now been removed, stripped, painted, and are being prepared for recovering.

Covering 101

As the covering process is unfolding, Rickey Smith has put Ray McCurdy in charge. Because the elevator and rudder have trim tabs, the trimming mechanisms inside the aircraft must be properly aligned after the surfaces are covered and the control surfaces are reinstalled. Before removal, the rudder and elevator were set to zero and a wooden wedge was installed in each trimming mechanism inside each control surface to effectively “set” the trimming mechanisms at zero. The trimming mechanisms consist of cable-directed jack screws that articulate the trim tabs up and down or left and right. It was no small task removing the trim cables from the interior of the aircraft when the flight controls were removed.

Since the flight controls are aluminum structure, there is no potential for excessively taut fabric damaging the structure of the control surface, unlike a wooden control surface.

Chafing tape has been installed on the trailing edges and around various aspects of the control surfaces so that when the fabric is applied, it will not crack or have stress areas that would lead to cracking of the dope and paint. Apparently, in World War II, instead of using chafing tape, they just used masking tape.

After the flight controls are covered, they will receive two coats of brushed on dope followed by several coats of sprayed on dope. Eventually, the enamel will be painted on the control surfaces by Buck Roetman at his paint booth in Macon, Georgia.



More Insights into the Modifications of the Kate by 20th Century Fox

While viewing the rudder of the Kate, we noticed that the plan form of the rudder has been exaggerated by an aluminum supplement to the structure of the rudder giving the rudder an expanded cord and rounded plan form at the top, more so than was the case of the original BT-13 rudder assembly. For those of you who have not spent time looking at the Kate, the fuselage was stretched nine feet by a six foot plug in the aft fuselage and a three foot plug in the nose. Then, the leading edge structure of the wings adjacent to the fuselage was altered to give the wing the plan form of a Nakajima Type 97 Bomber. The square wingtips were removed, and rounded wingtips were installed, increasing the wingspan of the aircraft about four feet. Behind the six foot plug in the back of the fuselage a BT-13 tail assembly was installed. However, the BT-13 tail was extensively modified. The leading edge of the vertical stabilizer was moved forward to give it the plan form of a Nakajima Type 97 Bomber. And similarly, the rudder plan form was altered as well, all for cosmetic purposes. With the flight controls removed and the fabric removed, the alterations made on behalf of 20th Century Fox become more apparent.



Moving Forward

We hope to have the Kate up and flying by the 1st of March with her new control surfaces installed. One or more test flights may be indicated to confirm the trim tabs have been properly aligned and everything is functioning normally. We have yet to do the engine run after the oil change and compression checks, but that will have to wait until the control surfaces are reinstalled and the aircraft is reassembled.

Keeping a 71 year old aircraft flying is certainly an interesting endeavor. However, an extensively modified aircraft flying makes the effort all the more interesting.

It would not be possible to keep the Kate in tip top condition without the devotion and hard work of Rickey Smith, Ray McCurdy, Tyson McCurdy, Pete Willingham and Pete's son, Riley. The Kate's appearance and performance is a testament to their hard work and devotion to this unusual aircraft.





[Photograph Copyright John Slem]