KNOX COUNTY RADIO CONTROL

April 2020 Newsletter

Knoxville TN AMA #594

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www.kcrctn.com

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Our flying club doesn't exactly have the youngest group of guys around. Given that the coronavirus is so contagious and also so risky for those of us a little older; we have decided to cancel the April KCRC meeting. Many organizations are canceling their meetings and conferences, even smaller ones. Also, the church has temporarily suspended meetings at their facility. Hopefully by June we will be back to normal and can have our meeting at the field.

As mentioned in the last newsletter, we have now held the Executive Committee (EC**)** meeting of March 11th that focused on the "financial future of the club." I am going into some detail here about our discussion so you have the same basic information the EC has, and can think about issues and form your opinions for our next meeting in June.

KCRC membership has been declining over the last few years. Because the same small group of members tends to remain active, the membership drop has not been that noticeable. We currently have about 55 paying members (those paid up plus those likely to pay), well below the 80 to 100 that most people always believed.

Annual club expenses are about $7500. This consists of about $4000 for lawn maintenance, $1000 for porta potti, $1500 for runway and field maintenance, and $1000 for everything else. John's willingness to mow for free and avoid $4,000 of lawn expense is what is saving us for now, and has also built up our cash reserve in the last few years. I don't think we can plan that John's

free service will always be there. Other clubs without this luxury have to either pay a commercial service ($4000 is probably a low estimate for us) or to buy their own commercial mower and try to enlist volunteers. The two clubs that I have talked to using the volunteer approach have a continuous series of problems, e.g., getting volunteers to show up, getting the mower to the field for the volunteer, and getting maintenance done on the mower. One club was forced to assign club members to mowing, since there were too few volunteers. They then began to fine anyone $100 if they didn't complete their assigned mowing obligation. Also, there is the initial cost of the commercial mower (and its replacement cost as well).

Assuming that the club receives $1000 per year from events like the SPA, mud run, etc., there is a need to receive about $6500 per year from dues to cover expenses. At $72 per year, this equates to 90 dues paying members versus our current level of about 55. Hence, we have a very serious problem.

All of us on the EC believe that the club needs many more members and that an aggressive recruiting program is the right long term answer, combined with small dues increases each year if needed. As also noted in last month's newsletter, such a recruiting program would involve a huge amount of work to be successful, an awful lot of work and time by instructors for training new members, and that all club members be flexible and willing to tolerate the disruptions that student training at our field would create, especially on weekends. In short, all KCRC members would have to be very dedicated and supportive of the recruiting goal.

Additionally, past experience has shown that recruiting is basically a waste of time if recruits are not retained in the club. In order for recruits to want to stay in the club on a long term basis, they have to be efficiently trained, proud of their flying skills, HAPPY, and made to feel welcome as an important addition to our club's future. Efficient training means KCRC members have to be generous in sharing the field, plus be willing to give students preference for those training situations where they need exclusive use of the field, such as for takeoff and landing practice. Making recruits feel happy and welcome means KCRC members have to make special efforts to be friendly, supportive, and complimentary, totally refrain from criticizing student flying (helpful comments should only be made privately to the instructor), and serve as a role model of rc flying professionalism and courtesy.

Is this asking too much of our members? It will be up to each one of you to decide.

Another option that could probably work for a few years is a more aggressive dues increase. First, dues would increase from $72 to $84 next year, and then from $84 to $96 the following year. And second, people now being given free memberships (officers and emeritus) would be required to pay. For example, if I add 8 emeritus and 4 officers to the dues paying base, we are up to 67 members. At $96 per year, this equates to $6400, about the amount needed.

This option is a good solution as long as there are not any further declines in membership, either from our natural attrition or as a result of the dues increases. If so, then dues might have to further increase to $108, or possibly even more.

Another variation of this approach would be to add a more limited program of recruiting that would be less disruptive, but yet still help mitigate some of the dues increases.

There are numerous other possibilities. We want all of your ideas, and can discuss the pros and cons of what everyone suggests.

Please remember the EC is not the decision maker for the club. Rather it has the responsibility of coming up with appropriate recommendations for your consideration. The decision of how to address our long term financial future will significantly affect all

KCRC members, and should ultimately be decided by a member vote.

As long as John is a happy camper, he intends to continue mowing for free for the near term future. So we have some time to review our options and make an intelligent decision that hopefully everyone will support.

Please come to the June meeting with your thoughts, opinions, and recommendations. It should be very interesting.

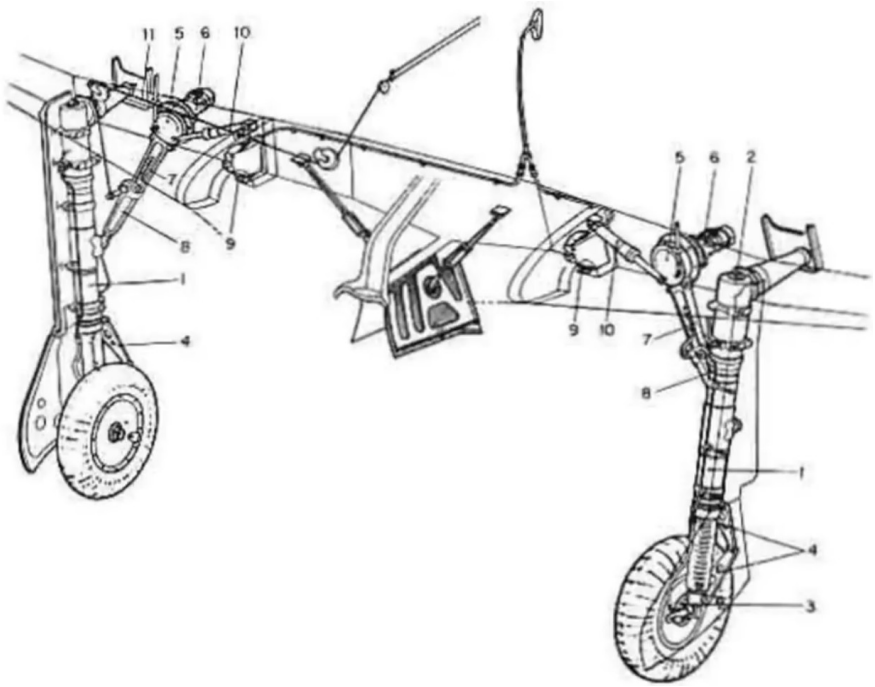
Frank

April's Historical Article

I've always liked the looks of the Bf-109 and appreciated the design ideas that Willy Messerschmitt rolled into the design to create the most produced fighter of WWII and I also thought the FW-190 was a fighter that when introduced did not live up to expectations. Until, however I saw a video on YouTube by "Greg's Airplanes and Automobiles" which showed the Kirk Tank was an innovative designer with different ideas as to what made a better fighter.

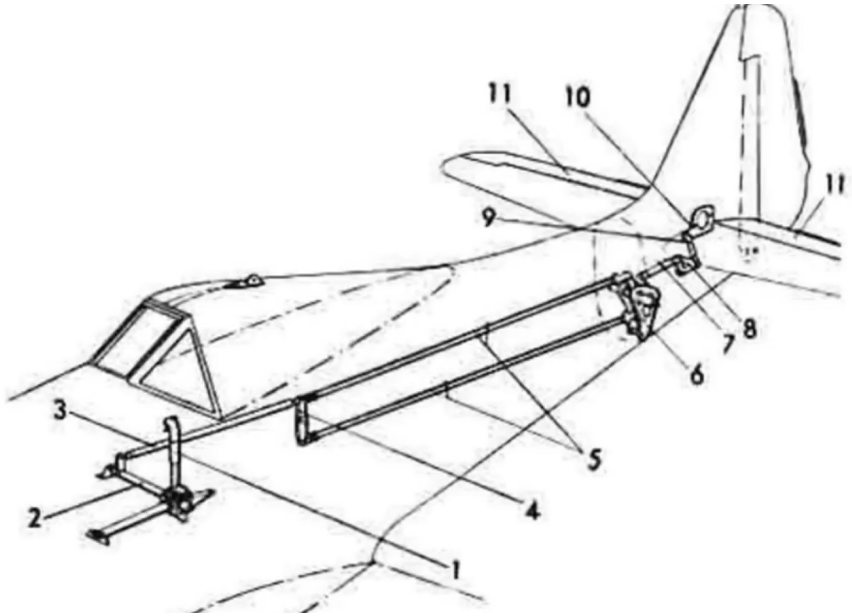
Kirk Tank served in WWI in the Calvary and learned that military equipment needed to be robust and easily maintained. After the war Kirk Tank got a degree in electrical engineering and learned to fly and became a test pilot for Albacross. When Albacross went bankrupt the German government merged it with Focke-Wulf. Kirk Tank played a large part in designing the 200 Condor airliner whose design was easily converted to a bomber configuration. In 1937 the German government sent out a request for design for a new front line fighter. One of the designs submitted by Kirk Tank used a BMW-139 radial engine and since most of the other Luftwaffe's fighters used the Daimler-Benz 601 engine, having a production aircraft that relied on an alternate source was an advantage.

Kirk Tank believed that the fighter should be able to operate from ill-prepared front line airbases and be flown and maintained by men who had only minimal training. The FW-190 was not to be a race horse but instead a cavalry horse. This of course proved true as the war progressed.

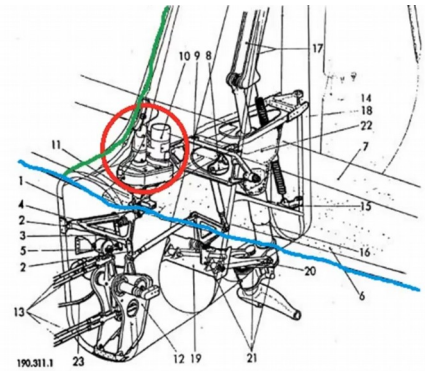


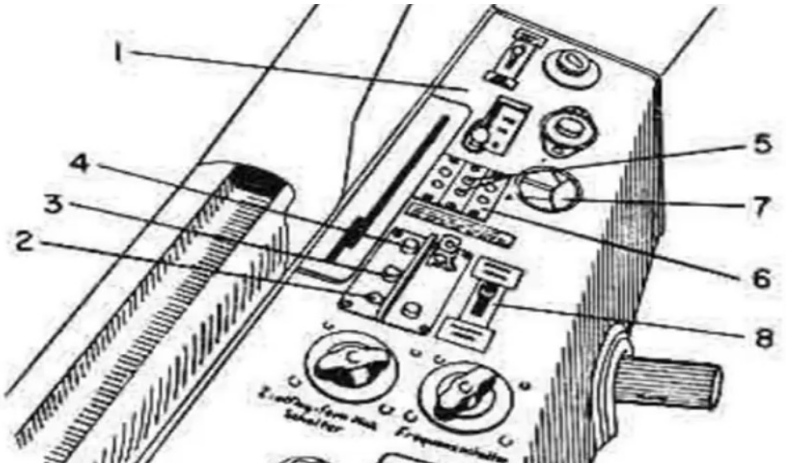
Now onto the design features. The landing gear is one of the items that sets the FW-190 apart from the Bf-109. The landing gear retracts inward and this places the wheels far apart making the aircraft extremely stable on the ground. Another advantage to the FW-190's landing gear was that it made it easy to move the aircraft on the ground by ground crews. Simply attach ropes to the upper shock struts and pull it around. The tail wheel is retractable, but not fully. Having the wheel retract lowers drag but having a portion remain exposed provides protection for the aft fuselage and rudder. The main landing gear is also very rugged being able to withstand a decent speed of 900 feet/minute. A normal glide slope results in a decent speed of 550 feet per minute giving a 1.6 safety factor.

The landing gear controls are simple with a button for retraction and a button for extension. The retraction button having a guard to prevent accidents. In case of emergencies the pilot need only pull a lever and the gear will free fall to a down and locked position.

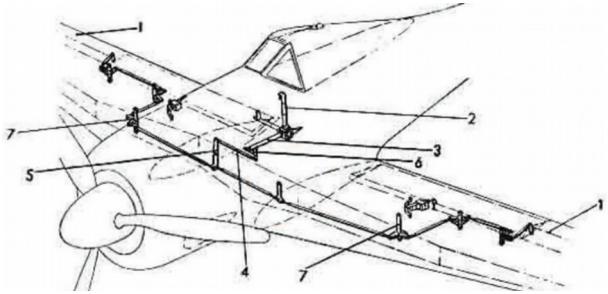


The FW-190's controls are unique in that they relied primarily on push rods rather than cables. Two short lengths of cables were used from the aft cockpit bulkhead to just forward of the tail wheel. Cables can stretch under flight loads and can gain or lose tension due to temperature. The FW-190 also had a elevator differential control unit which provided "expo" (in R/C lingo) making the controls less sensitive around the neutral position to aid the pilot in gun aiming. The differential control unit was also present in the rudder control system. For trimming the aircraft the horizontal stabilizer was moved by an electric motor driving a jack screw much like modern airliners. The pilot controls pitch trim with a center loaded toggle switch (8) much like the trim switches on an airliner's yoke.

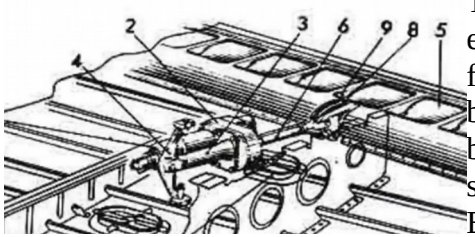




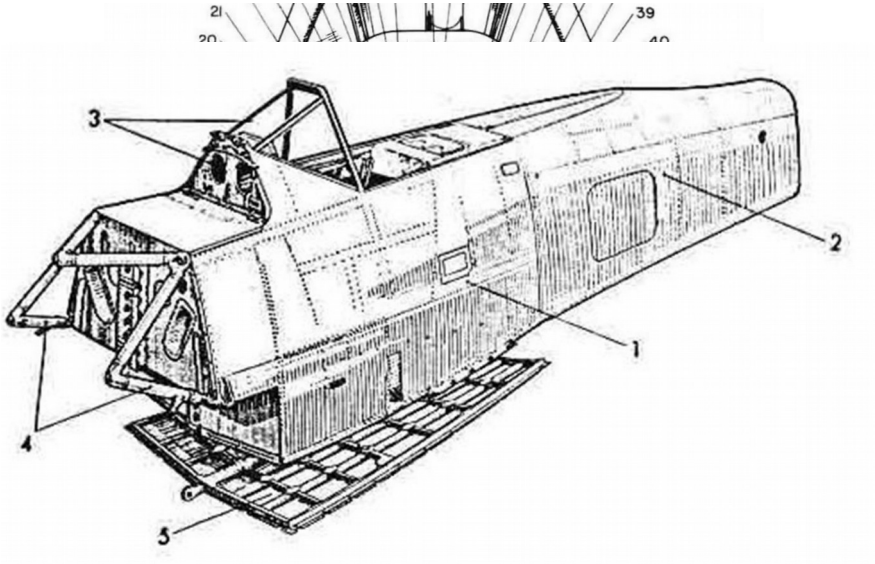
The aileron system uses only push rods and bell cranks with no cables. The ailerons are of the Frise configuration which with the low friction linkage gives a light feel. The Bf-109 aileron system with pulleys and cables required much more force from the pilot and if the cables were maladjusted could result in "snatch" which meant that the stick forces could suddenly reverse. Not a good thing. For trimming rudder and aileron (and elevator too) the FW-190 relied on mechanical trim tabs on all control surfaces. These were not actuated but rather bent on the ground to correct each aircraft's peculiarities.



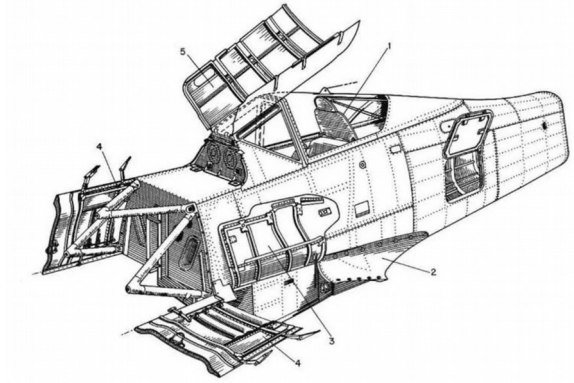
The FW-190 relied on electricity for most systems and for the flap system motors moving jack screws actuated the flaps on either side with a system to keep them synchronized. The pilot controlled the flaps via 3 buttons; up (4), takeoff (3), and landing (4). The flaps have position indicator lights (5). The cockpit was well organized with well placed controls. Probably much more ergonomic than most fighters of the day with flap and trim controls very close to the throttle. Unlike the flap lever in the Spitfire that was placed on the instrument panel.



The FW-190's reliance on electrical subsystems may stem from Kirk Tank's electrical background and he may have believed that electrical subsystems were more reliable. Electrical components were simpler to replace than hydraulic ones as the entire hydraulic system would need to be purged and refilled. Electrical systems were less prone to battle damage. If a shell severed a wire of damaged an actuator no other systems would be affected. American aircraft relied on hydraulic systems with no redundancy. If a line were broken all hydraulic systems would be lost. And, similarly, the Spitfire relied on a 300 psi pneumatic system with battle damage having the same result.



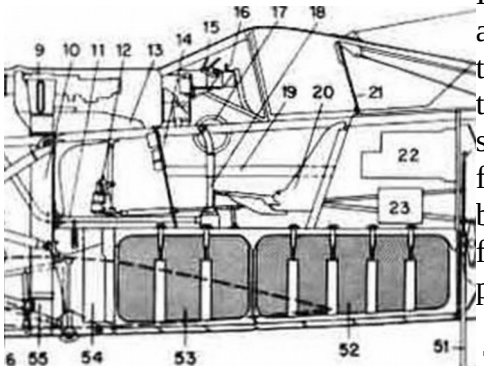
Let's take a look at the FW-190's construction. The basic fuselage structure consists of 2 parts the forward (1) and aft (2). The drawing also shows a large removal panel on the underside (5) which allows access to the self sealing fuel tanks. Dural was used extensively and results in a much "tougher" airframe. The modern equivalent to Dural is the 2000 series of aluminum with the aluminum being alloyed with copper.



There were large access panels in many areas of the aircraft allowing for ease of maintenance to get the aircraft back in the fight a quickly as possible.

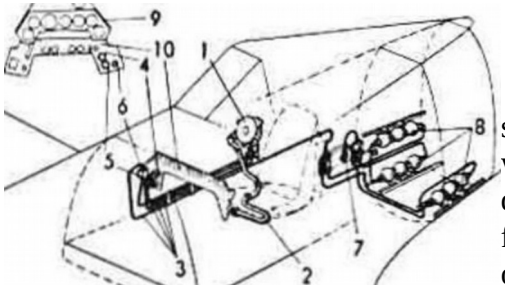
The large notch at the forward end of the structure is for the one piece spar which is attached directly to the firewall making for a strong, light weight structure. The smaller rectangular "hole" further aft is for the aft wing spar which serves to prevent the wing from twisting and as a support for the flaps and ailerons.

One thing I didn't know about German fighters is that the pilots legs are positioned out stretched as they would be if riding in a kayak. Presumably this gave the pilot a higher G tolerance similar to the semi-reclined pilot seat in the F-16. The picture also shows the 2 large self sealing fuel bladders (52 & 53) located below the cockpit floor. Allied fighter pilots sat in a normal position which was less tiring.

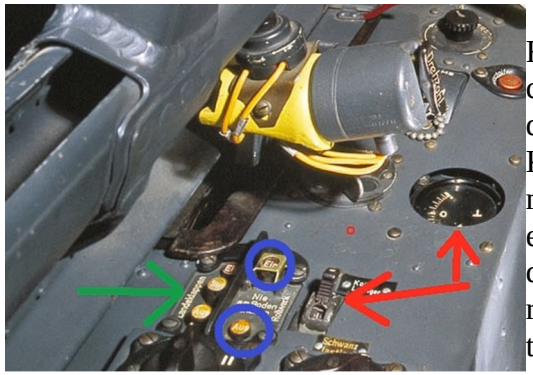


The canopy was actuated by a small hand crank for normal opening and closing but in a bailout situation a small explosive charge separated the canopy from the aircraft.

The FW-190 had 3 oxygen bottles each made up of 3 spheres. The spheres being lighter than a conventional SCUBA tank shaped bottle. The oxygen system also incorporates one way valves to prevent damage to one of the bottles from depleting all the oxygen, requiring the pilot to leave the fight and dive to a lower altitude. Having smaller spherical



bottles also reduced the explosion risk from one large high pressure bottle (400 psi) which could bring down the aircraft.

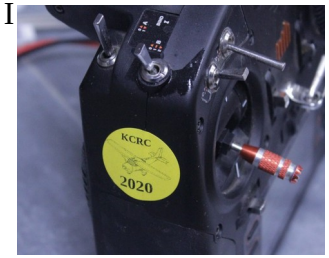


For engine and propeller control the FW-190 had a device called Kommandogerat which managed all factors of the engine. All the pilot had to do for different flight regimes was move the throttle to different boost settings and the device would work its magic. This simplified the pilot's workload immensely. The Kommandogerat controlled boost pressure, engine RPM, fuel mixture, ignition timing and supercharger speed switching. For those of you that fly actual reciprocating aircraft you know engine management is a major part of controlling the aircraft. There was a manual system controlled by a switch below the throttle. One position allowed the Kommandogerat to have authority and the other allowed for manual control if needed. Propeller pitch was controlled by a rocker switch mounted on the throttle lever where the pilot could toggle it with his thumb.

Well, enough for now. Check out the YouTube videos of this remarkable aircraft.

Membership

Current paid 2020 membership is 55 and I have a lot of member packets left to give out. Each packet contains a welcome letter, an information sheet to allow members to update their information, a return address label to send back corrected information sheets and the all important 2020 club sticker to be placed on the upper left side of your transmitter. If you need more than one sticker simply ask.



After February there is a $5 penalty ($77). I am accepting mail in renewals. Send checks to (no cash please)

KCRC c/o Michael Catlin
6812 Adrian Rd
Knoxville, TN 37918

The gate combination will be emailed to current members only and as of this newsletter only current members will receive email notices and newsletters. Newsletters will still be posted on the clubs website http://www.kcrctn.com. However, this may change in the future and only newsletters from previous years will be available to non-members.

Remember, only those with current AMA membership will be allowed to fly at the field and do not tell anyone the gate combination without checking for membership.

Upcoming Events

~~**The April club meeting will be at the New Beginnings Baptist Church 11218 Yarnell Rd.**~~
~~**April 14 at 7:00PM**~~ canceled due to the Corona virus

(Notice events may be canceled)

SPA Event: May 16-17, coordinated by Jimmie Russell

Float Fly: May 23 at the boat dock by our field, coordinated by John Basalone

Memorial Day flying and first class lunch : May 25

Cub Fest and a first class lunch: June 6, coordinated by Ed Dumas

July 4th flying and first class lunch

Tennessee Eagles Fun Fly Saturday April 18 Tennessee Eagles R/C Club, Harriman TN

House Mountain May 16 -17. F5j. Glider contest

Tennessee Eagles War Bird Event Saturday, June 13 Tennessee Eagles R/C Club, Harriman, TN

House Mountain Aug 5–9. Huckfest

Tennessee Eagles Charity Event Saturday September 19 Tennessee Eagles R/C Club, Harriman TN

House Mountain Sept 25 -27. Warbirds

Bradley County Radio Control Model Aircraft Club Warbird fly-in May 23 AMA sanction event

Volunteer Aeromodelers
Heli Fun Fly - May 2, 2020

Spring Fun Fly - May 30, 2020

Fall Fun Fly - October 17, 2020

Don't forget to visit KCRC Knox County Radio Control on Facebook!

210 members strong.
Daily 3 day weather predictions
Daily aviation photos
Event advertisement from other area clubs
Items for sale.
Articles, information and aviation related videos.
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