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Snipe from Valdimir's models via Hyperflight

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Author **Topic: Snipe from Valdimir's models via Hyperflight (Read 1405 times)**

mike
Administrator
Hero Member
Offline

Posts: 1884

Snipe from Valdimir's models via Hyperflight
« **on:** October 18, 2013, 10:01:17 AM »

Followers of F3K will be aware by now that there's a new F3K available from Vladimir's models in Ukraine. I have a early production sample from Hyperflight put it together.

This model is designed by Joe Wurts so expectations are high. There has been a lot of comment on RCgroups but it's a very long read to extract the useful b very happy with the model and everyone who has one is keen too. I was interested in trying the model because I respect Joe's judgement and he had told Denmark. When Neil at Hyperflight offered me one at 10% discount if I would do the first UK build thread, I took the plunge.

This is an expensive model but the fit and finish are excellent. The instructions are not great (yet) but Joe W has done some edits and anyone who has the model will have no problems. In fact there's not a lot to do in the way of assembly.

I have put pictures of the parts list from the instructions below. My early production example doesn't have the inboard support axles for the aileron horns. I packer) or 13 (wire about 1mm?) and there are no holes drilled in the aileron horns. The wing also lacks the moulded-in channels for the axles that you can models have flown without reported problems without these extra support axles - I haven't decided if I'll add them to mine yet. The instructions below are c sure Neil will update these if a better version appears.

The part weights (gm) of my example are:-

120.6	Wing
37.8	Fuselage including nose cone and untrimmed elevator/rudder wires
8.7	Tailplane
8.0	Fin and rudder
2.0	T peg
1.6	Wing and tail screws

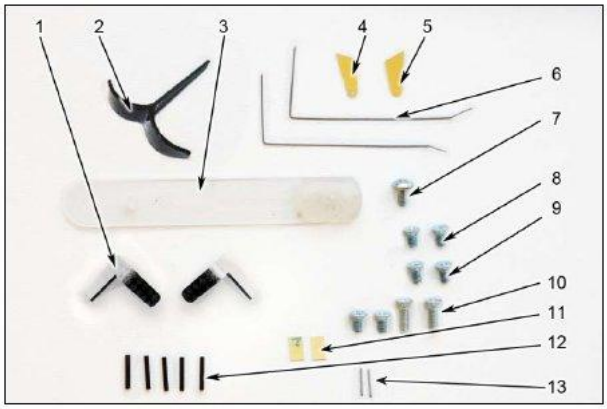
Other parts not weighed.

The fit of the wing to the fuselage and the tailplane to its mount are very good indeed. The fin slot is ready cut for the cambered fin so you need to be sure suit your favoured launching arm. Mine's a right handed model. The fin is a great fit in the slot.

I will no doubt be making some minor mods as I go on with the assembly but I'll point these out with the reasons. I'm sure it would be fine as it is but.....

So watch this space but I'm not one to rush these things...

Accessory kit:



1 - Horns wing (2 pcs);

2 – Launch T peg;

3 – Ballast nose mount;

4 - Stabilizer control horn (with slot)

5 – Vertical tail control horn (with hole);

6 - Torsion spring rudder and elevator;

7 - Screw for ballast M3;

8 - Screws stabilizer (2 pieces);

9 - Spare screws stabilizer (2 pieces);

10 - Set of screws for attaching the wing and M3 h10 M3x6 (1 set of spare);

11 - Cover wing controls;

12 - Pipes for sealing control cables;

13 – Flaperon control horn pivot axes.

Instructions - parts.jpg (96.96 KB, 909x788 - viewed 107 times.)

Parts set:

1 - Wing;

2 - Accessory Kit Snipe;

3 – Flaperon pushrod (2 pieces);

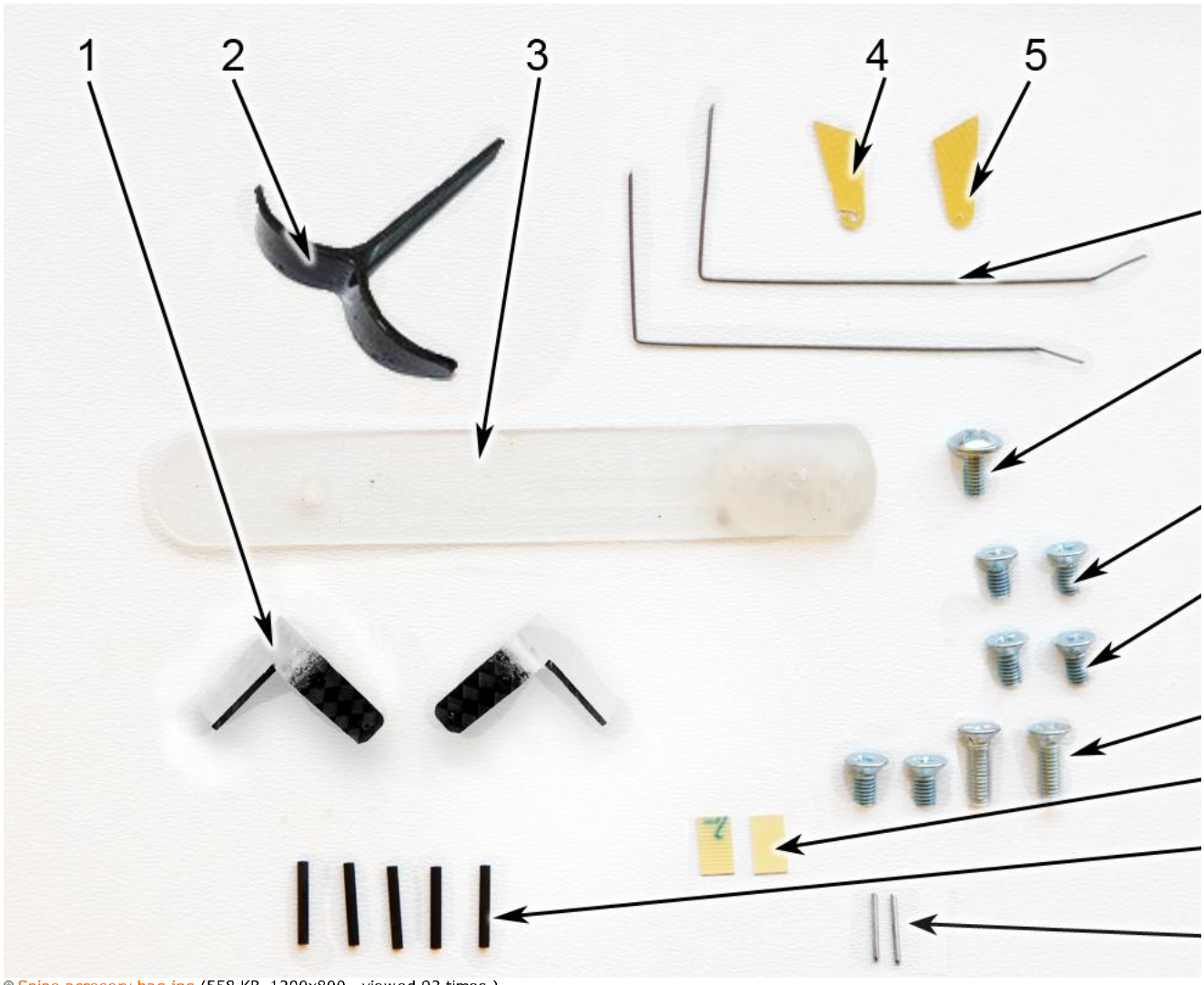
4 – Flaperon pushrod housing;

5 - Fuselage;

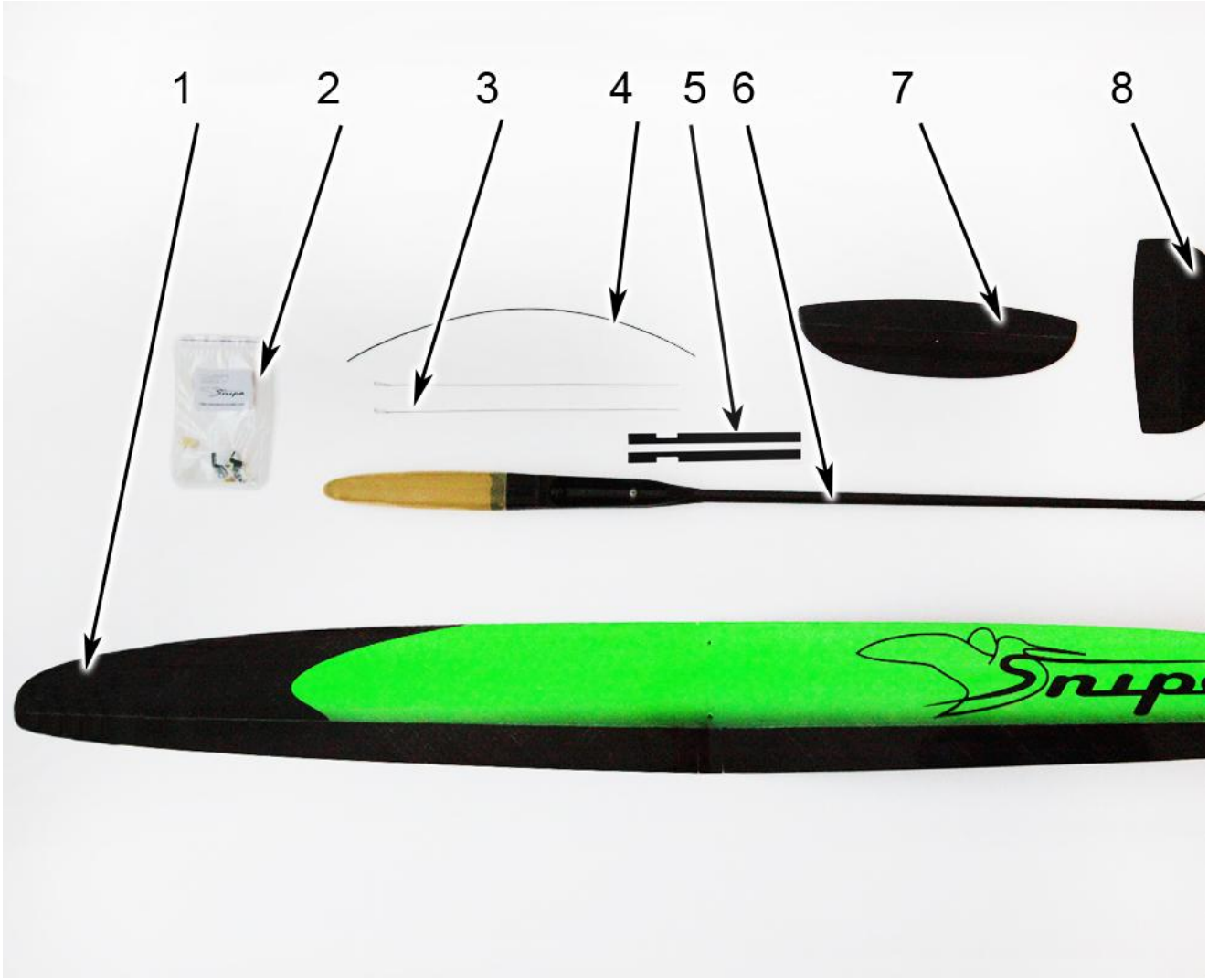
6 – Flaperon pushrod stiffener plate;

7 - Stabilizer;

8 – Vertical tail.



Snipe accesory bag.jpg (558 KB, 1200x800 - viewed 92 times.)



Snipe kit parts.jpg (371.14 KB, 1200x800 - viewed 92 times.)
Snipe Instructions.pdf (1544.33 KB - downloaded 19 times.)

« Last Edit: October 18, 2013, 10:33:01 AM by mike »

mike
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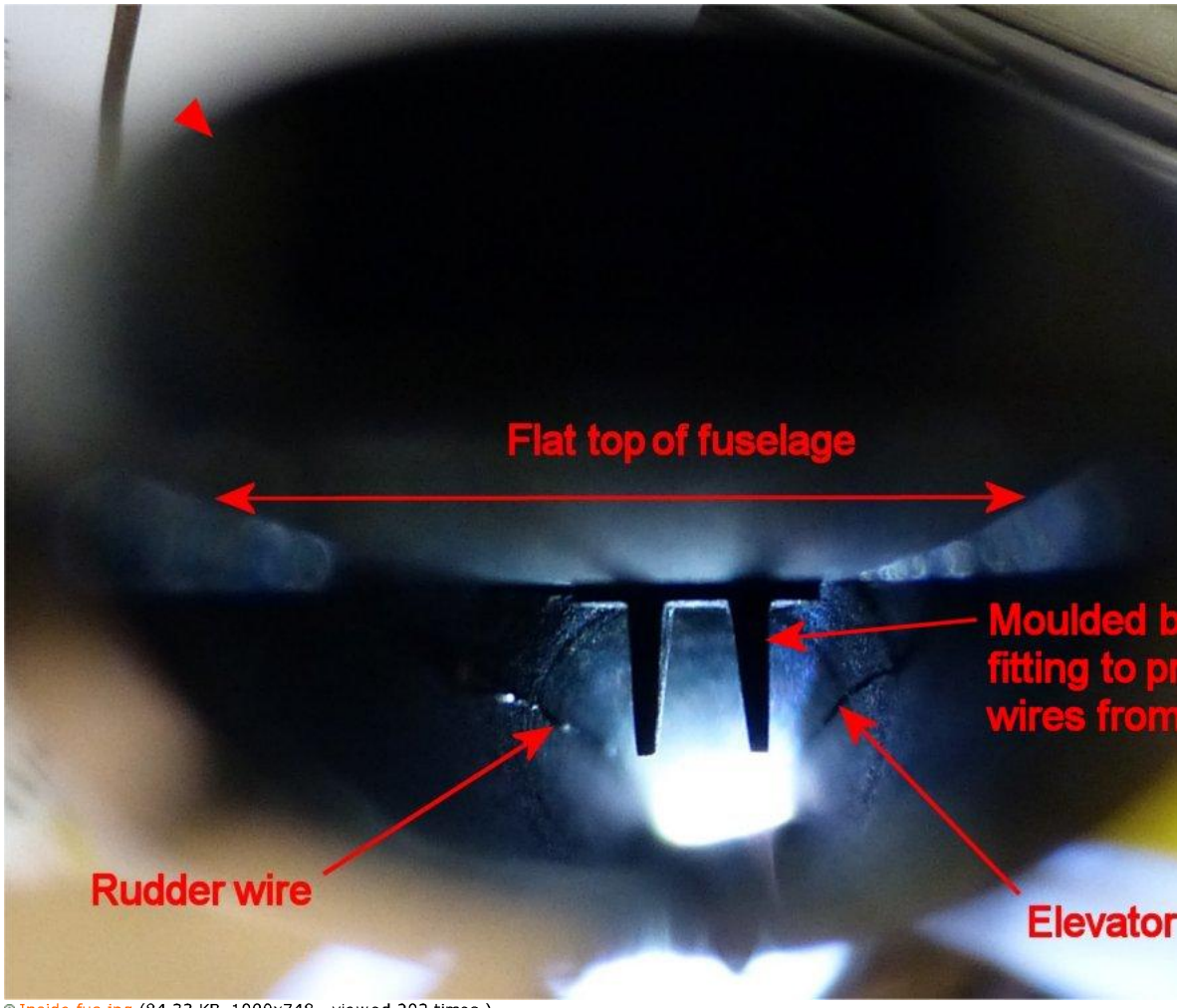
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #1 on:** October 18, 2013, 10:23:33 AM »

Fuselage ballast system. This is the same as the Blaster 3 set-up with weights on a strip of material slid up the inside of the fuselage tube t ballast nose mount and fixing screw are supplied. (3 and 7 in the accessory kit picture above)

Since the wire for the tail controls also run in the fuselage tube, there could be a conflict if something isn't done to keep things apart. Vladin to the inside of the flat top platform of the tube, there are two blades that let the wires pass either side and keep the ballast strip down in t picture attached. The picture involved shining a bright light up the fuselage from the back and took some doing to get it all lined up nicely! made wide enough to ensure that it can't get past the blades.



Inside fus.jpg (84.33 KB, 1000x748 - viewed 202 times.)

« Last Edit: October 18, 2013, 10:30:57 AM by mike »

mariafreeman
Sr. Member
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Posts: 150

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #2 on:** October 24, 2013, 04:07:30 PM »

Nice looking model Mike..... I had a look at it at Neil's a few weeks ago.
I ended up buying another Stark (spread tow carbon version this time)....so I will be interested in how the build and flight testing go.
Good luck !

Maria

mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #3 on:** October 29, 2013, 09:42:09 AM »

I decided to tackle the aileron horns first as this looks like the trickiest job. As I said above, my early-batch wing lacked the support axle set
I chose to fit these parts so as to make the build more typical but the model seems OK without according to posts in the RC Groups thread I

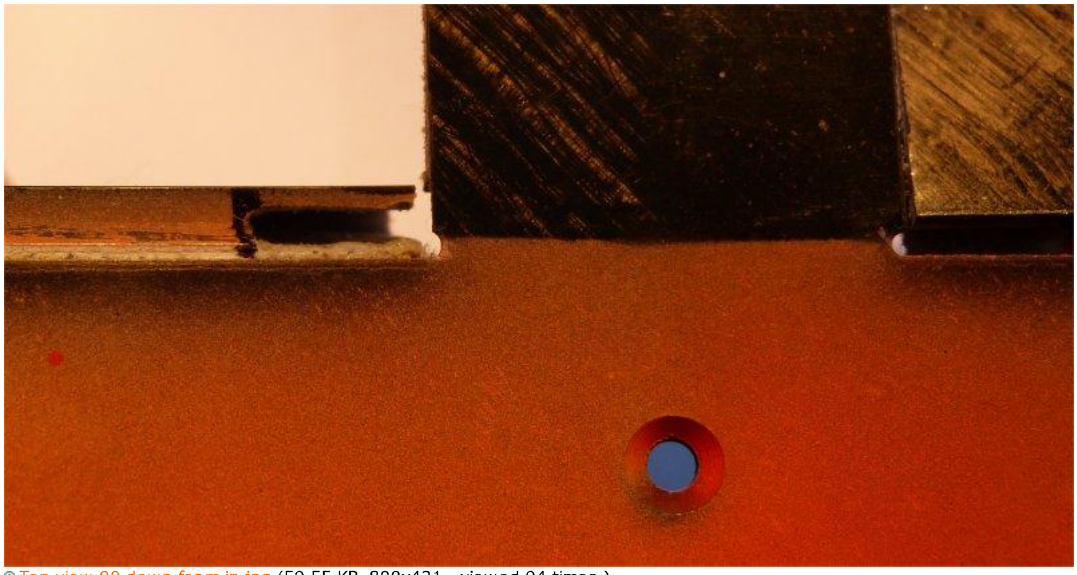
As received, the aileron horn slots had foam left in at the top surface where the instructions show none. I cleared this out with a sharp blac
carbon skin. See 'before' and 'after' pictures below.

I had to file my own slots for the 1mm wire axles - I took it slowly and made sure I stayed aligned with the effective hinge point by resting a
the flapperon up and down.

The 0.5mm packing was made from fibreglass/epoxy sheet - like the pieces supplied in more recent models. I added a hard balsa wedge to
good fit in the slot. Correct alignment span-wise is checked with the paper jig supplied and had the inboard edge of the glued-in part of the
flapperon.

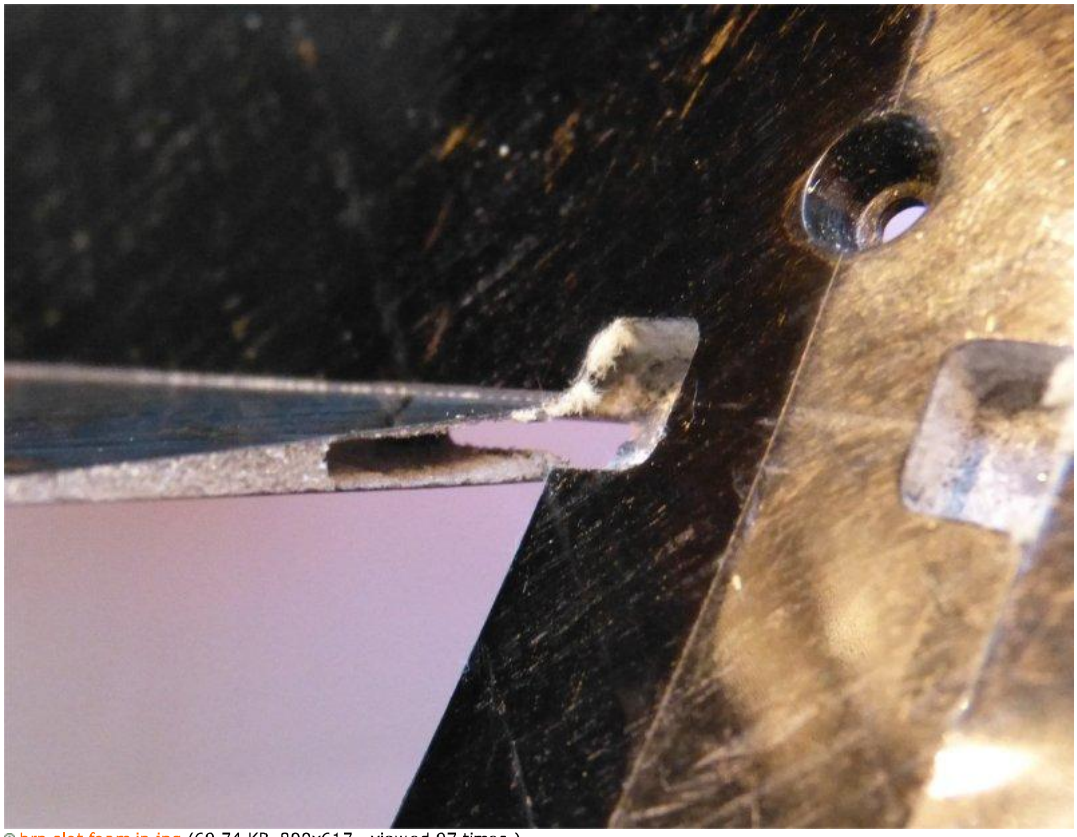
I had to make my own 1mm axle hole in the horn and I marked this by dry assembling the set-up and using the file in the groove to mark the
hole and then aligned it by filing it out to 1mm whilst checking that the hole didn't move when the flapperon was moved through its range.
hole lined up with the hinge. **This is very important - even if your wing comes pre-grooved for the axles. If the hole in the horn doesn't
the hinge at the root that could damage it.** If you find this isn't lined up, alter the packing to get the axle hole to run true before you glue t
shots looking along the axle groove to show how it should look as you rotate the flapperon.

The good news is that reports on RC Groups suggest that the model is made well and alignment is good right out of the box.

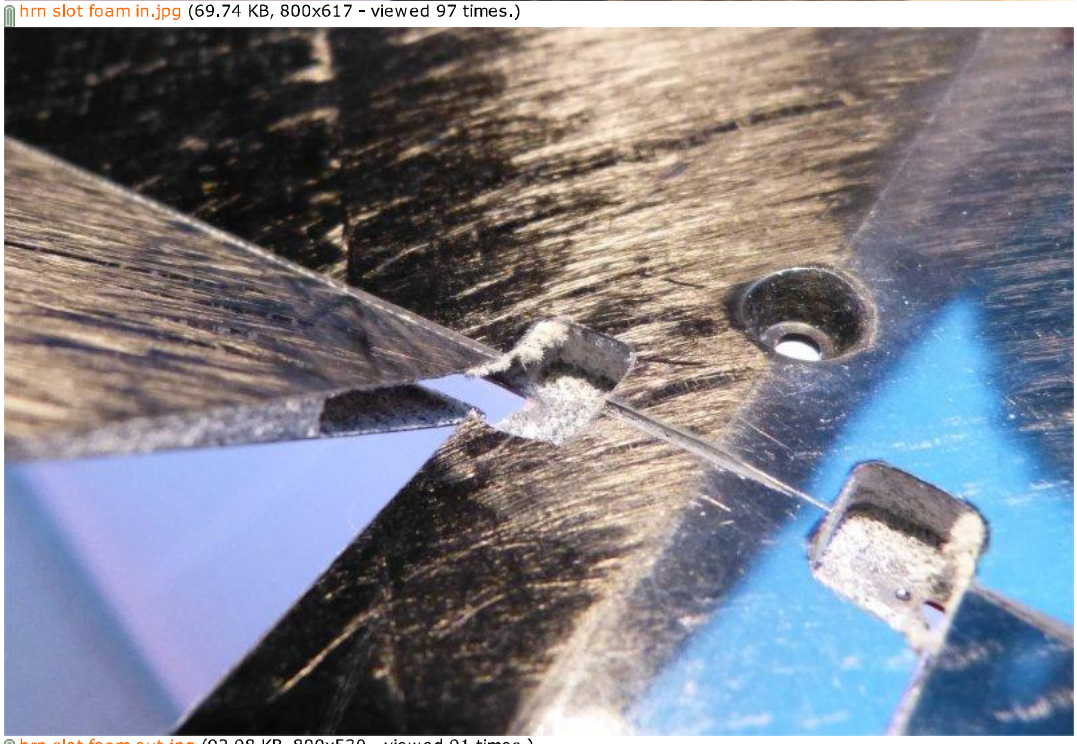


Top view 90 down foam in.jpg (59.55 KB, 800x421 - viewed 94 times.)

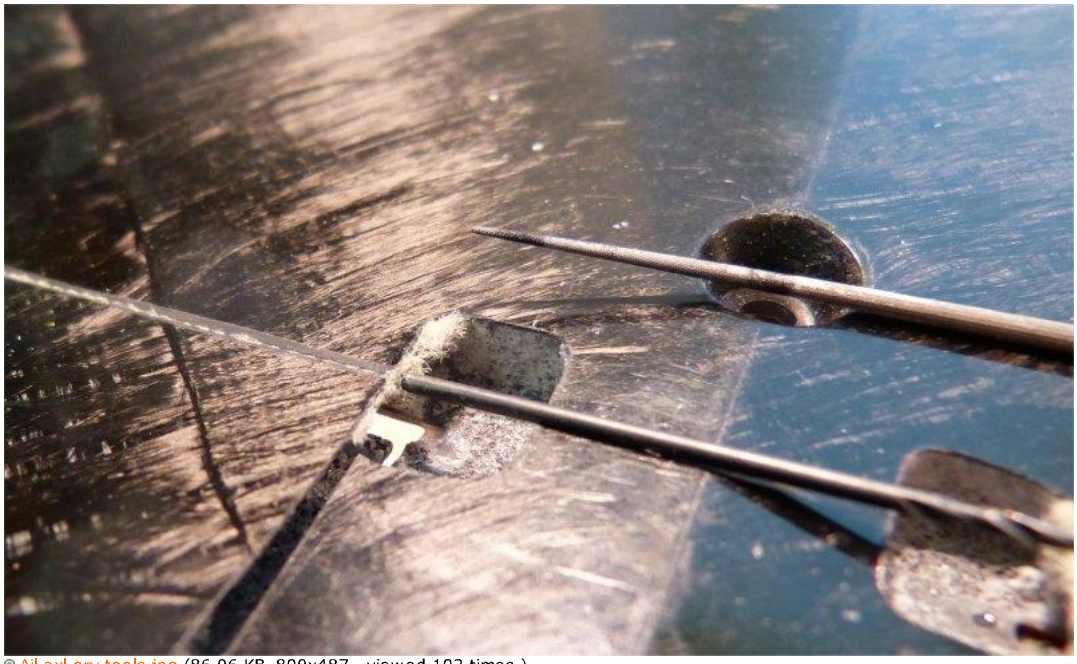
Top view 90 down foam out.jpg (71.78 KB, 800x584 - viewed 82 times.)



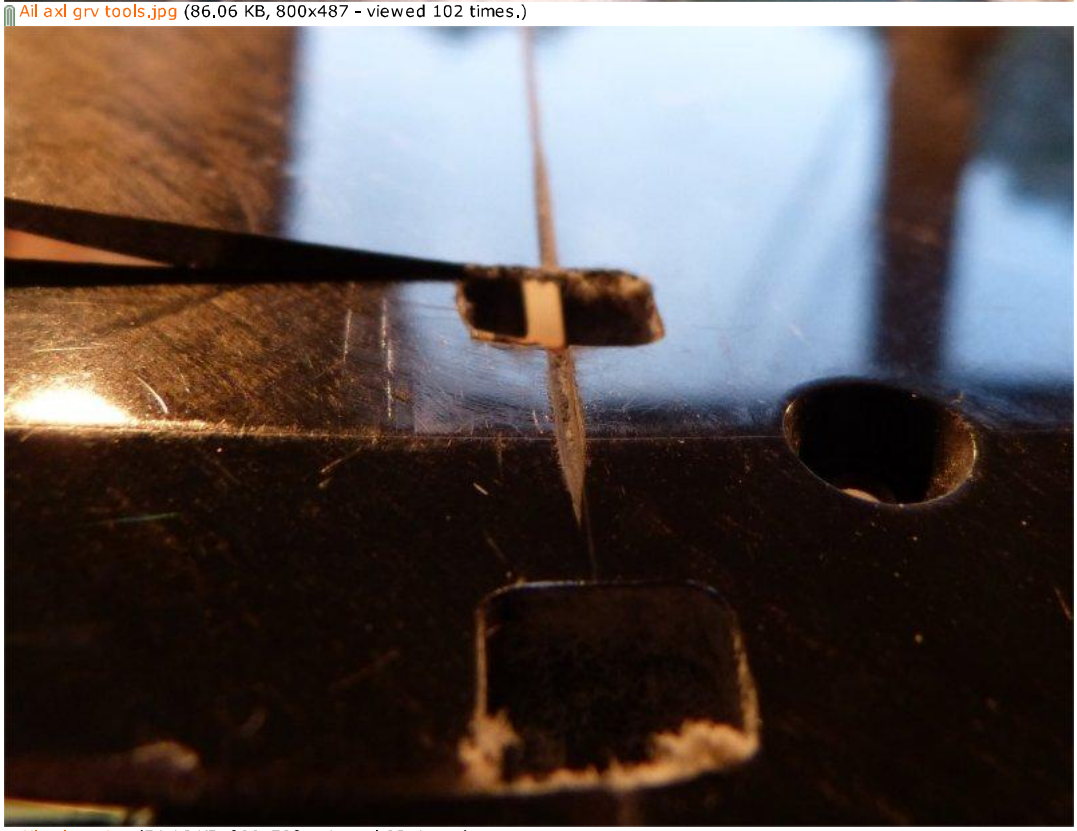
hrn slot foam in.jpg (69.74 KB, 800x617 - viewed 97 times.)



hrn slot foam out.jpg (92.98 KB, 800x530 - viewed 91 times.)

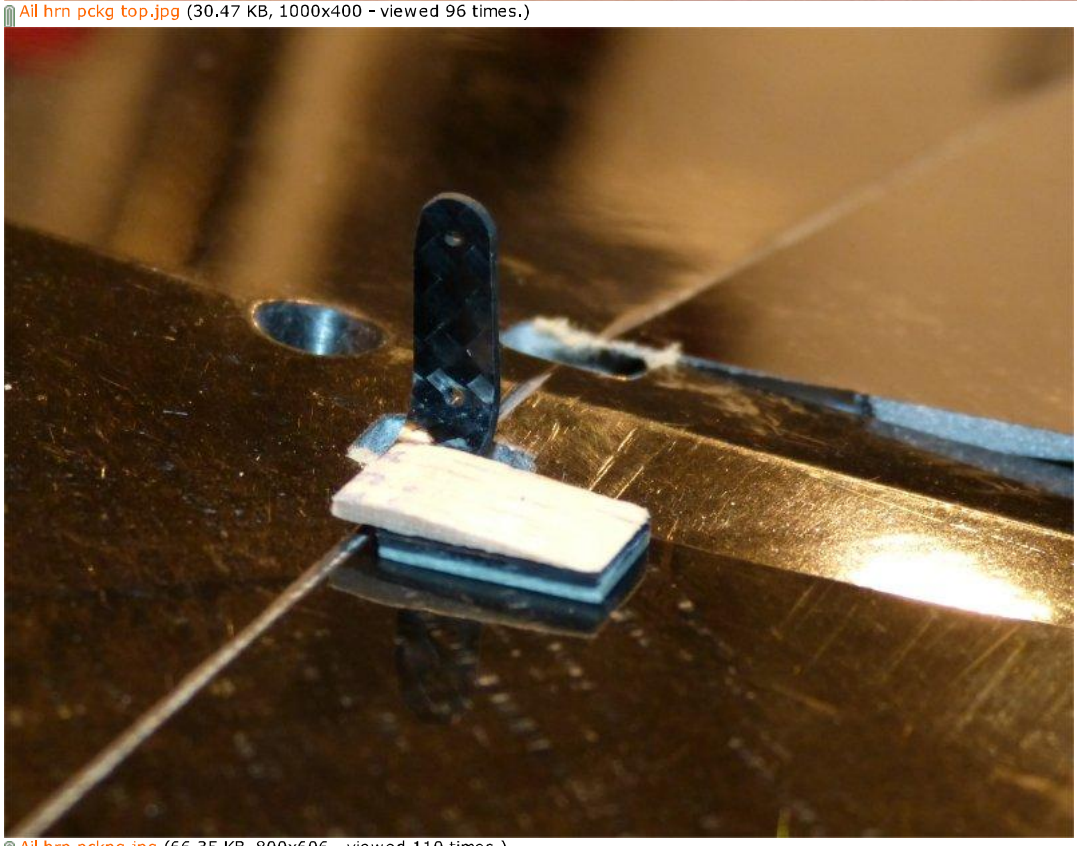


Ail axl grv tools.jpg (86.06 KB, 800x487 - viewed 102 times.)

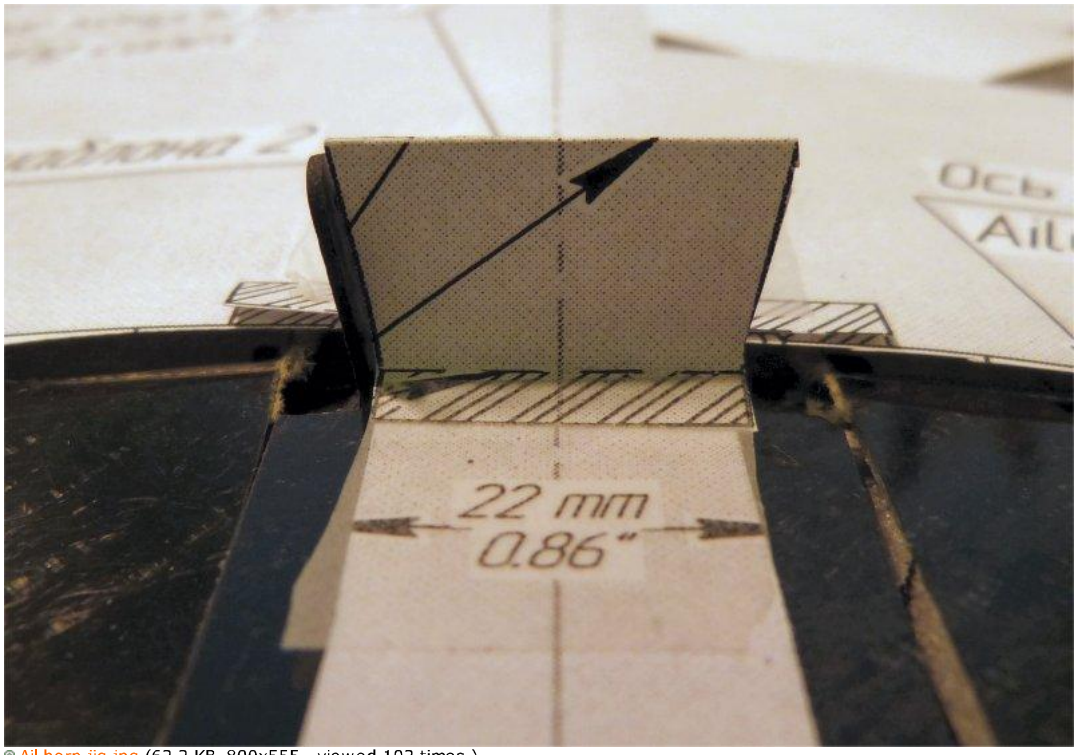


Ail axl grv.jpg (54.16 KB, 800x598 - viewed 93 times.)

Ail hrn pckg top.jpg (30.47 KB, 1000x400 - viewed 96 times.)



Ail hrn pckng.jpg (66.35 KB, 800x606 - viewed 110 times.)



Ail horn jig.jpg (62.2 KB, 800x555 - viewed 102 times.)

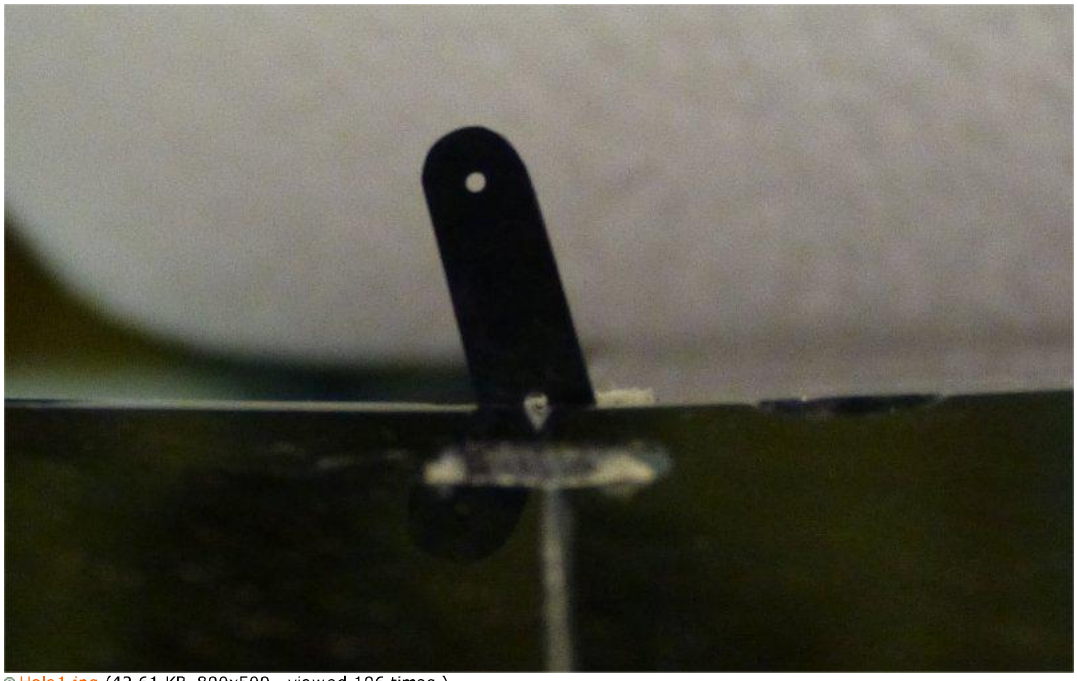
« Last Edit: October 29, 2013, 11:23:29 AM by mike »

mike
Administrator
Hero Member
Offline

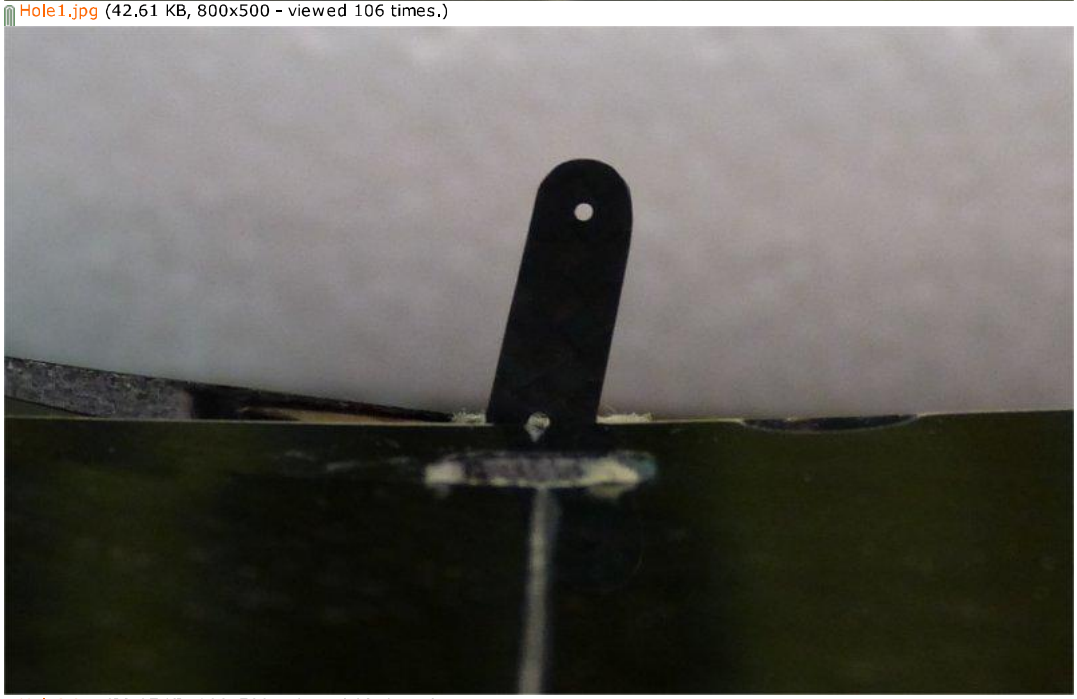
Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #4 on:** October 29, 2013, 09:47:00 AM »

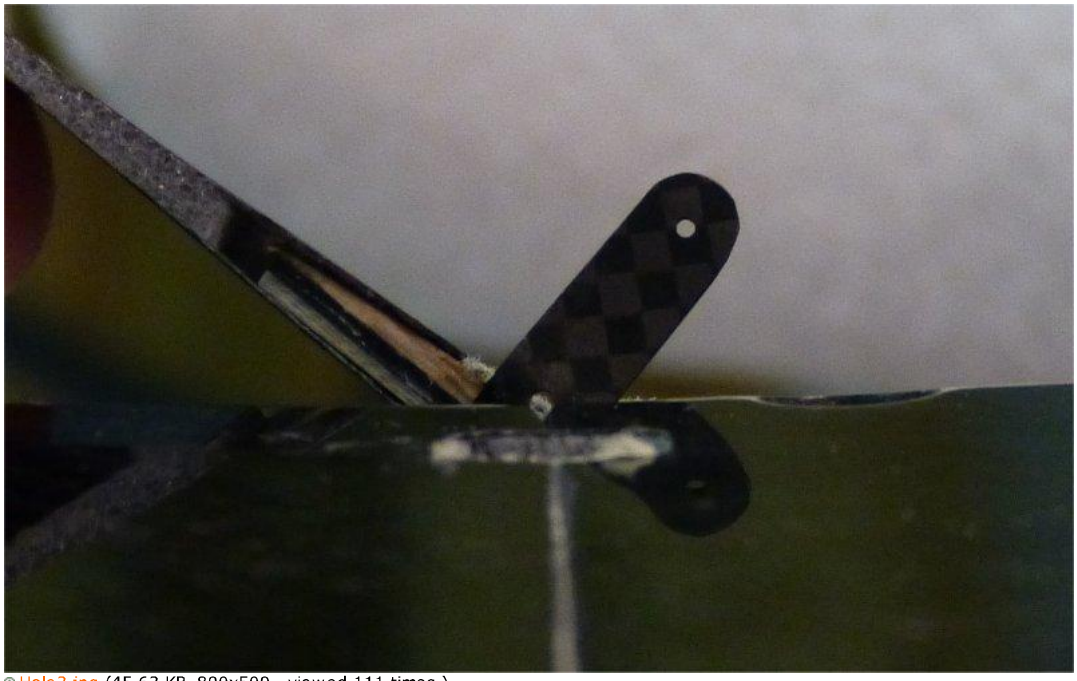
And here are the alignment check shots.....



Hole1.jpg (42.61 KB, 800x500 - viewed 106 times.)



Hole2.jpg (32.07 KB, 800x500 - viewed 92 times.)



Hole3.jpg (45.63 KB, 800x500 - viewed 111 times.)

mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #5 on:** October 31, 2013, 01:37:31 PM »

The aileron horns are in and working just nicely. So what did I learn?

There are a lot of clearances to watch out for so the dry assembly checks are really important. I had a go at translating the Russian (Ukrair 2.15 in the instructions and I came up with my version below. I'm sure it's not an exact translation but I think the essence is there. (Picture the ipad Russian keyboard, but upper and lower case Cyrillic letters confused me.

Surface movement is limited by the flapperon touching the wing skin at full up and the horn contacting the wing skin at full down. (2nd and little away from the horn at the top front corner to clear the inside of the top skin - keep this to a minimum and don't weaken the horn too m

At full down, the horns stick out of the lower surface of the wing at flapperon deflections in excess of about 35 degrees as it says in the low this point the horns will hit the fuselage. If you want more deflection, you need to file notches in the fuselage sides. Don't worry, this is jus the boom. You can see that I stuck a little 0.4mm carbon reinforcement strip on to get the stiffness back but it will be OK without. (Picture

To locate the slots, put a pencil mark on the fuselage at the hinge (Picture 7) and measure the distance between the hinge-line and the corr Mine was about 3.25mm

One clearance check not mentioned in figure 2.15 is shown in my 8th picture - the gap between the back edge of the horn and the back of tl I cut a little skin away here on my wing. You can see the carbon reinforcement in this picture too - I stuck it over the support axles with thir

The support axle alignment was a tough job for me because I had to drill my own holes etc. Newer kits have this done for you but do check the post above and get it right before glueing - don't forget to allow for the thickness of the glue film if you go the epoxy root as I did. I hav 'adjust' the holes slightly after the horns were glued in to get a good fit.

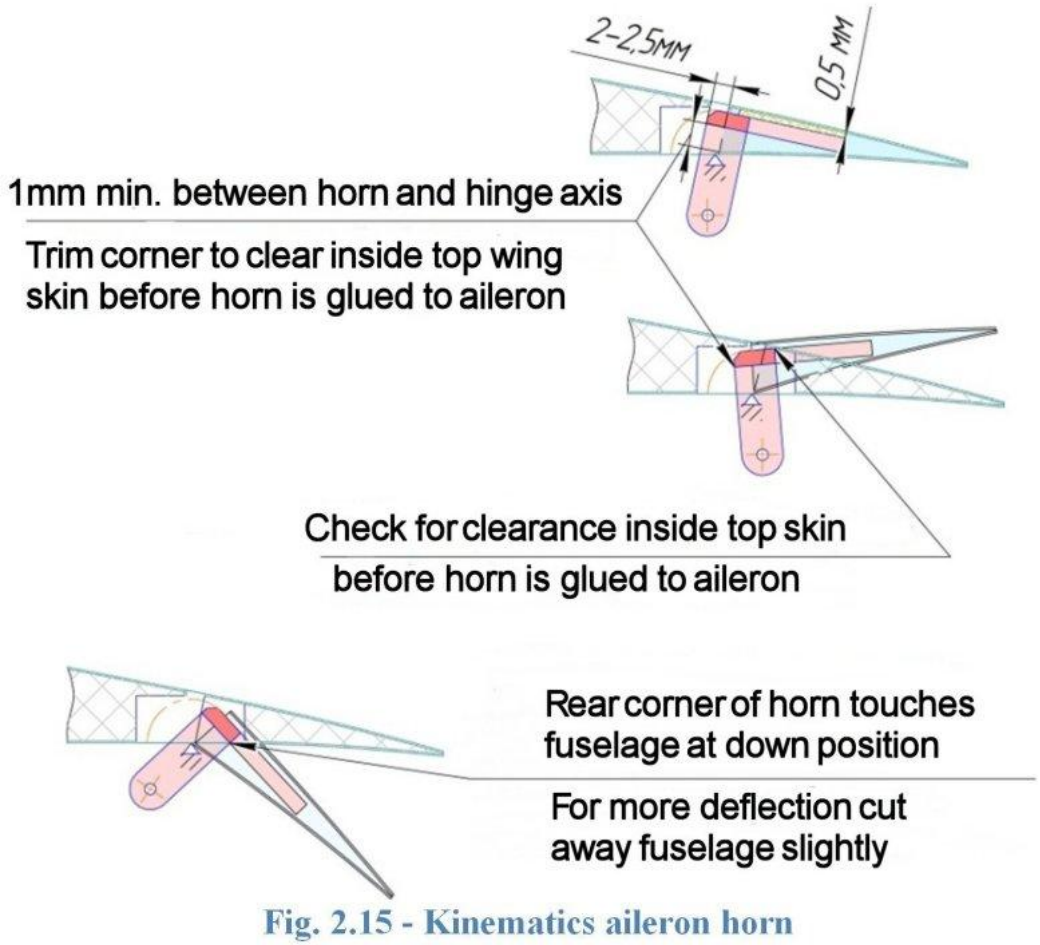
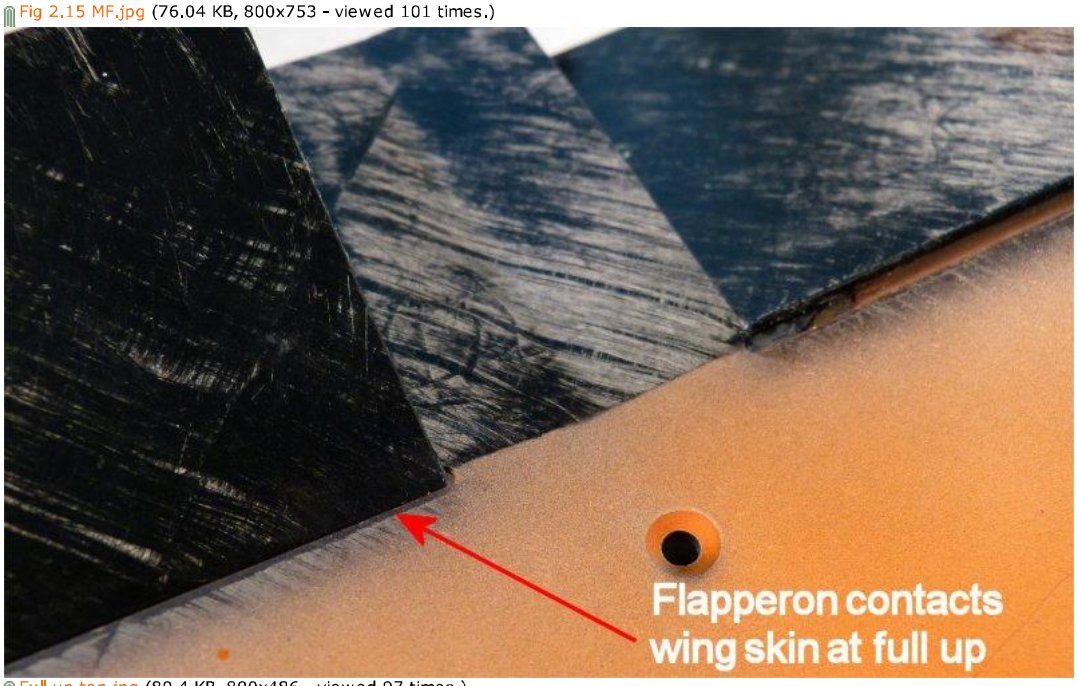


Fig. 2.15 - Kinematics aileron horn

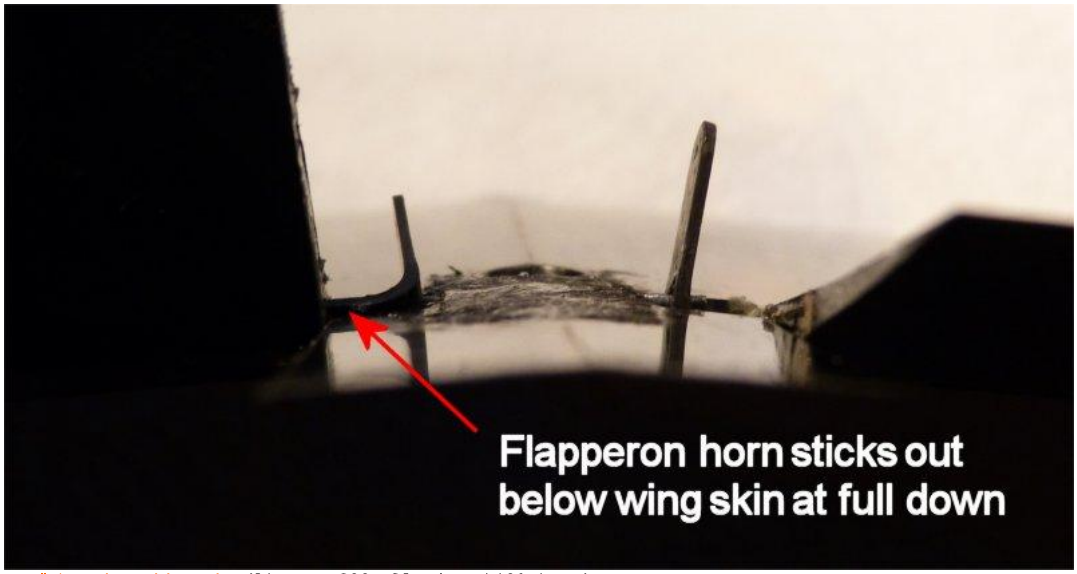
Fig 2.15 MF.jpg (76.04 KB, 800x753 - viewed 101 times.)



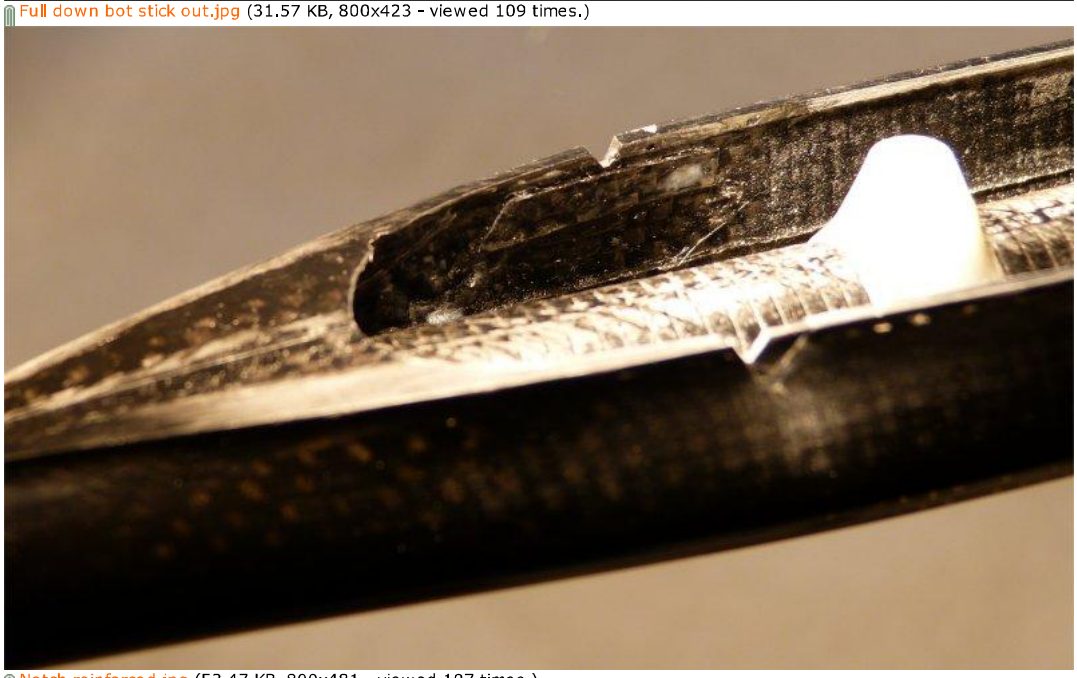
Full up top.jpg (80.4 KB, 800x486 - viewed 97 times.)

Full down bot.jpg (110.59 KB, 800x661 - viewed 130 times.)

Horn to wing skin.jpg (77.8 KB, 800x581 - viewed 113 times.)

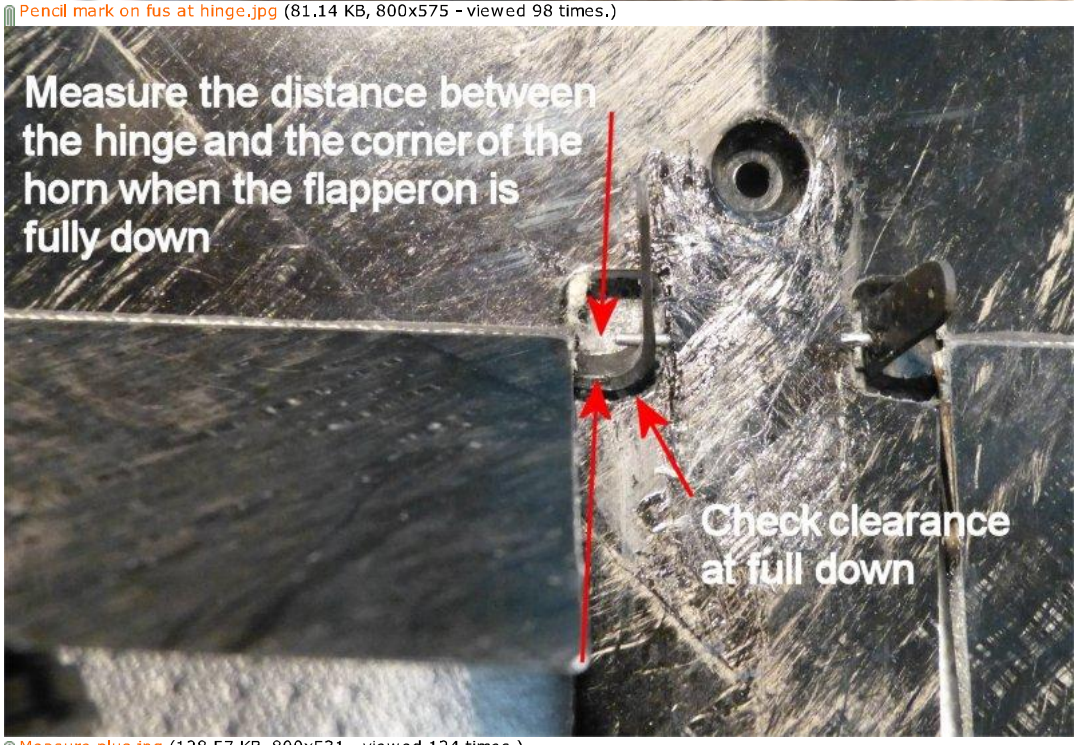


Full down bot stick out.jpg (31.57 KB, 800x423 - viewed 109 times.)



Notch reinforced.jpg (53.47 KB, 800x481 - viewed 107 times.)

Pencil mark on fus at hinge.jpg (81.14 KB, 800x575 - viewed 98 times.)



Measure plus.jpg (128.57 KB, 800x531 - viewed 124 times.)

« Last Edit: October 31, 2013, 03:51:15 PM by mike »

mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #6 on:** November 01, 2013, 09:37:35 AM »

I have noticed that the instructions on the Hyperflight site have been updated and there is now an 'official' translation of the Fig 2.15 inform there! It leaves out the rounding of the front top corner of the horn (important and shown graphically) and includes a comment about the fr lower wing skin in front of the hinge at full up. I checked mine and it is 'well clear' by comparison with the other points.

The only other change I could see at a quick read through was that fig 2.32 now has a title (no significant info added).

The link in my first post takes you to the latest instructions.

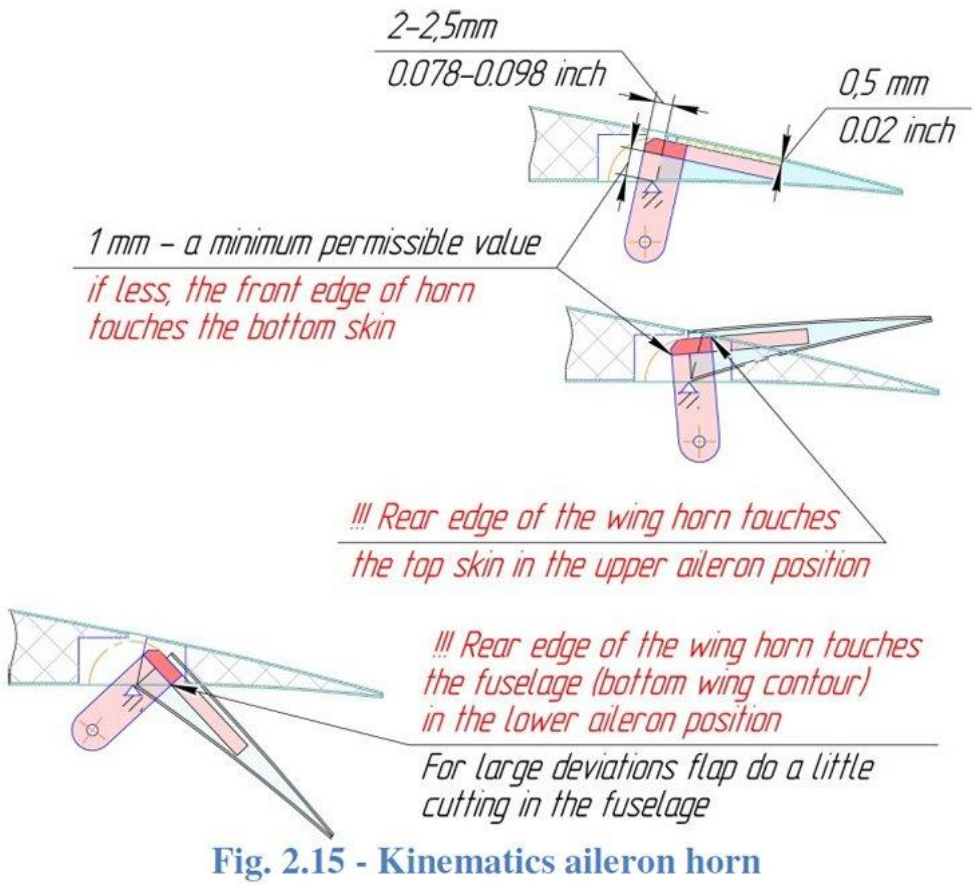


Fig. 2.15 - Kinematics aileron horn

Fig 2.15 1-11-13.jpg (82.48 KB, 800x729 - viewed 89 times.)

mike
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Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #7 on:** November 03, 2013, 05:07:30 PM »

When I put the wing and tail onto the fuselage for a trial fit, I noticed some slight tail tilt - one tip 5mm higher that the other. I could see thi fuselage and pitched the model until one tail tip 'touched' the top of the wing. This would not be noticeable in flight but it's easier to check t up so....

A quick and careful lick of the wet and dry on the tail mount would fix that so off I went. As I sanded and fitted and checked repeatedly, I be attachment screws were causing some of the problem - they were 'leaning' slightly in the mount and pulling the tail over with them so I deci using a round file and a hand-held countersink bit to 'lean' the holes to suit.

After enough sanding and hole re-work the good news was that it was all nicely lined up when screwed together. The bad news was that I of the mount on one side! I cleaned the end cap out completely for a repair. You can see the cleaned up damage in picture 1 below and the Picture 3 is looking inside the mount - note the captive nuts nicely moulded-in and the 'spare' slot in the fuselage - possibly a false cut in ma repair - a piece of hard 1.5 mm balsa set into the mount. (I also patched over the spare slot with a piece of 0.4 mm carbon/epoxy sheet)

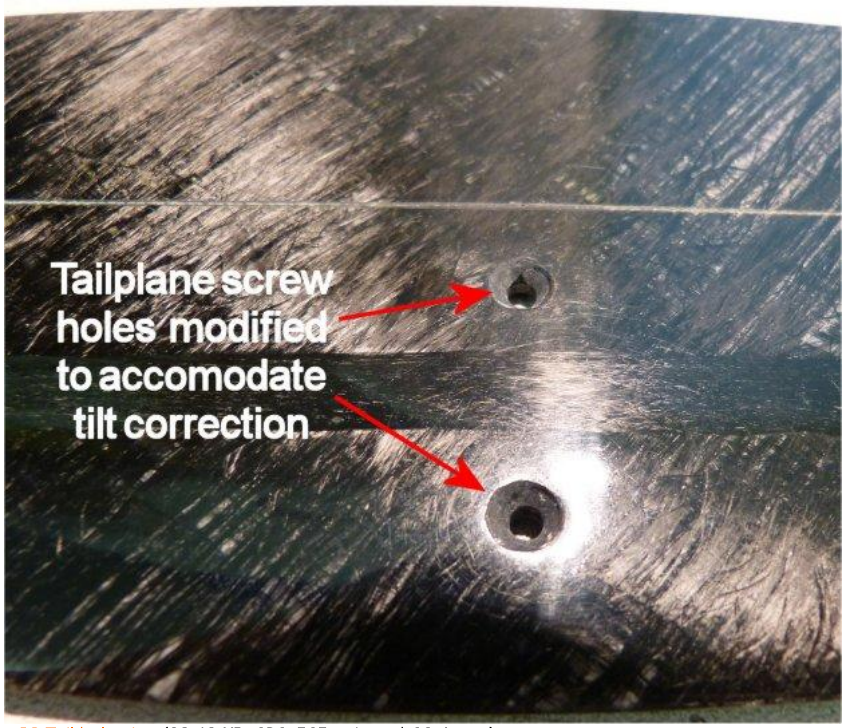
Time to cut the horns into the tail surfaces and fit the spring return system. I put some low-tack magic tape on the control surfaces to mark I positioned the fin with half above and half below the boom and put the rudder horn 4mm below the centre-line to line up with the cable e: cable exit slot is reinforced by being within the 'skirt' of the moulded tail-mount - a very nice detail.

I decided to use my own folded spring system as detailed here. The supplied springs are 0.45mm wire with 50mm between the two 20mm l legs are 90 degrees apart, looking along the 50mm length of the wire.

I glued the horns in with thin cyano - the completed tailplane set-up is in picture 6 below - you can just see the spring in the hinge line. Mak when the hinge gap closes around the wire - let the wire into the surfaces if necessary to achieve this. The fin/rudder is similar. The tailplar end shown so that the tailplane is removable.

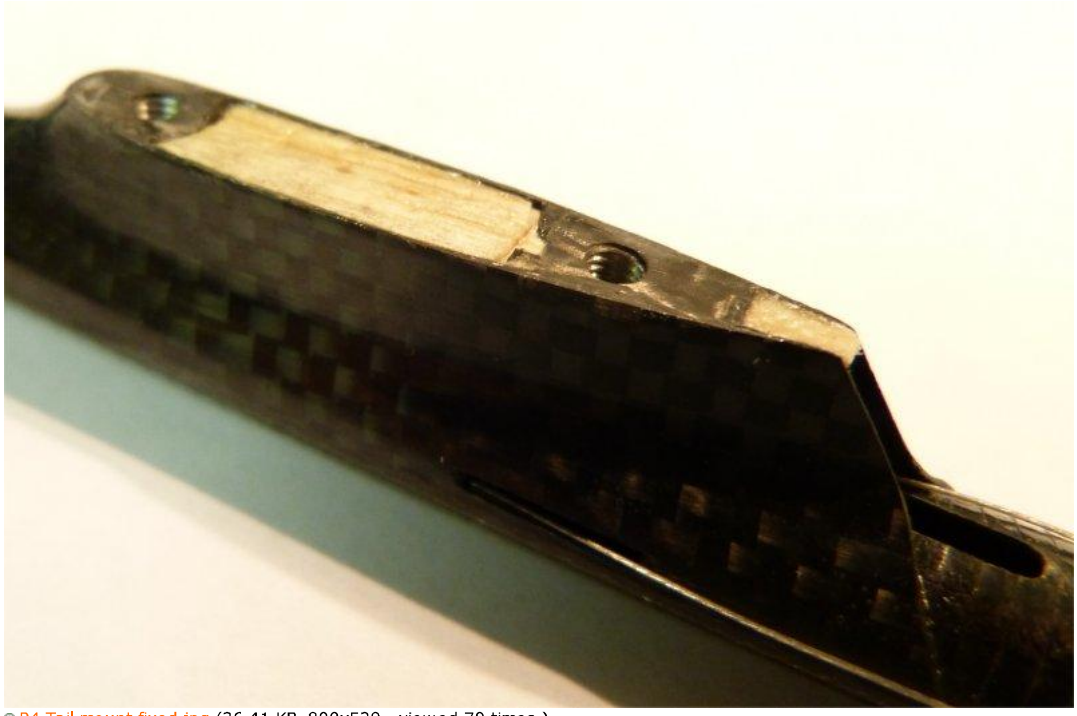
I checked the fin slot for alignment by dry-fitting the fin - it was fine. I decided to put a balsa in-fill in the area of the fin slot to get some mor made the tapered balsa dowel component in two pieces with an angled split down the length so that I could fit it in two pieces. Much easie carved the fin slot before I glued this in with 5 minute epoxy. Once it was set I finished carving the slot. Picture 7 This in-fill would also avo reinforcement.....

P1 Tail mount.jpg (40.04 KB, 800x374 - viewed 63 times.)



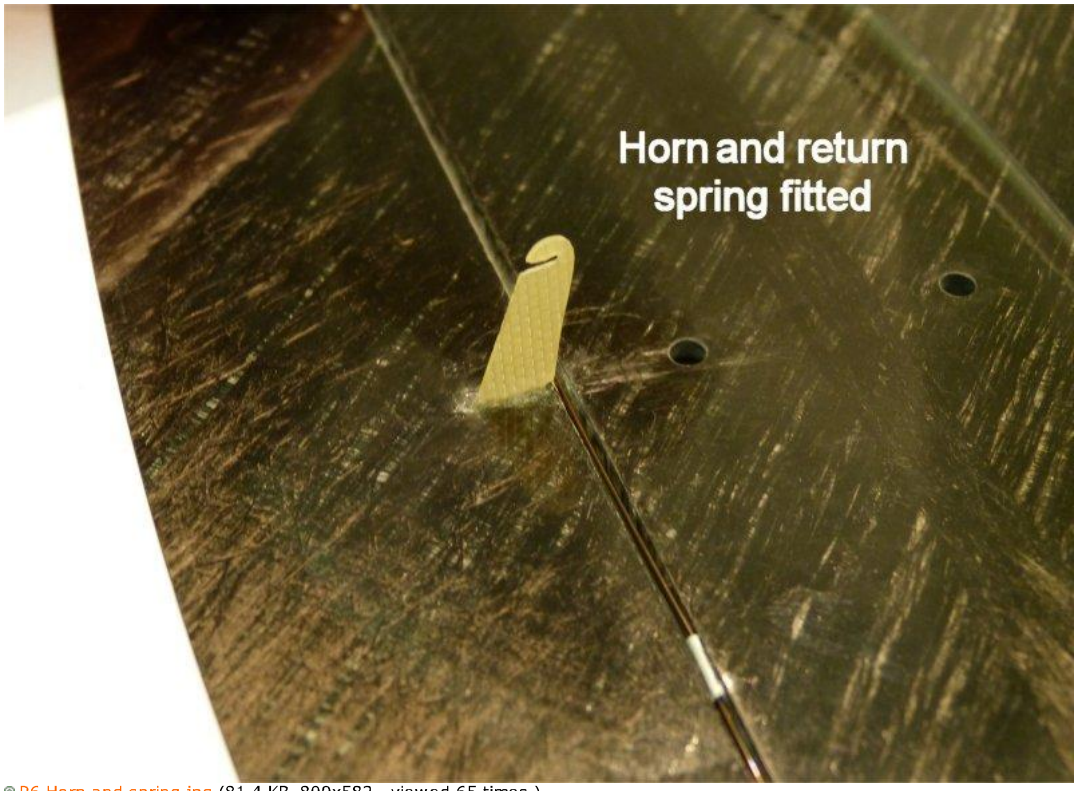
P2 Tail holes.jpg (99.49 KB, 626x565 - viewed 66 times.)

P3 Tail mount 2.jpg (31.03 KB, 800x368 - viewed 63 times.)



P4 Tail mount fixed.jpg (36.41 KB, 800x529 - viewed 70 times.)

P5 make horn slot.jpg (125.48 KB, 800x618 - viewed 68 times.)



P6 Horn and spring.jpg (81.4 KB, 800x582 - viewed 65 times.)

P7 Balsa infill.jpg (42.36 KB, 799x505 - viewed 84 times.)

« *Last Edit: November 03, 2013, 07:06:35 PM by mike* »

mike
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Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #8 on:** November 03, 2013, 05:24:40 PM »

I put the fin into the slot and lined it up at the centre using a pencil mark on some masking tape. I put masking tape around the joint on the scratch into the skin on the bottom side - picture 8. I slid the fin out of its slot and cleaned up the joint area with wet and dry paper - pictur position, leaving the cleaned area exposed for glueing. After applying glue, I slid the fin fully into position, cleaned off the excess glue, remo glue around the outside of the joint - picture 10. I used thin cyano for this joint but I'd use 5 minute epoxy next time. I only just got the fin grabbed it!

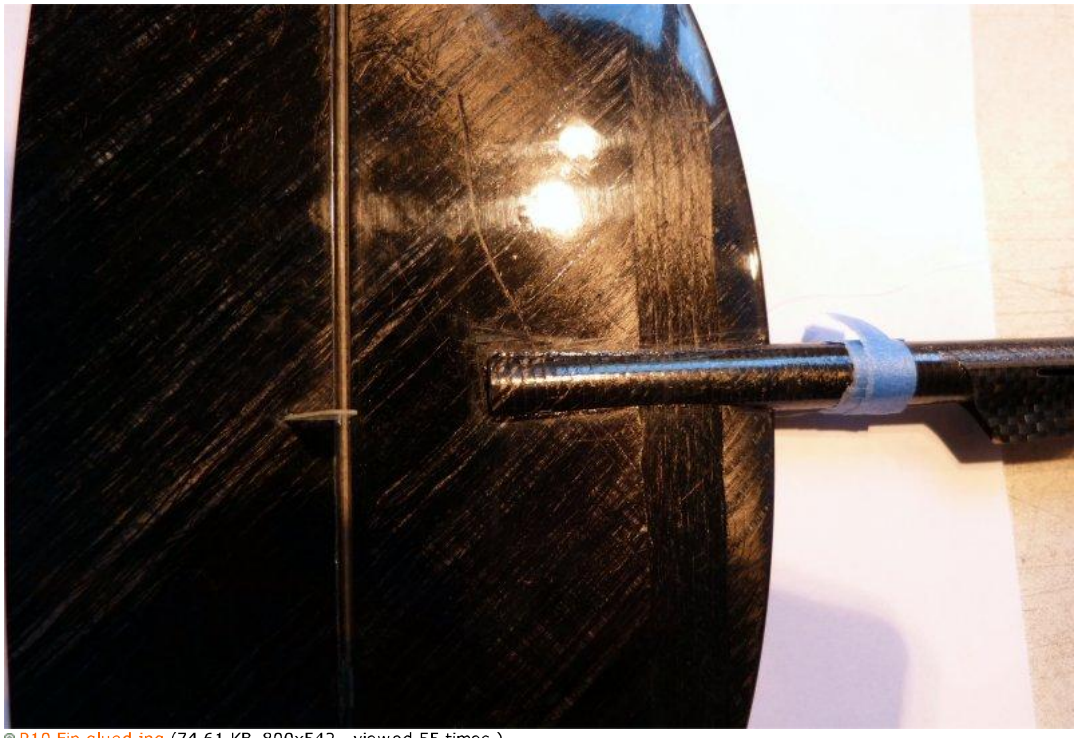
Picture 11 shows the view during tail and fin alignment checking.

The next job was fitting the tail controls using the pre-threaded cables - nylon covered stranded steel 'fishing trace' 0.3 mm OD - and the cri struck - I carelessly lost the end of one cable down into the fuselage.....

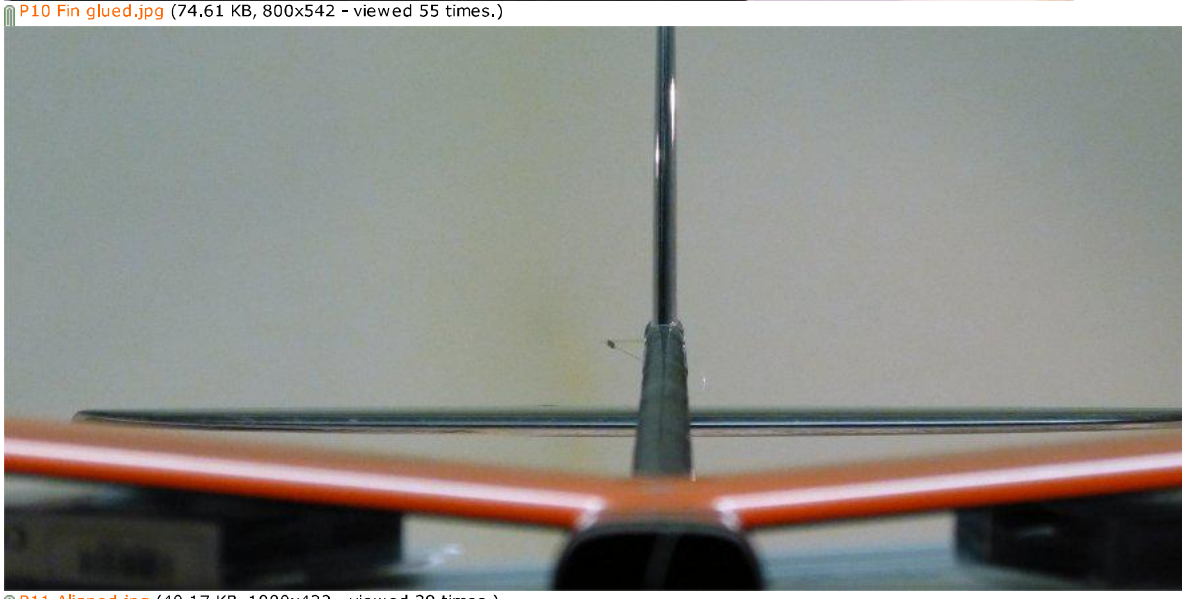
To get it back through, I took a length of 0.3 wire and bent the end over over the last few mm - picture 12. I threaded this through the hole installed) toward the top of the fuselage so that gravity would keep my 0.3mm wire away from the other line. You don't want one line wrap piece of foam part way down the fuselage, with about the top third cut away for the wires to pass through. I don't know what this is for bu onto it's back to get past it. I pushed my wire right out of the front of the fuselage and then looked through the front hole whilst keeping th torch down the hole. past my head! This was to check that the lines were not twisted. Now I had to estimate how far to pull my wire back hole. Making sure I had the bend pointing out of the fuselage, I pulled the wire back, keeping the exit hole at the bottom of the fuselage ar the bent end dropped through the hole! This took longer to type than to do - especially the second time I did it!!??? To get the cable throu and pulled gently. Picture 13.

P8 Fin mask.jpg (96.95 KB, 800x600 - viewed 67 times.)

P9 Fin mask and clean.jpg (101.67 KB, 800x627 - viewed 61 times.)



P10 Fin glued.jpg (74.61 KB, 800x542 - viewed 55 times.)



P11 Aligned.jpg (40.17 KB, 1000x422 - viewed 39 times.)

P12 0.3 wire tip bent.jpg (47.12 KB, 800x259 - viewed 35 times.)

P13 Join 0.3 wire to cable.jpg (44.97 KB, 923x265 - viewed 45 times.)

« Last Edit: November 05, 2013, 09:57:19 AM by mike »

mike
Administrator
Hero Member
Offline

Posts: 1884

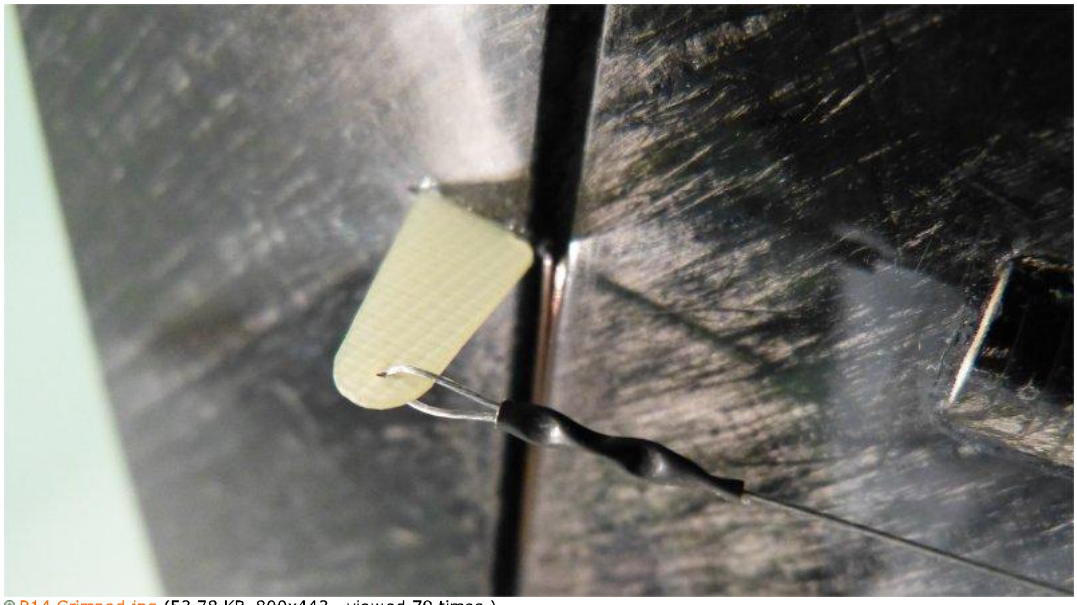
Re: Snipe from Valdimir's models via Hyperflight
« **Reply #9 on:** November 03, 2013, 07:01:36 PM »

Picture 14 is the rudder horn with the cable crimped on. Picture 15 shows the rudder cable exit from the fuselage - it's within the 'skirt' of th Picture 16 is a close-up of the exit hole at the servo end of the elevator cable - I have pulled the cable aside to show how I filed a small ran ease the passage of the sliding cable. I did this on the inside at the back of the slot too and the same for the other 2 places where cables p the cable out of the way of the file!

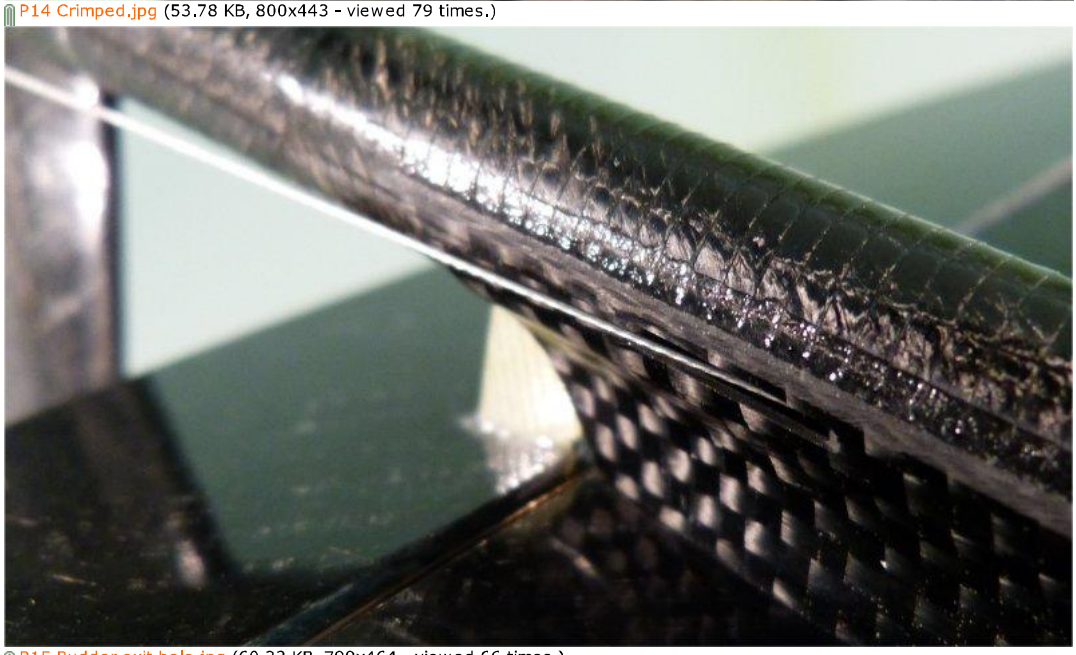
Pictures 17 shows the 'safety line' that stops the cable being lost down the fuselage when the tail is removed for transport. This is made of thread' in the haberdashery store) and needs to be long enough so that it doesn't go tight at full up elevator when the cable is pulled fully f and glued around the fuselage in front of the fin.

Picture 18 shows the cable hooked to the elevator. Make the loop big enough to hook on easily but not so big it can slide past its correct pc

Picture 19 is a general view of the neat tail group and picture 20 is the story so far. No RC gear in yet - 180 grams of aeroplane at this point

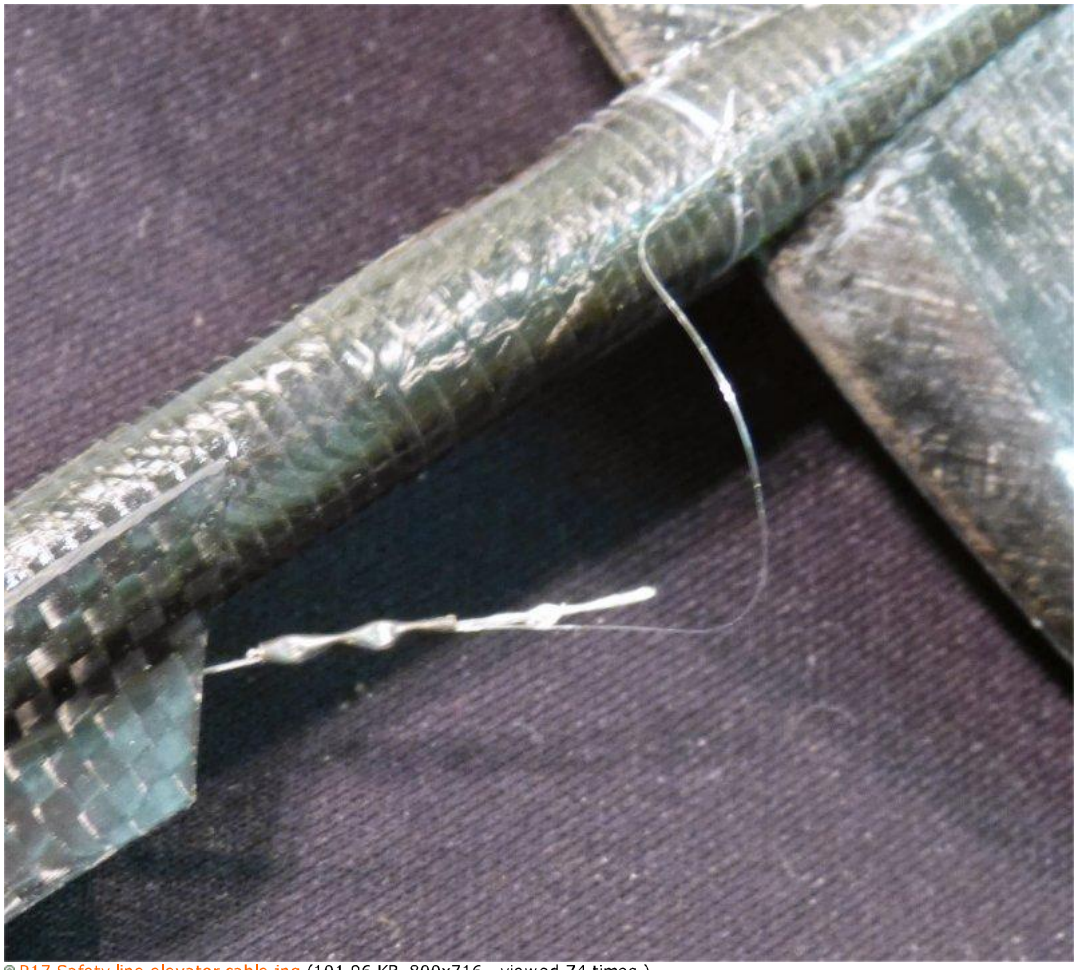


P14 Crimped.jpg (53.78 KB, 800x443 - viewed 79 times.)



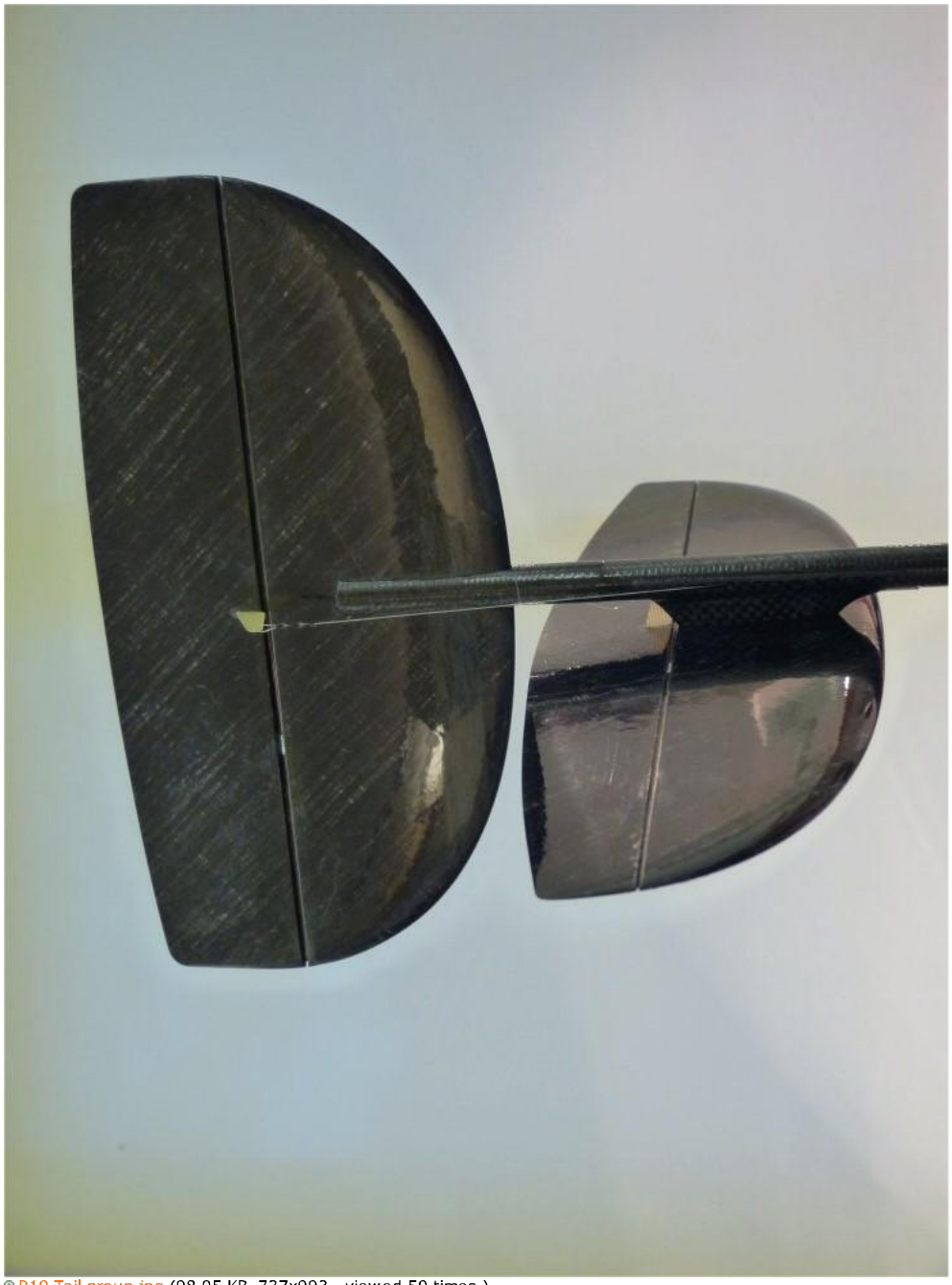
P15 Rudder exit hole.jpg (60.23 KB, 799x464 - viewed 66 times.)

P16 Exit hole filed.jpg (61.99 KB, 800x377 - viewed 67 times.)



P17 Safety line elevator cable.jpg (101.96 KB, 800x716 - viewed 74 times.)

P18 Elevator hooked up.jpg (80.56 KB, 800x575 - viewed 72 times.)



P19 Tail group.jpg (98.05 KB, 737x993 - viewed 59 times.)

P20 180 grams cg 146mm.jpg (133.78 KB, 800x811 - viewed 90 times.)

« Last Edit: November 04, 2013, 12:29:51 PM by mike »

mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #10 on:** November 18, 2013, 06:25:26 PM »

While I was trying to think of a way to get all the gear packed into the nose without glueing the servos down, I turned to the wing.

The centre joint is reinforced with at least one extra piece of carbon on the outside (see picture A below) - we can't see what's inside and yo start cutting your shiny new wing open....

The top and bottom skins seem to be butt joined at the leading edge - you can see foam or perhaps a foaming epoxy here and there along to put tape over this kind of joint but I'll see how it goes - I haven't heard of any problems. (see picture B)

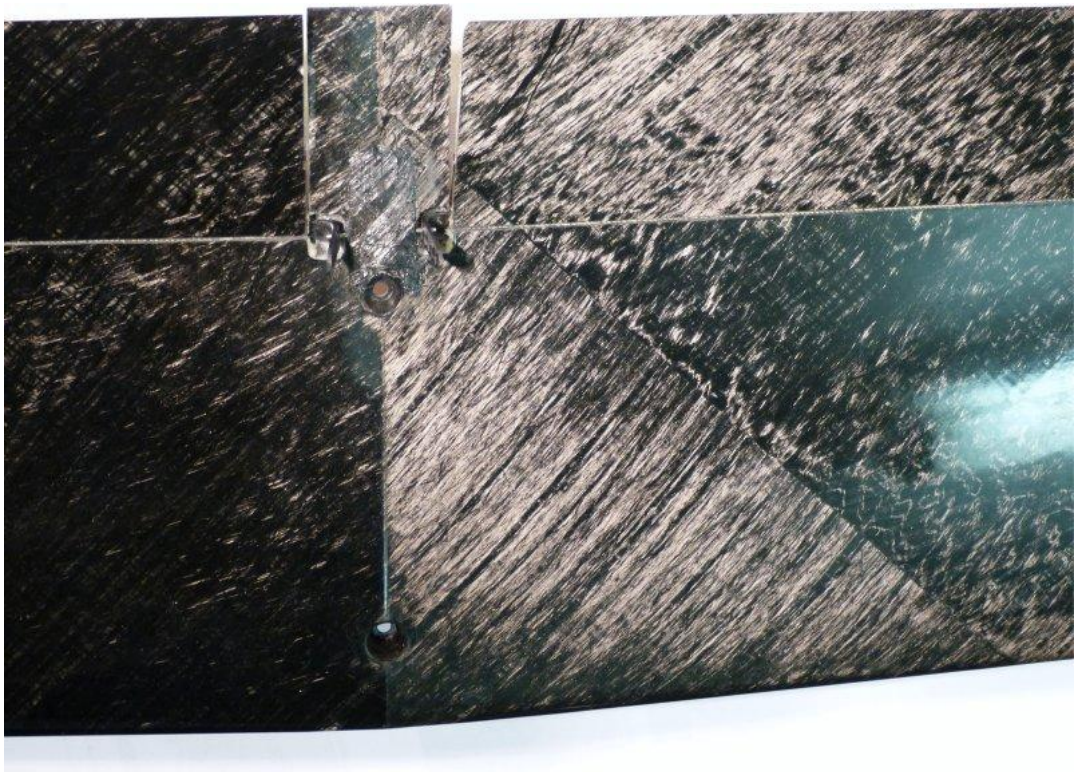
The tip also has some reinforcement - this is done on both wing tips (picture C).

There are no dimensions for the position of the peg cut out. You can see where I put mine in pictures D and E. I cut a little skin away at a ti along the span to just get the peg between the skins. Picture F.

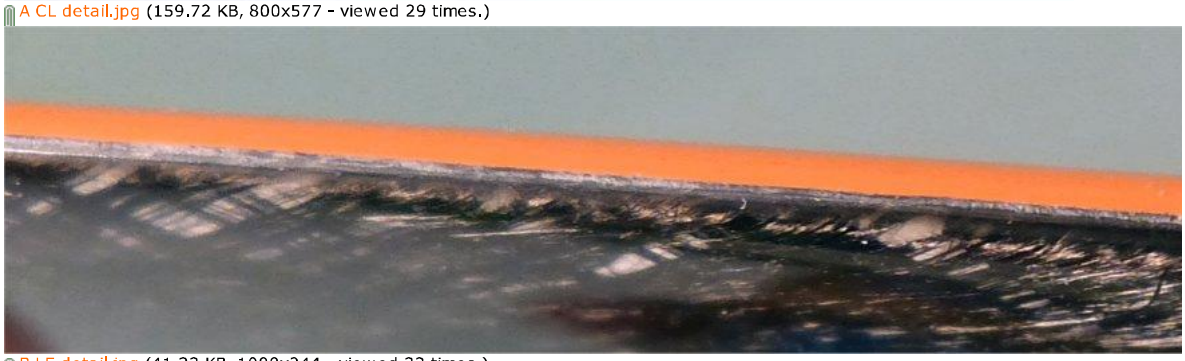
The peg has a long blade (Picture G) that goes inside the wing so quite a bit of the foam has to be carefully removed. I made a sharp ended of millimeters bent round at 90 degrees to do this job.

The blade is tapered across the wing to match the wing section so it goes in the 'swept-back' way around. This is the most comfortable grip fingers both ways before I noticed the taper. Pictures H and I.

Some have wondered if the peg sticking out of the end of the wing would push the span over 1500 mm but the basic wing is quite small and sticking out as much as picture J to get to 1500 mm span.

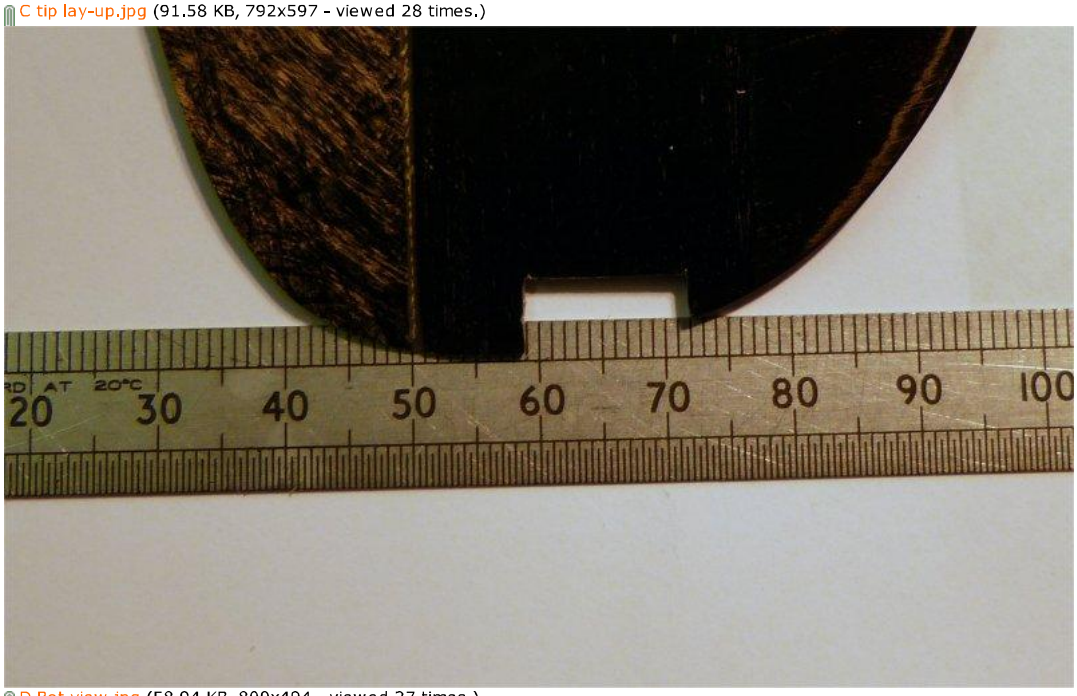


A CL detail.jpg (159.72 KB, 800x577 - viewed 29 times.)

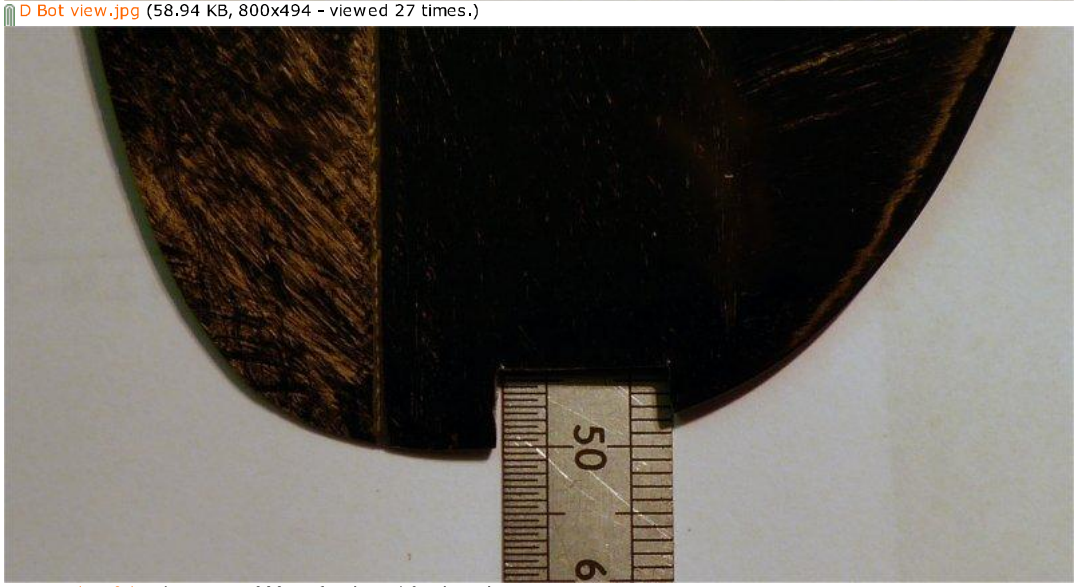


B LE detail.jpg (41.33 KB, 1000x244 - viewed 33 times.)

C tip lay-up.jpg (91.58 KB, 792x597 - viewed 28 times.)

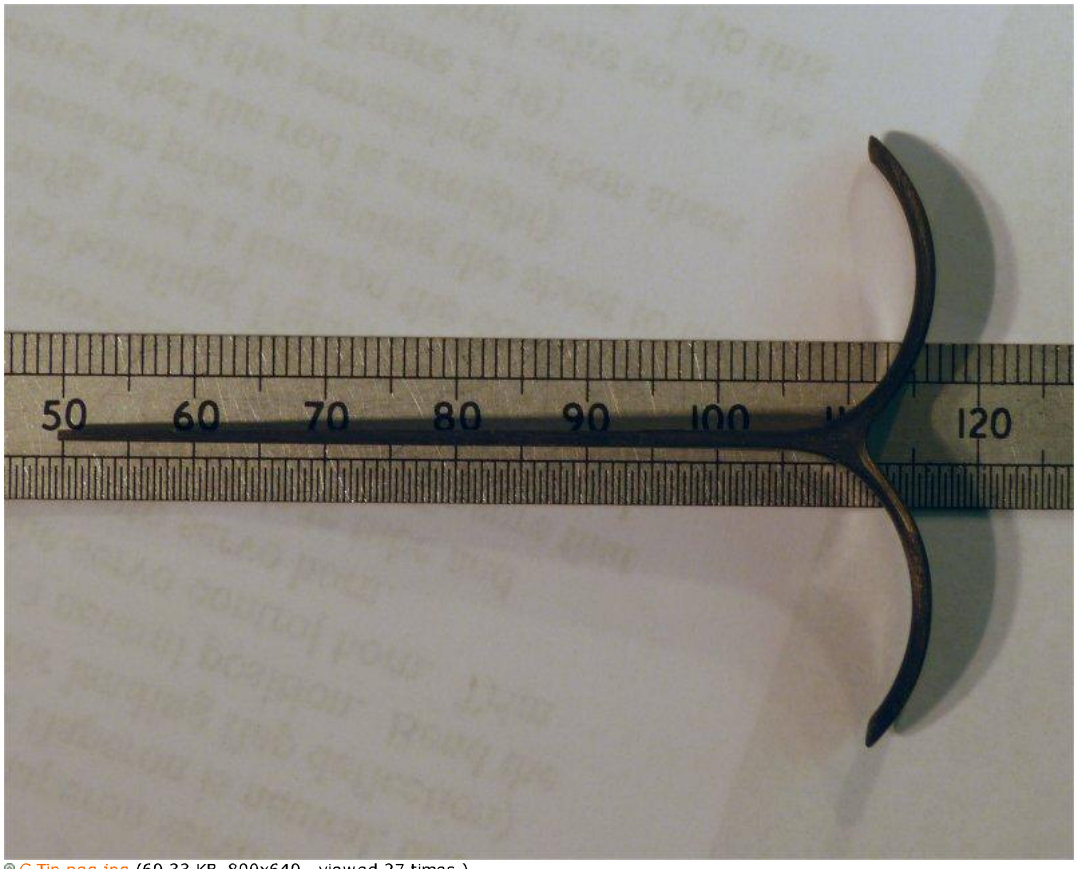


D Bot view.jpg (58.94 KB, 800x494 - viewed 27 times.)

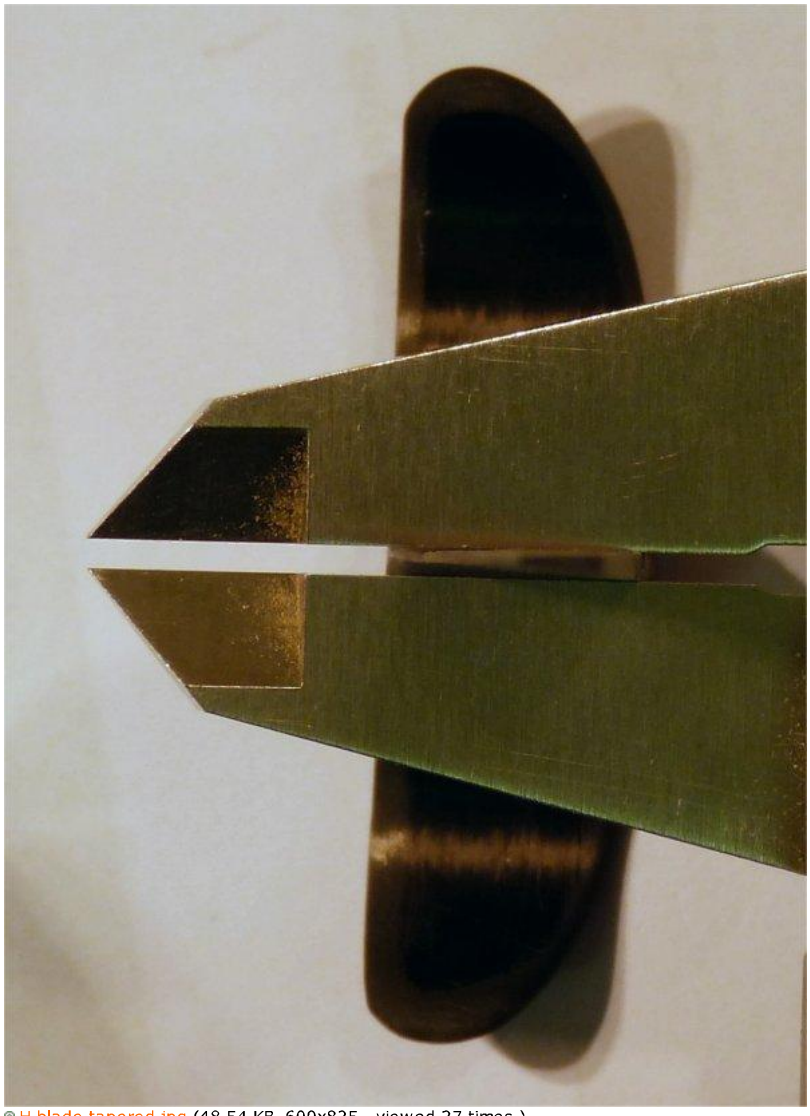


E Bot view 2.jpg (45.47 KB, 800x416 - viewed 25 times.)

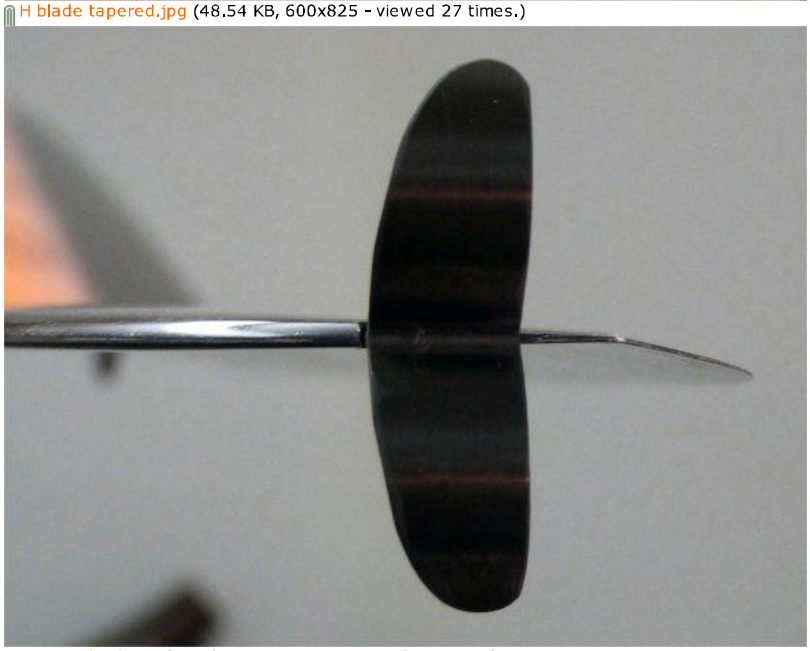
F Hollowed out.jpg (29.47 KB, 1000x331 - viewed 28 times.)



G Tip peg.jpg (60.33 KB, 800x640 - viewed 27 times.)



H blade tapered.jpg (48.54 KB, 600x825 - viewed 27 times.)



I swept back.jpg (22.68 KB, 600x464 - viewed 25 times.)

J 1500 span.jpg (39.85 KB, 600x691 - viewed 29 times.)

« Last Edit: November 18, 2013, 06:35:11 PM by mike »

mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #11 on:** November 18, 2013, 06:31:19 PM »

The blade is roughened and notched for glueing and I stuck mine in with 5 minute epoxy. This gave barely enough time to make sure I had wing - you might want to go for the slower type. Pictures K and L. (I was in a hurry as I wanted to fly that day!)

K roughened peg.jpg (22.15 KB, 600x341 - viewed 20 times.)

L peg glued in.jpg (48.5 KB, 600x677 - viewed 27 times.)

mike
Administrator

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #12 on:** November 18, 2013, 09:24:06 PM »

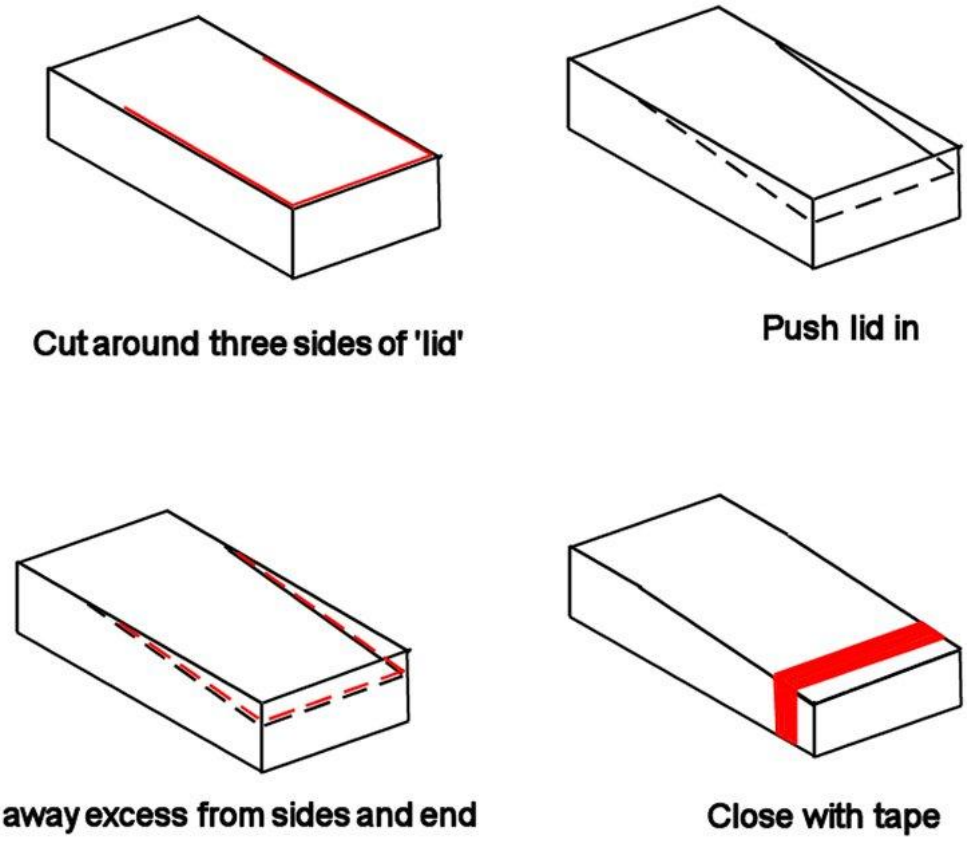
Hero Member
Offline
Posts: 1884

Gear in the nose.

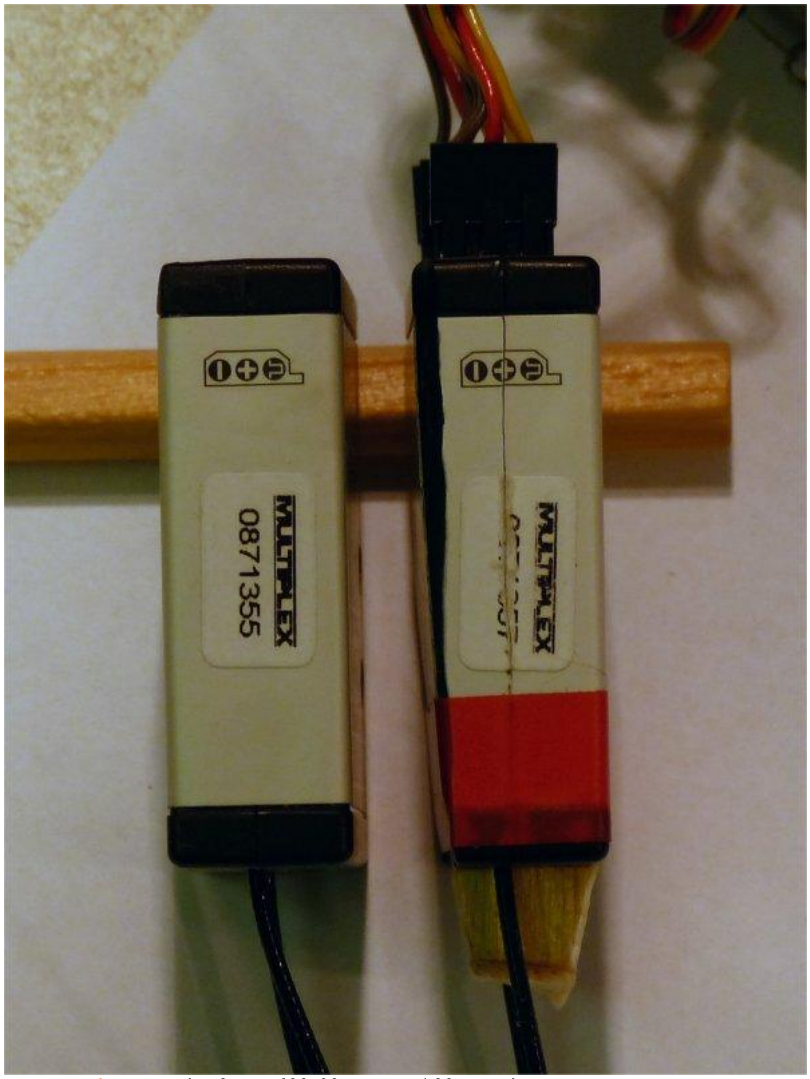
I did some trial balances and realised that I would need some lead in the nose to get my 62mm CG - the Joe Wurts recommended starting p the fairing in front of the wing without the case fitted. (Multiplex RX-6-DR light M-LINK 2.4 GHz) The full case wouldn't fit. Later I realised th taper it without interfering with the innards. Pictures M and N. N shows the tapered case with a block of balsa on the back to stop it going

Four MKS DS65K servos were arranged to use the least fore/aft space but still make a good lay-out to fit inside the pod. In front of that com nanotech Lipo and finally a piece of hard foam to keep the battery from hitting the inside of the pod. Under the boom and the front and und ballast. There is a way of packing the servos into a shorter length but the installation is very wide and there's no easy way of avoiding glue about clearance to the inside of the nose cone as well.

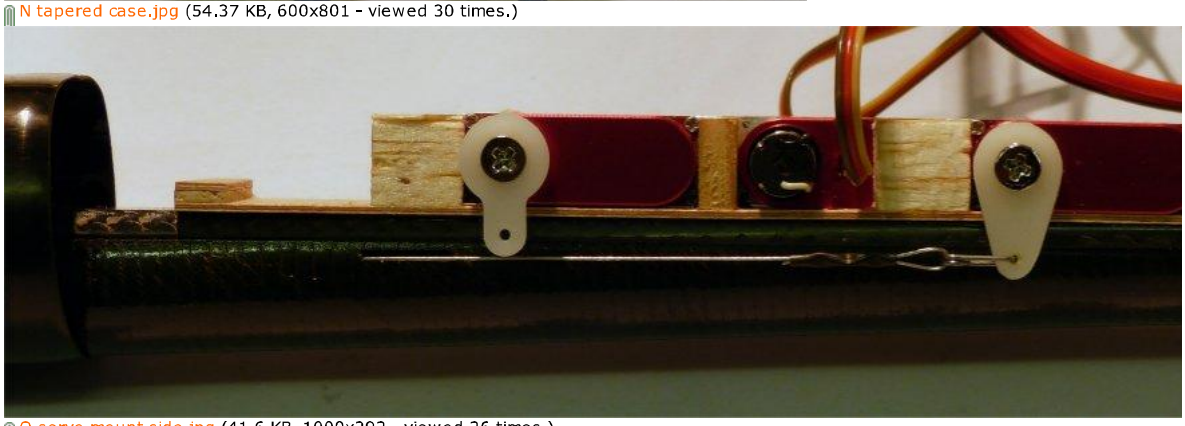
The servos are mounted to a 1mm ply plate with a middle wall made of vertical grain 3mm spruce. The central spruce piece is glued through 2mm nylon nuts embedded in them keep the servos in place. The rear block is thin so the the Rx can go over it for removal - the extra heigh some thin ply glued to the 'lid'. A stiff lid is made up from 1mm ply to clamp the servos in position. The wood around the servos is very sligh for a slight clamping action. This structure came out at about 4.5 grams. Since it's in the nose which has ballast, it adds less than two gram can be replaced in a few minutes without risk of damage. I left all the servo wires full length. The furthest servo from the receiver had the l reach. (pictures O - S) Picture T shows the Rx going into place - the last servo is fitted after the Rx is in and before the lid goes over the ser slightly, it gets tall enough to get the Rx in without trouble. I couldn't squeeze it when I took the pictures....



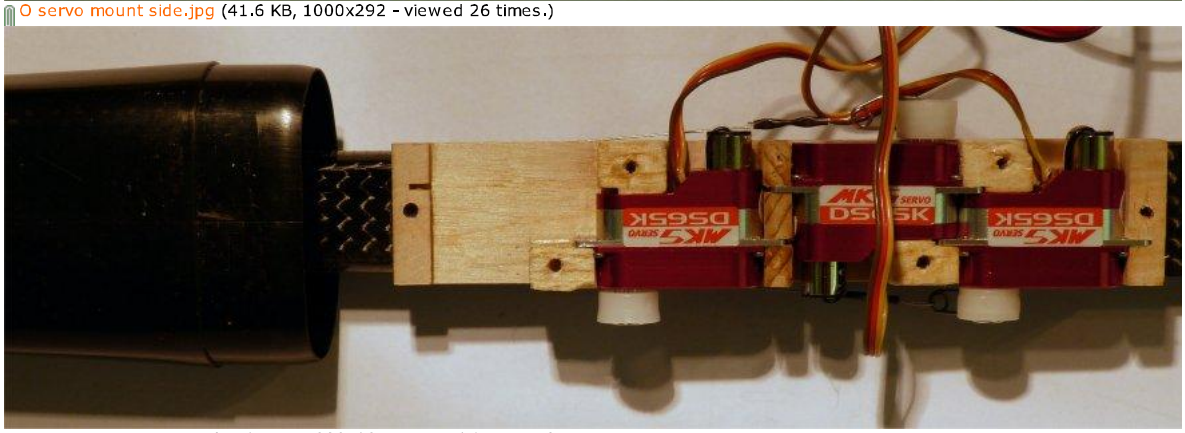
M.jpg (53.44 KB, 800x659 - viewed 23 times.)



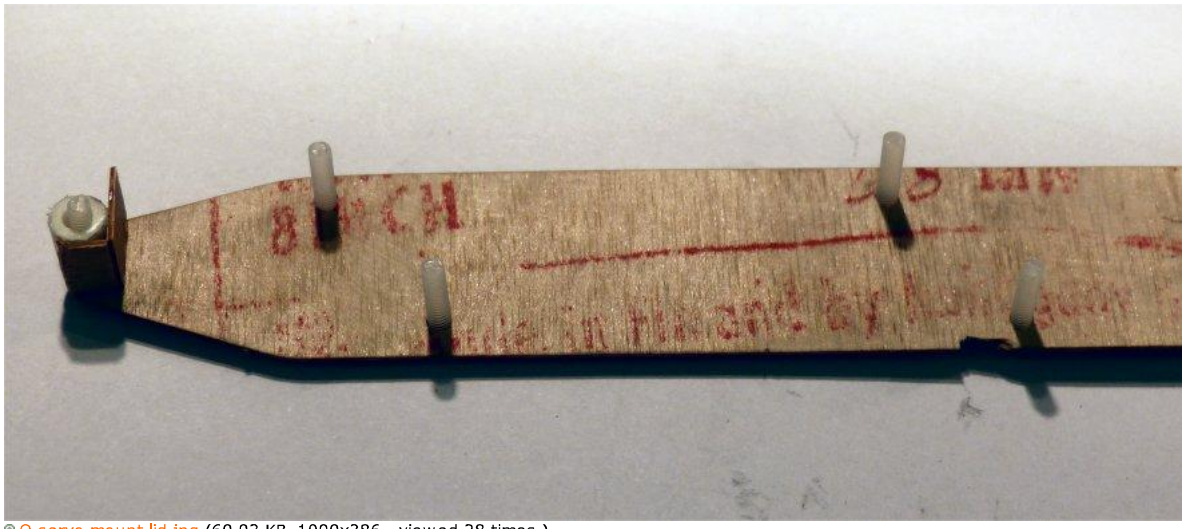
N tapered case.jpg (54.37 KB, 600x801 - viewed 30 times.)



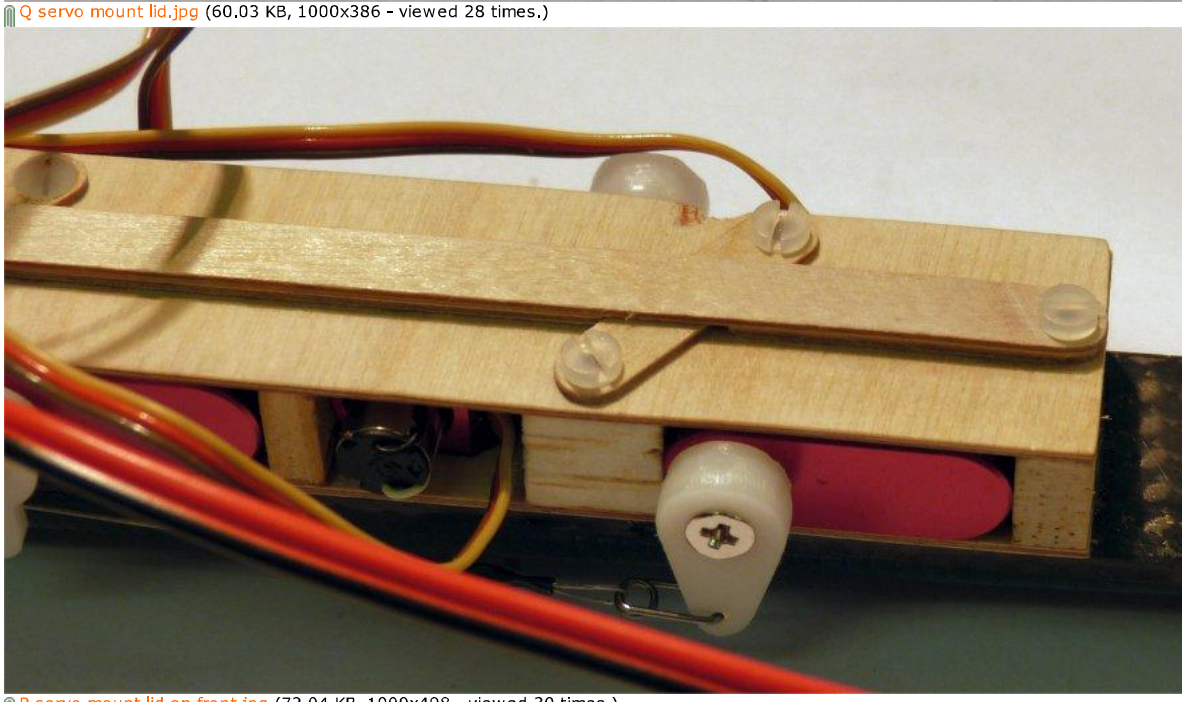
O servo mount side.jpg (41.6 KB, 1000x292 - viewed 26 times.)



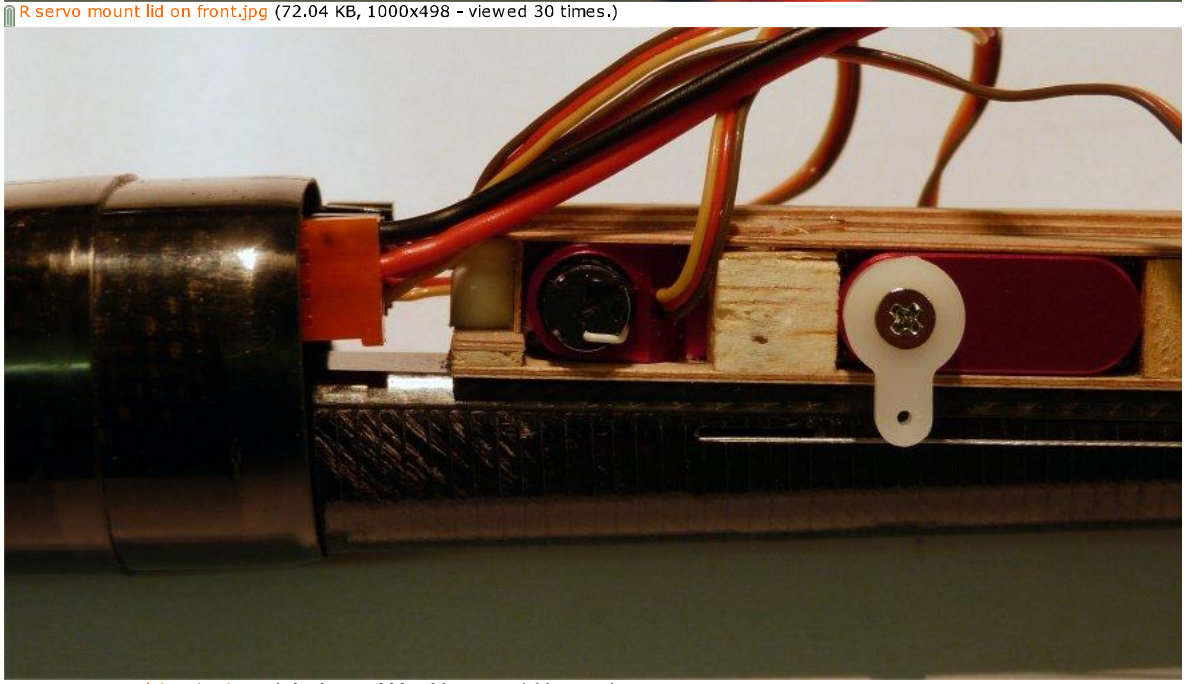
P servo mount top.jpg (47.21 KB, 1000x301 - viewed 35 times.)



Q servo mount lid.jpg (60.03 KB, 1000x386 - viewed 28 times.)



R servo mount lid on front.jpg (72.04 KB, 1000x498 - viewed 30 times.)



S servo mount lid on back.jpg (68.78 KB, 1000x488 - viewed 29 times.)

T Rx in.jpg (57.96 KB, 1500x194 - viewed 33 times.)

« Last Edit: November 19, 2013, 08:25:24 AM by mike »

mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #13 on:** November 18, 2013, 10:06:37 PM »

To connect the wire cables to the elevator and rudder servos, I made hooks from 0.5mm wire. See picture U. I sleeved the part that goes t OD brass tube to fit the horn holes. The tube is glued to the wire with cyano. these hooks clip into the horns and the wire is crimped to the powered up, set to neutral and the surface is pulled to centre before the crimp is squeezed up with the wire tight against the spring.

I crossed the two antennae behind the RX and took them out of the fuselage, over the flapperon control rods and out under the wing trailin

I calculated the required horn lengths in a spread-sheet, using 100 degrees total servo horn travel as measured on the DS65Ks.
The horn lengths on the surfaces were measured:-
Elevator 16 mm
Rudder 17 mm
Flapperons 10.5 mm
The following horn sizes were needed to get the required movement.
Servo horns
Elevator 6 mm
Rudder 8.5 mm
Flapperons 7 mm

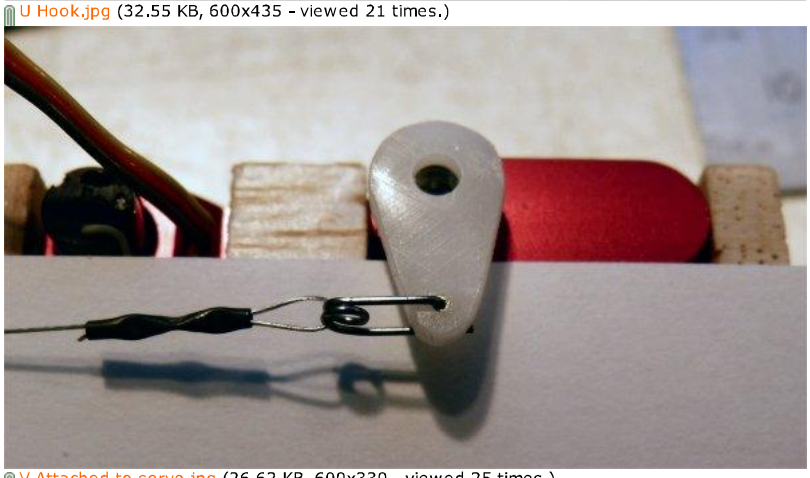
My plan for flapperon rod geometry is in picture Y. Note that the servo horn is vertical when the flap is halfway through its travel. This mean degrees aft at flap zero.

I decided not to use the flapperon control system as described in the instructions. I went for carbon tube rods with wire ends. The ends I u aft ends are cut off the supplied rods. This is 0.8mm wire so I put some bends in it to get a better fit into the 2mm OD, 1mm ID carbon tube with 5 minute epoxy. The front ends are 1mm wire which fits the horns and the tubes nicely. Once the aft ends are stuck and the servos ar the RC live. At this point, the front wires are sliding in the tubes so the distance between the horn hole and the end of the tube can be set and servo. I set my servos to 130 ms and 170 ms using a servo tester and measured from horn hole to tube end at flaps zero. I then drov (100, 200 ms) and checked the end points of flap travel by setting the same distance from hole to tube in every case. When I was happy th in with 5 minute epoxy with the flaps zero and the servos at the planned zero settings. (I could equally have had the servos at full up flap a full up position)

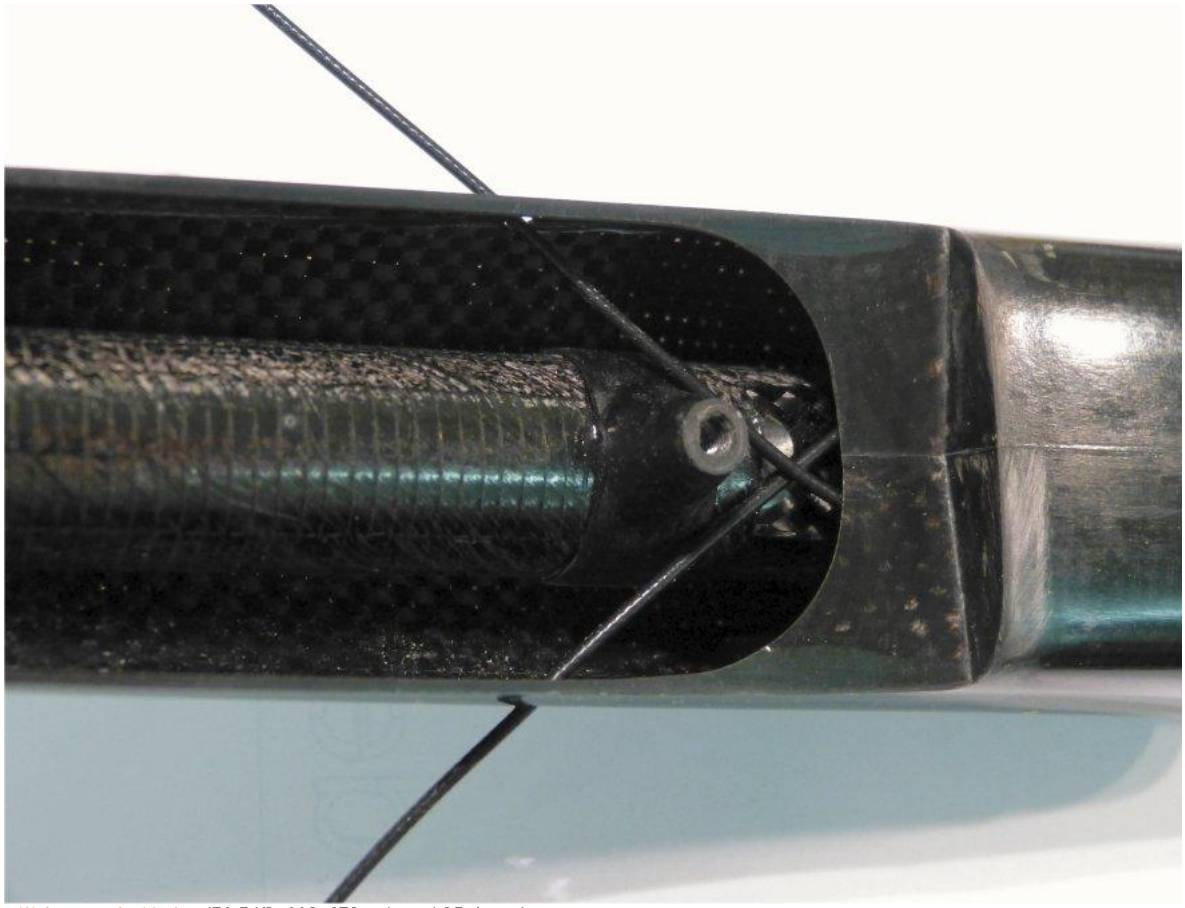
Before glueing, I had drilled some 0.5 mm holes in the tubes beyond the end of the wires to stop the air inside making pistons out of the wir was nice to see glue coming out of one of these holes. Picture 2.

The front ends are retianed by 0.5 mm wire bound to the carbon tube and wire with Kevlar thread coated in thin cyano. I gave the aft end s Unidirectional tubes from splitting. Last I filled the air hole that didn't bleed glue with cyano. The pair of rods weigh 2.5 grams. This is abou weight - it is simpler to do and has no wire in tube friction. Assembly of the wing to the fuselage is by fitting the rods to the wing and guidin wing is fitted. (Making sure they go under the antennae in my case) The front ends then clip to the servos. In the original system, the wir need to get under the wing to clip the ends to the flapperon horns.

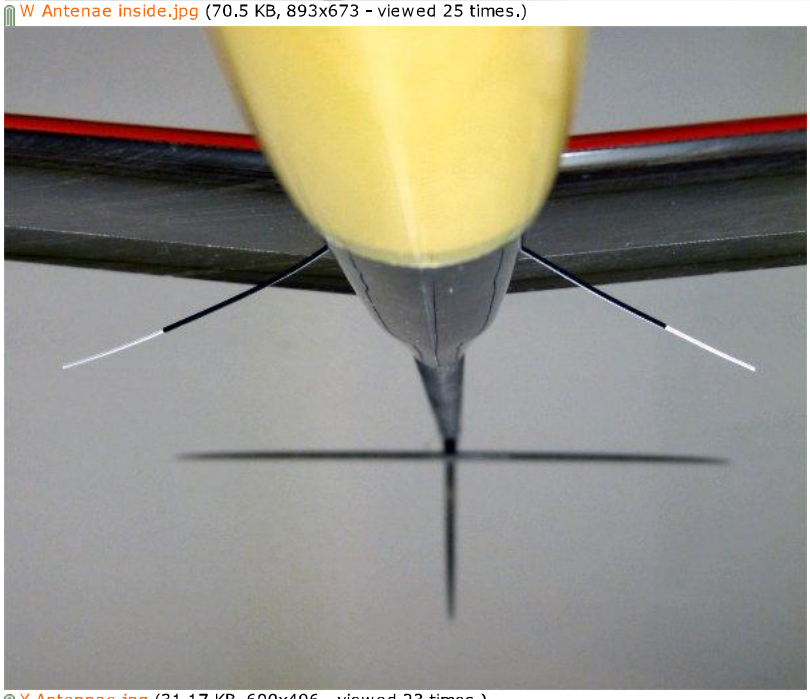
U Hook.jpg (32.55 KB, 600x435 - viewed 21 times.)



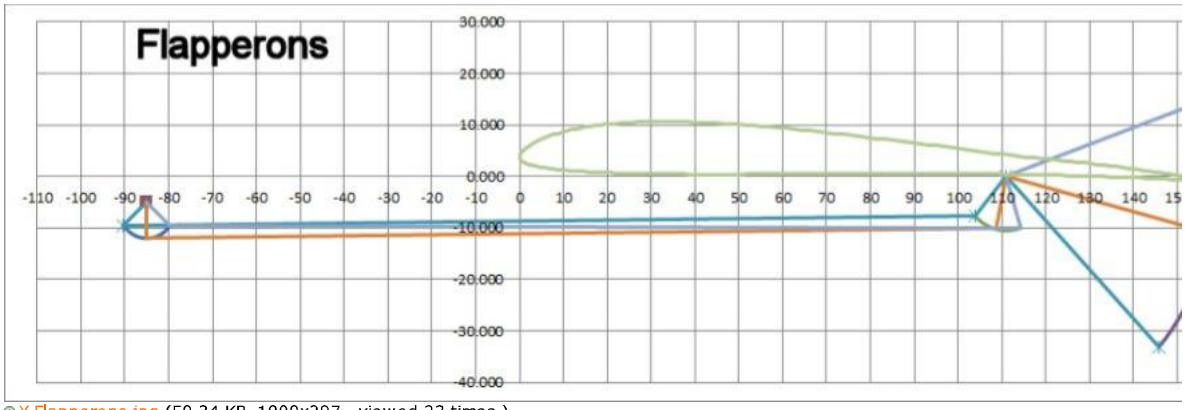
V Attached to servo.jpg (26.62 KB, 600x330 - viewed 25 times.)



W Antenae inside.jpg (70.5 KB, 893x673 - viewed 25 times.)



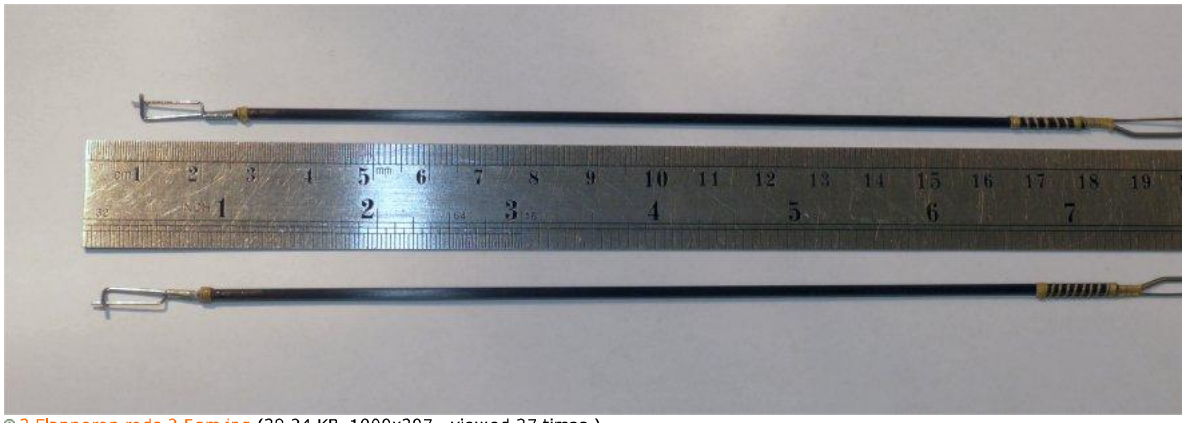
X Antennae.jpg (31.17 KB, 600x496 - viewed 23 times.)



Y Flapperons.jpg (50.34 KB, 1000x297 - viewed 23 times.)

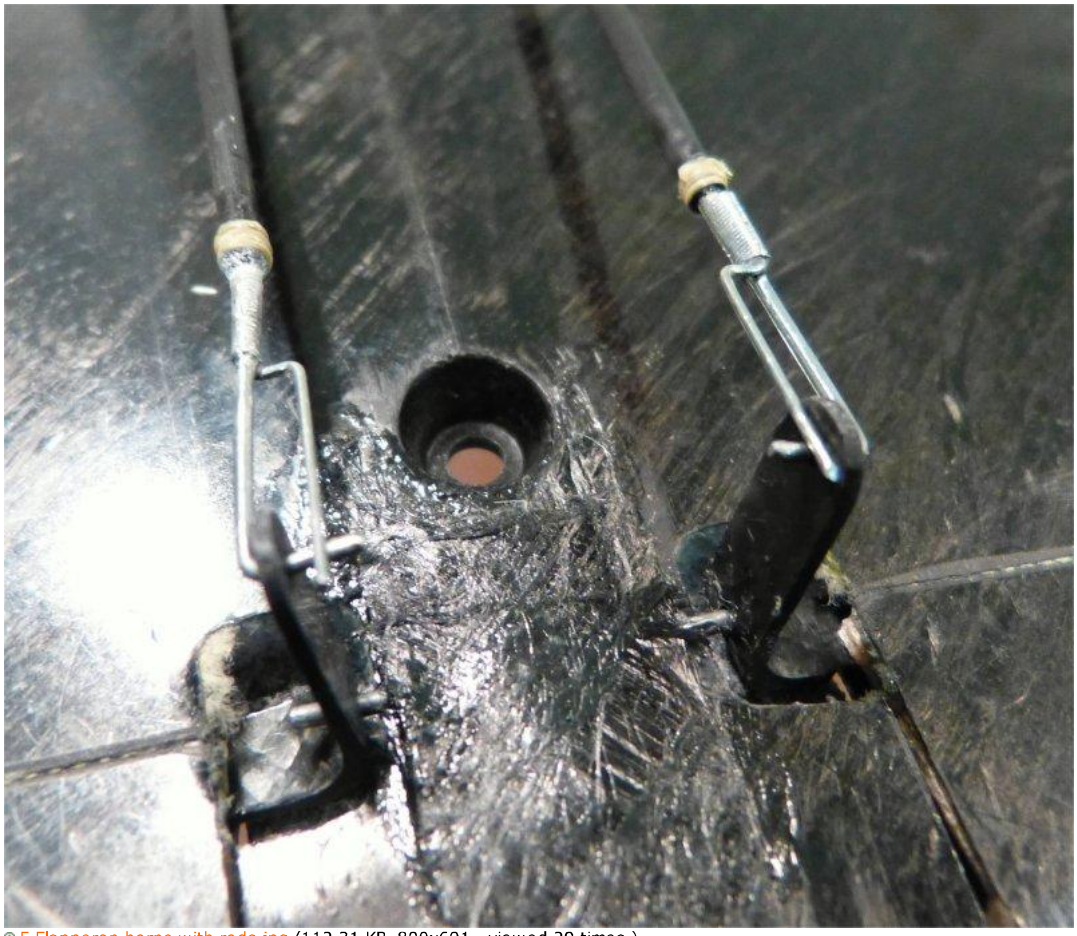
1 Aileron rod ends.jpg (48.32 KB, 600x514 - viewed 25 times.)

2 Air holes.jpg (53.96 KB, 1000x382 - viewed 24 times.)



3 Flapperon rods 2.5gm.jpg (39.24 KB, 1000x307 - viewed 27 times.)

4 Servo end details.jpg (43.14 KB, 800x465 - viewed 20 times.)



5 Flapperon horns with rods.jpg (112.31 KB, 800x691 - viewed 29 times.)

« Last Edit: November 19, 2013, 08:29:02 AM by mike »

mike
Administrator
Hero Member
Offline

Posts: 1884

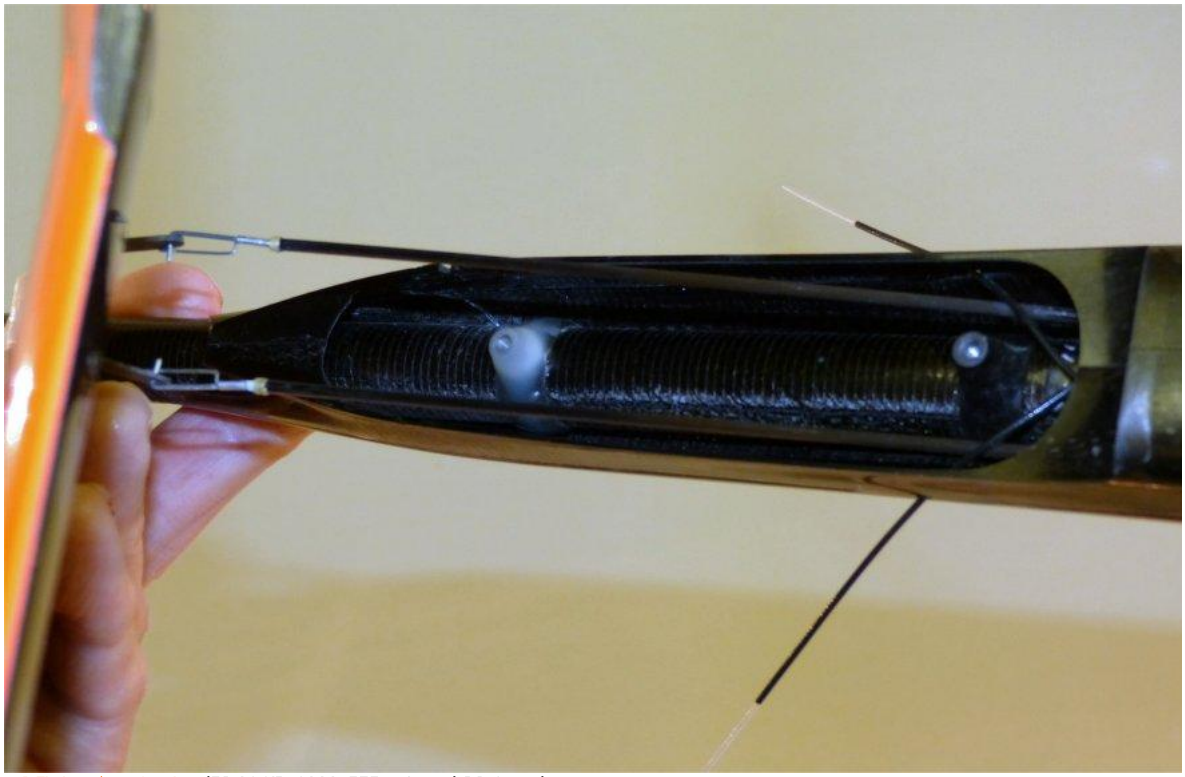
Re: Snipe from Valdimir's models via Hyperflight
« **Reply #14 on:** November 18, 2013, 10:20:16 PM »

Picture 6 shows the wing going on.

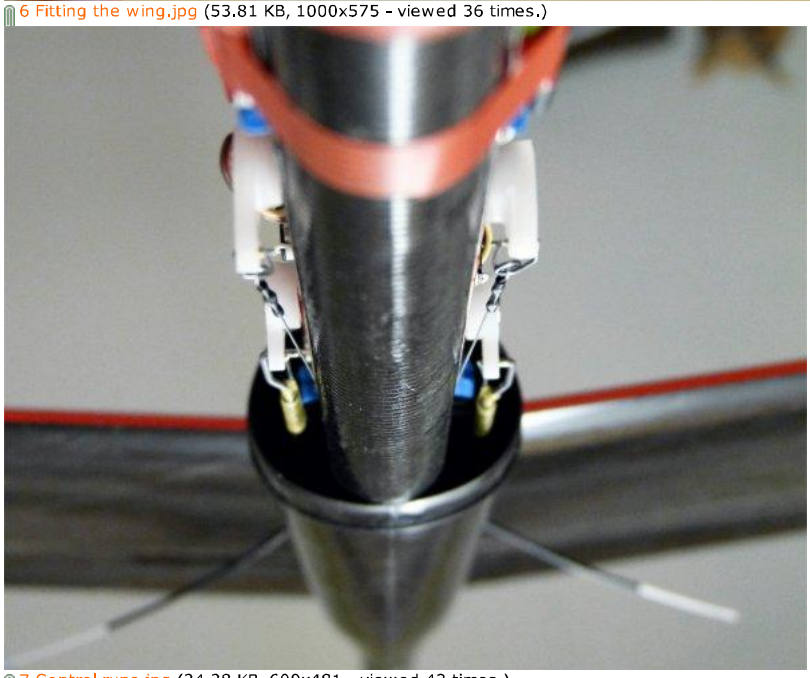
Picture 7 shows the control runs. Clearances should be maintained throughout control movements of all servos. The flapperon rods get qui wing in my case but it all fits and clears! Picture 8 shows the front end ready to go, Note the JST red plug and socket which is my 'switch'. and out of the way of the controls and so that the nose cone slides on nicely.

Finished weight is 263 gm with the CG at 62 mm behind the leading edge. The ballast weight in the nose could come out if the tail and fin w fitting Bowings tails or similar and saving about 14 gm in total weight.

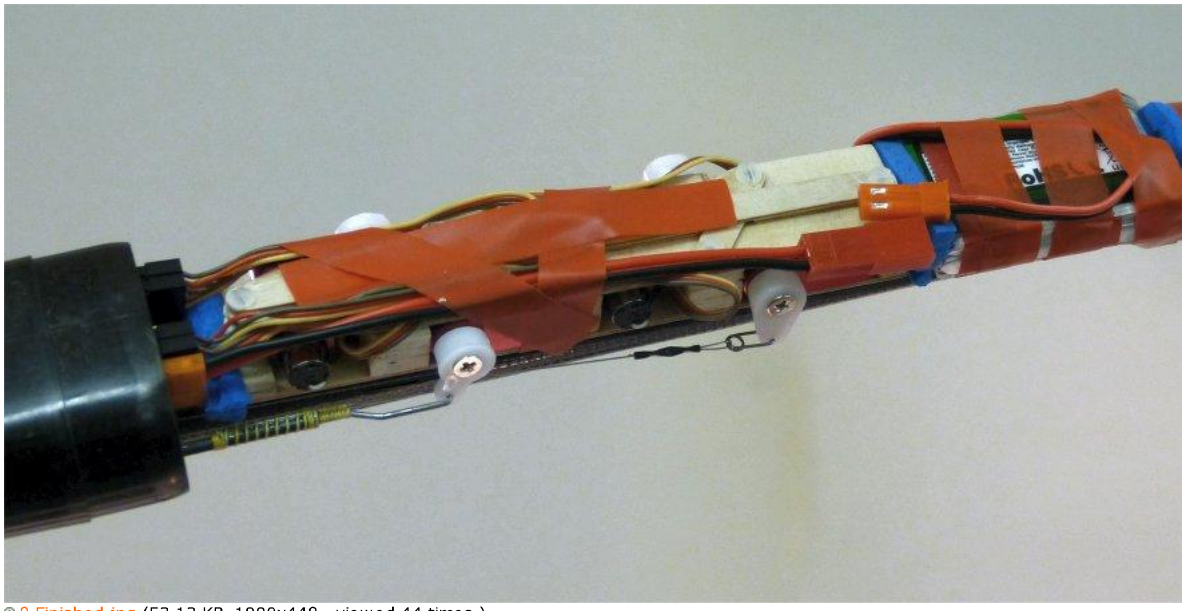
Picture 9 shows a close up of the boom with the ridges ffrom the binding used during cure visible. These make the boom quite rough. I hav off similar F1A booms and saving a gram or two. This is aft of the cg so a 3-4 grams total saving might be possible if you have lead in the no



6 Fitting the wing.jpg (53.81 KB, 1000x575 - viewed 36 times.)



7 Control runs.jpg (34.38 KB, 600x481 - viewed 42 times.)



8 Finished.jpg (53.13 KB, 1000x448 - viewed 44 times.)

9 Boom ridges.jpg (35.04 KB, 800x421 - viewed 29 times.)

« *Last Edit: November 19, 2013, 08:31:04 AM by mike* »

Pages: [1] 2

Jump to: => The Builders

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FlyQuiet
Soaring Subjects
The Builders Workshop (Moderator: olivers dad)
Snipe from Valdimir's models via Hyperflight

Pages: 1 [2]

Author

Topic: Snipe from Valdimir's models via Hyperflight (Read 1405 times)

mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #15 on:** November 18, 2013, 10:42:52 PM »

It flew yesterday evening for the first time and again this afternoon and I'm just about there with all the trims in the four flight phase my Twister II and they were pretty close.

Initial glides with the elevator set neutral and the flaps at zero were close to perfect trim at 62mm CG. I had to get to low power dis

I haven't done any direct comparison with another model but my first impressions are very favourable. The glide in the 'thick' air last

More detailed settings tomorrow.

« Last Edit: November 18, 2013, 10:46:40 PM by mike »

jensdk
Newbie
Offline

Posts: 3

Re: Sv: Snipe from Valdimir's models via Hyperflight
« **Reply #16 on:** November 20, 2013, 06:42:14 AM »

Mike.... When is tomorrow
jens:-\

Sendt fra min GT-S5690

mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #17 on:** November 20, 2013, 12:19:51 PM »

Jens my friend - good to see you here!

Quote from: jensdk on November 20, 2013, 06:42:14 AM

> Mike.... When is tomorrow
> jens:-\

Tomorrow never comes.....

OK here's the data:-

All surface throws are measured at 90 deg. to the neutral position of the TE - to the TE of the deflected surface at full control input.

Elevator
Trimmed with flaps zero 62 mm CG.
Neutral. - TE 9 mm below bottom of boom
Up 8.5 mm - almost touching boom
Down 10mm

Rudder
Trimmed straight flight with airfoil smooth on both sides.
Left and right 13 mm each way at TE

Flapperons
Neutral taken to be in line with fixed part of wing.
Aileron throw 11.5 mm up and down*
Full brake 26mm down - I mixed in 4mm down elevator at full brake to control pitch-up

Settings by flight phase**

1 Pitch-up phase - also called 'launch pre-set'
Flap 1 mm down. Elevator 0.5 mm up

2 Flat part of climb - not pitching up or down
Flap 2 mm up. Elevator 1mm down
During the flat part of the climb only, I use up flap mixed to elevator down (one sided snap flap) such that full down elevator puts the

3 Cruise to look for lift
Flap zero. Elevator zero

4 Thermal
Flap 1 mm down. Elevator slightly up (0.25 mm?)

5 Min sink/Slow flight/calm thermal (I added this one)***
Flap 3 mm down. Elevator slightly up (0.25 mm?)

* I needed some 'differential' (23% in RE9 speak) to get even travel due to the geometry of the linkage - this will generally be neede
the horn hole behind the hinge line such that the horn at the surface and the horn at the servo were both at 90 degrees to the conti
I would have swept the horns back by that amount.

**I used Joe Wurts's camber suggestion from the RCgroups thread, post #736

*** Joe uses a slider to put more camber in at times - see post #746 for 3mm reference.

I use the cruise setting as the check position for flap and elevator neutrals before flying. The rudder is much less critical and you and the straight trimmed position is) Later, I'll fit a marker to the fin so I can check elevator neutral by eye as well.

I use -75% exponential on aileron, elevator and rudder. (-75% is in Multiplex RE9 speak) This is to reduce the gearing between stick

Sendt af skære bogstaver i en stenblok

Edited to include aileron differential figure.

« Last Edit: November 20, 2013, 08:57:21 PM by mike »

Mikehlg
Administrator
Hero Member
Offline

Posts: 1096

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #18 on:** November 20, 2013, 12:55:35 PM »

Quote from: mike on November 20, 2013, 12:19:51 PM

> Sendt af skære bogstaver i en stenblok

I doubt it!

Really good build thread Mike.

jensdk
Newbie
Offline

Posts: 3

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #19 on:** November 20, 2013, 03:32:00 PM »

Mike F:
Please do not use googletranslate, it will give me some funny sentences
Info much appreciated, for comparison.
thanks

« Last Edit: November 20, 2013, 03:35:22 PM by jensdk »

mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #20 on:** November 23, 2013, 10:00:50 PM »

A third flying session today in a bit of breeze - it was a cool and turbulent 8-10 mph.

The model seems to go higher than my others. I have increased the up flap on launch to 3mm which brings the trailing edge into line with a ruler placed on t
So far it seemed to keep climbing longer than my previous models. I flew without ballast and it was coming back very nicely. I was getting a tightening of th
but I wasn't sure - it was fairly turbulent. I sometimes felt that the fin was a bit too big for circling flight - the turn tended to tighten on its own but, using mi
needs less rudder input than the Twister II I have been flying for a couple of seasons.

A nice feature I haven't mentioned before: The wing, fin and tail plane surfaces are flat almost all the way to the tips at the hinge lines. This stops the hing
attention to detail.

I like this aeroplane - I hope I can learn to fly it to its best.

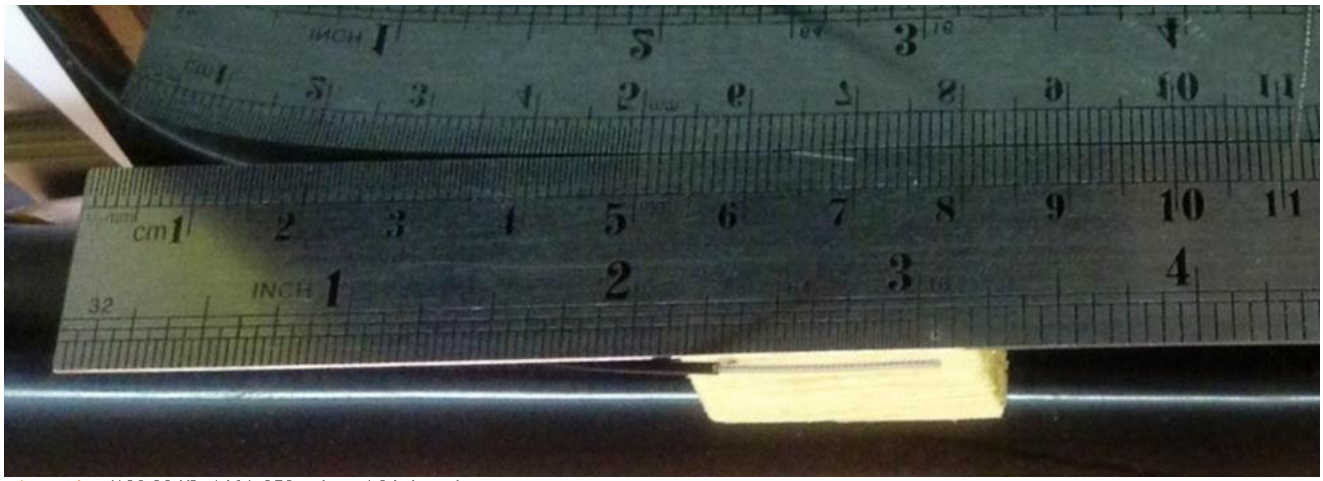

image.jpg (138.23 KB, 1464x352 - viewed 34 times.)

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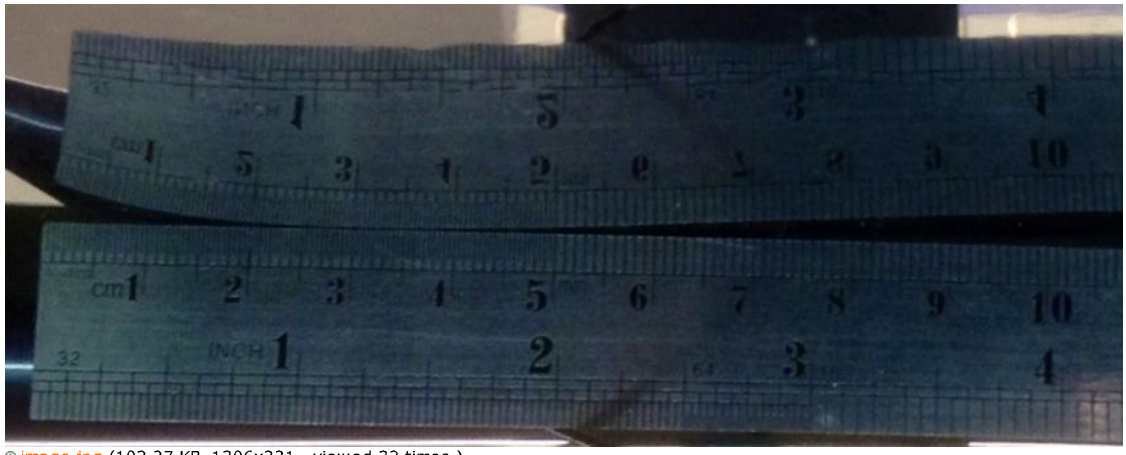
mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #21 on:** November 23, 2013, 10:08:16 PM »

For completeness, here's the wing at zero flap and 1.5 mm down. I have 1.5 and 3 mm down for thermal and slow glide as an experi



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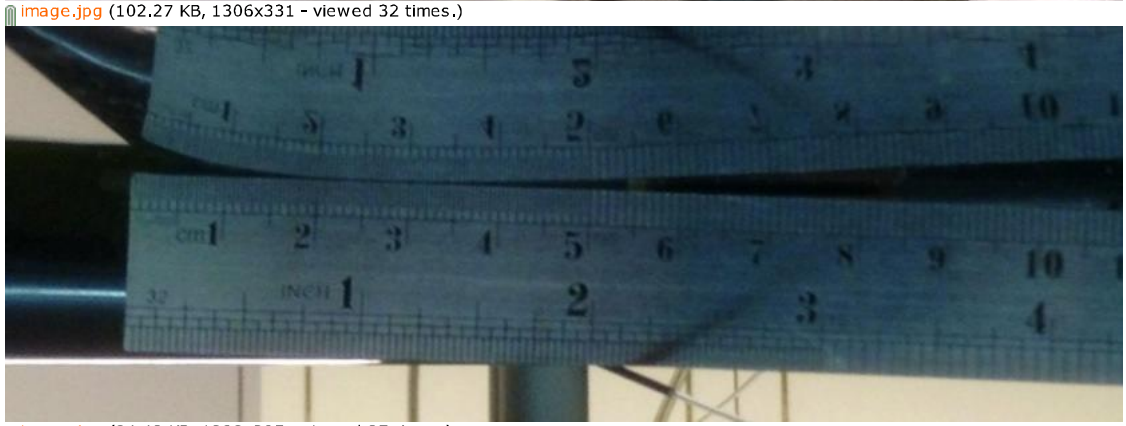

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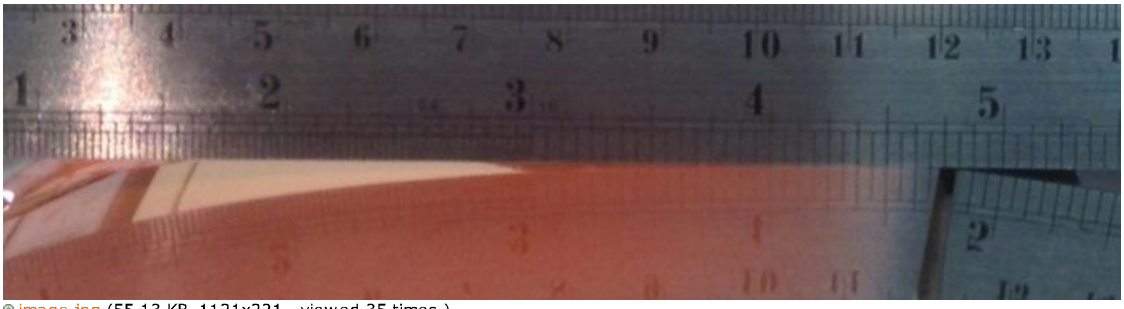
mike
Administrator
Hero Member
Offline

Posts: 1884

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #22 on:** November 23, 2013, 10:18:30 PM »

And the top surface at 1.5 mm down, zero and 3 mm up. Sorry about the quality I used the ipad - I'm feeling lazy.



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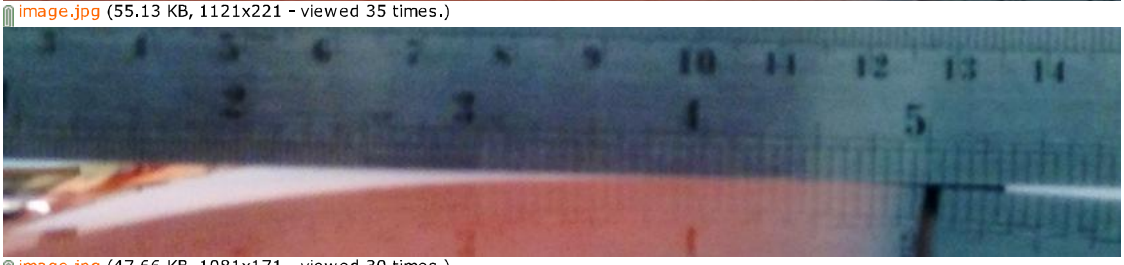

image.jpg (47.66 KB, 1081x171 - viewed 30 times.)

image.jpg (80.11 KB, 1213x207 - viewed 30 times.)

MikeHlg
Administrator
Hero Member
Offline

Posts: 1096

Re: Snipe from Valdimir's models via Hyperflight
« **Reply #23 on:** November 24, 2013, 11:57:54 AM »

Interesting Mike. So the wing section is under-cambered in it's 'natural', no deflection position. I can see the curve in the underside standard - AG455 series and Zone/Edge series - sections we use. Reminds me of the section I designed for my HLG in 1989 - if only I

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