The Thermaleer

The Thermaleer (#115w) based on Items from the SAM600 webpage for the period ending August 2008

President's Report

Another two months have gone by since the last THERMALEER and during that time we have had two SWAMPS days canceled due to bad weather. The upside is that we have held the EASTERN STATES GAS CHAMPS at Wangaratta, run very well by SAM1788 .
This was the opposite of the SWAMPS days. Friday was wet and windy, but dawn on Saturday at Wangaratta found it to be overcast but very calm. This weather stayed with us all day, which led to a magic day's flying on this first day.

That evening we discovered a new restaurant, which we all agreed was the best food and drink we had tasted for a long time. This was a great opportunity for us to mingle and talk with people we see maybe once or twice a year.

Sunday dawned cold and foggy. We had a 9am start and as this was the first day of daylight saving we really had an 8am start. No wonder it was cold. The fog soon cleared and left us with another perfect day with no wind until early afternoon, even then it was only very light.

As usual, the Wangaratta club put on a terrific kitchen for both days and we thank them very much for their hospitality. All in all it was a fantastic weekend for everyone that attended. The NSW numbers were down on previous years, the Victorian numbers were up and I thank you all very much for this. I hope you had as good a time as I did.

Our next SAM600 event is in early November at COHUNA. As you all know these guys must have a direct line to GOD as they always have good weather (maybe I shouldn't say that, I probably have jinxed us) so let's make it a big weekend and all front up for some tough but enjoyable competition.

From now on if an event is blown or rained out it will be canceled, not postponed to another day. We find very few people turn up for the second weekend for various and understandable reasons. This is very disappointing for the host club involved as the give up their flying field for what often is a fairly small crowd. Remember, we should all support not only SAM600 but the various host clubs.

Happy landings fella's, see you all at COHUNA. Brian Laughton.

Wonderful Weekend at Wangaratta

4th. 5th, 6th October 2008 report ESGC

Certainly not the immense gatherings of OT fliers who once met at Drages Airworld for a huge weekend of intense competition, but still a very dedicated group of builder-fliers who now congregated at Shanly Field for a comp: blessed with some very enjoyable rivalry – witness Condo's War Dance when he achieved a place by default in 1/2A

With five from 1788 and the very dedicated Dave Markwell from SA plus the last remnants of Victoria's once large OT crowd, a viable event was put on in weather unheard of near the coast, without Cohuna's presence however it would have been rather thin.

1788 took home most of the trophies with Brian Laughton's Playboy plus Irvine stemming the tide. Brendan Taylor (ex Cohuna, now Strathmerton) also showed up well in Duration despite a long time off the sticks).

With the big herd of chopper cows finally shifted off the field in time for the last event, a respectable entry of eighteen contested Texaco in superb weather with abundant strong lift, Graham Mitchell caught a beauty to register a most popular win with his full size DALLAIRE.

4th. 5th , 6th October 2008 results ESGC

Gordon Burford Event

Jim	RAE	Amazoom	Taipan plain	900	514
Grahame	MITCHELL	Dream Weaver	Taipan plain	900	502
Peter	SCOTT	Jaided Maid	Taipan BB	900	482
Steven	GULLOCK	Swiss Miss	Taipan plain	900	467
Dave	MARKWELL	Stardust Special	Taipan BB	900	451
Brian	LAUGHTON	Dixielander	Taipan plain	900	443
Paul	FARTHING	110% Pencil Jnr	Taipan plain	900	441
Lyn	CLIFFORD	Stardust Special	Taipan BB	900	418
Chris	LAWSON	Foote Racer	Taipan plain	900	416
Peter J.	SMITH	Faison	Taipan BB	900	307
Robert	TAYLOR	FAIson	Taipan BB	893	0

38 Antique

Peter J.	SMITH	1938 Cumulus	OK Super 60	1800	1003
Peter	SCOTT	RC1	Whirlwind 60	1800	722
Jim	RAE	1938 Pixy	ED Hunter 3.46	1800	649
Dave	MARKWELL	RC1	OK Super 60	1800	610
Brian	LAUGHTON	RC1	OK Suoer 60	1800	545
Steven	GULLOCK	Polly	Burford 5cc diesel	1800	0
Kevin	FRYER	Red Zephyr	OK Super 60	1750	0
Robert	TAYLOR	Cumulus	Ok Super 60	1678	0
Barry	BARTON	California Chief	DC 350 deisel	1479	0
Paul	FARTHING	1938 Flamingo	Contester 60	1347	0
Chris	LAWSON	Miss Arpiem	Amco 3.5 d	723	0

Duration

Brian	LAUGHTON	1941 Playboy	Irvine 36	840	1425
Brenden	TAYLOR	1941 110% Playboy	Dubjet 46	840	1226
Lyn	CLIFFORD	Cumulus	YS 63	840	1108
Team	SMITH	1941 Playboy	McCoy 60	840	1103
Peter J.	SMITH	1941 Playboy	Nelson 40	840	1090
Chris	LAWSON	1941 Playboy	McCoy 60	840	1054
Robert	TAYLOR	92% Cumulus	YS 63 4/	840	874
Steven	GULLOCK	Dallaire 75%	OS 52 4/	840	845
Dave	MARKWELL	Bomber 85%	Dub Jett 40	840	768
Paul	FARTHING	1941 Playboy	YS 53 4/	840	752
Jim	RAE	1941 Lil Diamond	Saito 56 4/	840	713
Barry	BARTON	RC1	OS 46 FX	840	575
Grahame	MITCHELL	1941 Playboy	Super Tiger 34	840	468
Ian	AVERY	E S Gas Champ	O.S.32 2/	789	0
Peter	SCOTT	Stardust Spl	And. Spitfire	777	0
Brian	DOWIE	1941 Playboy	OS 46 2/	736	0
Kevin	FRYER	Cumulus 92%	McCoy 60 spk	N/L	0

1/2a Texaco

Peter	SCOTT	1941 Lil Diamond	1080	1074
Peter J.	SMITH	1941 Lil Diamond	1080	683
Robert	SMITH	1941 Lil Diamond	1080	542
Ian	AVERY	1940 Playboy Cabin	1080	407
Brian	LAUGHTON	Albatross	1080	397
Chris	LAWSON	Lanzo Racer	1080	387
Barry	BARTON	Stardust Special	1080	370
Kevin	FRYER	Stardust Special	1080	328
Lyn	CLIFFORD	Stardust Special	1080	259
Paul	FARTHING	Lil Diamond	1080	244
Grahame	MITCHELL	Stardust Spl	1080	243
Dave	MARKWELL	Stardust Spl	1080	0
Jim	RAE	Skyrocket	1080	0
Robert	TAYLOR	Stardust Special	1080	0
Geoffrey	MALONE	Lanzo Racer	1032	0
Robin	YATES	Stardust Special	1021	0
Steven	GULLOCK	Polly	912	0
Brian	DOWIE	Bomber	360	0

Texaco

Grahame	MITCHELL	Dallaire	Enya 60 4/	1800	1688

Chris	LAWSON	Lanzo Racer	Saito 50 4/	1800	1402
Paul	FARTHING	Bomber	OS 60 4/	1800	1360
Dave	MARKWELL	Bomber	OS 60 4/	1800	1338
Robert	TAYLOR	Cumulus 105%	OS 61 4/	1800	1337
Peter	SCOTT	RC1	Burford 5cc d	1800	1068
Peter J.	SMITH	Bomber	OS 60 4/	1800	730
Brian	LAUGHTON	Bomber 85%	OS 40 4/	1800	389
Robert	SMITH	Bomber	OS 60 4/	1800	140
Barry	BARTON	Anderson Pylon	OS 61 diesel	1776	0
Steven	GULLOCK	Bomber 85%	Enya 53 4/	1720	0
Lyn	CLIFFORD	RC1	Enya 60 4/	1637	0
Jim	RAE	Dallaire75%	ASP 30 4/	1593	0
Lyle	BAKER	Berryloid	Magnum 52 4/	1392	0
Robin	YATES	Bomber	OS 48 4/	1200	0
Geoffrey	MALONE	Dallaire	O.S. 60 4/	978	0
Kevin	*FRYER*	*Red Zephyr*	*OK Super 60*	*643*	*0*

Watch Out for Fred! by Brian Laughton

Fred Stebbing is on the move with a new model for the Burford event
It is a Swiss designed HP.7 which is a layout that was very popular in the Nordic countries in the early to mid 1950's, it was designed to be flown in the FAI powered free flight event which was the international competition for power models and required a motor no larger than 2.5cc or .15 c.in

This model is very much a powered glider with it's mid wing design and twin fins which were popular around this time
Fred has put a lot of thought into the back end of this model , designing a fully rotating stabilizer which means the whole stabilizer rotates around a center pin , this turns the tip fins which are fixed to the stabilizer , not requiring a rudder to steer it , the glide should be very good because of it's very high aspect ratio wing and a glider like wing section , Fred almost has it finished as I believe he is up to the covering stage
All of us TOFFS from the SWAMPS club are waiting with baited breath to witness it's maiden flight
And now that Fred has his new eyes with the cataracts remove and he has 20-20 vision again , and he has a model which has so much potential we are all going to have to watch ourselves in future Burford events because we believe he will be a force to be recond with.

Mills .75 Diesel World by by Don Howie

If you would ask what is the most reproduced old engine over the years, then it would have to be the Mills P .75 diesel, introduced in late 1949.

The original Mills .75 Mk I was introduced by the Mills Bros., (Model Engines) Limited in 1948, looking much like a scaled down Mills 1.3 Mk II. Three examples are shown in the photo, engines owned by Jim Woodside. I am currently flying one of these Mk I engines in my 44 inch “Miss Fortune X” and the 17 ½ ounce model climbs very well. It is turning an 8x5 super nylon prop at up to 7,300 rpm, it being a high torque, low reving engine.

The Mk II Mills .75 was simpler to produce and the price was reduced from £3.3.0 to £2.10.0 in the UK (see advertisement). Holding the tank with aluminium tabs was a bad feature and these usually broke over time. Otherwise, it was a well made easy-starting, long-lasting engine.

The Mills .75 went out of production in 1964, as the Mills company was taken over by Ayling Industries. Ivor F decided to get Gordon Burford to produce a limited number in 1972. One thousand were produced by Gordon. 250 were exactly like the original Mills .75 except the tank was held with a wire cir-clip. The other 750 had crankcase webs, plain crankcases and anodised cylinder heads. The quality was excellent, and as far as I am concerned, are the only real Doonside Mills engines.

In the late seventies, Kumar in India got hold of the original dies and started making these engines. Quality was fairly poor, but they improved over time and many of these engines run quite well.

About 1987, Irvine Engines in the UK decided to make a replica of the Mills .75 and they produced an excellent replica, though early engines broke the crankshafts as they were over-hardened. My two engines obtained in 1988 and 1999 both broke the crankshaft end and they were replaced under warranty.

In the nineties, Ivor F decided to get the Mills .75 made in Russia, so the die with web was sent over there. The Russians made them in ABC format as well as standard steel, they sold for quite reasonable prices, though I am not sure the ABC format was the way to go.

Ivor F assembled some, selling them as Doonside Mills .75 models, these currently sell for high prices on EBay auctions. One can tell the Russian engines by the small screw-in prop stud, which is easy to replace.

SAM 600 Australia
Victorian Old Timer Association Inc
19 Cunningham Drive
ENDEAVOUR HILS VIC 3802

VICTORIAN OLD TIMERS ASSOCIATION INC

21 October 2008

Hi All

Firstly this is a reminder that our next competition is at Cohuna on November 8th and 9th 2008.

At this competition we are running a Tomboy event.

With this in mind we are writing to inform you of a change in the Rules effective for this competition.

Up until now the event is allowed for a 2cc fuel allotment, this has been increased to 3cc.

The reason for this change is that further trials with regards to fuel have been carried out to determine an equitable allotment. After these trials it was considered that the 2cc was insufficient for 1cc capacity Glow Motors.

Our aim for this event is not to make it an elitist event for only Mills & MP Jet Motors, but tp accommodate a wider selection of the motors that are available.

As a result of these trials and to embrace the objective of the event the **fuel allotment has been increased to 3cc**.

As you are aware there is a large variety of Mills Engines and replicas available that appear to have different size tanks, and it was thought this would give some an unfair advantage if the Rule was not amended.

All other Rules remain the same and even after Cohuna, the Rules will still be subject to review.

The objective is to arrive at a set of rules that give an even playing field for all Tomboy events notwithstanding the motor used so that we can use the event to encourage new participants into the discipline.

CLOTHING ORDERS

The second point I would like to raise is the subject of the SAM clothing.

At the moment, we have insufficient members showing interest for us to get an order together, for either the hats or shirts/jackets.

Would you please make this a matter of urgency and advise if you are interested as we must have at least twelve hats and twelve shirts/jackets to make up for an order.

There has been one further addition to the selection, as some members have suggested that we have a long sleeve shirt.

As a result we are also offering a Medium Blue Chambray Long Sleeved Shirt with the embroidered logo for $40.

These items are being priced so that SAM 600 can receive at least $5.00 per garment. The idea is to keep our fees down and this is an ideal way you can help the group and have something to show for your help.

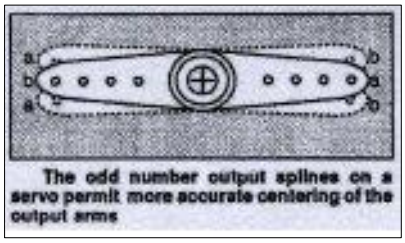
Guys, please see if you can convince your wife, partner or children to buy you a Christmas present of SAM Embroidered Clothing, it then helps both the group as well as you having something to wear advertising SAM 600 to those at your field and at events.

Kind regards

Brian Dowie
Secretary/Treasurer

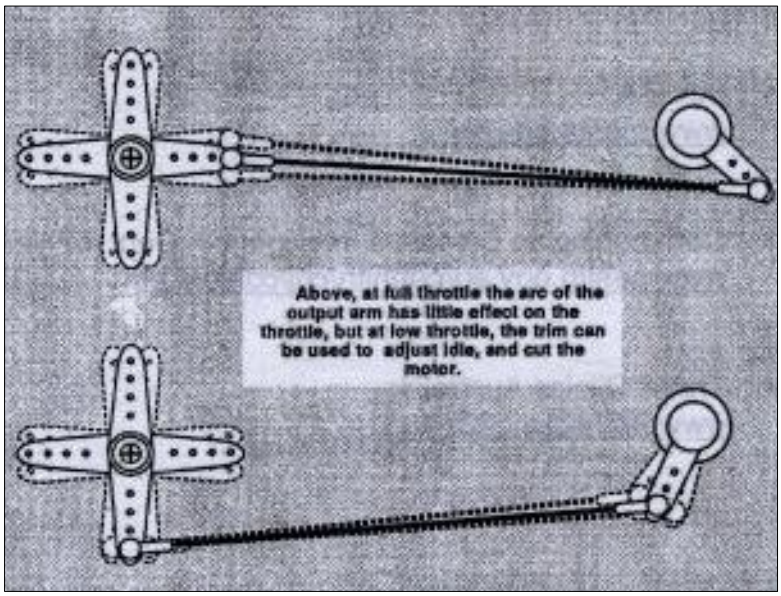
PUSHROD & HORN GEOMETRY by Murray Scott

As I am responsible for most of the test flying at my club field, I inspect many models, built by first time modelers. The most common problem that needs to be corrected before flying a new model almost always relates to control system pushrods and control horn installations. This is easy to understand with new-corners. However I also have seen many control system mistakes repeated over and over by very experienced modelers.
Clearly, most systems operate reasonably well, because most models fly. However just a little effort and understanding may eliminate minor problems, and maybe even rectify some very nasty flying characteristics in existing models.
It surprises me how few people realise the advantages of most current servos having odd number multi splined output shafts, 23 spline on K.O., J.R., Sanwa or 25 on Futaba and most copies. Older servos with square out-put shafts would normally have some provision to adjust the servos neutral position. The most popular system meant adjusting the feedback pot, by inserting a small screw driver down the output shaft screw hole, engaging with a slot in the pot shaft, enabling it to be rotated for adjustment, and a few servos had external provisions for adjustment.



The odd number output splines on a servo permit more accurate centering of the output arms

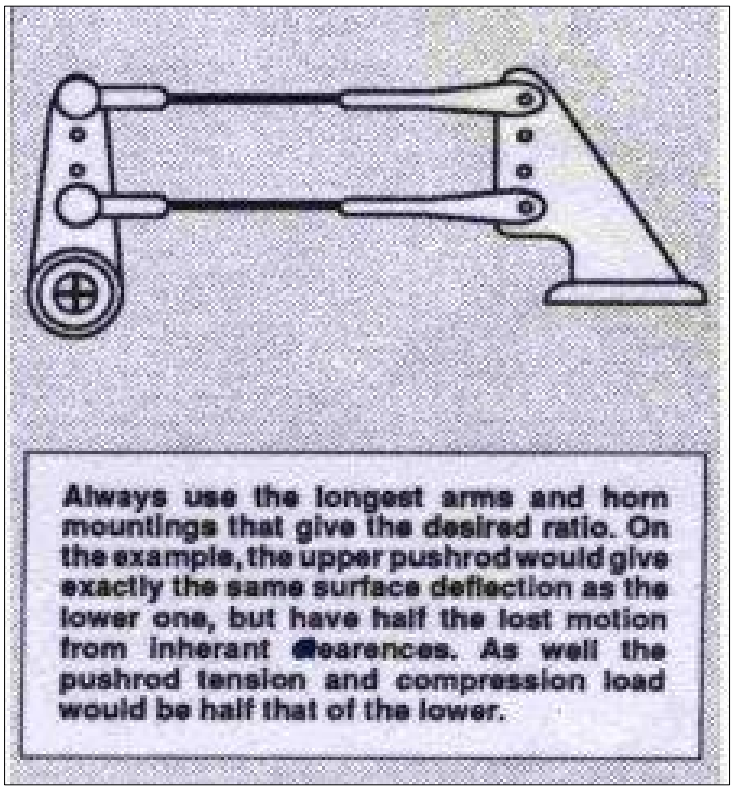
One way to visualise the advantages of 23 or 25 spline is to use as an example an output device having only two arms 180 degrees apart. Often we find that the first mounting, will have the arm a little forward of the ideal 90 degree position. Take it off and rotate it one spline backwards, and find



it is now too far back. In that case simply turn the output arm around and use the opposite end. This will fall exactly half way between the other two positions. With two output arms on a 23 spline shaft it is possible to make adjustments of 7.8 degrees. Four 90° arms reduce this to 3.9 degrees, and six arms at 60° to 2.6 degrees. The 25 spline used by Futaba improves on these figures slightly. Accurately translating servo output to the control surface is the first goal of the control pushrod system.

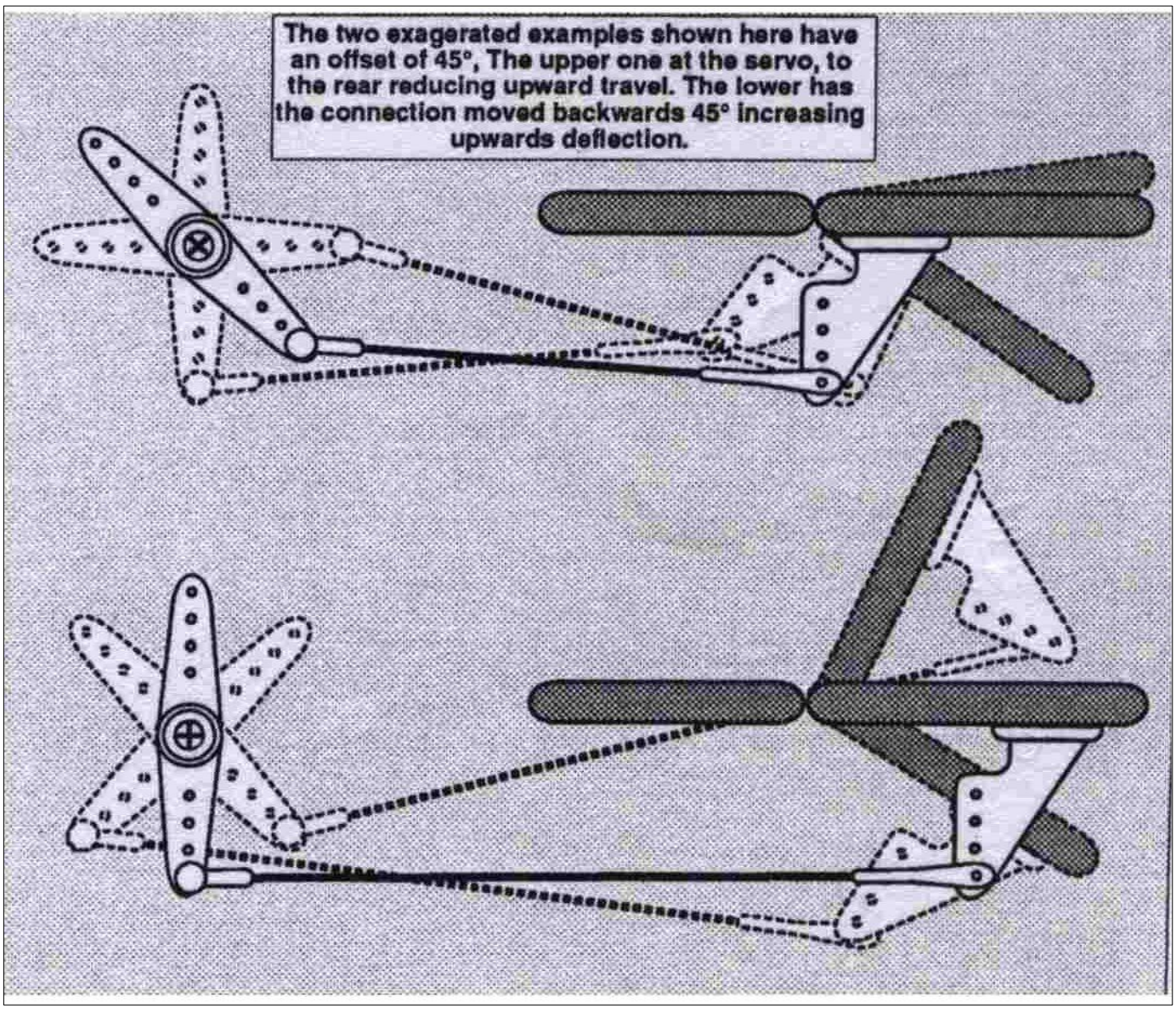
To achieve the desired accuracy there are some simple rules that must be observed.

For a control hook-up to give equal throw in both directions the (ideal starting point), it is important that at the neutral position of the servo, the output arm must be perpendicular to the pushrod. Or more precisely, to a line between the pivot ends of the pushrods. This point might appear contrite but I point it out for the sake of absolute accuracy in a story which is about accuracy. But in future I will refer to this as the pushrod line. As important as the servo end, is the horn at the control surface end of the pushrod. The line of action between hinge pivot point, and the pushrod connection point on the horn, should also be perpendicular to the push rod. While being pedantic about accuracy I should point out that there is one other point that I will be ignoring in this story. It is the difference in rotating axis of servo and surface (i.e. rudder normally matches the servo axis whereas elevator normally does not). The impact on each is real, however over the pushrod lengths we use, it can be considered insignificant. servo and surface (i.e. rudder normally matches the servo axis whereas elevator normally does not). The impact on each is real, however over the pushrod lengths we use, it can be considered insignificant.



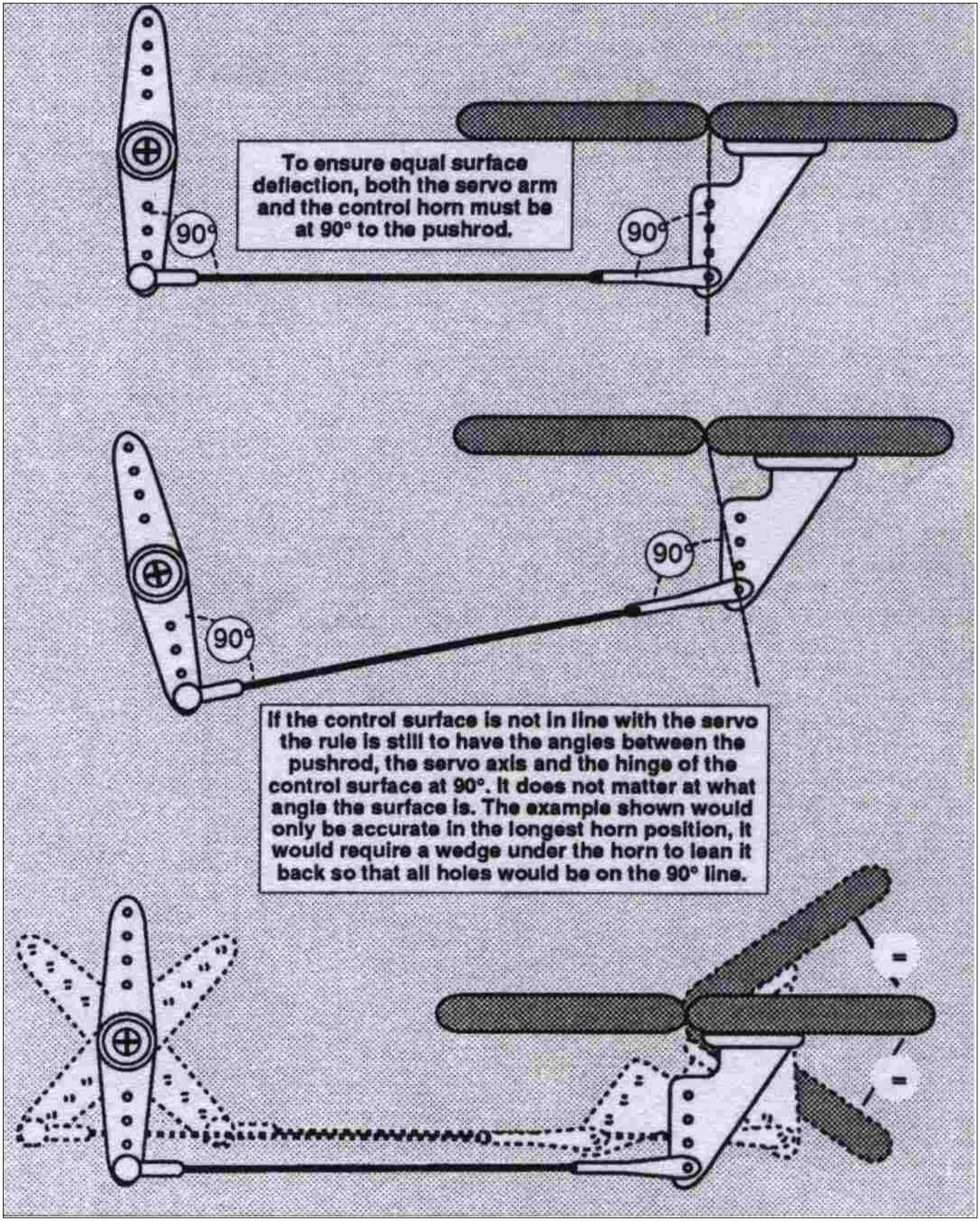
Equal control throw is seldom the ideal surface deflection, as control response rate often varies for equal but opposite deflection. However to enable meaningful adjustments to be made to the control throws I have outlined how to achieve equal movement so that a base can be established from which corrections can be made. Disregarding the new generation of computer radios and some of the more sophisticated specialist radios, which can correct many of the mechanical errors by clever use of the electronics.
The following will show how to achieve the desired variations with standard type radio sets.
To illustrate the general principals. I will show a set up that minimises the problems of having a throttle-trim which operates equally at both ends of throttle travel. Many radios now have the convenience of a trim system that has no affect at high motor but full trim at low motor. This makes setting up a breeze. But those with sets that have equal trim must always compromise, between trying to achieve full throttle and a safe idle, without stalling

the servo at one end or the other, at the extremes of throttle lever and trim travel. A typical servo has around 90 degrees travel, if we set the output arm to be across the arc at the high throttle, so that little travel of the push rod and consequently the throttle occurs, conversely the low throttle occurs at around the 90 degree position, so maximum travel is achieved with the trim adjustment at idle.
This will not give a linear throttle response as desired by the likes of red hot competition pattern flyers. However it has the effect of giving roughly half power at around 1/3 throttle lever movement. I find that, a small price to pay to eliminate unnecessary trim function at high throttle idle cut out.



The foregoing illustrates an extreme in control differential. However it shows the principals of controlling differential throws. It matters little whether you set the differential at the servo or the control-surface. The principal difference in making the offset at either end is, if the offset is at the surface, the effect is to increase the down movement with little change to the up, and leaves the down much the same.

These changes can be readily compensated for by adjusting either the output arm or horn length if found necessary.



If test flying indicates that we need some more down elevator compared to the up, on most elevators the horn is situated under the control surfaces, to increase the down elevator, it is necessary to move the horn forwarded of the perpendicular, or backward, if the horn is on top of the control surface. To achieve the same differential effect at the servo the offset of the arm is opposite to that at the back (i.e. For a horn under the control surface you would move the output arm backward, instead of the horn forward.)

Taken from the web page of SAM600 of Australia www.sam600.com *10/29/2008*

Flyers who have played around with aileron differential by moving the aileron horns backwards or forward, will recognise that this is simply an extension of the same principals.
Another aspect of push rod installation you should pay attention to is the clevis pin to hole clearance. Ideally they should be free to move, but with no play. But practically there is normally a little clearance, to reduce the affect of this clearance. Longer horns and output arms that give the desired ration are preferred, over shorter combinations. Mechanically this has two advantages, for any given amount of clearance in the joints the free play is less for the longer combination. Also the actual tension and compression loads carried by a push rod is reduced in proportion to the length of the control-horn/out-put arm combination. (double the length of the horn = halve the load in the push rod) Look over your latest flying pride and joy, see if it could be improved by applying these principals.

If it can't congratulations! However if you feel that its handling could be improved by some control deflection differentials, try the foregoing principles in several careful small doses until it feels right.

Good landings.