

the Relay

The newsletter of the
BLACKPOOL and FYLDE
Radio Controlled Model Society.

May, 1988

GLOW PLUG CIRCUIT

Hello again,

at the last committee meeting we realised that we had made a small mistake at the AGM last December and hadn't appointed any auditors for the club accounts. We have to put this right officially and have decided to call an EGM at the next indoor meeting as follows.

Notification of Extraordinary General meeting

The club meeting of Wednesday, 13th. May will be an EGM for the purposes of appointing two auditors for the Society's accounts for 1988.

All this might sound a bit over the top but we have to be seen to be operating to our club constitution and this is an important part of it.

John Mayor has reminded me (again) that I missed his name off the list of safety officers published earlier this year,

This year, all committee members are acting as safety officers with Dave Swarbrick as chief safety officer.

SMAE Instructors Scheme

I have a copy of the booklet that is coming out to support the scheme and the general opinion of the people that I have shown it to has been very favourable. I think that we will be introducing the scheme in the near future and it will certainly help us to get to better standards of tuition within the club.

I am carrying the booklet around with me for the next few weeks so if you want a look at it you only need to ask.

It will be on general release within the next few weeks and the SMAE hope to get it into the model shops as well as out to any clubs that are interested. It will cost £1.95 and, although it is not what could be called flashy, it will be invaluable to any beginner to the sport.

More details soon.

How many of you have suffered from the dreaded lost voltage syndrome when trying to start you engines?

The symptoms usually occur when your flight box battery is a bit down or it's a cold day and your engine is gummed up with congealed castor. You apply the starter as normal but instead of the engine bursting into life as usual, the starter just churns over and over with no sign of the thing firing. The funny thing is that when you switch off the starter and pull it back, the engine sometimes kicks and tries to run. Greatly encouraged, you jam the starter back on again and it churns over and over with no sign of life whatsoever again.

The more observant of you may have watched the ammeter on your flight box while all this was going on and seen that every time you used the starter, the current being taken by the glow plug dropped quite a bit.

What is happening is that most flight panels sold these days use a very crude method of getting 2 volts from the 12 volt battery, by using a ceramic resistor in the circuit, and that this has the major disadvantage of the 2 volts output depending on there being 12 volts at the battery. There usually is but in cases where the starter is working very hard (and using more voltage) or when the 12 volt battery is down a bit (and there is less voltage to start with), that 2 volt output to the plug can very easily drop to $1\frac{1}{2}$ or even 1 volt.

The result is that when the starter is running, the plug goes out! As soon as you switch off the starter, the plug circuit has more volts to play with and the plug promptly lights up giving that infuriating kick.

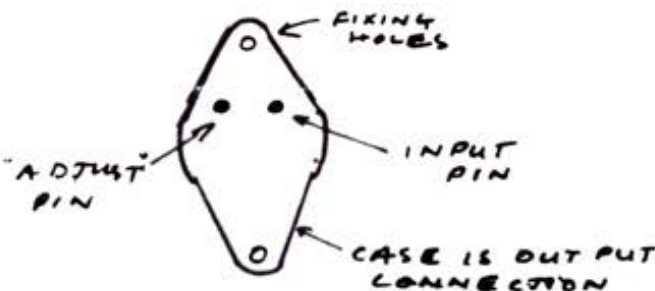
The answer to the problem is to replace the glow driver circuit with one that is not so dependent on the supply voltage and Phil Leech has come up with full details of a gadget to do just that.

The circuits shown below are very easy to put together and the cost will be about £5 depending on where you buy the components. They will give a steady 2 volt output with the supply voltage down as low as 6 volts. Over to Phil

GLOW PLUG VOLTAGE REGULATORS FOR FLIGHT BOXES

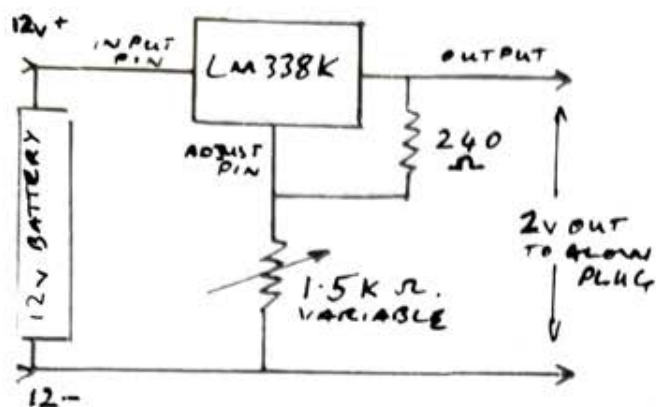
All circuits use the same integrated circuit, LM333K. This is a metal package which looks like this...

PIN SIDE VIEW

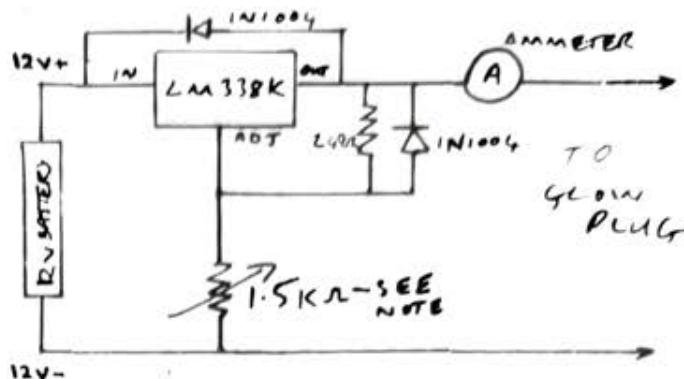


Always bolt the integrated circuit to a piece of aluminium sheet (about 3"x2") to act as a heat sink.

As you can see, the output of the device comes from its case so whatever you bolt it too will also become the output. this will not cause a problem as long as both leads from the supply battery are properly insulated on their way into the flight panel. Don't forget that the integrated circuit is doing all the hard work for you so what we are talking about here is not electronics, it is electrics and you can all wire a plug up I am sure.



BASIC 2 VOLT REGULATOR



'POSH' 2 VOLT REGULATOR

The circuits have very few components and construction should be quite easy. You don't need complicated and the best way to build it is probably to use a bit of veroboard or similar. (Veroboard is made from similar material to ordinary printed circuit boards but has a series of parallel copper tracks and hundreds of holes in a regular pattern. You only need about 1" square).

If you can't get hold of anything like that you could even make the circuit by epoxy gluing the components to a bit of hard balsa before soldering up all the connections. Both epoxy and balsa are good insulators.

Setting Up

After wiring up the variable resistor as shown here, rotate it to its minimum position as shown. Connect the 12 volt battery and a glow plug. Slowly turn the variable resistor to increase resistance until the plug glows bright orange (NOT white!).

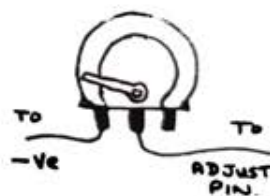
If available, use a voltmeter instead of the glow plug; it is very easy to blow plugs during set up if you are not careful.

In the "posh" regulator the two diodes (type 1N1004, about 4p each) protect the integrated circuit against accidental output short circuits. The ammeter shows the current being taken by the plug and it can, of course, be used with the basic regulator as well.

Note that when the unit has been set up, the value set on the variable resistor can be measured by a multi-meter and it can then be replaced by fixed resistor of the same value. You could even use the brightness of the glow of the test plug to give a 'high' and a 'low' setting of the variable resistor and then replace it with a pair of switched resistors

Taking this idea one step further, let us say for example that you found that the 'low' brightness setting of the variable resistor (basically 1500 ohms remember) turned out to be 600 ohms, and the 'high' brightness setting turned out to be about 1100 ohms. By replacing the variable resistor with a fixed resistor plus a smaller value variable, you have the facility to tune the glow plug brightness as you wish. Fully anticlockwise on the variable gives 'low' and fully clockwise gives 'high'.

NOTE THE VALUES OF 500 & 600 Ω QUOTED ARE FOR EXAMPLE ONLY AND ARE NOT ACCURATE.



Set the variable resistor behind a screwdriver slot in you flight panel and each time you change a plug you can set your glow driver to give the best results for the type of plug that you are using. Very handy!

If you want to have a go at making this circuit and you have any problems with it, get in touch with Phil Leech or Chris Bromley and we will try to sort them out for you.

Next month there will be a more complex circuit that will not only drive your glow plugs but will also act as a built in charger for your flight box battery.

Watch this space!

BITS FROM THE BOX
of Bill Bailey
(Bury Metro MFC Newsletter)

(second symptom) get out fast leave the door open and give time for the fumes to clear.

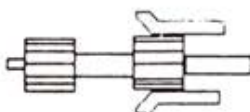
A diatribe from one of our American Cousins arrived last week and a couple of items will be of interest to us as they both involve SAFETY. One was a letter from 'Duke' Iden which was written after a trip to the local hospital. Apparently 'the Duke' was starting a four stroke engine when the propeller decided to leave in a hurry. The result was severe lacerations, umpteen stitches and a very thoughtful Mr Iden. The next week saw Mr Iden having another go and this time removing the starting digits smartly away from the prop area. This worked perfectly because the next time the prop flew off it embedded itself in his leg !

It was now time to consult the Experts. Now you may have noticed that these clever people are never around to prevent a crisis, but come out of the woodwork after the sticking plaster has been applied. Any road up, as they say in California, the letter goes on about 'pre-detonation' and plug temperature, but the part about curing 'prop chucking' is the interesting bit. Putting a wire wound variable resistor and a switch in series with one of the leads of the glow plug battery will enable the temperature of the plug to be controlled, and the switch to cut the battery off when the engine fires. 5 ohm, 15-25 watt wire wound variable resistors are available from Government Surplus Stores and will do this particular job.

The second important bit warns those of us who use cyanocrylate 'instant' glues to be very careful of the toxic fumes given off by this adhesive, or as they so quaintly put it, "It will knock a vulture off a carcass" ! The message is very clear Don't use cyano without adequate ventilation. If your eyes feel irritated (first symptom) and your throat feels dry

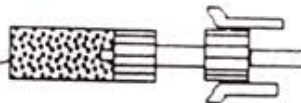
TIMELY TIPS TIME

I had a Super Sixty up to a few weeks ago, but due to lack of space in my shoe-box of a workshop and a certain Bury Club Secretary named Martin Henfield saying 'support Club Auction or else !', it had to find a new owner.



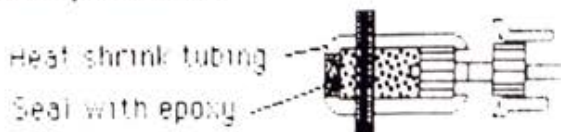
Standard O.S. Needle

However, the OS25 has a short needle valve and resides in a fat cowl, with an interesting effect on ones knuckles when one twiddles the needle, getting rather fed up with this, I modified the needle as shown.



1/4" Dowel Cyano or Epoxy to top of needle

Not with the panel pin originally, but I found that a fuel-soaked shrink tubing was too slippery to grip and the pin was a very necessary addition.



Panel pin

By the way, this needle extension has been in use for nearly 12 months, in all weathers and conditions, so in no way is it a temporary lash up. Removing is a simple matter of applying heat via a soldering iron. But watch those fumes !

SLOPE ENCOUNTER

By Alan Pierce - Delyn M.F.C.

It had been a lovely summer's day, with the evening sun starting to get lower in the sky there was still enough light left to have that one last flight before setting off down the slope for home. The warm breeze was still blowing on to the face of the ridge as I launched my 'Phoenix' out over the vale. It immediately began to gain height, as it always did whenever it was flown from the slope. Why was it? I mused, that when flying on the flat, using a bungee it never seemed to remain airborne for longer than five minutes, whereas up here the model would remain riding the lift for as long as I could retain my concentration. Gradually I became aware that I was no longer alone. A figure had appeared standing behind me and slightly to my left. Strange that I had not noticed him coming up the path, but there again the number of walkers this evening was small, due possibly to the fact that it was midweek, and I had been busy with my thoughts. "Hello are you flying?" I called to the newcomer. There was a slight pause before he replied "Yes- what colour are you on?" That was a funny thing to ask, as I was displaying my 35meg frequency pennant. Still keeping my eyes on the 'Phoenix' which was now at a considerable height, I commenced to turn the model gently back towards the slope. "76" was my reply. Again there was a pause "I'm sorry, I've been away for some time and I'm out of touch with flying in the UK - are there other channels beside 27 megs?". The 'Phoenix' was rapidly approaching the slope, I considered turning away again to continue the flight but decided to call it a day and bring her in to land. I switched the receiver and transmitter off and turned to view my companion before answering. He was of medium height and build, with a short dark greying beard and vaguely familiar, as if I had seen him before.



"We now have 20 spots on 35megs, for exclusive use of aircraft, distinguished by this orange pennant with the channel number on. You can still fly on 27megs if you wish. I don't expect that you will be troubled by C.B. interference up here".

He turned and walked to his model, which to my surprise was a 'Leprechaun' a design from way back, and in every way a 'big' model. Suddenly, I knew who he was. "Aren't you Larry Peterson?" I asked. "Yes" came his reply. "You went to America some time ago, I bought one of your power models when you were selling your stuff prior to leaving. Some years ago I recall that you had this same model with a cine camera installed taking movies from the air". He looked up at me, "I'd forgotten about that, it seems such a long time ago." By now the light was definitely fading. "You are not going to chance a flight in this light are you?" I asked. Turning, and looking out over the vale where the first lights were beginning to appear, he spoke - more to himself than to me, "It will be sufficient".

He picked up the 'Leprechaun' with both hands, walked to the edge of the ridge and launched it. By flying close to the slope it was just possible to see the shape of the model, how it remained in the air was a mystery as the breeze had almost gone. Picking up my 'Phoenix' I started to return to the car. "Cheerio - see you again sometime". There was no reply. With a final glance at the indistinct figure I set off down the path. Two weeks later, at the Club Meeting, I mentioned to our Chairman that I had encountered Larry Peterson on the slope.

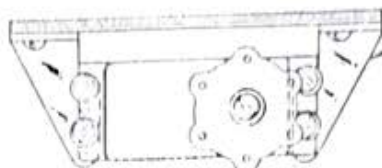
"Couldn't have been him old son, Larry was killed when the float plane he was piloting crashed into a heavily wooded area in British Columbia happened about three months ago!"

SERVO MOUNTING

Extracted from "Flightline" the Newsletter of

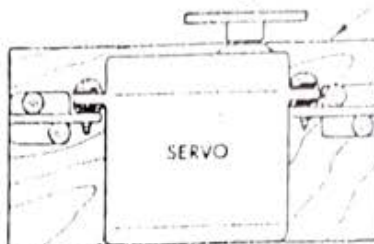
Clwyd Soaring Association

Here is a solution to mounting an aileron servo when no servo tray is available. A couple of control horns and a small piece of plywood will do it. The additional holes in the horns provide some adjustment, in or out, for mounting the servo. See sketch for details. This suggestion also provides a simple means of mounting a servo to the fuselage sidewall for functions such as throttle, rudder or elevator.



GOLDBERG
CONTROL HORN

SERVO



What's On

Wednesday, 18th. May Last indoor meeting of the Spring.

Bring and Natter

After this we meet on the field on Wednesday evenings until September.

Sunday, 22nd May Our first Fly-In of the year, we host the event for the North West Area of SMAE.

Spring Bank Holiday Monday, 30th. May A new venue for a fly-in in the North West, at Lowther Park, near Penrith. Only three or four miles further than Holker Hall, it has lots more attractions for the family and it also promises to be a much better flying site. Details from me on request but if you take a model you get in free!

Sunday, 5th. June Our own Electric Fly-In
A new venture for us but I have already had enquiries from several flyers wishing to attend.

Sunday, 17th. July The Scale Fly-In
Let's hope that the weather plays the game for once. It's been advertised extensively so it could be a big do!

That's all for now. Fly safely and I'll see you on the field.

all the best

Chris Bromley