

THE PROBABLE CAUSE . . .

. . . INCOMPLETE WINGOVER

EDITOR'S REPORT OF THE DECEMBER MEETING

VOL 2, #12,

As you might remember, the last meeting of the year was at the Leddensøhouse in Erie. A great time was had by everyone that attended. Thank you Bill and Anne from all of us for the gracious hospitality and good cheer. It was a very cold night, but plenty to eat thanks to those who brought dishes to share, and the plentiful amount of sandwiches and drinks provided by our hosts.

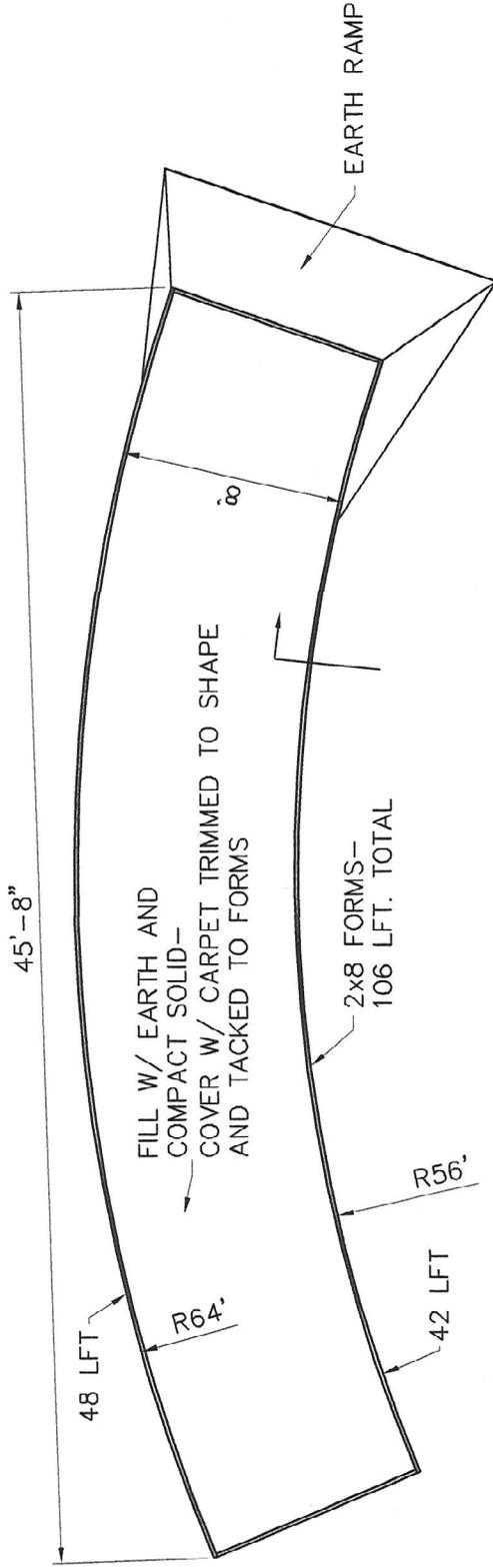
Tommy brought the meeting to order around 7:30. The wives retreated to the dining room. Bob Barthel made the point that discussion of events for the contest should not be held at meetings rather that the results of the discussions should be announced at meetings.

It was agreed that the next few meetings would be held at the old same place, the Hoffman Firehouse.

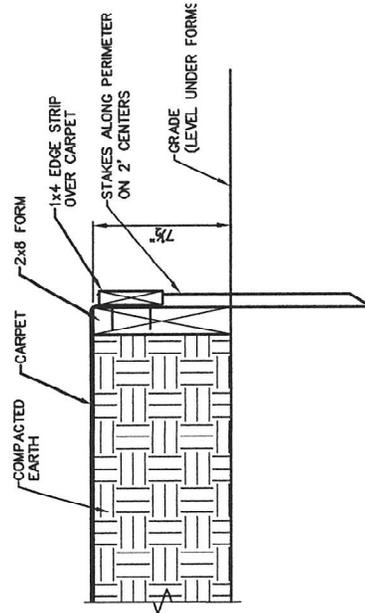
Show and tell included a demonstration of a Navy Carrier r/c control handle project by Bob B, a Micro bandsaw by Dale Johnson, and the resurrection of stunt ship, Magician maybe, by Bob Barthel. I showed off my Goodyear racer with the new Magnum engine.

I also made another appeal to build a Carrier deck at Mapleton, along with a plan and detail of how it might be built. See next page. The idea is to make a wooden frame out of 2x material and fill it with earth, tamped down and slightly crowned for drainage. It could then be covered with outdoor carpet and left to the elements. Having a permanent deck for Carrier at Mapleton would be a nice addition to the other flying we do there.





RAMMED-EARTH CARRIER DECK



CROSS-SECTION

All about GLOW PLUGS

Written by Brian Gardiner, and Central Coast Model Aero Club Inc.

Submitted by Wayne Beasley

How Does A Glow Plug Work?

Contrary to what many have previously been lead to believe the following is an explanation of how a glow plug functions in a motor. The plug is initially heated by applying a voltage (typically 1.5 volts) to it. This is to cause it to glow so as to ignite the fuel at compression and start the internal combustion cycle.

Once the cycle has started, the power source can be disconnected, as with the heat generated at combustion the CATALYTIC Reaction generated between the methanol and platinum in the plug coils becomes sufficient to keep the process going. The catalytic reaction is a reaction whereby platinum will glow in the presence of methyl alcohol vapour. This will happen without any external power source being applied.

How do you select the correct PLUG for your application, and why ?

To do this you need to understand a little more of the theory behind the process. In glow fuel the catalytic reaction is generated between the methanol and platinum only. Castor oil, synthetic oil, nitro methane, etc do not generate a catalytic reaction with the platinum.

Next you need to understand that a certain surface area of platinum is required to generate a sufficient catalytic reaction to keep the internal combustion process going. Also it is necessary to allow extra surface area for the reaction to be great enough when it diminishes with the available methanol dropping as in the case at motor idle. Simply put, cold plugs are manufactured using a thicker wire to give greater surface area to facilitate a greater reaction and thus the required catalytic reaction where less methanol is present in the fuel mixture.

So! More nitro means less methanol which in turn means a greater surface area to platinum will be required to generate a sufficient catalytic reaction. Suddenly it all makes sense! To work out which temperature plug to use, you need to know how much methanol is in your fuel, not how much nitro or oil.

As a rough rule of thumb;

- **80% methanol or above, use a hot plug.**

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70%-75% use a medium plug.
60%-75% use a cold plug.
65% or less use a very cold plug.
Idle Bars and Other Stuff

Again, contrary to what many believe, the idle bar on a glow plug is not necessarily what its name would suggest. It is in fact to stop any fuel not vaporized from dousing the platinum coil of the glow plug by dispersing it away from the coil.

Why are plated coils not as good as platinum alloy coils?

Plated coils suffer from very quick degeneration as the plating breaks down under operating conditions. As bits of plating come off, the plug is effectively becoming a hotter and hotter unit until in a comparatively short time it is

no longer able to perform its function. Conversely, a platinum alloy coil will still degenerate, but as it is platinum alloy throughout, the surface remains as platinum alloy and the plug continues giving much the same characteristics for quite a long time.

Plated coils are very poor value when compared to platinum alloy coiled glow plugs.

courtesy, Warringah Radio Control Society Incorporated

GLOW PLUG REFERENCE LISTING

Submitted by Brian Cooper

Cooper's Custom Blended Fuels LLC - www.cooperfuels.com

MFG	Number / name	Use	Remarks
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Hot Glow Plugs- for low nitro fuels			
Mc Coy	MC 55- R/C Long	sport hot	Similar to K&B 1L
Mc Coy	MC 59	sport hot	low nitro
Mc Coy	MC 14	very hot	heli/ inverted 4-stroke
Fireball	Hot 1.2-3.0V	sport hot	red
Fireball	S-20 R/C Long	sport hot	1.5-2.0V
SonicTronics	Glowdevil #300	sport med-hot	

Rossi	R/C Hot, R-1&R-2	sport hot	low nitro
Sig	R/C Long`	sport hot	
Enya	#3	Sport hot	low nitro
Thunderbolt	R/C Long`	sport med-hot	
K&B	1L	sport hot	
Fox	Miracle	sport hot	low notro or 4-stroke
Fox	Standard	sport hot	
Fox	R/C Long (2V)	sport hot	
Standard (med) glow plugs-for 10%-15% fuels			
MFG	Number / name	Use	Remarks
Fireball	Standard 1.2-2V	standard sport	yellow
Sonic Tronics	Glowdevil standard	standard sport	
Rossi	Medium and R-3	standard sport	
Enya	#4	standard sport	med-hot
Enya	#5	standard sport	med-cool
Mc Coy	MC 50	all purpose	sport w/idle bar
Mc Coy	MC 8	sport med-cool	med to high nitro
Hangar 9	Sport Long	standard sport	MC 50 packaged for Hangar 9
Tower	Performance plug	standard sport	w/o idle bar
Fox	R/C Long (1.2-1.5V)	standard sport	med-cool
Fox	Gold	standard sport	med-cool
Cold Glow Plugs-High nitro, 25% and over or racing/ fans			
MFG	Number / name	Use	Remarks
Mc Coy	MC 9	hi-perf	Ducted Fan / racing / high nitro
Fireball	Cool 1.2-1.5V	hi-perf	Blue
Enya	#6	hi-perf	extremely hot engines/high compression/high nitro
K&B	Long & Short	hi-perf	cold standard plug
K&B	Hi Perf Nitro Plug	hi-perf	high nitro / high perf
Rossi	R/C Cold	hi-perf	R-4 & R-5
Rossi	Extra Cold	hi-perf	R-6 & R-7
Sig	Cool 1.5V	hi-perf	
OS	R-5		
Fox	R/C 1.2V		

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Fox	#8	hi-perf	high nitro / high perf
Four Stroke plugs- hot			
MFG	Number / name	Use	Remarks
Fox	Miracle	4-stroke	2-cyl low nitro or 4-cyl
Mc Coy	MC 14	very hot	heli and inverted 4 strokes
OS	Type F	4-stroke	
Sig	GP-001	4-stroke	
Sonic Tronics	Glowdevil St 301/302	4-stroke	

Diagnosis or Symptoms:

High Nitro = Hot Fuel: needs colder plugs
Low Nitro = Cold Fuel: needs hotter plugs
High Nitro + High rpm's: needs colder plug ie:ducted fans
If engine sags when the battery is disconnected, the plug is too cold or more nitro is needed
If the engine bites back or backfires when hand cranking, the plug is too hot or less nitro is needed
Most HOT plugs can take 2 volts
Most COLD plugs can take 1.2 - 1.5 volts
Most 4-strokes need very hot plugs or high nitro
Note: Mc Coy 4-cycle plugs (not the MC 14) are "Saito Original Equipment"
Hangar 9 plugs are Original Mc Coy plugs packaged for Horizion



A sunny Sunday, November 20, 2013. The usual suspects enjoying themselves at venerable Mapleton Field.

Bill was trying to figure out why the engine was running differently right-side up and inverted with an exactly symmetrical tank setup.

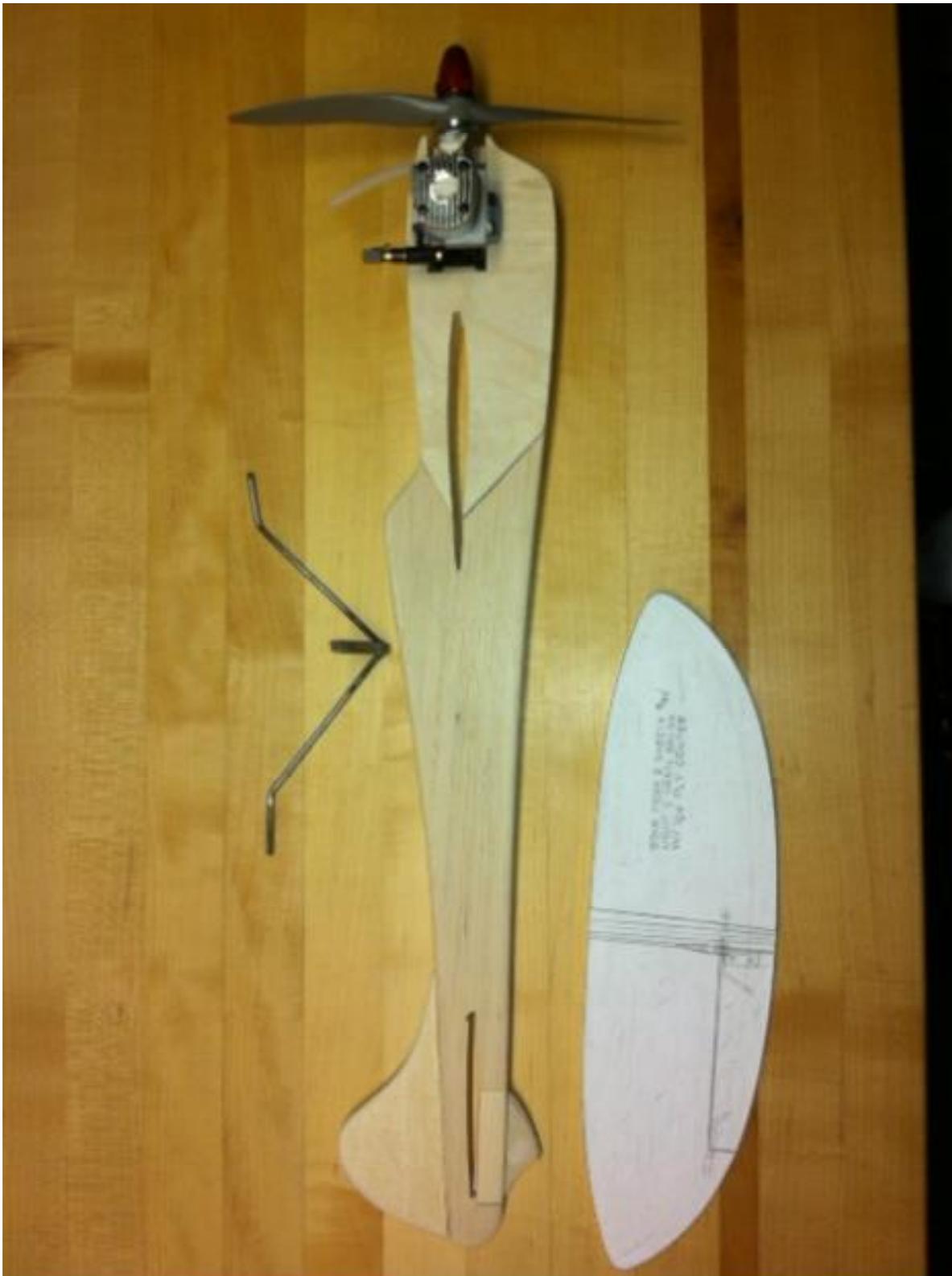
Tom and Jerry got Tom's 1/2 A combat ship running and ready to go crazy in the sky.

Jerry was also practicing stunt with his Focke-Wulf in the background.



The Probable Cause

Rich Jones sent in a shot of his Northwest Speed B Proto under construction. You may remember last month I published the rules for the event. I will try to have full size plans available for the next meeting for those that would like to give their LA 25 some exercise.



The Probable Cause



NAVY CARRIER FLYING AT THE COLISEUM IN NOVEMBER 2013.

