SOLENT Scale Section

Setley Sail

January 2009 Winter Newsletter

Scale Captain's Chat

The Scale Captain gives a heart felt rendition of the Club's new song Anthem (...or is he just regretting that Christmas Turkey)!

Hello Everybody,

The Captain and Committee wish everyone a Very Happy and Enjoyable Model Boating New Year.

Things have been quiet at Setley Pond over the past couple of months mainly due to bad weather and the pond being iced over for a couple of weeks. Hopefully now that the Christmas Turkey has digested you are all looking forward to the new season and perhaps some of our usual warm weather. I am looking forward to seeing the winter new builds at the lake, my "Ton Class" Minehunter, H.M.S Kirkliston, at 1/48 scale has a long way to go yet before it will be ready, but I am sure some of you are itching to try out your new creations .

The Committee are still compiling the Programme for 2009 but dates confirmed so far are included in the "Dates for your Diary" Section below. The Annual Exhibition at Highcliffe Methodist Hall will be on Saturday 14th March (please let me know if you wish to attend and number of boats you would like to exhibit!).

The Annual Christmas Lunch was a great success with 66 members and wives enjoying an excellent meal at the South Lawns Hotel, Milford on Sea. The charity raffle raised £140 to be split between Naomi House and Macmillan Nurses, our thanks to all who donated prizes especially: Barry and Co. at Westbourne Models, Daryl Firth at Lesro Models, and the MD of Draper Tools.

The Web site continues to go from strength to strength with around 200 hits per day from all over the world. Thanks to Peter Taylor for his excellent work and for once again producing our excellent club calendar which sold out well before Christmas (proceeds go to the RNLI.).

The club clothing range has been increased with the addition of a Club Fleece and a Beckham Hat both in dark blue with the club emblem embroidered on them (see news article below for more details).

Peter Soffe has been busy constructing additional parts for our Harbour and Lighthouse. I look forward to wading into the lake when it is a bit warmer and to see them in action .

Finally do not forget that 2009 Subs are due 1st April and must be paid before the end of April (N.B. there will be no days of grace to the end of May). You may pay at the Highcliffe Annual Exhibition or post to Lorna Soffe, the Treasurer, address at the end of this newsletter. The fees will be the same as last year (£10 individual membership, or £15 family membership).

That's all for now folks, see you at the lake .

David

Dates for your diary

2009 Club Events

14th March (Sat.): the Highcliffe Exhibition.

15th April (Wed.): AGM, 7.30pm at the Cricket Pavilion Vaggs Lane.

10th May (Sun.): Navy Day (Provisional Date).

7th June (Sun.): Steering Competition for Richard Graham Trophy.

23rd August (Sun.): Steering Competition for the Solent Cup

Other Events:

14th Feb (Sat.) Fleet Air Arm Model Show, Yeovilton.

18/19th April (Sat/Sun) South West Model Exhibition, Bath and West Showground, Shepton Mallet.

News:

Club apparel

Beanie hat (one size fits all) price £5. As worn by David Beckham... but we couldn't afford the sponsorship fees to have him pose with the club logo! Now in stock.

Navy blue "Xamax" fleece with club logo on left breast. Very warm, two zipped outside pockets and two inside pockets. Just right for winter at the pond. Price is £11 each. Contact David for size availability.

Editorial: Happy New Year!

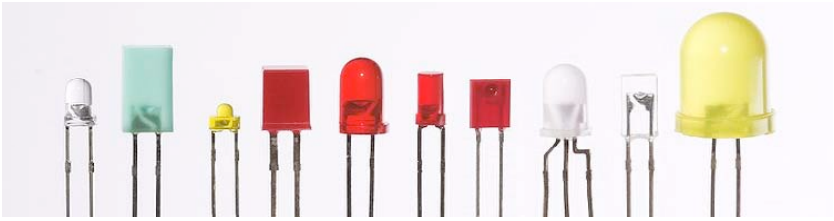
Well, 2009 has got off to a rather slow start, with the pond frozen over, as the picture of No. VI buoy demonstrates. That it was surrounded by "Smoked Bacon" flavoured crisps suggests that there might have been some human intervention in its eventual demise!

As David mentioned in his "Scale Captain's Chat", the web site (srcmbc.org.uk) is continuing to attract interest from around the world. For those of you not "on the web" I will have a computer set up at the Highcliffe Exhibition (14th March) which will allow you to see what the web site looks like... so come along to view it (and, better still, also bring your models and display them)!

I have recently converted all my (rather small number of) models to 2.4GHz. As most of you will know, 2.4GHz transmitters employ various frequency switching techniques (depending on brand) which ensure that there is no interference between different transmitters.... in time the peg board will be a past memory! There's an article below detailing my experiences so far.

Peter Taylor, Your Editor.

USING LEDs



Judging by all the pondside questions I'm asked about LEDs, it seems an article about them is long overdue, so here goes!

Overview

There are a number of differences between LEDs and conventional (filament) bulbs which if not understood make them either easy to blow up or liable to not work at all. That is not to say they are tricky or unreliable, you just need to learn to use them properly.

On the plus side, for all practical purposes we can consider that their lifetime is infinite (an important consideration if they are built into a region of your boat with difficult access). This is especially true where lights are required to flash – the starting current surge into a cold filament is the most common cause of bulb failure, whereas LEDs are immune from this problem. The next most common cause of (hot) filament failure is vibration, and once again by virtue of being 'solid state' LEDs are immune.

Neither do LEDs 'age' like filament bulbs. When the latter are run on DC, metal from the filament evaporates and gets deposited on the inner surface of the glass giving a silvering effect and reducing the light output, plus the filament is now thinner and increasingly likely to fail in either a starting surge or under vibration.

Filament bulbs are available in 'white' light only, and colours have to be created by use of a filter, which reduces the light intensity, whereas LEDs are available in most of the colours needed by modellers – red & green for navigation lights, white for interior lighting, spotlights etc. and in blue for (flashing) beacons.

LEDs are more efficient too, requiring only a fifth to a tenth of the power of a filament bulb for a comparable light output – but given that the light is emitted in a conical beam rather than spherically then the perception of brightness will depend on the angle that the LED is viewed at. The additional power taken by filament bulbs is dissipated as heat, LEDs run cold.

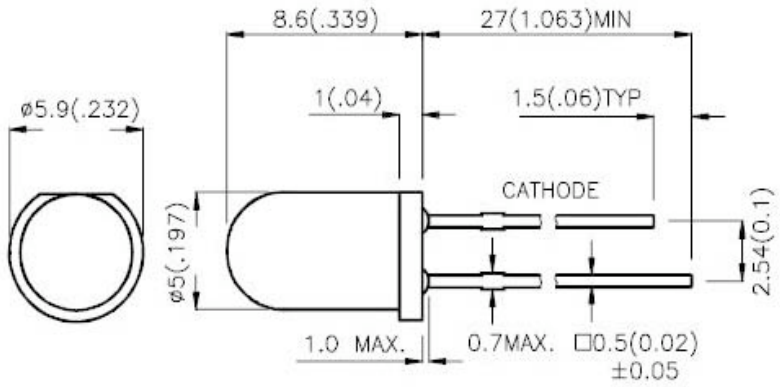
This directional light output is the biggest drawback of LEDs, whereas filament bulbs shine equally in all directions. As a guide LEDs have viewing angles from around 40 to 120 degrees depending on their packaging, after which their perceived intensity falls off quite rapidly. In practice this might mean that in an interior lighting scenario, white LEDs would need to lined up with the portholes rather than be placed anywhere in a random orientation within the cabin.

If wide visibility of a *point source* of light (e.g. navigation lights) is required, then Maplin offer a range of LED covers (intended for equipment front panels) which increase the viewing angle to 180 degrees by means of a flat top marked with Fresnel rings and striated lines which maximize the light dispersion.

LED Characteristics

The term 'LED' is an acronym for 'Light Emitting Diode', and that is the single biggest clue as to how they operate – just like a diode! Like regular diodes, LEDs can only conduct (and thereby emit light) when they are forward biased (i.e. when their anode is positive with respect to their cathode) so the immediate consequence of that is that, unlike filament bulbs, LEDs will only light up if the correct polarity of voltage is applied to them.

The polarity of an LED package is identified in two ways. The cathode is the shorter of the two leads and in the case of the most common cylindrical types, the base of the LED has a small flat next to the cathode. For other parts consult the published specifications.



The second major characteristic of diodes is that they have a fixed voltage drop when conducting – about 0.6v for ordinary silicon diodes. LEDs behave similarly but due to the magic chemistry that lets them emit light, their voltage drop is in the range 2v to 4v. By 'fixed voltage drop' I mean that in a way an LED acts like a battery. Not that the LED can store or supply energy, but in the sense that no matter what current you pass into it, the voltage across it remains much the same. So if you are not to blow up your LED, you have to limit the current it takes with a series resistor. This resistor is used to define the LED current and in effect it safely burns off any battery voltage in excess of the voltage that the LED requires.

To drive the idea home, imagine (don't try!) wiring an AA cell across a 12v car battery. You just know that is WRONG. Try and think that way about LEDs.

But at this point I'm sure many of you will say you have an LED torch that just puts the LEDs directly across the battery. Well, it might be possible that small (non obvious) surface mount resistors have been used, but some torches do not use resistors at all. What the designers have done here is to have closely matched the battery voltage to the LED voltage drop and then relied on the 'feebleness' of the AAA cells to limit the current when supplying that ***group*** of LEDs. Try that trick with Sub-C NiMH race packs or 7Ah Lead Acid Cells, whose voltage doesn't sag appreciably when you load them, and you'll be using smoke emitting diodes!

Just to complicate matters, different colour LEDs have slightly different voltage drops. Red LEDs take the least, and as the colour moves through the colour spectrum toward blue, the voltage requirement increases. White types are really blue ones exciting a yellow phosphor which approximates to white light. Typically, a red LED requires about 2 volts, whilst white/blue ultra-bright LEDs are heading towards 4 volts. Most LEDs are housed in a diffused epoxy case of the appropriate colour, but some are housed in clear epoxy regardless of the colour of light they emit – a point to consider for static display of your model. Again, the tinted Maplin LED covers could help.

The operating conditions required by your LED will vary by size, brightness, colour, manufacturer etc. so check your catalogue (or web page), but as a generic 'one size fits all' guide, you will not go far wrong by assuming an operating current (usually denoted as I_f) of 20mA and for the operating voltage (usually denoted as V_f) the following is a guide

V_f red 2.0v, V_f yellow 2.1v, V_f green 2.2v, V_f white 3.2v, V_f blue 3.3v

These guideline figures will increase the higher the operating current and different manufacturers quote these voltage drops under different current conditions, so read that data sheet!

LEDs come in all shapes and sizes, but the cylindrical 3mm or 5mm with domed ends are probably the most common. A quick check shows Maplin offering 2, 3, 5, 8 and 10 mm types. The LED chip sits in the bottom of the cylinder, which has reflective sides to shine the light emitted by the chip toward the dome end of the LED. The epoxy body is shaped to act as a lens and focus the light into a beam. The distance from the chip to the domed end of the lens determines how tightly focused is the resulting beam of light. Some LEDs have flat or even concave ends to disperse the light into a wider beam. Thus low profile surface mount types with flat tops give around 140 degree viewing angles whereas cylindrical types with domed tops might only give 60 degrees.

Rapid Electronics sell a wider range of case styles including rectangular ones and at the miniature end of the range surface mount types that are around 1mm square and 1/2mm thick.

Also there are special purpose LEDs with built in resistors so they can be wired directly across 5v or 12v for example. Even cleverer devices have built in constant current sources that drive the LED at a steady current no matter what supply voltage you use (within reason!) Again, others have built in flasher circuits - but I will confine this discussion to general purpose LEDs.

Designing Your Lighting System

The main issue here is to best match the number of LEDs and their mode of connection to the available battery supply voltage. LEDs can be each run singly via a current limiting resistor but that can be wasteful of power (dissipated in the resistor) . It may be possible to add several LEDs in series and use a lower value resistor for the same overall power consumption as in the first case. If the combined voltage drop of all your LEDs exceeds the battery voltage then you will need to put several series chains of them across your battery.

The resistor value for any series chain of LEDs for a typical LED current of 20mA is calculated thus:

1 add the individual voltage drops of the number of LEDs in a single chain

2 subtract this value from your (freshly charged, off load battery supply voltage

3 multiply the result by 1000 (the 'milli' in the mA)

4 divide that result by 20 (the desired current in mA)

This will give the required resistor value in ohms – choose the nearest preferred value resistor available.

Nearest preferred resistor value for nominal 20ma LED current assuming 2v red LEDs

No. of LEDs	BATTERY VOLTAGE					
	4.8V	6V	7.2V	8.4V	9.6V	12V
1	120	180	270	330	390	470
2		100	150	220	270	390
3			56	120	180	270
4					82	180
5						100

It is advisable to allow 2 or 3 volts across the series resistor such that it can set the current with reasonable definition. Otherwise changes in the battery supply voltage would cause wild fluctuations in brightness – anywhere from off to blown!

Individual cases will vary with LED count, LED colours and supply voltages, but as an order of magnitude guide, the following table is worth studying. If you can do the simple maths to arrive at my answers (I've rounded them up or down to the nearest preferred values) then you understand the requirements well enough to calculate your own solution!

If you're still stumped, please feel free to contact me (afb@srcmbc.org.uk) and we'll work out what you need.

Alan Bond

Dust covers

The contact details below for a supplier of Perspex covers/stands for static models might be of interest to members. I have used three for car models for instance. Good product, clean and clear, reasonably priced. Cheaper if you just require cover only.

Standard lengths range from 6" to 24" with prices from £3 to £33 (the latter for a 24" x 7" x 7" display case. However cases can be made to measure and a mirrored back can be provided at 25% extra.

Roger Yeatman

FOR FURTHER DETAILS CONTACT

DAVE POOLE

ON

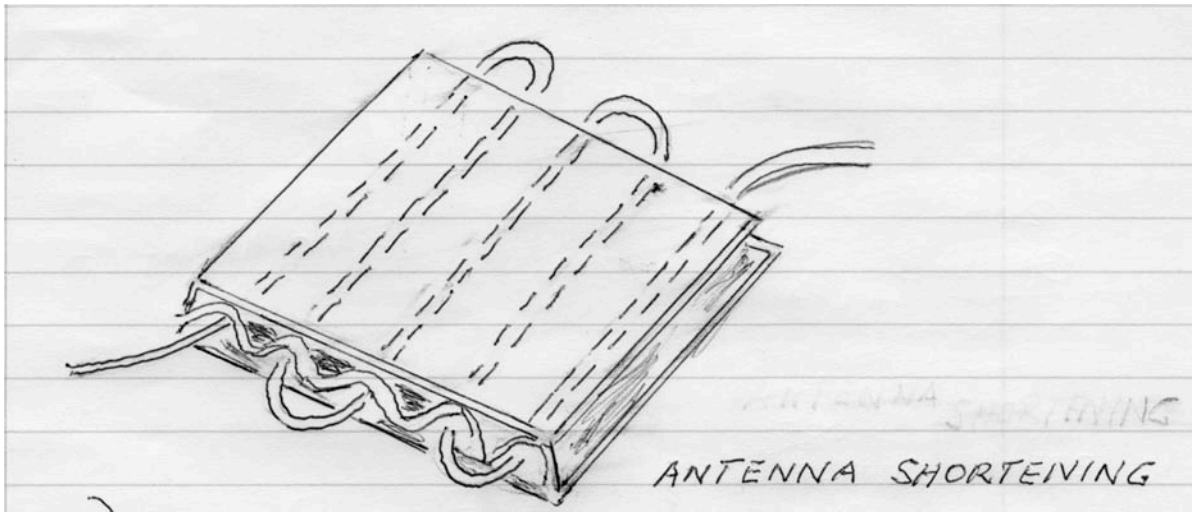
0117 9092993 OR 07944 378021

AFTER 7PM

E.mail twiggott70@ Yahoo.co.uk

Peter's Toolbox

(1) ANTENNA SHORTENING



Do not coil your antenna to shorten it, since you'll drastically reduce its range. This simple method is much better. Cut a piece of corrugated card that will fit into your boat, then weave the excess antenna wire through alternate flutes or channels in the card.

(2) WRECK-MARKER BUOY

If your boat sinks, this automatic wreck-marker buoy could save your day. Glue a block of expanded foam under a loose-fitting dummy hatch or skylight. The hatch must be secured to the model with about 20 feet of heavy fishing line (strong enough to lift your boat). The hatch will float to the surface, mark the position of the wreck, and enable you to retrieve it.

Peter Dram

"Tips" on converting to 2.4 GHz

What, and why? Additional to the time honoured 27 MHz and 40 MHz bands, we now have a new higher frequency choice: 2.4 GHz (a GHz is a 1000 MHz's, wow!).

Advantages: the 2.4 GHz transmitters (Tx) and receivers (Rx) feature technology which implies that the peg-board is heading for extinction! Everyone on 2.4GHz can operate at the pond, safe in knowledge that they will not interfere with other users, and vice-versa. Because the radio frequency is so high, you do not need a long aerial. The aerial on the transmitter is so short (a few inches) that aerial protectors are really not needed (and there is a motion at the next club AGM to confirm that). The receiver aerial(s) are exceedingly short (about an inch, although it may have a few inches lead to separate it from the receiver. In my experience, despite the aerials being down inside the hull, reception is good... so there is no longer a need to try and hide a receiver aerial in the boat's rigging. Reception has been solid even for my NQD speedboat which throws up a good "rooster tail" which could interfere with radio reception.

The DX6i Tx, AR500 Rx, and a pound coin!

Disadvantages: there are (at least) two different implementations of 2.4GHz technology. That used by Futaba, "Frequency Hopping Spread Spectrum" (trade name: FASST), continually switches frequencies within the 2.4 GHz band. That used by SPEkTRUM, "Direct Sequence Spread Spectrum" (trade name: DSM2), uses a wide frequency band with encoded information. OK, so you can ignore all that, but what you do need to know is that the two systems are incompatible. However, since both are designed for "beyond the limits of sight" model aircraft use, they should be easily OK for model boats on Setley Pond! Just realise that you can't mix the two makes and expect them to work; they won't! ..so you have to choose which 2.4GHz system to use.

So how to choose between the implementations? To be honest, when I decided to switch, I didn't do a whole lot of research but simply went for the cheapest receiver, which seemed to be the SPEkTRUM system. After all, you only need one transmitter, but you need receivers for each of your models. Present cost for a SPEkTRUM AR500 from Howes Models is £37 as against a Futaba F617FS for £75. The Futaba systems might indeed have other advantages, but I just went on cost. Multiply the difference in price by the number of models and I decided that I had really no choice.

What did I do wrong? Since I enjoy looking around the Howes store I drove up there, rather than ordering over the internet. However, being headstrong, I ignored the advice of the guy in the Howes store, who races model yachts, and who suggested the SPEkTRUM DX6i Tx. I bought the SPEkTRUM DX5e which came with an AR500 receiver for (at that time, late 2008) £65, i.e. transmitter cost less than £30; really good value. However...

So what were the problems? You have to "bind" each receiver to the transmitter by inserting a special plug in the battery socket of the receiver. This enables the receiver to obey your transmitter, but also it sets the "failsafe" settings for the receiver. In theory, if you have a different receiver in each model, you only have to do this once for each of the receivers. What worried me was that, with the DX5e, there is no easy way of knowing the setting of the servo trims. They are not sliders, but digital "click" switches. The only way to know how they are set is to go right to one end of the scale and count the clicks back. If you swap from one model to another and don't get the servo trims set correctly then your "neutral" positions will not be neutral! To get around that, each time I swapped models, I rebound the new model to the transmitter, but that meant accessing the receiver and inserting the rather fragile "bind

plug", a couple of which I broke in removing them from the receiver. Probably this was not necessary, you could just set the trims up afresh every time by trial and error... but it seemed a bit of a fiddle, I'd be interested in other members' experiences (but see errata at end of newsletter!)

I did realise later that, using the DX5e, the best thing would be to put an extension lead on the "battery/bind" socket with a conveniently positioned switch on the end so that you could switch on the "bind" function whenever needed. When "on" the switch just needs to connect the "signal" wire to the "negative" wire to put the Rx in "bind" mode. You can provide power the AR500 receiver by connecting the battery to any of its other 5 channels, so unless you need more than 4 chanels, this would be a practical solution. You would also need a look-up chart for the servo normal/reverse settings... but that's similar to using MHz band Tx's with multiple models.

So what did I do? I gave in and bought a Spektrum DX6i from Sussex models who were advertising the Tx only for £66 (inc. p&p); normally it comes packaged with a 6 channel receiver at greater cost. The DX6i has a LCD panel and a 10 model memory. Programming the settings for different models is via a roller (to the right of the LCD screen in the picture) which you rotate to choose an option and then press to select it. This is a very simple and intuitive system (as long as you ignore the 140 page manual which guides you through setting up your Mustang fighter aircraft, or Lynx helicopter for acrobatics!). Since the trim settings and servo normal/reverse settings are remembered by the unit, switching from one model to another only requires you to select the correct model on the Tx screen via a model name of up to 8 characters (which again is quick and easy to initially program in via the roller). During "binding", the receiver learnt it's "model identification" so if you select the wrong model on the Tx... nothing will happen! You won't be using the wrong settings.

Conclusions? For model boat use I think a combination of the Spektrum AR500 Rx and the DX6i Tx represents a good choice. I'll keep my DX5e as a backup, otherwise all my models would depend on one, possibly fallible, transmitter. But the DX6i is my transmitter of choice.

Contact details

If your address, email, or other membership details change please make sure you contact:
Lorna Soffe, 1 Stoneleigh Avenue, Hordle, Lymington, Hampshire, SO41 0GS.
Email: membership@srcmbc.co.uk . Phone: 01425 615305

N.B. If you can't attend the Highcliffe Show, send your subscription to Lorna before the end of April, 2009. Subscriptions can be paid by standing order: contact Lorna to arrange.

For the newsletter: please send your favourite hints and tips, adverts, or other contributions to:
Peter Taylor, 84 Priory Road, St Denys, Southampton, SO17 2HS
Email: info@srcmbc.org.uk . Phone: 023 80554670 (you will get my answering machine; say who you are and I'll either answer if I'm there, or get back to you!)

For any other queries contact:
David McNair-Taylor, 18 Wilton Gardens, New Milton., Hampshire, BH25 5UT
Email: scalecaptain@srcmbc.org.uk . Phone: 01425 618900

Cut off date for entry in the next issue is : 23rd March 2009

But copy accepted as soon as possble!

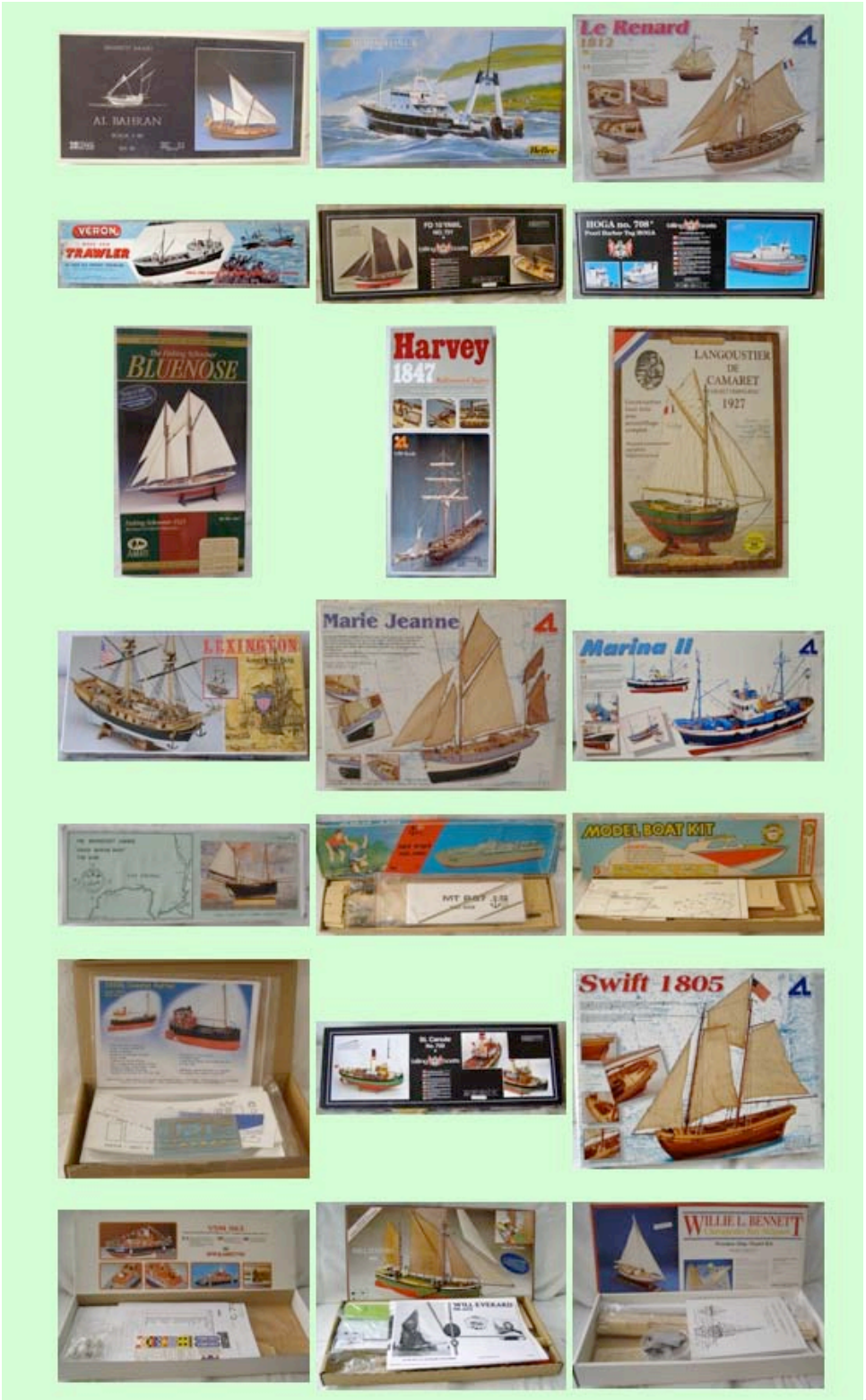
Colour supplement

Sorry, none this issue! There weren't really enough colour photos to make it worthwhile given the cost of colour printing. However, those of you without internet (world wide web) access, do come along to the Highcliffe show where we will be able to show you what the Club Web Site looks like including the full colour Newsletters!

Members Adverts

Model Boat Kits and Steam Engine

Due to a change in personal circumstances, club member Peter Gargan is offering the following Boat Kits for sale plus a Cheddar Steam Engine



The prices (open to offers), exclude p&p (UK around £6.50). Several of these kits are now no longer available commercially and some are truly collector's items.

(**Kit**, Maker code no., Price); **Al Bahran**, Corel SM36, £65; **Bluenose**, Amati 1447, £55; **Bodasteinur**, Heller 80608, £10; **Deep Sea Trawler**, Veron, £120; **FD 10**, Billings 701, £75; **Flying Fish**, Corel SM19, £55; **Harvey**, Artesania 20502, £75; **Hog**a, Billings 708, £90; **Langoustier**, Soclaine YG1000, £50; **Le Renard**, Artesania 20305, £75; **Lexington**, Mamoli MV48, £65; **Loyal Mediator**, Metcalf Mouldings, £35; **Marie Jeanne**, Artesania 20170, £50; **Marina II**, Artesania 20506, £100; **Mary Ann**, Billings 472, £35; **Mevagissey Lugger**, SVM Ser 2., £35; **MT P 87**, Billings 522, £100; **Neeltje Jacoba**, Constructo 80820, £75; **Patrol Launch**, Model Products 5, £100; **Puffer**, Model Slipways 22, £35; St Canute, Billings 700, £75; Swift, Artesania 20110, £45; **Thames Barge**, Unknown 20110, £10; **VSM 063**, New Maquettes, £55; **Will Everard**, Billings 601, £55; **Willie L Bennett**, Mod. Shipways 2032, £90.

"Cheddar Kompact"; purchased new, has been run in with an electric motor & only test steamed twice. Complete with burner,this engine has a condenser/oil trap included.

Price £410 or would sell for £450 including Gas Tank , connectors & gas (for comparison, gas tanks alone cost around £54).

More information on these offers and lots more pictures are on the club web site:

www.srcmbc.org.uk/adverts.php

or contact Peter Gargan, Tel: 01202 417 950, email: gargan@srcmbc.org.uk

RC bits and pieces

As you may have gathered by now, I (Peter Taylor "Your Editor"), have converted to 2.4GHz RC equipment. As a result I'm selling off my old 27MHz and 40Mz gear. Admittedly, the best bits have already been snapped up, but I still have the following offerings...

27MHz AM "Split-Frequency" crystals:

Futaba type Rx+Tx pairs: 26.975MHz (Grey/Brown); 27.025MHz (Brown/Red); 27.225MHz (Green/Blue). Price new (Howes Models, end 2008): £19.50; offered price: £10 for the three pairs or £5 per pair.

40MHz AM crystals:

Futaba type Rx 40.775MHz, Tx 40.755MHz. I was sold these as a pair and it took a long time for me to realise why they didn't get along together! Free to anyone who wants one or both. Places like Hobby Stores sell individual Tx and Rx crystals to allow these to be united with their long lost companions!

A note on members adverts:

This is a free service offered to SRCMBC Members for private (i.e. non-commercial) model boat related sales. The adverts are displayed on the Club web Site[1] and will be included in this newsletter if possible. Members using email can have a "myname@srcmbc.org.uk" email forwarding address set up for them (at no cost) to avoid attracting spam to their true address.

[1] at www.srcmbc.org.uk/adverts.php

Errata... "Tips" on converting to 2.4 GHz

Firstly... I forgot to sign this, it was written by myself, Peter Taylor.

Secondly... After I sent the Newsletter out, Chris Chatterway phoned me up to say that he has a DX5e and that when changing the servo trims you get a longer "beep" when the trim is in the central (neutral) position. You also get a long "beep" at each end of the trim range. As you move between the extremes, the Tx emits beeps which go up (or down) in frequency depending on the direction in which you are adjusting. After some thought I realised that I had been interpreting the central "beep" as one end of the trim range, that is I'd only been using half the available trim adjustment (OK I'm dim or what!). So in fact it is much easier to set up a particular trim on the DX5e, than I thought, simply by counting clicks from the central position. Thanks, Chris!

However, in conclusion, I personally would still recommend the DX6i for the ease of swapping between models. However it's true that the DX5e is less than half the price, so if you don't swap between models very often (or you have an aversion to computerised transmitters), it's well worth considering.

Cheers,

Peter Taylor