



San Diego Ship Modelers' Guild

VOLUME 9 NUMBER 11

NOVEMBER 1985

POST OFFICE BOX 6725

SAN DIEGO, CALIFORNIA 92106

Election Day off to slow start

Lets hope we have a better turn out than we do at local elections.. As we've said in the past no vote..no gripe..see u on Friday the 15 th.

On a sad note I report the passing of Captain Ed Fredericks, the past Executive Director of the Maritime Museum. Captain Ed was a great booster of the Modelers Guild, he will be missed by us all. A donation was made in his name to the museum by the Ship Modelers' Guild.

The following names were submitted for club officers in 1986.....
Master: Bill Kelly-Fleming and Doug McFarland (alphabetical order). Both have been with the Guild for many years and are knowledgable ship modelers. As in the past, the person getting the most votes wins the masters position and the runner up automaticly becomes the mate.
Purser: Herman H. Boehem. A newer member, but an active model builder. Herman passed our "rigid test" for this position. One and one is two...two and two are four...with out using his fingers to count. I highly recommend him for the job.

MIKE RIVERA will be our guest speaker this month...will talk on unconventional materials for building parts and fittings. Mike was building when there was no or little available in the way of parts....so he scratched.

Fred Fraas is resting comfortable at a local asylum after watching the loading and transporting of his Yorktown carrier which left last Wednesday for its final resting place in the Aero space Museum's York town exhibit.

I viewed the model two days before when Fred was putting the final touch to it. An outstanding job Fred and "Well Done". I guess Shirley will have to find another place to iron the clothes...fix her iron board Fred...

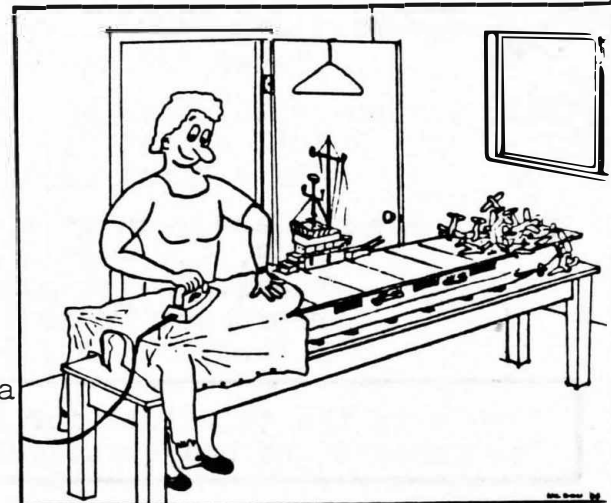
For you carrier builders, a TBF will be found on the last page. I try to include an airplane plan in this newsletter once in a while for you who need them. We still have a good selection of planes for future printing.

Fine Scale Modeler..a publication from Palmbach publishing Co. deals with all kinds of modeling projects.. Nov/Dec issue has a story on making decals on a xerox machine. as well as modeling a nineteenth-century whale hunt diorama...the part on how to make water was very interesting..a good magazine.

would anyone like to be a yoeman and regatta commodore for the comming year...any of you interested can make yourself known at the next meeting.

SHOW & TELL

by Nilson





By Bill Kelley-Fleming (October meeting)

Master Nilson called us to order on the "Brig" STAR OF INDIA amidst the shrouds and other mizzen rigging being overhauled on the Orlop deck. Welcomed were three guests. Lynn Reeves, Daryll Smith and Irene Jellinek. (Irene joined the Guild). A get well card for our friend Bob Wormald in Vancouver B.C. was signed by all. The Master read comments recently received on the regatta rules. The Logkeeper passed around newsletters recently received and read a request for help in locating a manufacturer of steam engines. One Company is Coles Power Models, P.O. Box 788, Ventura, Ca. 93001.

NEW BUSINESS:

I beat Bill to this by already placing the nominees for 1986 Officers on the front page but he did suggest that we try to get a logkeeper or yeoman and Regatta Commodore also. If interest, please contact one of the club officers at the November meeting.

Guest Speaker;

Albert L'Heureux gave us the procedures and tips on submitting articles to magazines, using as an example an article on his Viking ship he was sending in the next day. He first suggested contacting the magazine for their interest in your topic. The article should tell the story of the ship and how to construct the model with detail on unique or troublesome points in the construction. Photos should be included and be clearly marked on the back with an identifying number and caption, along with your name and address. Each page of copy should be numbered including name and address. Thanks Al, "good show"

(I would like to comment on Bill's above remark about the "BRIG" STAR OF INDIA. I understand it will BARK again when the mizzen mast is resteped. ed note)

SHOW AND TELL:

Russ Lloyd- Constitution- scratch built in an antique booze bottle. Was his third attempt at a ship in a bottle, and very fine work also.

Books: Dynamics Models catalog and P C Coker's Building Warship Models. All enjoyed examining them.

Irene Jellinek-MORGAN whale boat, Latura Kit in 1:25 scale. This 14" model is her first attempt which she started in July. It looked outstanding for a first...maybe she will give us some lessons on building.

Pete Glor---VOLANTE, Model shipways kit started in 1967.

Roger Smith-USS PAUL JONES (DD230) a destroyer in 1:96 scale and showing progress as he develops the superstructure.

Howard Newman-Plan of the MISSISSIPPI- river boat kit by ARTESANIA LATINA. Is partially completed hull with planked checkerboard deck.

Doug McFarland- HOBSPUR- Tit in 1:60 scale. Shrouds of main topmast are completed and detailing on the fore yard is being done.

Bill Taylor-Books, Lore of Ships- often available in discount sections and full of details on ship construction and rig, PACIFIC COAST TUGS and a First addition of Tamia Plastics Magazine.

Herman Boehme-Passed on info on his search for plans of the Revenue Cutter BEAR. Got a full set of plans from the National Archives for 48 bucks. To get plans from them, write and ask for a "Quote for reproduction services" on the vessel desired. Write to:
NATIONAL ARCHIVES, WASHING D.C. 20408.

Thanks to the "BINNACLE" for the timely information about radio equipment. New members who had questions please see pages 5, 6, 7, and 8 of this issue



METAL-WORKING LATHE



A sturdy guaranteed machine, for home craft and shop use, 24" bed, 22 lbs., as illustrated. Send \$1.00, balance postage added C. O. D., F. O. B. New York, immediate delivery. Wood-working lathes \$4.50 complete. Large assortment of other homecraft equipment at exceptionally low prices; all accessories carried in stock. "Precision News" describing uses and equipment furnished free with each order.

\$750
COMPLETE

Precision Machine & Tool Co., Dept. S, 149 Church Street, N. Y.

12 and 15 in.
Flying

SCALE MODELS

Your Choice of 12
Different Models

Any 2 for
50c

Full fuselage Models, guaranteed to fly. Each complete in construction. Kit with all parts, materials and plans and instruction.

Curtiss "Hell Diver"	Spad Biplane	Plus 10c Postage
Monocoupe	Sparrow Hawk	Fuss Moth
Polish Fighter	Fokker D-8	Fokker Triplane
Boeing Fighter	Sopwith Camel	Send Stamp for
Heath Parasol	British S. E. 5	Box Bulletin

IDEAL AEROPLANE & SUPPLY COMPANY, Inc.
28 West 19th Street New York, N. Y.

90

(Please note above ads are from 60 year old magazine)

CROWS NEST CONT:

Its final--VIKING PRINCESS is leaving for good on November 17, even tho business has been good. In order to take advantage of the offer from West Palm Beach the company has to have a ship in that port by December 10 th. Rumor has it that another ship under a different company will eventually come here for 3 and 4 day cruises. Being refurbished in Spain after being gutted by fire in Miami two years ago, this vessel will reportedly go by the name of SCANDANAVIAN SEA. The STAR should return to being a bark soon. The dry rot in the top mizzen has been fixed and the mizzen top has been refurbished, so the mast should be re-stepped soon. When the mast was removed a 1902 silver dollar was found under her heel. That was the year that the Alaska Packer's Association changed her rig from full ship to bark.

I had a visit in the Museum Model shop recently from John Fenwick of South Bay Model Shipwrights. We had a pleasant but brief chat since the museum was preparing to close for the "Haunted Star" festivities. It is always fun to share with people whose names we always see in print!

From the South Bay newsletter that just came was a list of solid hull kits for sale. (one of each) These ar Marine Models Co. Kits. Constitution, Cutty Sark, C.W. Morgan \$60.00 each. Bomb Ketch, Joe Lane, G. Thebaud, Slaver. \$35.00 each. HMS Bounty, Victorine (Hudson River Sloop) \$25.00 each. Pinky. \$20.00. The following are Model Shipways Kits. Essex, Rattlesnake \$40. e Fair America, \$35.00. Mayflower, \$30.00. Dapper Tom, Hildina \$25.00 each. Dispatch #9 (tug) \$15.00. City of Pekin, \$5.00. If interested, contact Daniel Lee, 51-B Codman Pl, San Francisco, Ca. 94108. Tele (415) 989 8569 or (415) 981 7163. You will not find better prices anywhere.

The Smithsonian has published its "2nd revised edition of warship plans" available for \$2.50 from: Naval Section, National Museum of American History, Smithsonian Institution, Washington, D.C. 20560.

And finally a bit of trivia. There is another ship known to San Diego bay today which could be called a sister ship (or at least a cousin) of the STAR of India. Which is it, and how are they related? Bill will give us the answer at the next meeting...be there..hear.

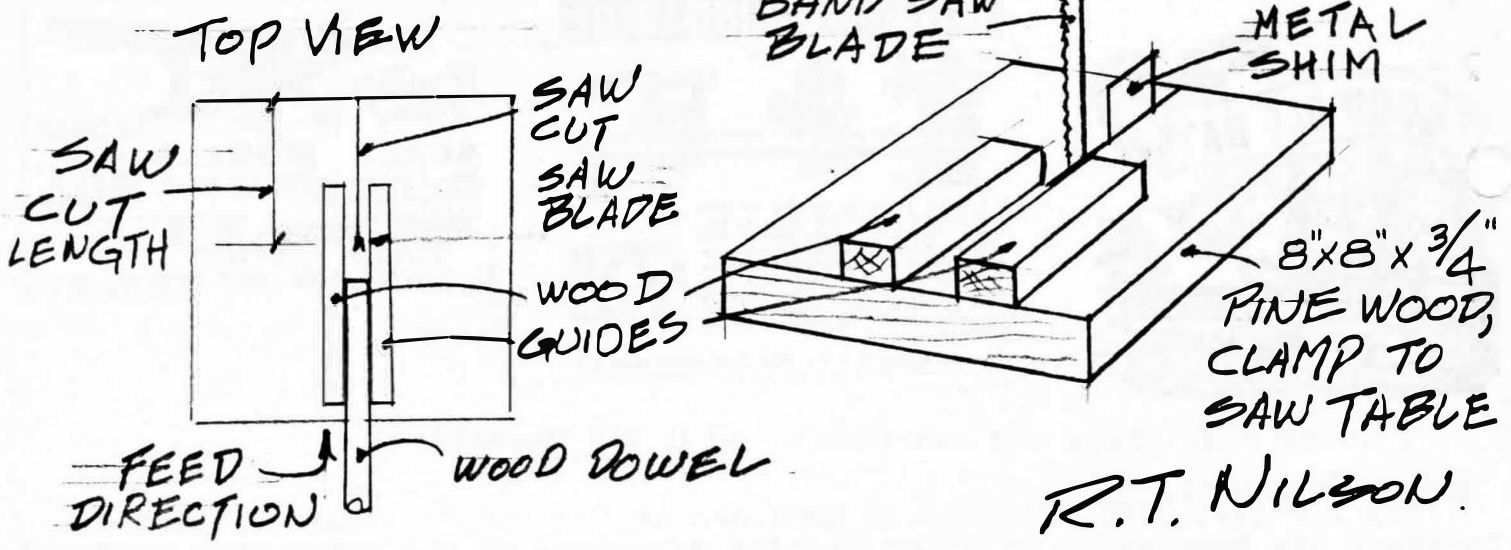
KNOTS HITCHES & SPLICES



OVERHAND BOW



CAT'S PAW



R.T. NILSON.

I made up this little fixture for cutting dowels in half to use for rubbing strakes on my tug boats. If you need true $\frac{1}{2}$ round pieces you will have to offset the wood guides. My band saw blade is approx. .045 thousandths so your metal shim, which keeps the dowel from turning should be of the same thickness. Set the wood guides for the diameter of the dowels you want to half. Be sure to clamp the pine wood base to the saw table.



Westcoast Hobbies
 SERVICE AND DISCOUNT
 RADIO CONTROLLED SPECIALISTS
 GLIDERS • AIRPLANES • HELICOPTERS • CARS • BOATS
 560-9633 JOHN WEAVER
 4690 CONVOY STREET SAN DIEGO, CA 92111

Gulp! Prehistoric shark could take whale of a bite

WASHINGTON (UPI) — The largest species of shark that ever lived could swallow a Volkswagen Beetle, but since it lived more than 3.5 million years ago, it preferred to eat whales.

With a set of the shark's teeth, scientists at the Smithsonian Institution have reconstructed a set of shark jaws they said are the most accurate reproductions of the species' choppers ever.

They will hang wide open for public view at the National Museum of Natural History, part of the Smithsonian complex.

The glossy, gray, serrated teeth were the gift of collector Peter Harmatuk, who found them by Lee Creek in North Carolina. A shark's skeleton is composed of cartilage, which is rarely fossilized — so scientists had to develop their own jaw reconstruction.

They did so with fiberglass according to specifications developed from the study of modern sharks. An outer row of 48 teeth was inserted in the jaws, and plastic teeth were made for the remaining inner rows.

In living sharks, rows of teeth are constantly pushed outward by inner tiers, which unroll from inside the jaw. This provides some shark species with a new set of sharp teeth every eight days.

Using another formula based on tooth height and enamel, the scientists estimated the shark for which they had built jaws would have been about 40 feet long, though its relatives could have been as large as 100 feet. It lived 3.5 million to 5 million years ago and its family became extinct about a million years ago.

The largest living great white shark on record is about 21 feet long, the museum said.

The opening between the jaws is about 4 feet wide by 5 feet high. Is that really enough to swallow a car, even if it is a small, foreign version?

"Just about," said Robert Purdy, collection manager for the museum department of natural history. "It might break some teeth."

Purdy said previous reconstructions were inaccurate "because they used anterior teeth from different-sized sharks for all tooth positions in the jaws." — Harmatuk's 1981 gift enabled the museum "to make the most accurate reconstruction of this shark's dentition to date."



JIM'S TRAIN DEPOT

280-9004

4506 - 30th Street
 San Diego, CA 92116

HO, N, Z, LGB
 Lionel & American Flyer - New & Used
 All Competitively Priced
 Emphasizing Quality, Value & Service
 We Buy Old Trains, Toys, Baseball Cards
 And Erector Sets

Jim Andrews, Owner

295-7340



The Whistle Stop

"YOUR MODEL RAILROAD SHOP"
 N - HO - O

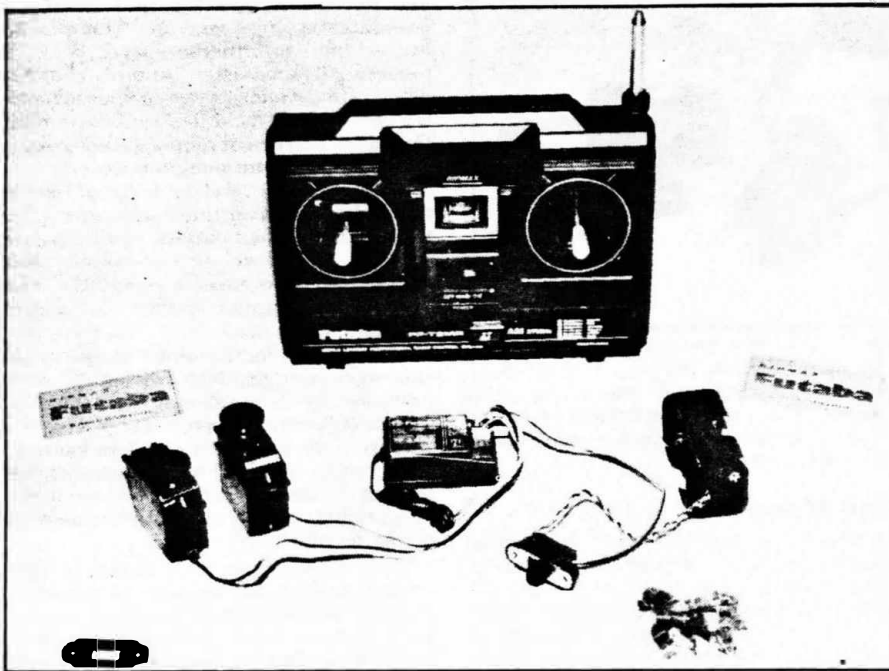
3834 FOURTH AVENUE
 SAN DIEGO, CALIF. 92103

W. A. KINGSTON

History

Thirty years ago radio control was a complete mystery to most people, despite the fact that it was first experimented with for model use as far back as the 1920s. Even earlier experiments with full-size craft occurred just after the turn of the century as it is recorded that radio control experiments took place at the north end of Lake Windermere in Cumbria with the recently restored powerboat *White Lady*. She is now on display at the Windermere Steamboat Museum at Bowness. Unfortunately none of the radio control apparatus still exists. It

What is Radio Control?



The two channel or two function unit is that mostly used by radio control boat modellers. This latest unit from Ripmax Futaba features reversing of servos by simply switching small levers on the underside of the transmitter, so easing the task of servo installation. Dry cells are recommended, but nicads can be substituted.

must be assumed that the system was that known as 'spark generated'. An electrical spark releases a surge of energy into the ether, causing a short radio emission over a wide band of frequencies. It is fairly simple to detect this emission and to arrange for the receiving apparatus to switch a circuit by closing contacts on a relay or some other electro-mechanical device.

Although 'wireless', to use the more popular term, rapidly developed and was accepted by the populace at large, there was little or no move towards miniaturisation to the degree that would allow gear to be installed in a model. The greatest difficulty was power supply as at least 100 volts was required. Indeed the first really successful commercial radio control equipment available for general modelling use by Electronic Developments required a 120 volt supply for the transmitter and a 45 volt supply for the receiver. A low voltage, 1.5 volt, supply was also required to light the valves.

Valves were the stumbling block and it was only when the transistor arrived in quantity and low cost that the designers were free to miniaturise and build in reliability.

How different things are today. A spacecraft has now left our solar system and is still under radio control, even though the signals now take several minutes to reach the craft, despite moving at the speed of light (186,000 miles per second). The incredible miniaturisation necessary for

space use has 'spun-off' to the general consumer in a vast number of areas, but nowhere more so than in that of electronics. High technology and large scale production techniques, particularly in Japan, has brought the cost and availability of fully proportional, multi-channel equipment well within the buying range of every modeller, and with a degree of reliability and performance undreamed of in those early days. Today, we can buy radio outfits

which will fit easily into a 16in. long model — even smaller if a little ingenuity is applied.

Even computer technology now plays a part in radio control, not yet too much with model boats but predominantly where radio control is used with model aircraft. For instance, the relatively complicated balance of controls required to fly a model helicopter can be remembered by a micro-processor and reproduced exactly on subsequent manoeuvres.

Modern radio control actually works on a digital output system and at the end of this introductory article we will take a brief look at the theory of radio control, as to derive the maximum benefit from your equipment you should at least have a little idea as to what happens inside your black boxes.

However it is not our intention to baffle you with science, but hopefully to provide a newcomer with basic and practical information in choosing, installing and operating the wonders of the black box.

A Closer Look The System

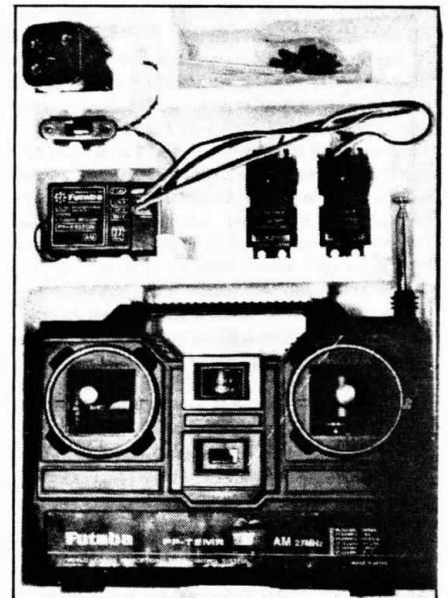
Radio control equipment for model use operates on the same principles and elements as radio broadcasting. It requires a transmitter which is hand-held to broadcast coded signals which are picked up by a receiver tuned to the transmitter's specific frequency. The broadcast receiver decodes the transmitted information into speed or music but the radio control receiver decodes the signal into electrical impulses which can be used by electro-mechanical devices called servos to perform physical operations within the model. Let's take a closer look at the individual components of the system.

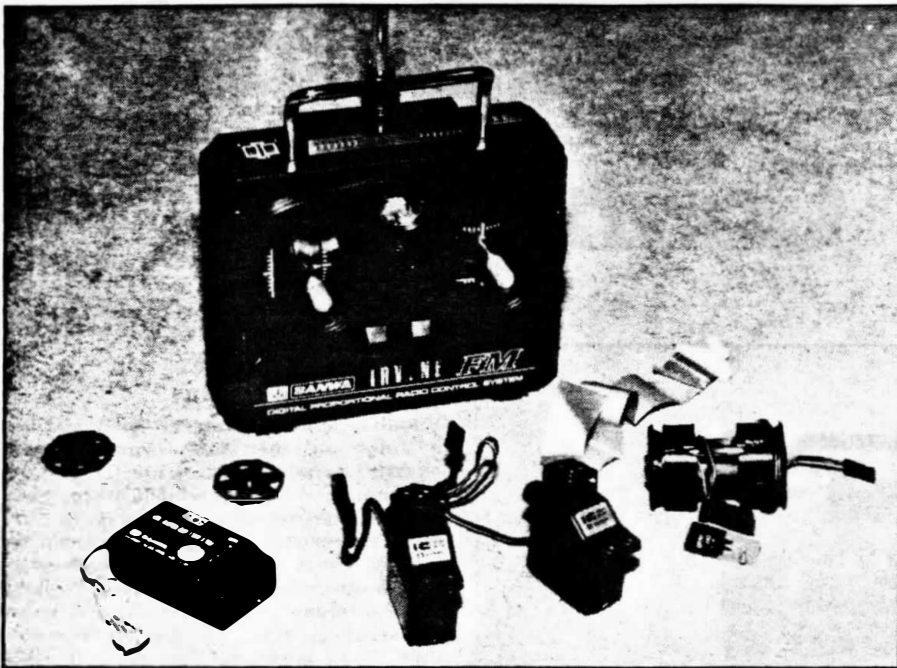
Transmitter

The transmitter comprises a closed metal, or more usually these days, plastic box containing the required electronics and batteries. Early transmitters were so large that they were stood on the ground with a small control box connected to the ground base by a cable. Today they are all hand-held and come in a variety of colours, shapes and sizes. The styling and ergonomics are very important as the transmitter is the part of the equipment most susceptible to sales appeal. A box is still the best general term and despite the styling all transmitters will include the following items:

Usually mounted on top is the aerial and sometimes the on/off switch. The aerial transmits the high frequency signal, whose field somewhat resembles the

The outfit above as packaged. Screws for holding down the servos, a frequency pennant and lever arm outputs are included.





length of wire approximately 18in. long. The power supply harness usually includes an on/off switch ready wired by the manufacturer.

The Servos

These are miniature electro-mechanical units about the size of a matchbox, each containing a small precision electric motor which drives an output shaft through an efficient gear chain. The case is usually constructed from plastic, as are the gears, although some high power servos use metal gears. These are not needed for average use and the plastic type are quite capable of handling the forces generated from a rudder on a high performance power boat, for instance. The reduction ratio is about 1:20 which will develop several pounds of pull at the servo arm. The latter can have a rotary to-and-fro movement of about 90 degrees or a linear movement along the servo.

When the servo receives a signal from the transmitter/receiver the motor turns which rotates the servo output shaft via the gearbox. Attached to the output shaft within the servo case is a variable resistance. The electronic circuitry in the servo monitors the output from this resistance until the incoming signal is matched by the varying signal generated within the servo controlled by the resistance. When this state of affairs occurs the motor stops. Hence if you move the joystick a small amount, the servo output arm will move a proportional amount — the overriding reason as to why this modern method of control is known as proportional control.

These systems are the ultimate in radio control as they are capable of providing multiple, simultaneously operating controls with precise and infinitely variable positioning. Not too many years ago such control was way beyond the resources of all but the most affluent modellers, and the industry and electronic enthusiasts devised many ingenious methods of providing pseudo proportional control. However as stated earlier, modern production techniques have brought the costs down to levels where the older tone, reed and single function systems, which for a long time were

shape of a gigantic doughnut, and is usually telescopic and can sometimes be removed for storage. The range of the transmitted signal is upwards of two miles, but most operators lose visual contact or orientation at little more than 200 yards, so there is ample strength to spare.

Always on the front will be the controlling joysticks which are fitted to variable resistances inside the transmitter. By moving these sticks and consequently moving the resistances, varying electrical currents are fed into the electronic circuits and processed to ultimately operate the servos by a corresponding amount of movement in the model. The number of sticks depends upon the number of operational channels or functions that the radio control system is designed to handle. 'How Many Functions' coming later will go into more detail. Trims, small controls to enable one to adjust the neutral position of the related joystick and hence accurately 'centre' the corresponding servo, are fixed adjacent to the joysticks.

An item again usually found on the front of the box is a battery voltage or radio frequency output meter to show that the transmitter is operating.

If the transmitter contains rechargeable batteries there will be a charging socket, usually underneath or at the rear, and perhaps a buddy-box system for learners. The latter is in effect a separate set of joysticks coupled to the main transmitter by a cable and which can be used by a learner to operate a model, but which can be totally overridden should difficulties arise by the tutor who retains control of the main transmitter unit. This system is more often used by aeromodellers rather than model boaters as accidents tend to be less terminal with water operation.

A final and most important access is to the crystal socket. All except the very inexpensive outfits will have the capability of allowing you to choose the operating frequency within limits set by the Government and manufacturer. The crystal is a small and relatively delicate component manufactured to very close tolerances. A corresponding matching crystal fits into the receiver. See 'Frequencies' later. Many

modellers tend to treat crystals badly. Don't. They can be 'jarred' from their original setting and many problems arise; usually resulting in lack of control and sometimes interfering with other modeller's equipment.

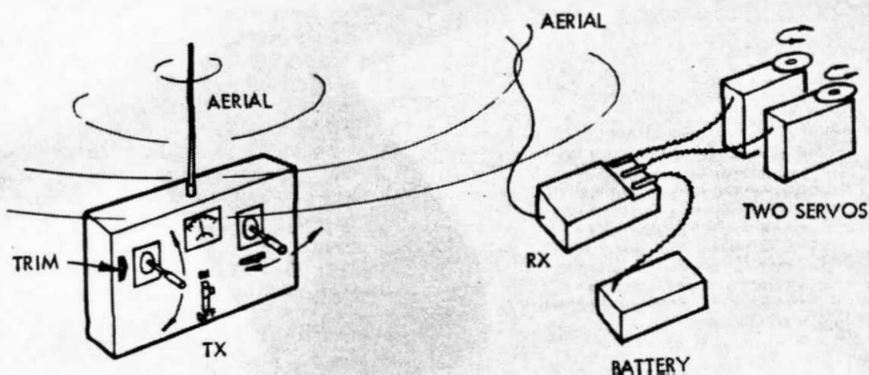
The Receiver

A typical receiver is a small box, again usually of plastic construction, measuring approximately 2.5in. by 1.5in. by 1in., although today's miniaturisation has resulted in some much smaller units. These are of benefit for very small models or where weight is important as in some racing classes, but for the majority of applications the standard unit is completely acceptable. The case contains sockets to accept a power supply and connections to the servos, normally polarised to prevent incorrect connections, plus access to the receiver's crystal socket if a frequency change feature is incorporated. Finally the aerial wire consists of a

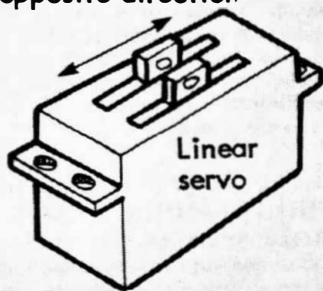
Above: another two function outfit from a different distributor, the Sanwa FM system, distributed by Irvine. All of today's sets are extremely reliable and styling and feel of the transmitter plays a large part in deciding on any particular make. Right: an electronic speed controller for scale and fast electric models. This one is distributed by Cougar Craft and will operate on most modern systems.



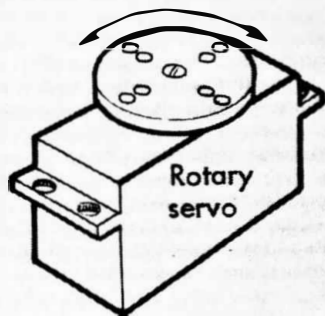
Sticks, Modes and Servo Outputs.



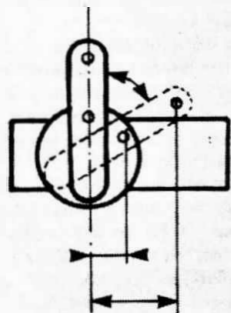
Arms move in opposite direction



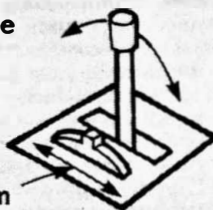
Disc or arm can be moved through 90°



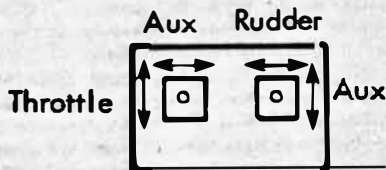
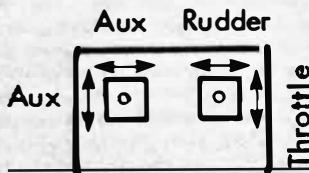
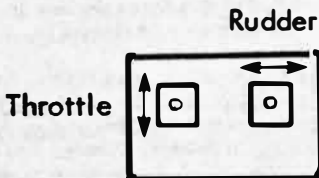
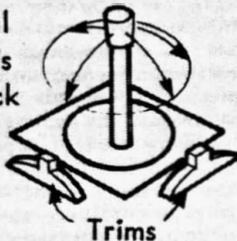
Throw on a linear servo is limited to physical movement of arms. Rotary arms can be lengthened to suit



Single Axis stick



Dual Axis stick



Frequencies and Colours

Transmitter MHz	Colour Code
26.970	Grey/brown
26.995	Brown
27.020	Brown/red
27.045	Red
27.070	Red/orange
27.095	Orange
27.120	Orange/yellow
27.145	Yellow
27.170	Yellow/green
27.195	Green
27.220	Green/blue
27.245	Blue

With current equipment splits can be used safely. However, one should not assume this to be the case with older sets. Splits have not yet been internationally agreed and there may be variances of ±5 MHz.

the recommended starting equipment for beginners, have been completely superceded. It is still possible to purchase kits for home construction of radio equipment

Although these systems can provide a saving in initial cost, they can present problems in checking and fault-finding if they do not function correctly at the start. For the vast majority the best advice is to buy a set of commercial equipment.

Frequencies

The transmitter and receiver are pre-tuned by the manufacturer to operate within the frequency band-width allocated by the Government authorities. This is 27MHz

There is also a 35MHz band and one at 459MHz, the latter usually known as Ultra High Frequency (UHF). The term 'Frequency' has not been explained to this point so we will try and impart an idea as to its meaning without resorting to advanced mathematics.

The world around us is filled with waves; sound, heat, light, radio, etc. These latter waves, or minute vibrations, are much too high for us mere humans to see or hear, but our receivers love them. The human ear can probably hear up to 1500Hz or .015Mhz (M=million). As you can see our radio control frequency band of 27MHz is somewhat above that. The band width is more precisely 26.970MHz to 27.255MHz. This band can be proportionally divided to allow for 13 sets of radio equipment to be operated simultaneously without interfering with each other. The extremely precise frequency control is maintained by the specially ground quartz crystals mentioned previously which are fitted into their corresponding sockets on the transmitter and receiver. Quartz is a naturally occurring mineral which when ground to certain shapes will oscillate only at a specific frequency determined by the crystal shape.

Most sets of gear sold today feature interchangeable crystals and to change frequency it is simply a matter of plugging the correct matching pair into their respective sockets on the transmitter and receiver. It is important to make certain that the transmitter crystal only goes into the transmitter and vice-versa. Incorrect fitting

will drastically reduce the range of the equipment and move the frequency into an illegal operating band. In order to make it easy to identify the frequency in use for personal and other modeller's benefit — remember only one frequency can be operated at one and the same time, otherwise severe interference will result — it has been internationally agreed that each transmitter should carry a flag or pennant of a certain colour. The six 'solid' colours, sometimes also known as 'spots' were the maximum number of frequencies that could be simultaneously operated a number of years ago, but most equipment sold today can safely operate on closer frequency tolerances, although difficulties can still occur when operating with older gear that was not designed for such precise use. The later seven frequencies were fitted in between the 'solids' and came to be known as 'splits'.

We have already briefly mentioned the two other bandwidths allocated

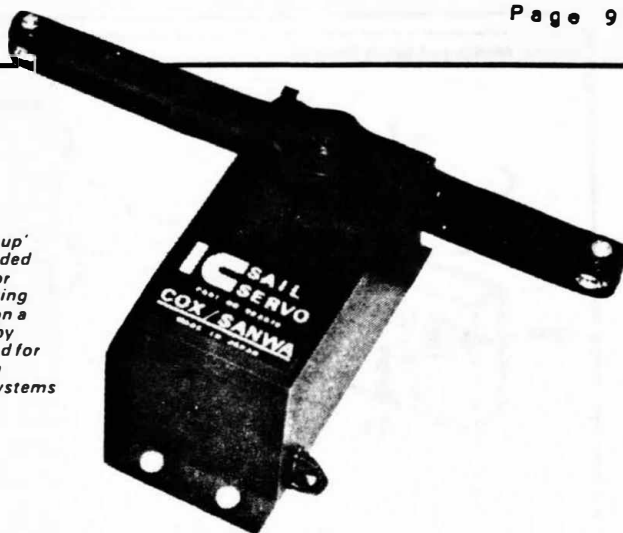
35 and 459MHz. The former has been provided specifically for model aircraft operation and the model boat federations support this viewpoint. If your supplier tells you that 35MHz can be used in your area we would advise that you check with your local club as it is more than likely that the club, being law-abiding members of the National Association, will not allow the frequency to be used on their water. Some radio systems can accept interchangeable modules which allow for 27 or 35MHz operation, or other international frequencies not allowed in this country. (You cannot just change 27 for 35MHz crystals or vice-versa — this will not work). The modular systems are however still relatively expensive and unless you intend to fly as well as boat, they are an expensive luxury.

As far as the UHF band of 458.5 to 459.5MHz is concerned, the comparative electronic sophistication required to make use of this band results in high prices. Despite a number of attempts to manufacture cheaper systems it must be said that for successful operation at these frequencies, you get what you pay for. However with more and more modellers taking up the hobby, there is an ever-increasing chance of 'your' frequency being occupied or of suffering interference. The price tag though is considerably higher than 27MHz equipment and the modeller must decide whether the extra cost of buying relatively interference-free gear is justified. There is another small advantage with UHF and that is the transmitter aerial is only a few inches long; but the receiver aerial (also quite short) does require thoughtful positioning within the model to guarantee satisfactory operation. 27MHz is much less critical with regard to aerial positioning. For most scale models an internal aerial affixed along the underneath of the deck is more than adequate, but for fast powered models and yachts, an upright whip aerial is a safer precaution.

Channels or Functions

The term 'channel' is seldom used today and is a hangover from the time of reed or tone equipment where one channel or tone operated the servo mechanism in one direction only. If the terms reed or tone mean nothing to you, don't worry — you are not missing anything. With today's proportional equipment we use the term 'function' which means precisely what it says. A 'function' describes the total

A special form of 'beefed up' servo fitted with an extended lever arm which is used for controlling the sail operating cords, known as sheets, on a model yacht. This unit is by Sanwa. A winch unit, used for similar purposes is shown elsewhere in 'Sheeting Systems for R/C Yachts.'



movement of one control surface, i.e., one 'function' will control the entire rudder movement and another 'function' will look after the throttle on a power boat or the winch system on a yacht.

Obviously, therefore, most model boat requirements can be met by 'two-function' gear. Such items as trim tabs, mixture control, separate jib and mainsail control, etc., will require three functions. Four 'function' will control the entire rudder special features on scale models such as fire monitors, lights, horns, cranes, etc. If the latter is your scene then take a look at some of the microprocessor controlled systems which can operate large numbers of such accessories in pre-programmed sequences or manually. Of course the more sophisticated the control and the number of functions, the more expensive is the equipment. One can of course buy a four-function outfit with only two servos and add the others at a later stage. It is very necessary though to examine possible future requirements, and if a two-function outfit is adequate, then there is little point in spending extra for further functions. It would be more sensible to spend the extra finance on the best that can be afforded that will fill the bill.

Mode

This means the way in which the major transmitter controls, the joysticks, are laid out on the transmitter face. As radio systems were initially developed to control model aeroplanes, the normal arrangement for a two-function system would be to have both functions controlled by one stick which is pivoted in two axes, controlling both functions simultaneously. Most model boaters with two-function gear will prefer to have this one stick replaced by two single sticks which can only move horizontally or vertically. The normally accepted mode for model boat operation is to have the horizontal stick on the right of the transmitter controlling the rudder, with the left mounted vertical stick controlling the throttle on a power boat or the small sheeting system on a yacht. For a three-function system, one stick would have the universal 'aircraft' model mentioned earlier; four-function would have two such sticks.

Sticks can be self-centring, that is they always return to the neutral position when released. This is the normal set-up for a rudder — or they can be fitted with a ratchet friction system which maintains the stick in the position last set. This method would be used for the throttle or winch operation.

The 'trims', mentioned briefly earlier, usually consist of a small lever adjacent to

each stick, which provide approximately 10% of the servo movement in the direction in which the trim lever is moved, independent of the main stick lever. This gives the facility of adjusting the servo neutral to give an exact straight line on a rudder or minutely adjust the throttle response during model operation. The trim should not be used to counteract bad servo installation practice.

Combinations or the Whole Works

Before proportional systems appeared, most radio control systems were sold minus servos, wiring harnesses, etc. Then, with proportional, came a move towards complete systems. The pendulum has swung slightly back in that now one has the choice. You can buy a complete outfit including servos or go for a combination, popularly known as 'combos'. As most manufacturers now supply a wide range of servos and accessories, the latter is probably the best approach. A competition man into speed or multi will need servos that are strong and waterproof, whereas the scale man will probably need a standard servo for rudder control, an electronic speed controller which replaces a servo and any number of servos or special units to operate the special scale accessories. The sailor will need a rudder servo and a sail winch.

Which Make

Once having decided on number of functions, dry cell or rechargeable batteries, combo or complete, etc., there are a number of other questions to ask before taking the final plunge. This is where a visit to a local club can prove beneficial — but beware the local know-all who knows nothing!

- Are servicing facilities available in this country?
- Is it on 27MHz.
- Will it operate with split frequencies?
- Are frequencies interchangeable?
- Will the gear accept readily available accessories such as speed controllers or sail winches?

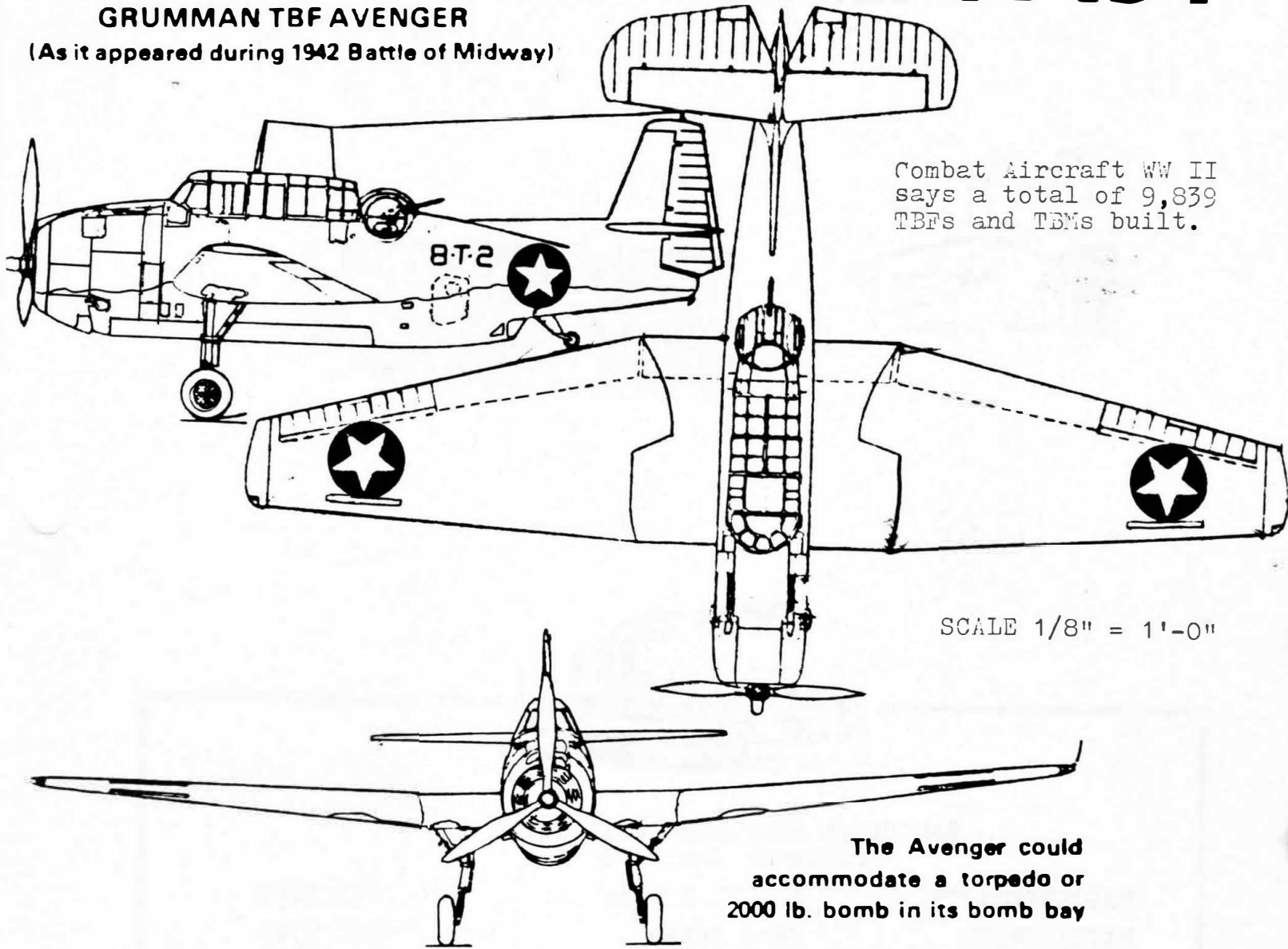
Armed with the knowledge gained from this article, you will at least be in a position to discuss the technicalities of your purchase on equal terms with the model shop proprietor, and we hope end up with exactly the right gear for your present and perhaps even future needs. The right start to any hobby usually means sailing off into the future with confidence, rather than give it all up as a frustrating bad job.



PLANES OF THE PAST

GRUMMAN TBF AVENGER

(As it appeared during 1942 Battle of Midway)



Combat Aircraft WW II
says a total of 9,839
TBFs and TBMs built.

SCALE 1/8" = 1'-0"

The Avenger could
accommodate a torpedo or
2000 lb. bomb in its bomb bay

The Grumman TBF initial production order for 286 planes was placed in the latter part of 1940 and, between 1942 and the end of 1943, 2,293 Avengers were built and delivered to the U.S. Navy. It became the Navy's standard torpedo-bomber of World War 2 and it saw action on June 4, 1942, at the historic Battle of Midway.

Used right up to 1954, Avengers also saw service with the Royal Navy, Canadian Royal Navy and the French Aeronavale.

SPECIFICATIONS

Wing Span 54'-2"
Overall Length 40'-0"
Height 16'-5"
Weight 15,905 lbs.

Maximum Speed at
12,000 ft. 271 m.p.h.
Service Ceiling 22,400 ft.
Combat Range 1,215 miles
Power Plant
..... 1,700 H.P. Wright R-2600-8

COLOR SCHEME

Top of fuselage, wing and stabilizer
and all of rudder - Navy blue. Bottom
of fuselage, wing and stabilizer
..... Light blue
See color line on side view plan.
Propeller: Black Lettering: White

San Diego Ship Modelers' Guild
Bill Kelly-Fleming, Logkeeper
/redacted/

FIRST CLASS PLEASE



FRED FRAAS
/redacted/



San Diego Ship Modelers' Guild
Officers for 1985

MASTER/EDITOR	Roy T. Nilson	/redacted/
MATE/PURSER	Fred Fraas	/redacted/
LOGKEEPER	Bill Kelly-Flemming	/redacted/
STEERING COMMITTEE	Al L'Heureux	/redacted/
	Doug McFarland	/redacted/
MEETINGS:	3 rd Friday of each month, 8:00 P.M. aboard the bark STAR OF INDIA on the Orlop Deck.	
MEMBERSHIP:	Dues \$10.00 yearly. After July the dues are $\frac{1}{2}$ for the rest of the year. We highly encourage all to become San Diego Maritime Museum Members.	