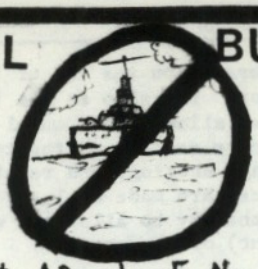
HULL BUSTERS



OCTOBER 1984

(I Ain't Afraid of No Hulls) Stan

NATS TO YOU

Well, the 1984 battling season is almost over. The winter will be here with us soon (at least up in Chitown), so its time to think about 1985 Nats and what ship(s) you will bring. I've got a few suggestions to make Nats even more enjoyable for you. First, buy yourself a programmable timer to keep track of your five minute time. A wristwatch will work, but more of us like the timer that "beeps" when the time is elapsed. RADIO SHACK has one for about $12. It can be programmed to countdown minutes and seconds, its rugged (I dropped mine in the drink and it continued to perform after it dried), and it saves many hastles over the crucial five minute period.

Fluegel wanted me to rule early on several situations that are in the gray area and he felt were open to several interpretations. So here goes:

You will be able in the 1985 Nats to change your gun configuration between sorties. However, you cannot change the ratio of guns to pumps between sorties. For example, Fluegel could go out in sortie 1 with 4 guns (2 forward, 1 port, and 1 starboard) and 2 pumps. In sortie 2 he could change one of his forward guns to an aft gun but he could not change a gun for a pump. Keep in mind that his gun configuration must at all times reflect the 1985 Rules.

When a ship is sinking it must be allowed to SINK!! No deals about "we all agree that it will sink, so go ahead in after it before all the R/C gear gets wet." This is per a long, grand tradition in R/C Combat. Build those watertight boxes!!

Be sure that you are familiar with all the rules. Bring along a set of up to date rules whenever you battle. Don't spend alot of time building a ship which turns out to be illegal at Springfield. Hull hardness will be checked if you are challenged. Perform the drop test at home -- its a simple test.

I have a supply of fifteen Dumas 4.8 volt motors available for $6.75 each. They cost about $9.00 around here, so they're a Navy good-deal if you are building a cruiser. They can be driven with 8-10 volts if you really want speed. I can also get Clippard parts if you need them. I'm selling them at cost (to allies) so drop me a line if you want a list of what is available. *Order Form is page 222 & 223 of H.B.*

It looks as if the "Experimental Class" is still in a state of flux at this time, but THERE WILL BE SINGLE-SHOT BATTLING AT 1985 NATS. More and more people are convinced that that is the direction the hobby will take. The major question to be settled is whether there will be only a single-shot cruiser class or if the class will be open to all ship types. LET THE EXECUTIVE BOARD KNOW YOUR PREFERENCE.

Tom Falk

Let's build.

OBSERVATIONS OF THE FOUNDING FATHER

Greetings Combatants! Well it really was a noble experiment. Before it was even really began, the Manhattan II Experiment is over. The winning single shot gun is; "any single-shot gun"that meets the requirements of the experiment. The experiment was such a sucess even I am surprised. Martin Schneider really proved prophetic in his last Presidents page. So get started. Get your battleships, cruisers and destroyers rearmed with single-shot guns because you will find lots of other ships equipped that way at the 1985 Championships.

I wish to thank all you chickens(like me) who were tired of seeing nice models rapidly Nuked into garbage. But if you like to create garbage, Martin Schneider wanted me to tell you that he will be ready, willing, and able to destroy your potential Best of Scale model with his Mega-kill guns.
Thank you for draving the line on destruction. 1984 was really too much of a "good" thing.

I really thought that 1985 would have to be the same thing, but there was a great ground swell of rebellion against the barbarism. Once again I am impressed with you great people. Thank you for giving me my hobby back!

Stan

Let's Battle(single-shot)!

Ballot Totals For 1984

A total of 40 ballots were sent out,we recived back a total of 29 ballots. For a 2/3 margin to pass a rule needed 19 votes to pass. All rules on the ballot but number 2 passed. Following is how the vote went

Yes	NO	Abstained
1.22	7	
2.18	10	1
3.26	2	1
4.24	5	
5.22	6	1
6.27	1	1
7.20	8	1
8.22	6	1
9.28	1	

I would like to thank all the people that sent that ballots back promptly. All people sent their ballots back before deadline.

Thank

Mary Hamilton Dave Hamilton

HOW TO BUILD
A STYROFOAM CARRYING CASE

After you complete construction of your beautiful, lethal R/C Combat Warship you face the question of what to do about a carrying case. Some sort of box is required to lug the beast around in. There are as many carrying case designs in our hobby as there are ships. The elaborate case that Fluegel has built for the BISMARK provides complete protection, a table-like working surface, and numerous drawers for spare parts (but it is large and heavy and expensive to build). The other extreme is the case we used for the SURCOUF--a towel wrapped around the model. This case provides little protection, no workspace or storage, but it was cheap to build.

In the middleground are the light, cheap but effective cases we have built for the RODNEY, SHROPSHIRE and ARETHUSA. These cases are light (they are constructed from styrofoam and pine trim), cheap (about $10 each), and provide a work surface for the ship. They provide effective protection for transporting the ship in the rear of a car but are not adequate for air transportation.

Figure 1 shows an isometric drawing of a typical case. Figure 2 shows a cross section of the carrying case. Note that the case is topless and, except for the bottom cross braces (3), it has no bottom. The sides are built of styrofoam and pine trim. The RODNEY case has one end built in for strength, but the cruiser cases have no ends at all--they are essentially troughs. Depending on the length and weight of your ship, decide on which type you wish to build. The 1" x 1" corner moulding at the top and bottom of each styrofoam side provides strength and also protection so that the styrofoam isn't dented. The styrofoam and pine trim is available at your local lumber store. The styrofoam is sold in 4' X 8' or 2' X 8' sheets. It is 1" thick. (It is sold for insulation.) It can be easily cut with a table saw or even a razor knife.

After you have cut the styrofoam to the correct length and width, glue and nail the pine corner moulding to the top and bottom of the styrofoam sides. Use white glue (Elmer's); other glues may melt the foam. Test it first. Glue and nail the 1 1/2" x 1/4" lattice trim to the ends of the styrofoam insuring that the lattice is nailed to the corner moulding, not just the foam. Note that the lattice on each end extends past the bottom of the corner moulding. This allows the lattice to be glued and screwed to the end bottom cross brace. These cross braces are made of 1" X 2" pine (or 1" X 1/2" if available). The middle cross brace is also glued and screwed, but to the lower corner moulding. If you decide to build one end on the case, fasten a piece of 1/4" plywood to the lattice on the end you desire.

The entire case should be painted; this hardens the styrofoam and aids the appearance (you don't want to be mistaken for an Axis!!) Be sure to use a paint that doesn't eat foam. I used Formila-U Polyurethane; it is available in many colors-- even black for Fluegel. The paint will cover the foam and the pine trim. When all is dry, attach a strip of foam rubber to the top of each bottom cross brace. This provides a cushioned, non-skid surface for the model to sit on while being carried.

The folding cross braces on the top of the case are used to support the ship at the battling site. This feature allows the model to be removed from the case and set on the top cross braces for tweaking, scoring, and repair, etc. These folding braces are made of lattice also. They fold out of the way to allow the model to be placed in (and out) of the case.

Good luck with your case. SINK AXIS!!!!

Tom Jass

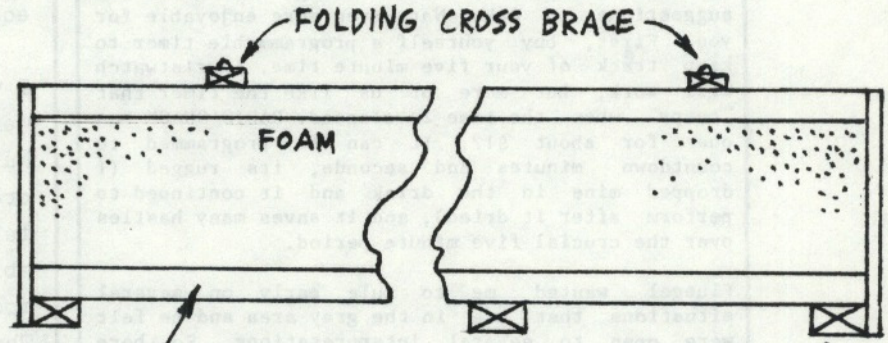


FIGURE 2: X-SECTION

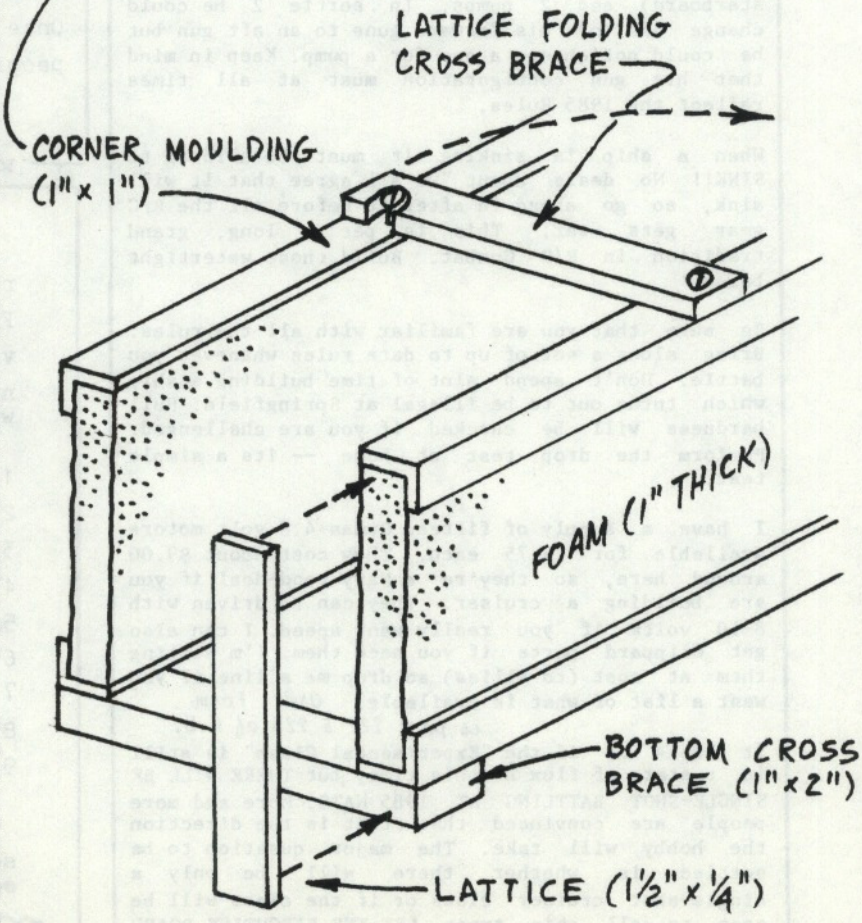
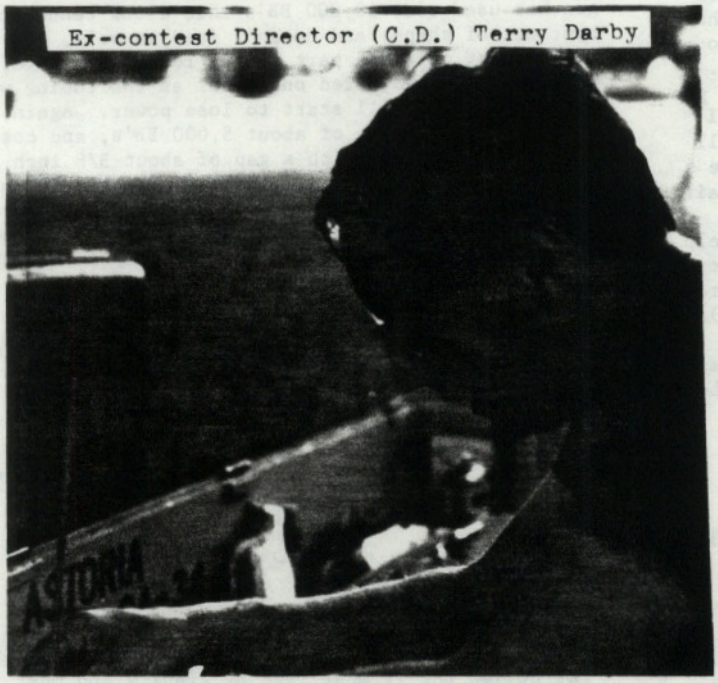


FIGURE 1: END DETAIL

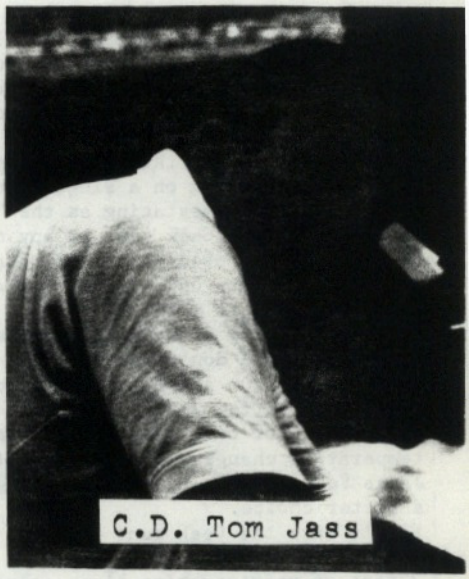
CHAMPIONSHIP PEOPLE

President Foster

Ex-president Schneider



Ex-contest Director (C.D.) Terry Darby



C.D. Tom Jass

Elbow of the Year

Camarati demonstrates Ship box.

'The Unfair Advantage'

Technology

All everyone wants when they are in combat, is an unfair advantage. When one develops systems for their ship, maximizing the performance of those systems is where it's at. The rules are very clear on how many units are allowed, and the basic designs of these systems.

The problem in the 1984 Championship was that the new guns that both Axis and Allied fleets had developed and installed were too good. If your idea of a good time is destroying your friend's ship, then this gun is for you. But after your friend is blown out of the water, he too will install the more destructive gun or he won't want to play anymore.

I think we need some type of arms control. In a two sortie battle between James Foster's "USS Chicago", and my Andrea Doria, the final score was James 1600 and me 1595. Yes, nearly 3200 points were scored in a very short period of time. There are many ways we could regulate the performance of guns. One of the easiest ways is to increase the ranges we fight at. But this makes safety a real problem, many more people could get hit while standing on the shore line. Another way is to limit the amount of BB's each gun carries. You could also limit the rate of fire, ie, make the gun fire single shots instead of spurts of 5 to 10 BB's.

This is the direction in which I would like to see the hobby go. A single shot gun may not be as potent, compaired to a spurt gun, but it would be more true to scale. The damage from a single shot battle would be less and easier to repair due to single holes rather than large splintered areas.

I am now working on a single shot gun. This gun will not be as devestating as the "geek gun". I feel that if the Geek gun, or any other powerfull spurt gun, were used by all combatants, then the hobby might "burn out" due to the amount of repairs all would have to make.

The following article is one that will not help the hobby but I don't want to keep the gun a secret. (One note on gun adjustment, my guns on the Andrea Doria work better when I battle in cool weather). The restrictor tube has to be adjusted when the temperature changes more than 15° (plus or minus). James Foster's "O" ring restricting device may be a better choice.

How to make the Geek gun:

parts needed:

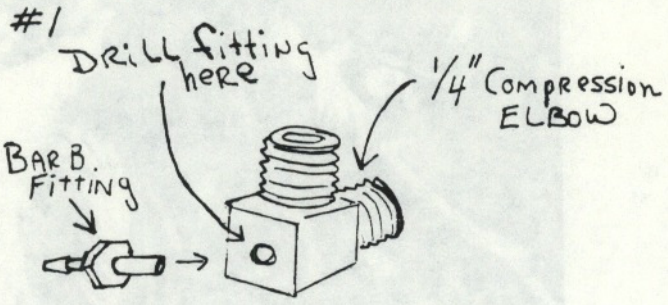
3 feet of refrigeration ¼inch copper tubing
40 inch length of ¼ steel brake line
1 foot of 4mm or 5/32 inch auto washer-vacuum line
3 ¼ inch copper elbow (compression type)
5 clippard barb fittings (hose x 10/32)
1 clippard poppet valve MAV-2P
1 clippard roller activator for valve
3 feet of clippard urethane hose

Credit for this gun design must go to several people that I have talked tapes to and exchanged ideas with. First is Joe Salini for his countless hours of tape on theoretical and real gun designs. Second is to Paul Fleming for his many hours of tape on his guns and his theories on gun design. Third to Stan and Fluegel and Vilar for getting me interested in this insane hobby. Fourth is to Dan Dees for his article on coiled magazines. Also, Dan had lent me the 1983 Championship video tape. From this tape I was able to get a clearer view of what good spurt gun performance was.

The name "geek" gun was my idea because once it is set up, almost any "geek" can keep it working sortie after sortie without any adjustment. Yes, parts of the gun do wear out, but these parts are very inexpensive and can be changed in the field as easily as an O ring.

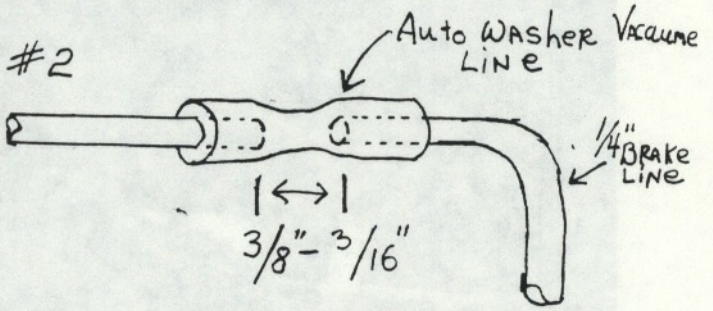
This design is very simple and should cause no pain when it is being installed in a small cruiser. The version that is installed in the Andrea Doria has a coiled 200 round magazine that is rather bulky for a small ship. The straight magazine works better in the narrower ships.

Assembly: First you should have 3 ¼inch compression elbows. Try to get elbows that have a large block of brass at the corner of the elbow. (This type is easier to machine). Next chuck up three of the barb fittings in a drill and file all the threads off the threaded end. Next, drill a hole in the elbow as in diagram #1.

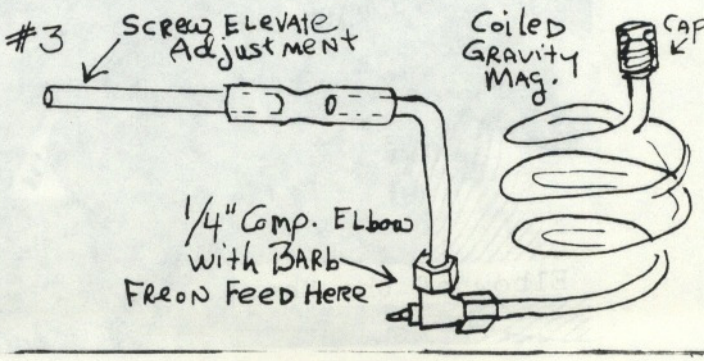


The diameter of this hole should be slightly larger than the diameter of the barb fitting so that you can sweat soder them together. Once the barb fitting is sodered to the elbow, the bore of the elbow has to be cleaned out. This cleaning out the bore is what makes or breaks the elbow, if it is right then it works great, if it's wrong it won't work well and will probably jam. This is why you are making 3 of these elbows when you only need one. Also, when the gun has used over 10,000 BB's this elbow tends to get bent out of shape; and doesn't feed as well.

The next critical part is the restrictor tube. It only has to be adjusted once, but as the tubing wears out, your shots will start to lose power. Again, this part has a life of about 5,000 BB's, and costs very little. Start with a gap of about 3/8 inch and work your way down to 3/16 inch. Somewhere in that range you will get 'on demmand' fire and good hard hitting shots. Too narrow a gap will cause low power shots, too wide a gap will cause a delay in firing your gun. Refer to diagram #2



Next is the magazine tube. It can be straight or coiled but it must feed by gravity and must not jam or cause any resistance to BB's rolling down to the compression elbow. I have the end of the magazine coming through the deck with a cap on the end. This permitts me to load BB's without removing the decking or superstructure. The only problem is that it looks ugly. If you hide it, it would look better, but it would be more inconvenient. (see diagram #3 for overall gun setup.)



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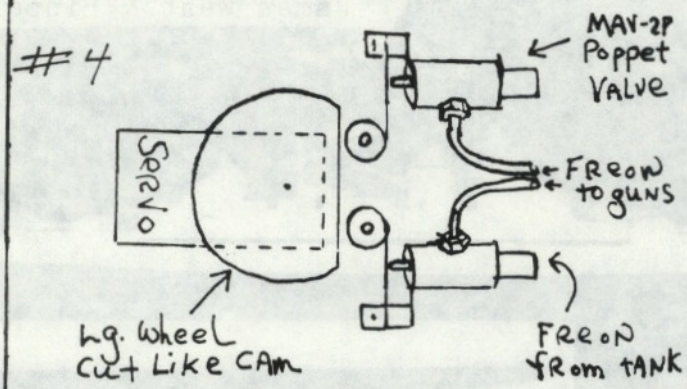
The valve is next, I use a poppet balve that is a high flow design, Such as the clippard MAV-2P. The activator is a nylon roller type that takes only 1/8 inch stroke to reach full flow. My servo has a large wheel on top, cut like a cam and can activate two guns. See Diagram #4.



Advantages and disadvantages of the "geek gun"

Advantages:

1. Does not spurt the whole magazine.
2. Simple to adjust the restrictor tube for a given temperature range.
3. Hard hitting bursts of 5 to 10 BB's
4. Instant fire
5. Cheap as far as cost in materials and labor to assemble.

Disadvantages:

1. Will probably be illegal by 1986.
2. Causes too much damage to the ship and makes repair a chore.
3. very poor scale resemblence to real "Big Gun" fire.
4. Causes a needless escalation of minigun development towards more powerful spurt guns.
5. Direct sun and very hot weather (95-100°) will cause you to adjust the restrictor tube frequently. I had problems with the gun at the Nationals, but Fluegel was not having as many problems. (He was adjusting the gun more often than I was).

In closing, I have to admit that I didn't know I was opening such a big can of worms. Here in the Northeast, many people are in the process or have installed "Geek guns" or James Foster's gun. The battle damage can only get worse. I am presently trying some single shot concepts and have much more faith in that type of thinking.

PRESIDENT'S COLUMN

by James C. Foster

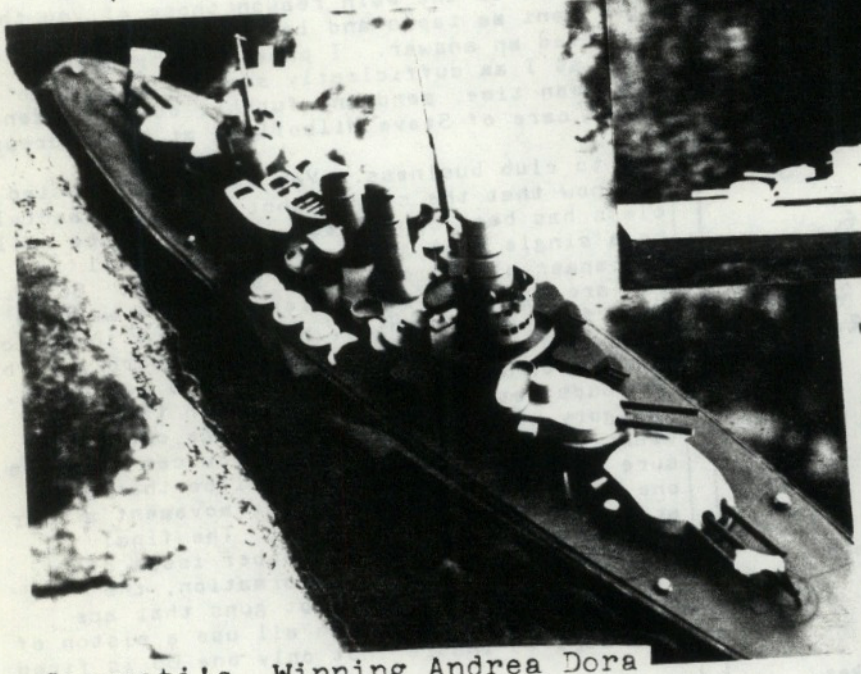
HELLO! The first order of business is that I have moved to Springfield, Missouri. This move is the main reason those of you tha have sent me tapes and letters have not received an answer. I promise to reply as soon as I am sufficiently settled here. In the mean time, send any further correspondenc to me care of Steve Milholland at his address

Now to club business. You may be interested to know that the single shot gun experimental class has been cancelled. In it's place will be a single shot gun category that will encompass all ship classes and types. So if you are tired of the nuclear warfare we have been fighting recently, you may want to switc to this category. The Executive Board will b working on the exact set up (units per class, BB loads, etc.) that the ships in this category will use, or whether the current class systems will be used. You can still be sure that one requirement will be that only one BB can be fired per lever movement as far as legal guns are concerned. The final details will be in the December issue of HULLBUSTERS. For your information, the designs for the single shot guns that are currently being worked on all use a piston of some sort to insure that only one BB is fired

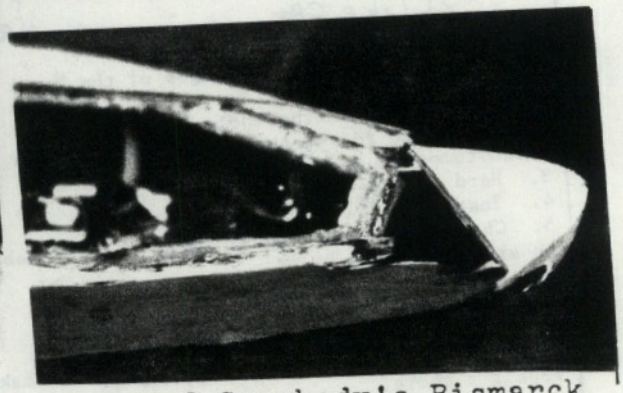
Recent events have come to the attention of the Executive Board concerning an issue that has the potential for causing endless controversy in the hobby. This is the issue of HOUSE RULES! The definition of a house rule is any rule or situation that is allowed in a battle that abrogates or modifies one of the clubs existing rules. As an example of this kind of modification would be waiving th requirement for the 12" drop test and allowin any hull hardness. Another example is changing the number of units that a ship may carry. These house rules can be used all you want at a local level, but you can not send the results of these battles in to the national club organization for yearly point standings. The Executive Board has decided that if any battle results are submitted and we know that a house rule was used that is in direct contradiction to the existing club rules, all points accrued by the captains submitting the battle reports will be thrown out. While this may seem extreme to some of you, we feel the potential for abuse is so great that the penalty must be of sufficient discouragement. Think of the points that could be scored if full magazine, down angled side shooting guns were allowed on a battleship with the current nuclear cannons! This rule will go into effect as soon as the HULLBUSTERS is received. Please realize that this is a temporary rule and is subject to change, modification, elimination, and improvement at the next rules meeting in July. We are working on several ideas to be submitted as By-laws to the constitution that will cover this area and hopefully eliminate it as a future problem. So save your gripes and come up with alternatives to present at the next Championship! Also, this is not a retroactive change, so any violations of the above rule that have already occurred will not be penalized.

THE MAGNIFICENT 1984 AXIS.
The few the few & the few

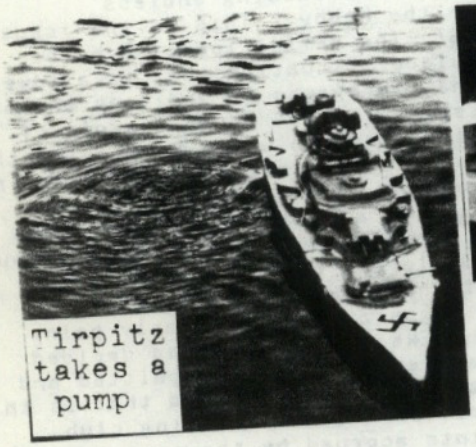
James West & Hipper



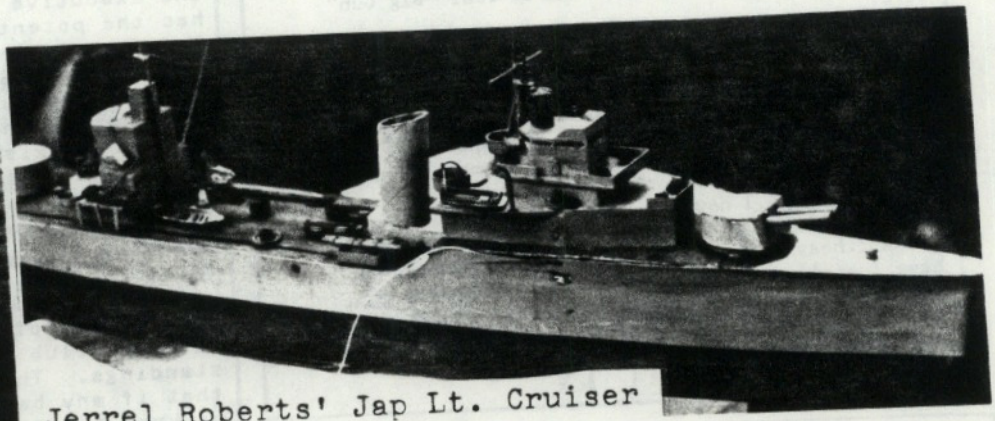
Camarati's Winning Andrea Dora



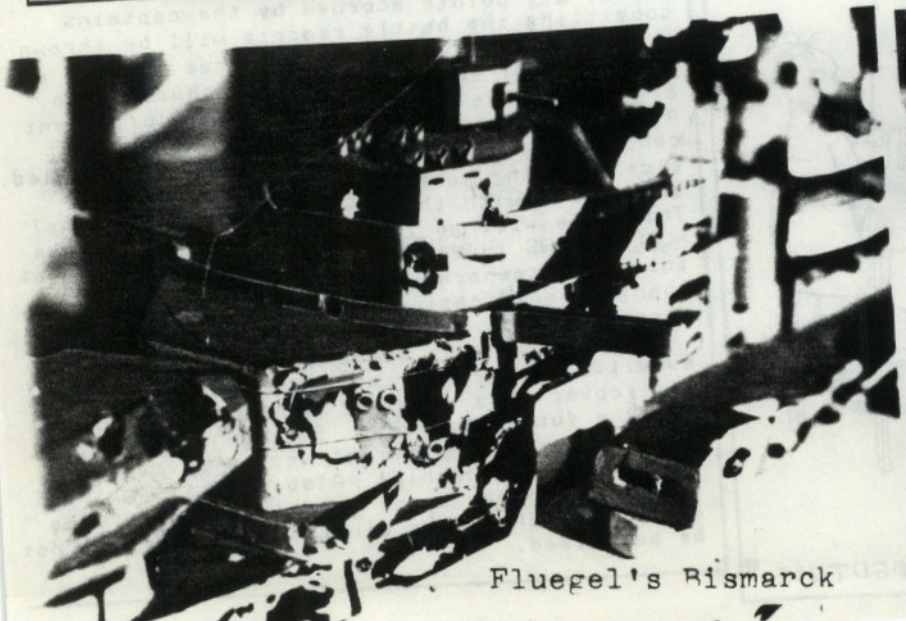
Stern of Somebody's Bismarck



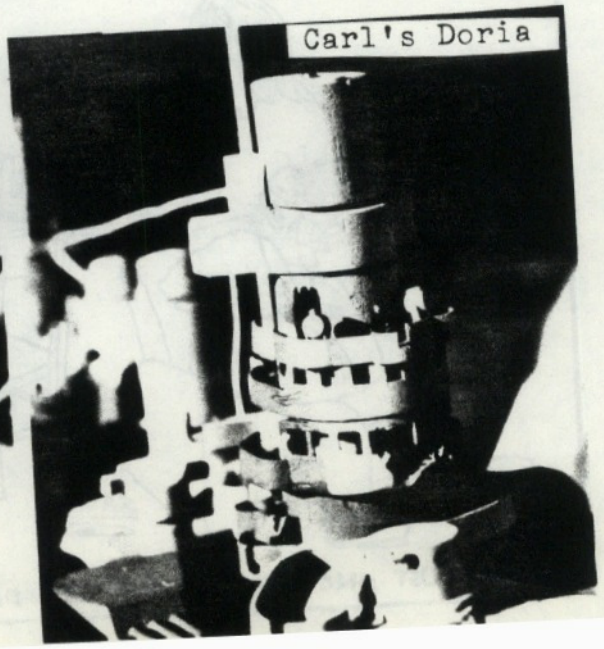
Tirpitz takes a pump



Jerrel Roberts' Jap Lt. Cruiser



Fluegel's Bismarck

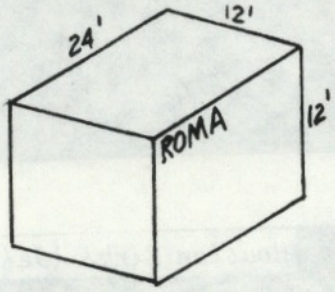


Carl's Doria

How to Estimate the weight of a model

Often it is necessary to know the expected displacement (in pounds) of the model ship you have decided to build, before construction begins. This information is not critical when building a battleship or heavy cruiser because in ships of this size ballast is required to bring the model to the correct waterline. However, if your next ship will be a light cruiser, a destroyer, or (perish the thought) a submarine, it would be helpful if you had a quick method to calculate the expected model displacement.

The following theoretical discussion will develop a factor to enable us to determine model displacement (in pounds) based on the full-size ship's displacement (in tons). These calculations are far too complex for AXIS to follow so they should skip to the end of this article where the answer is. Let's approach the problem this way. A picture of the latest Italian battleship is shown below. She is called the ROMA.

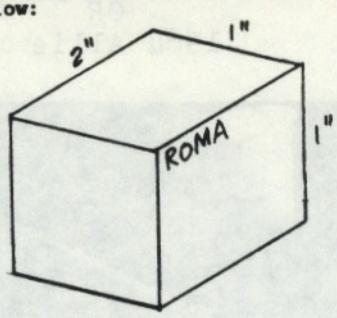


The ROMA has a length of 24', a beam of 12', and a draft of 12'. She is a typical sleek Italian ship. We can determine her weight in tons if we determine the volume of water she displaces (length x beam x draft) and then multiply the weight of water per cubic foot. Her displacement (in tons) is:

W1=(24x12x12x62.4)/2000=107.82 tons

The ROMA'S displacement is 107.82 tons. The 62.4 represents the pounds per cubic foot that water weighs. 2000 is the number of pounds in a ton.

When we model the ROMA in 1/144 scale she is shown below:



The displacement of our sleek model (in pounds) will be:

W2=(1x1x2x62.4)/1728=.07222 pounds

In the formula above the 62.4 we've seen before; 1728 equals the number of cubic inches in a cubic foot.

If we divide the full-sized ROMA'S displacement (W1) by the displacement of the model (W2) we will have developed a FACTOR (henceforth known as the ROMA factor) which will enable us to determine before construction the displacement of a ship model in 1/144 scale.

ROMA = W1/W2 = 107.82/.07222 = 1492.9

To make the factor easier to remember let's round and call it 1500. So then, if we wish to build a 3600 ton destroyer we can estimate that a model in 1/144 scale will displace approximately 2.40 pounds. (3600/1500=2.40)

The ROMA rule then is:

DIVIDE THE SHIP DISPLACEMENT BY 1500 TO CALCULATE THE MODEL DISPLACEMENT IN POUNDS.

Smooth Sailing

Tom Jass

Tom Jass

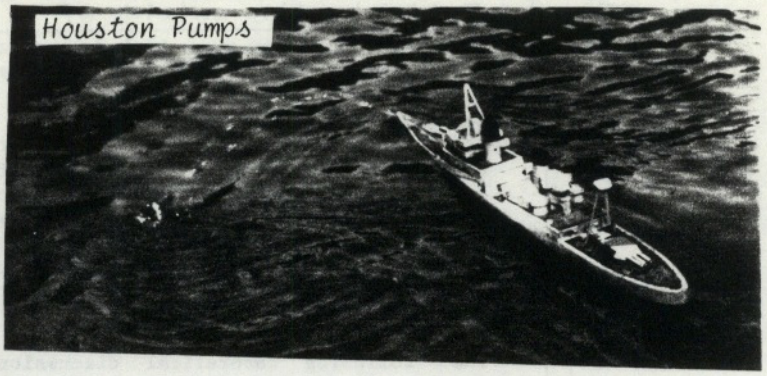
THE 1984 FINAL SCOREBOARD

* POINTS PRIOR TO NATS

NAME	*	FLEET BATTLES A1	A2	A3	A4	A6	A7	N1	FLEET BATTLES B1	B2	B3	B4	B5	B10	B11	B12	B13	SMALL SHIPS S1	S2	I1	I2	I3	TOTAL
CAMURATI	4105	655	1169	738	1236	1048	523	76												1585	2560		23285
FOSTER	5219	472	247	496		389	579									363				1590	1125		15741
SCHNEIDER	1625	680	1169	503	1226	1073	420													580	405	945	15627
JASS, J	2166	1005	573		834	797	1188			225	191			218				173	15	0			14770
MILHOLLAND	4075		583	1031	854	817	1218		138											150	70		13797
WATKINS	3784	995	583	1016	684	472	23	260										28	15	0	580		13096
DARBY	3028		292	496	427	399	609													530			8534
FLUEGEL	1913	250		43	1236	1083	103	86															7515
WEST	1851	345	549	146	598	541	266	43	4									193	0	0			7221
HAMILTON	1675	502	292	506	427	399	307	130											-10				6781
HAYNES	40	115								300		330		99	503	476	102			20	350		4630
ROBERTS	0							-20			309	120		66	377	357	76	289					3148
SHEPARD	0							250		580		230		368	25	30							2966
GARRETT	0		148						69								102			1000			2638
POINDEXTER,J	587		215		332	187		260	29														2633
JASS, T	265									135		-135	78	226		357		42					1671
LAWSON	642								29		401				13	30				30			1648
LISHER	173								69	50				226	13					80			1049
POINDEXTER,L	5											105		11			363						963
HAYES	215								29		34		107			25							605
STEVENSON	0												248										496
POINDEXTER,K	0																			0			0
NOBLE	0																			-5			-10

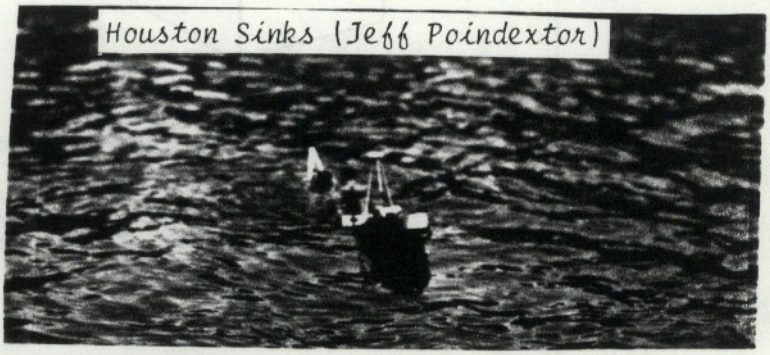
ALLIES AT LARGE
OR
1984 Allie Champs

Pre-Dreadnaught 1989 Russian Sinope
by Shepard & Shepard

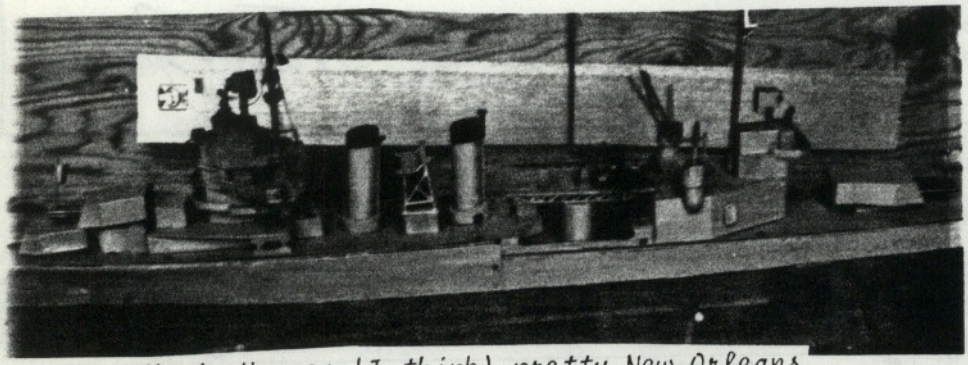


Houston Pumps

Foster's Awesome Yankee Cruiser

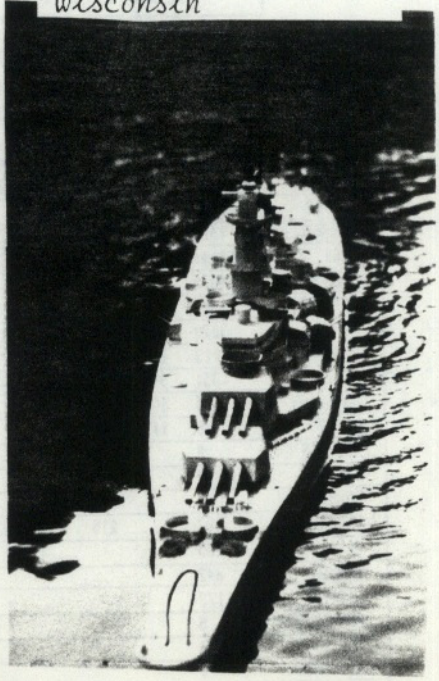


Houston Sinks (Jeff Poindextor)

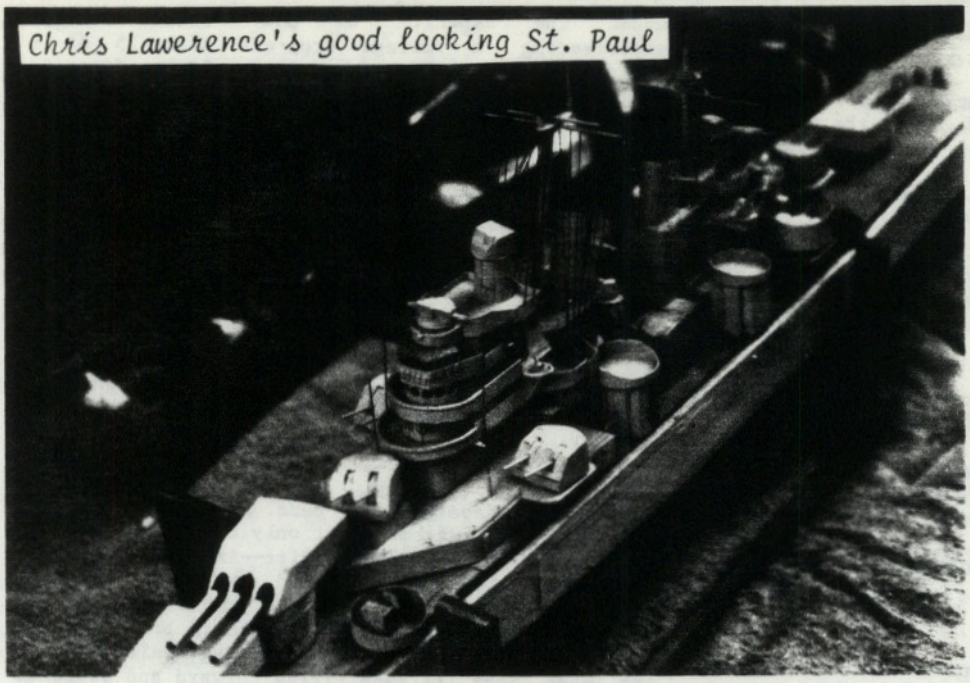


Marty Haynes (I think) pretty New Orleans

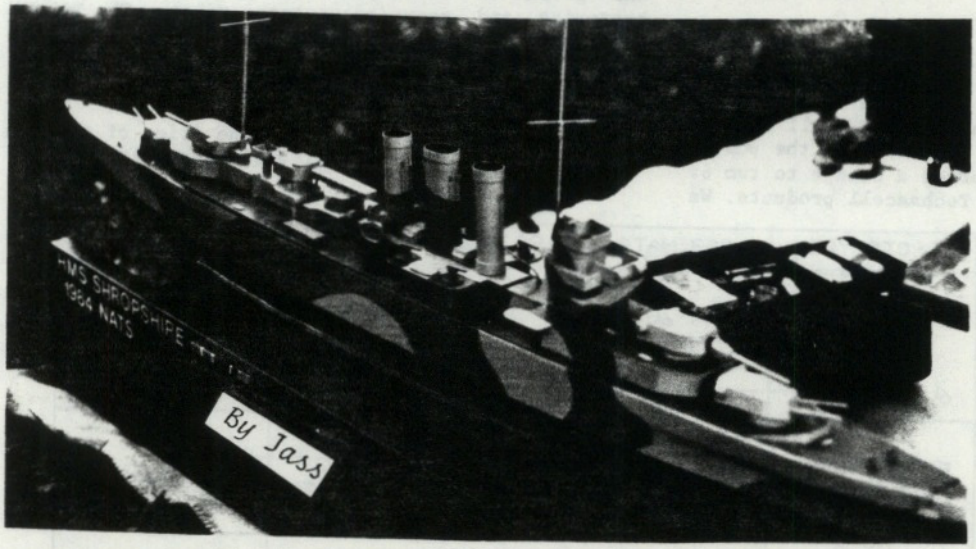
Jeff West's beautiful
Wisconsin

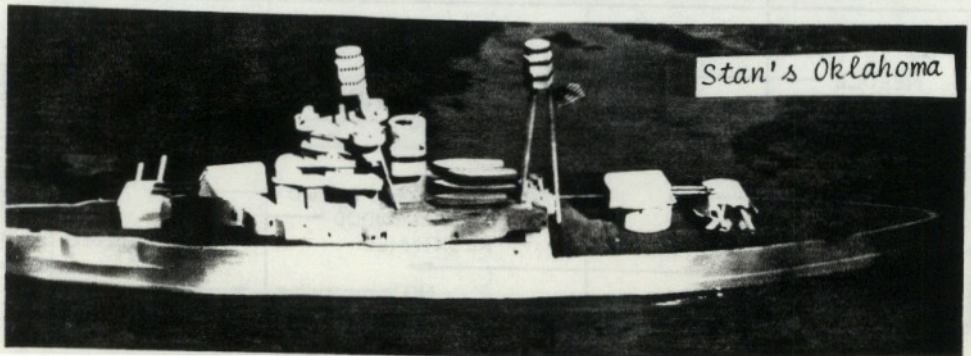


HMS Shropshire by Tom Jass



Chris Lawerence's good looking St. Paul





Stan's Oklahoma

FROM PEN OF THE SECRETARY

POINT STANDINGS-R/C WARSHI

COMBAT CLUB 1985

1.	Carl Camurati	3366
2.	Joe Vilar	1606
3.	Bill Hahn	1360
4.	Bob Amend	990
5.	Robert Schultz	988
6.	Dwyer Wedvick	756
7.	D.W.Fluegel	720
8.	Robert Russell	596
9.	Marty Hayes	430
10.	John Jass	380
11.	Steve Milholland	373
12.	Dan Hamilton	190
13.	David Haynes	167
14.	Gearld Roberts	140
15.	James Foster	95
16.	Tom Jass	95
17.	Mike Deskin	56
18.	Billy Gainer	20

This is point standings reported to the Secretary thru September 10th, in the year of our Lord 1984.

Dan + mary

Rodney's Refit Cont.

refitting, modification and and upgrading systems. Since the RODNEY was our first ship, many of these changes were a result of inexperience and learning. I don't want to scare anyone away from this hobby. The SHROPSHIRE and the ARETHUSA haven"t required nearly as many changes -- we incorporated many of the lessons learned in their original construction.

Strive to be:FAST, RELIABLE, RELIABLE, RELIABLE and RELIABLE.

Tom Jass

Sink Axis!!

RODNEY'S REFITS

Tom Jass

As I began to read about ship's and their operational history I was amazed at the frequent, long periods of time they spent in shipyards. Most capital ships seemed to spend one year in refit and repair for each year they steamed. During a battleship's life (HMS QUEEN ELIZABETH for example) the main propulsion plant was changed, the superstructure was extensively reworked, the secondary armament was greatly increased; indeed it seems as if only the main armament and hull were unchanged.

Do R/C Combat Warships experience the same amount of modification and change? If the RODNEY is at all typical they certainly do. On the accompanying table I have listed all the systems/components and the corresponding changes they've seen. Why all the changes? First to become competitive, and then to remain competitive. We are truly engaged in an arm's race. Let's cover the RODNEY'S changes system by system.

MOTORS

We arrived at the 1983 Nationals with one Dumas 6v motor driving both screws via a Dumas gear train. On Sunday prior to Nats we removed the geartrain and added a second Dumas 6v motor. It helped--although ROD was still called a "turttle" by HULL BUSTERS for her speed (or lack thereof). Prior to the 1983 S.E Regionals we junked the 6v motors and installed two 12v motors of unknown manufacture. ROD became competitive. At this time we also installed fuses on the motors. We've kept this setup since it works.

THROTTLE

At the 1983 Nationals we used (burned out) a TAMIYA throttle. It could barely handle the load. By the 1983 S.E Regionals we were using a home-made 6v/12v rotary switch throttle. It worked well but was large and bulky. In spring 1984 we switched to a Radio Shack 2 pole 12 position rotary switch (catalog # 275-1386). We're happy; we'll leave it in.

BATTERIES

We've always used Gell-Cells. They are easy to maintain and they provide high amp hours. At the 1983 Nationals we had one 6v 5AH cell for the motors and a separate 6v 5AH cell for the pumps. The switch to 12v motors forced a change to two 6v 8AH Gell-Cells. These are Technacell products. We upped the capacity to 8AH because we were experiencing a voltage drop-off after 5 or 6 sorties. The pumps were driven off the first 6v cell. We used this configuration at the 1983 S.E. Regionals and the 1984 Nationals and we're pleased. In the past month, however, some ballast was removed and we installed a separate 6v (three cell) string of Gates X-cells to drive the pumps. More changes (more $).

PUMPS

The modified Milholland Penny Pumps we built in 1983 prior to Nats have serveed us well. What's not broke--don't fix!! After the 1983 Nationals we installed fuses for the pumps. We have always activated the pumps in our ships via the throttle servo (full reverse/full trim turns the pumps on/off).

ARMAMENT

Big changes have occurred here. After all, the ship and all its systems exist only to get the guns on the water in position to fire--AND SINK AXIS!! At the 1983 Nationals we had two Mark IX guns installed, using coiled copper magazines. One gun off port broadside, one off starboard broadside. We were lousy!! Before the 1983 S.E Regionals we added two more Mark IX guns firing forward and switched the magazines to brass tubing (ala Steve Milholland). Throughout this time we were using Clippard needle valves. At the 1983 S.E Regionals we got better!! Prior to the 1984 Nats we changed all the guns to "Foster" guns with his bypass feature. We also switched to Clippard poppet valves. A vast improvement!! The guns are reliable, powerful and easy to tweak.

HULL CONSTRUCTION

The RODNEY was built using the "upsidedown method" on a jig. During the 1983 Nationals the entire deck was made of 1/4" balsa-- it warped. Prior to the 1983 S.E. Regionals we redecked using 3/32" plywood. Much better. As built, the entire huill bottom was 1/2" balsa. Over the past year we have been replacing the balsa with 1/8" plywood. At this time the bottom is about 50% plywood. The plywood has given us additional interior room for bigger batteries and servo/accumulator mounts. The RODNEY has been completely reskinned twice. Once after the 1983 Nationals and again this past winter to meet the hull hardness standard (thanks Terry D).

As someone said (not Fluegel) "The price of freedom (from sinking) is eternal vigilance." And eternal

SUBSYSTEM	PROTOTYPE	1983 NATS	1983 SE REGIONALS	1984 NATS
MAIN PROPULSION				
MOTORS	DUMAS 6V (1)	DUMAS 6V (2)	12V (2) →	→
THROTTLE	TAMIYA →	→	6V/12V ROTARY (OWN)	6V/12V RS*
FUSES	NO →	→	YES →	→
BATTERIES	6V 5AH (1) →	→	6V 8AH (2) →	→
PUMPS				
TYPE	PENNY PUMP →	→	→	→
BATTERIES	6V 5AH (1) →	→	USE MP BATTERY →	→
ACTIVATION	SERVO →	→	→	→
FUSES	NO →	→	YES →	→
ARMAMENT				
GUNS	MK IX (2) →	→	MK IX (4)	FOSTER (4)
VALVES	NEEDLE →	→	→	POPPET
MAGAZINES	COILED COPPER →	→	BRASS TUBING →	→
MAG CAPACITY	200 →	→	300 →	→
HULL CONSTRUCTION				
BOTTOM	1/2" BALSA →	→	PARTIAL 1/8" PLYWD →	→
DECK	1/4" BALSA →	→	3/32" PLYWOOD →	→
SKIN	NEW	NOT SO NEW	RESKINNED	RESKINNED
HULL HARDNESS	18" →	→	→	14"
W.T.BOX	YES →	→	NO →	→

* RS=RADIO SHACK

Rodney's Refit Cont. on Page 220

SEND TO: _____

_____

_____

DATE: _____

PART NO.	DESCRIPTION	UNIT COST	QUAN.	TOTAL COST
11752-2	BARBED HOSE FITTING (10-32)	.30		
11755	SCREW PLUG (10-32)	.11		
11761-2	GASKET (25/PKG)	.35		
11918-1	MTG. BRACKET (MAV-2 VALVE)	.35		
15002-2	L COUPLING (10-32)	.45		
15002-3	T COUPLING (10-32)	.45		
15002-4	X COUPLING (10-32)	.50		
15004	FEMALE HEX CONN. (10-32)	.20		
15040	SWIVEL FITTING (10-32)	.75		
3814-5	URETHANE HOSE (120 PSI)	.06/FT		
5000-4	HOSE CLAMP (USE W/ 11752-2)	.03		
MAV-2	POPPET VALVE	4.25		
MNV-1K	NEEDLE VALVE	3.50		
11925	CAM FOLLOWER	1.75		
56810	"NYCOIL" 10-32 CONNECTOR	1.30		
61233	"NYCOIL" TUBING (1000 PSI, 5/32" OD)	.10/FT		

TOTAL

TAX (.0625)

+ POSTAGE

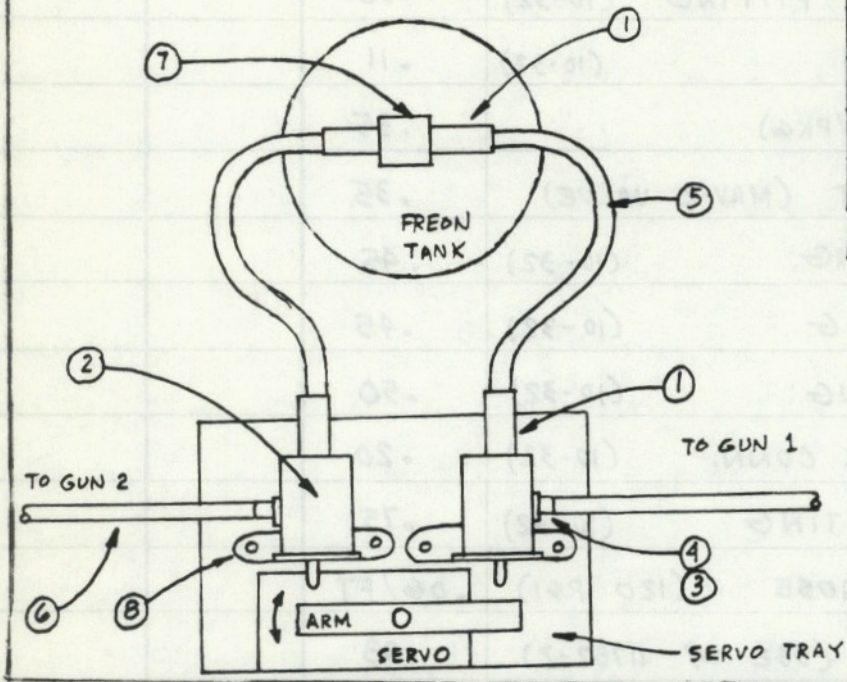
Send to

T.M. Jass
312 E. Circle Av.
Lombard, Ill 60148
(312) 620-5835

diagram for gun order is on the back of this page

SCHEMATIC: TANK-VALVE-SERVO HOOKUP

(1 TANK & 1 SERVO FOR 2 GUNS)



PARTS LIST		
NO	DESCRIPTION	CAT. NO.
1	CONNECTOR (1000 PSI)	# 56B10
2	POPPET VALVE	# MAV-2
3	BARBED HOSE FITTING	# 11752-2
4	HOSE CLAMP	#5000-4
5	HOSE (1000 PSI)	#61233
6	HOSE (120 PSI)	# 3814-5
7	T COUPLING	#15002-3
8	MOUNTING BRACKET	#1191B-1

NOTES:

1. FREON TANK CAN BE FILLED THROUGH MAV-2 OUTLET HOSE.
2. SERVO MUST EXCEED 35 IN-OZ TORQUE.
3. MUST USE 1000 PSI (BLUE) HOSE BETWEEN TANK AND VALVE.

CALENDAR

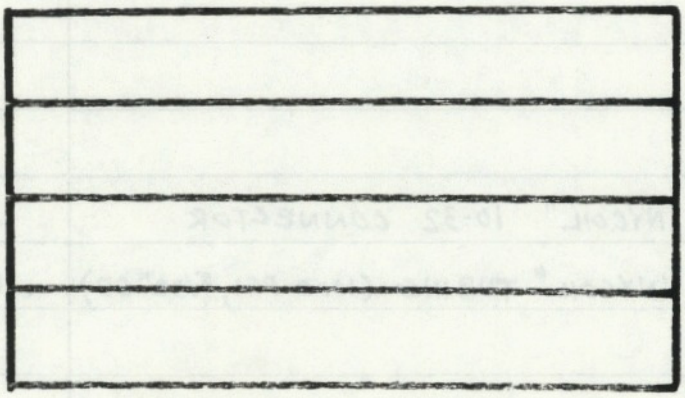
.) South West Regionals, C.D. is Dan Hamilton, Location is Decatur, Alabama, date is October 20th and 21st. This looks like it will be a major battle!

.) Championships in July at Springfield, Missouri. C.D. is Tom Jass. 7-14/7-19 (Mon - Fri.).

BABY BATTLERS.

Good News to BABY BATTLERS. The "See & Say" Program for Hull Construction or Pump Construction is ready (reference to page 183 H.B.).

HULL BUSTERS VERY LIMITED
3524 GRAY DRIVE
MESQUITE, TX 75150



This is the Bottom Line
This Line is 4 3/4" Long. Make your Articles this LONG!
This is not a Dead Line, the Dead Line is "Post Marked" by the 25th of every odd numbered month. Just think of Christmas. Our next Dead Line is September 25th.

4 3/4" Column Line South 4 3/4"