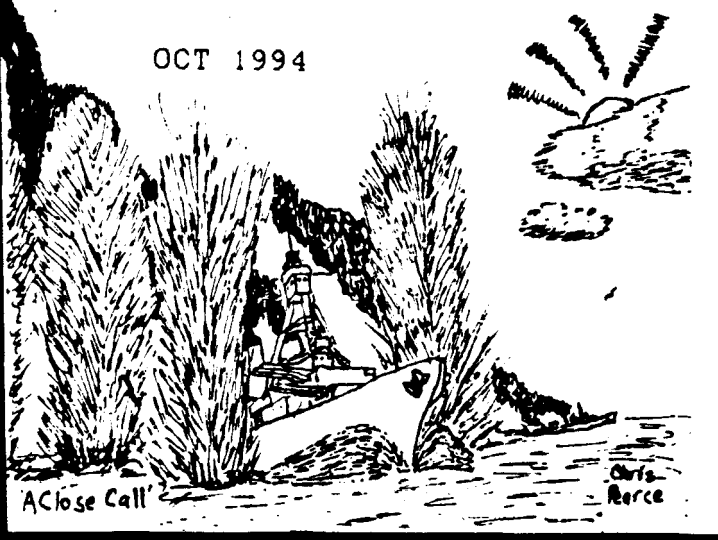


HULL BUSTERS

OCT 1994



A Close Call

Blow-by-Blow



Battle Reports

Wednesday at National's
by Lief Goodson

Wednesday at Nat's is typically a day to rest and recover from the first two grueling days on battle. The lake was not available until 2:00pm so most battlers were able to get some rest. In mid-afternoon captains began arriving at the lake to prepare for Small Ship Fleet Battle and One-on-One battling. It was hot and very humid on this overcast Houston day.

Small Ship Fleet Battle pitted the following ships and captains against each other:

<u>Allies</u>	<u>Axis</u>
HMS Belfast (A. Kricke)	DMB Pola (R. Kricke)
USS Atlanta (Purvis)	DKM Admiral Scheer (C. Kricke)
Marsellaise (Milholland)	IJN Miuzuki (G. Roberts)
Georges Leygues (Foster)	

The battle began @ 3:30 pm as a light drizzle fell. The Allied fleet was assembled at the bottle-neck between the big lake and the channel lake, while the Axis fleet was in the middle of the channel lake. The rain increased as both fleets charged headlong for their opponents. Admiral Scheer was the first to open fire without success - then a melee developed with French ships attacking the Miuzuki, and the Admiral Scheer going "five out-of-control". Bart "the beast" Purvis (Atlanta) took advantage of the hapless rookie by using both spurt guns on him. The Belfast joined the French ships in the attack on the Miuzuki, which fought valiantly. The Pola got some attention from the Marsellaise, while the Atlanta sank due to her pump outlet being placed on the inside, instead of the outside, of the hull. Soon the Pola and Georges Leygues were the only ships left with bb's. The sortie ended with Pola registering superstructure hits on the French fleet.

Sortie 2: The battle began with all battlers firing. Soon the Allies focused on the JAP destroyer. The Pola rammed

(damaging) the Atlanta (which the Axis graciously allow to enter the battle after his first sortie sink). Then the Belfast Admiral Scheer squared off with the Scheer drawing first but with the Belfast scoring big as the ships broke off. The Miuzuki settled under the attention she had received. Soon the Pola and Atlanta were back in the battle just in time for Belfast to ram sink the Pola. Admiral Scheer was the last remaining Axis on the water, and, having problems, called "out-of-control". The Scheer then went into the familiar pocket battleship "death spiral" until she was aground and sinking. The Pola then returned to the water to finish out the battle against the anglo-french fleet.

The Allies claimed a 1,970 to 605 victory in the Small Ship Fleet Battle.

Individual Combat \ One-on-Ones

The Pola and Belfast went at it in a low scoring battle with father (Randy) claiming a narrow victory over his son (Andre) 175 to 150.

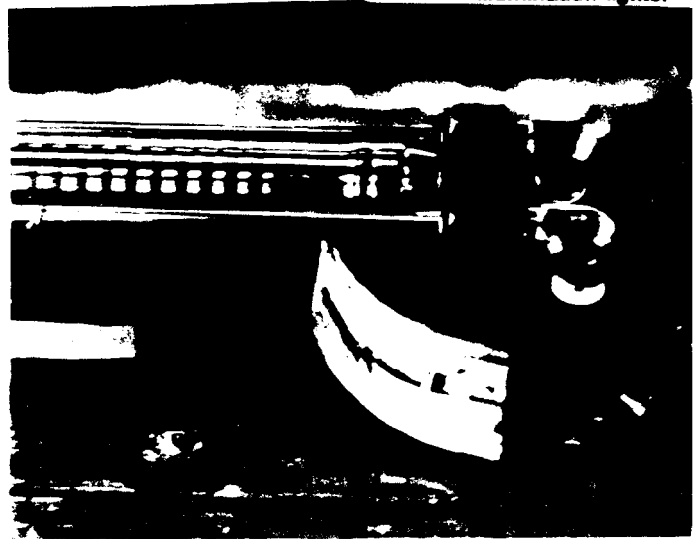
The Nagato battled the Marsellaise, Georges Leygues and Belfast with the maneuverability of the cruisers outweighing firepower of the Jap BB 630 to 425.

The Nagato and Moltke fought the Invincible and Michigan in slug-fest with the slow speed of the Michigan deciding the battle - a 1565 to 1015 victory for Will/Lief.

The Moltke and SMS Lutzow battled the Warspite and Michigan with the Michigan taking a list early in the battle. The Germans pursued with the Lutzow paying a heavy price. Marty/Paul claim a 2365 to 1315 victory (aided by three ram penalties).

Night Fleet Battle

The Axis prepared for night battle with great confidence coming off multiple shut-out victories over the Allies Tuesday night in pool volleyball. This year's night battle had been greatly anticipated by almost all captains. Virtually everyone had some sort of lights with a great variation in lighting philosophy. Paul Broring (Washington) rigged a high intensity camcorder light on his stern guns. Steve Baker (Invincible) had both navigational lights and reflector lights on his rotating turret and stern guns. Francis Rogowski (SMS Lutzow) had fiber wand lighted from inside his ship. D.W. Fluegel had the most elaborate lighting set-up with a focused laser affixed to his bow guns, as well as three remote-controlled illumination lights.



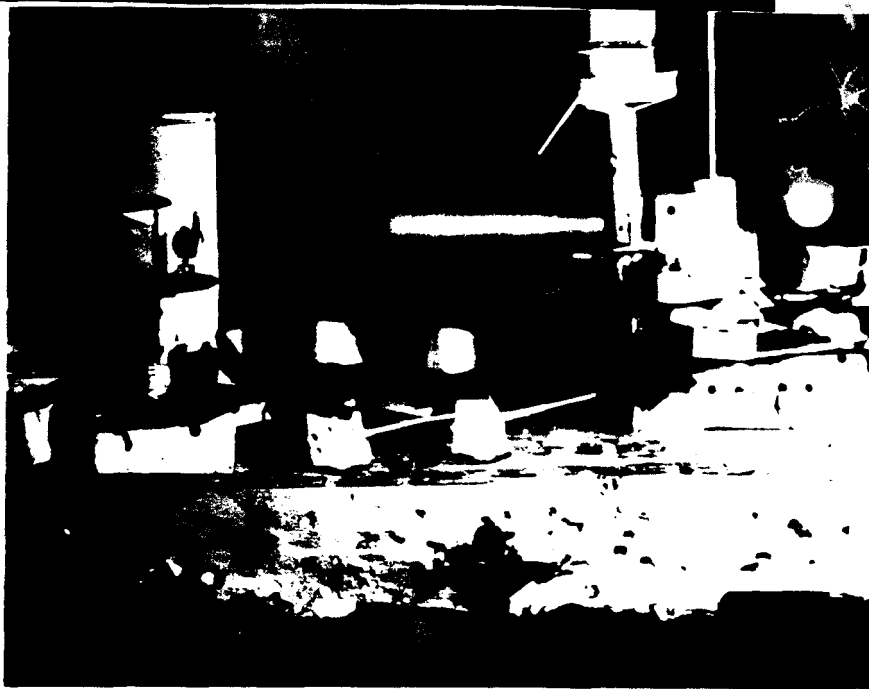
Fluegel's lazar mounted between bow guns.

Past years had shown the benefit of being able to remotely turn off the ships lights and most captains had the ability to remotely switch their lights on-and-off. Spirits were high among both fleets on that cool Texas evening as Wade Koehn played German Navy marching tunes on his stereo for all captains to enjoy.

Night battle pitted 13 Allied ships (62 whole units) against 11 Axis ships (48 whole units). The battle began with the Axis fleet assembled on the east shore of the big lake and the Allied fleet at the bottle-neck between the channel lake and the SW corner of the big lake. The Axis strategy was simple - stay together on the eastern shore. The Allies divided into two sub-fleets with the captains of one sub-fleet standing on the western shore of the big lake and the other sub-fleet captains standing on the south shore. Just after war was declared blinding pyrotechnic lights were seen exploding in the middle of the big lake (a display put on by the French Fleet). Soon Fluegel's laser illuminated the Valiant steaming from the north into the midst of the Axis fleet. The Valiant was heavily engaged while the remainder of his sub-fleet (Invincible, Pennsylvania, Alabama) was just beginning their journey along the western and northern shores to assist in the engagement of the Axis fleet. Shortly after the Valiant began its one ship attack, the Allied Admiral (Jim Pate) sensed that the battle was moving north - away from his sub-fleet along the southern shore. Consequently, Pate's Indiana lead his sub-fleet on an attack run from the south. However, when the Indiana arrived in the middle of the Axis fleet the rest of his sub-fleet was somewhere else. The Indiana locked into a sidemount exchange with the Moltke while several other Axis ships fired stern salvos into the Indiana. For a few minutes, it was the Valiant and Indiana against the Axis fleet. Both ships were heavily damaged before the Valiant's sub-fleet entered the fray from the north side of the lake. At this point it was clear that the Axis were WINNING the battle!

About this time, a bright white light was seen on the south edge of the big lake followed by shouts, splashing water and the "THWACK" of bb's ripping through a hull. Somehow Paul Fluegel's Lutzow had ventured from the relative safety of the Axis assembly area into the midst of the Allied "B" sub-fleet. Soon the Lutzow was aground and being illuminated by the Washington's high intensity light. All three of the Allies' North Carolina class BB's (Broring, Whitsell & Adams) unloaded their triple sterns into the Lutzow. The carnage of the Lutzow was as bad as any ship has ever received in RC Warship combat history and soon she was under the waves.

Meanwhile, the battle continued on the east side of the lake with both the Allied sub-fleets arriving in force. The Bismark's

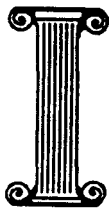


Paul's shattered hull.

laser continued to illuminate Allied ships until one by one, the Axis ships ran out of ammo, declared "five" and withdrew from the area. Soon the Allies had control of the battle. The Mizuki was trapped by the Invincible and other ships on the north east side of the lake around the dock. Before long the Mizuki sank, more a victim of the "fog of battle" than from combat damage, as she only had three holes. At some point the Pola was trapped in the channel lake and took a fair amount of damage. The battle dwindled down with the Allies chasing Axis ships on "five".

Beck in the pit area, the ship scoring revealed that the Allies had claimed another victory with the Lutzow reporting over 130 discernable holes (105-8-18) and several massive voids that had once been balza. Yet, the Allies had some damaged ships too - most notably the Indiana with damage of 80-3-8 and the Valiant with damage on 45-3-11. The final score was Allies 7,575 and the Axis 3,345 in what was one exciting battle with an incredible display of ship's lights.

President's Column



By Lief Goodson

This month's President's column is dedicated to two issues - a frequency list and a preview of forthcoming rule interpretations. So let's get on with it!

Part of the "duties" of an IRC/WCC President is to assemble and maintain a frequency list of club members. In the six years that I have been in the hobby I have never seen

a frequency list published, and in trying to compile one myself I now understand why. That not withstanding, contained somewhere in this issue of Hullbusters is an initial attempt at a frequency list of at least the primary frequency of most regional battlers. This list requires some explanation and I will provide the following:

- 1) Who made it on this list?
Anyone who has battled at a sanctioned event in the last two years AND whose frequency I could easily find.
- 2) What order is this list in?
First - by region, Second - by frequency.
- 3) What does the Nat's column mean?
It denotes whether or not the named person has attended Nat's in the last two years.
- 4) What do the initials in the Region column stand for?
These initials represent the IRC/WCC region (see p.17 of your rules package) in which the listed captain

I found that embroidery hoops make perfect turret bases for WWII ships. They come in several sizes. The 3" diameter is a perfect base for the German triple 11" turret (Scharnhorst, Lutzow). They can be found in most craft shops. It beats hacking away at PVC pipe!

1994 NATS FINANCIAL REPORT

1. Bart Purvis	\$100	
2. D.W. Fluegel	\$200	
3. Steve Baker	\$100	
4. Brian Craven	\$100	
5. Francis Rogowski	\$100	
6. Steve Milholland	\$100	
7. Chris Pierce	\$100	
8. Will Montgomery	\$100	
9. Wade Koehn	\$100	
10. Lief Goodson	\$110	
11. Eric Noble	\$110	
12. Willard Adams	\$100	
13. Rick Whitsell	\$110	
14. Paul Broring	\$110	
15. James Foster	\$110	
16. Ron Hunt	\$111	
17. Cameron Hunt	\$111	
18. Don Cole	\$110	
19. Tom Jass	\$100	- CD club paid
20. Marty Hayes	\$125	
21. David Haynes	\$125	
22. Gerald Roberts	\$125	
23. Randy Kricke	\$375	

fees	\$2,832	
6(8.95) + 13.95	\$ 67.65	Suzy Nobles meals
7(8.95)	\$ 62.65	Brian Cravens' boys meals
3(13.95)	\$ 41.85	Wade Koehns' girlfriend & boy
meals	-----	
	\$3004.15	total monies brought in



COSTS	
\$95.00 x 30 people meals	= \$2,850
keg of beer	= \$ 155
room rental	= \$ 200
trophies	= \$ 202.15 Jim Pate

TOTAL COST	\$3,407.15
TOTAL MONIES	- \$3,004.15

DIFFERENCE	\$ 403.00

Jim Pate subtracted his NATS fees of \$100 from \$202.15 trophie cost. The club owes Jim \$102.15

DIFFERENCE	\$403.00	
	- \$102.15	Pay Jim

	\$300.85	Pay Wade

Here's the report for expenditures of NATS '94 in Houston. We need to pay Jim the \$102.15 for the trophies. I would like to receive \$300.85 also. It is up to the E-Board and/or treasurer to release money to Wade. If we could have got over 30 battlers we would have made costs, or of course charged more. Brian and I feel that we have the fees about right, including fee increases as NATS gets closer. I don't know how the club feels about subsidizing NATS at Houston, or other places. We really don't want to charge more for fees. Brian and I like to put on NATS here, but we know it is more expensive here, but we feel battlers have THE BEST FACILITIES, and have an excellent time. As far as we are concerned we can have NATS here as often as the members want, IF we can cover costs. That means we either increase fees, or have the club subsidize it. Thank you for the opportunity to serve your needs at NATS.

Sincerely

FIBERGLASS HULL CONSTRUCTION
FOR MODEL WARSHIPS

So you want a fiberglass hull for your next combat masterpiece? The first place to look is in Skunkworks Mfg's latest catalog because this company sells quality products at reasonable prices. I don't think anyone can build a one-off fiberglass hull at a really significant price savings and I know you'll spend a lot more in labor. So, in my opinion, Skunkworks is the way to go. But if your heart is set on the HMS INEDIBLE (INDIGESTIBLE class) and this particular hull isn't yet manufactured by Skunkworks, why not consider building a fiberglass one-off hull that will meet the criteria of fast and easy construction along with light weight, roominess and high strength?

Basically, the procedure consists of building a 1/64" plywood hull form over throw-away form and fiberglassing both sides of the plywood, thereby making a light and strong sandwich type of construction. Let's build an INEDIBLE hull and see how it goes.

Step one is to make a building board with the proper offset between maindeck and foredeck upon which an upside down hull form will be constructed. Next, make a sub-deck using 1/8" ply, cutting a 5/8" rim and leaving two or three transverse braces about 3/4" wide. Using 1/8" ply to make the deck proper, cut a 3/8" rim and glue the deck rim to the sub-deck rim. Now, lay a piece of waxed paper on the building board and using small brads or finishing nails nail the deck assembly to the building board. Don't use many and don't nail the nailheads flush with the deck because the nails will need to be pulled with pliers later.

Cut the hull formers from a suitable material. I have used 3/16" balsa, James Foster has used thick cardboard. Both materials work fine. Remember when cutting the formers to make allowance for a thickness of 1/64" ply, a thin layer of fiberglass and 1/32" balsa on each side. Glue the formers to the deck assembly at their proper stations, At the bow the first former should be 1 1/2" back from the beginning and at the stern the last former should be 1" forward of the end. Between each former glue a piece of balsa (1/4" square or whatever you have in the scrap wood box) to act as a temporary keel on which you will glue the 1/64" plywood hull segments.

Using scissors, cut and shape 1/64" plywood segments or sections to fit between formers and the keel. Try to go from the centerline of one former to the other and to the centerline of the keel. Gaps between plywood segments are not important and may be ignored since the fiberglass covering will conceal them handily. When ready, glue the segment in place. Place the segments in no particular order, except that areas where nails are holding the deck assembly in place should be covered last. All are reminded to pull the nails before installing the 1/64" plywood segments. Of course, our Axis friends may leave them in place. Don't try to use 1/64" ply at the extreme bow and stern segments. Instead balsa blocks are glued to these areas and then shaped and sanded to the proper contours to complete the hull form.

What weights of glass cloth are suitable for use? It's not critical by any means. On my cruiser hulls 2 layers of 6 oz. cloth on the outside of the hull and one layer on the inside was used. With a large GENERAL class convoy ship one layer of 10 oz. cloth on the outside and one layer on the inside was used. Just make your best guess as to weights and layers

REGIONAL BATTLER'S FREQUENCY LIST

primarily battles. For example: C = Central, NE =North East, SC = South Central, etc.

- 5) How accurate is this list?
Maybe 85% accurate at best! It is intended as a starting point, not a finished document.
- 6) Is this list binding anybody to the frequencies shown?
Not at all. It is merely intended to provide information to people interested in our hobby.
- 7) Will this list be updated and re-published?
I certainly hope so! Which brings me to my last point regarding a frequency list.

Steve Baker has suggested, and I concur, that a frequency coordinator should be appointed for each region. This person would accumulate frequency data from battlers within his region and disseminate this information to all interested parties. This information would assist event hosts in planning and would contribute substantially to creation of a national frequency list. Steve has volunteered to be the frequency coordinator for the South East Region, but we need volunteers for the other regions. Please let me know if you are willing to serve.

On to point two! Our rules state that the Executive Board "provides rule clarifications" for the Annual Championships. Based on inputs I am receiving from numerous club members, it is apparent that many of our rules need clarification. Therefore, I am going to get E-Board clarification of all rules in question and publish these clarifications prior to Nat's. I hope this will reduce the burden on the Nat's Contest Director and will go along way towards "leveling the playing field" for all Nat's participants. Some of the rules I already know require clarification deal with:

- The acceptability of turned-down regulators
- The use of certain aircraft carriers as convoy ships
- The sinking deck on aircraft carriers
- Hull hardness testing at Nat's
- Non-damaging ram sinks
- Floating Waterlines
- Self-sealing hulls
- Impenetrable waterline tape

If you have ANY uncertainty about what a rules means, please let me know so that the E-Board can provide any necessary clarification. Remember, our rules are designed to keep people from having "unfair" advantages. Consequently, we must make sure everybody knows what each rule means and we MUST enforce the rules or they become meaningless. Till next time, God bless you all!

Region	Nat's	Name	Channel	Frequency	Radio Brand	AM / FM	WIDE / NARROW
C	Y	JAMES FOSTER	68	75.550	FUTABA	AM	?
C	N	RICK GOMAN	74	75.670	FUTABA	?	?
C	Y	STEVE MILHOLLAND	74	75.670	ACE	AM	N
C	N	JAY EDWARDS	76	75.710	?	?	?
C	N	CURLY BARRETT	78	75.750	?	?	W
C	Y	TOM JASS	80	75.790	FUTABA	AM	?
C	N	JIM LISHER	86	75.910	FUTABA	AM	W
NE	Y	PAUL BRORING	38	72.550	FUTABA	?	N
NE	Y	MIKE DESKIN	48	72.750	?	?	?
NE	Y	WILL MONTGOMERY	62	75.430	AIRTRONICS	AM	W
NE	N	NATHAN BLATEAU	68	75.550	FUTABA	AM	W
NE	Y	ERIC NOBLE	72	75.640	?	?	?
NE	N	FRANK PITTELLI	78	75.750	?	AM	W
NE	Y	MARTY HAYES	90	75.990	?	?	?
SC	Y	TERRY KEEF	12	72.030	?	?	?
SC	Y	DAVID HAYNES	19	72.170	?	?	?
SC	Y	JIM PATE	34	72.470	AIRTRONICS	?	?
SC	Y	RICK WHITSELL	39	72.579	FUTABA	?	N
SC	Y	BRIAN CRAVEN	40	72.590	?	?	N
SC	Y	CHRIS PEARCE	46	72.710	?	?	?
SC	N	JIM EWERS	48	72.750	FUTABA	AM	W
SC	Y	WADE KOEHN	52	72.830	?	?	?
SC	Y	D.W. FLUEGEL	56	72.910	?	?	?
SC	N	JOE KUTZ	68	75.550	FUTABA	?	N
SC	Y	PAUL FLUEGEL	78	75.750	FUTABA	?	?
SC	Y	GERALD ROBERTS	84	75.870	?	?	?
SE	Y	CURTIS KRICKE	12	72.030	FUTABA	AM	N
SE	Y	RON HUNT	30	72.390	?	?	N
SE	Y	CAMERON HUNT	31	72.410	?	?	N
SE	Y	STEVE BAKER	32	72.430	FUTABA	FM	N
SE	Y	RANDY KRICKE	36	72.510	AIRTRONICS	AM	N
SE	N	GEORGE GOFF	40	72.590	?	?	?
SE	Y	ANDREW KRICKE	42	72.630	FUTABA	AM	N
SE	Y	LIEF GOODSON	50	72.790	FUTABA	AM	W
SE	N	PETE DEMETRI	66	75.510	FUTABA	AM	N
SE	Y	FRANCIS ROGOWSKI	66	75.510	?	AM	?
SE	N	ADAM THIBAUT	68	75.550	FUTABA	AM	?
SE	Y	WILLARD ADAMS	70	75.590	?	?	?
SE	N	RON THIBAUT	79	75.770	FUTABA	AM	W
SE	Y	DON COLE	86	75.910	FUTABA	AM	?
SE	Y	BART PURVIS	A1	53.100	ACE	AM	NA
SE	Y	MIKE ELLEDGE	A3	53.300	FUTABA	AM	NA

a minimum with no sacrifice in strength. Tip and rotate the hull so that the CyA runs downhill without puddling while being applied. Apply the CyA in horizontal passes following the CyA from previous passes down towards the lower portions of the hull. As you apply the CyA you'll see the saturated areas instantly become more transparent. When you have a length of 10-12 inches of one side of the hull saturated with CyA, spray a light fog or mist of kicker over the surface. Spray from 2-3 feet above and with the bottle held to the side of the hull. The objective is to mist on a small amount of kicker to initiate a slow cure of the CyA. Too much kicker will cause a bumpy surface as the CyA cures too quickly. Although these bumps are easily sanded off it is even easier to avoid them. When the sprayed area has cured in 30 to 60 seconds, turn the hull over and apply CyA to 10-12 inches of the other side, hit it with a light mist of kicker and repeat until the entire hull is completed. Remove the gross excess fiberglass from the deck edges of the hull with scissors and then complete the removal of excess with a disc sander, Dremel tool or hand instruments. If necessary, add another layer of cloth to the hull exterior. Remember that you will be adding cloth to the interior later and this will give considerable strength and rigidity to the hull. Don't worry about the flexibility of the hull at this point.

Now comes the fun part. Rip the formers and keel pieces from inside the hull with a hammer, pliers or a chainsaw . . . whatever suits your fancy. Don't worry if some of the plywood comes out with the balsa because the strength of the hull comes from fiberglass, not plywood.

Your next step is to draw the penetratable windows on the hull exterior. Make the deck 3/8" deep and make the ribs between windows 3/8" wide. Cut out the windows with a reinforced fiberglass cutting wheel on a Dremel tool. Caution! Don't use a carborendrum disc because it will shatter. Use some care with the ribs because, at this point, they are quite weak. Don't worry because the next step will give

them adequate strength. Cut strips of glass cloth to cover the ribs. I cut these strips from 1" fiberglass tape because it is convenient and the sewn edges of the tape do not unravel. However, strips cut on the bias from a regular piece of cloth will do just fine. Working on the inside of the hull, spray 3M 77 adhesive on the ribs, place a strip of cloth, saturate with CyA and cure with a light mist of kicker. The ribs will still be quiet flexible and fragile. Repeat the process until, almost magically, the ribs will become absolutely rigid and quiet strong. This required two and sometimes three internal strips on my hulls. Trim the excess fiberglass from the ribs with a reinforced fiberglass cutting wheel.

The last step in glassing the hull is to cover the bottom inside of the hull. Spray with 3M 77 adhesive, place pre-cut pieces of glass cloth, saturate with CyA, cure with kicker and trim the excess. That's it! The HMS INEDIBLE is now ready for fitting-out and covering.

The weave of the glass cloth will still be visible but all areas of the hull will be covered with 1/32" balsa, silkspan or water so, to me, this rough texture is not important. The extra resin (of any type) that it takes to fill the weave adds nothing to overall strength but, adds lots of unnecessary weight and also typical resins are miserable to sand. However, if you are building bulletproof superstructure, using 1/16" plywood, 10 oz. glass cloth and CyA, and desire a smooth finish then the weave may be filled by spraying and sanding several coats of automotive spray primer or else by applying and sanding Hobby Poxy "SMOOTH 'N' EASY" finishing resin. In no case should you use polyester resins over CyA resins because the chemistry of the two is not compatible and the polyester resins may never cure.

If you have any questions or comments please contact me at Rt. 7 Box 465, Baxley, GA 31513; phone: (912) 367-7306.

Demoted Captain Bart Purvis

1994 Rules Results

Your not so humble and Club Secretary
 ☺ Chris Pearce ☺

Well, folks, the results are in, and the votes tallied. Unfortunately, some people had to make my life difficult and abstain on certain proposals... Remember, a majority of 66% is required for a rule to pass, so without further ado, here's the tally. (As an added bonus, I've decided to highlight the proposals which passed...)

Yes	No	Description of Proposal
62%	___	1. Double sidemounts for Iowa, Yamato, and Richelieu.
73%	___	2. One pound minimum bonus for small ships.
51%	___	3. Sink points valued at 200 per unit.
75%	___	4. Minimum allowable allowances for small ships.
58%	___	5. Casement barrels may not interfere with ships.
78%	___	6. Ballast intake pumps for submarines.
57%	___	7. Nelson and Rodney cover all four quadrants.
83%	___	8. Spurt guns must have restriction and max. i.d.
92%	___	9. Replace "gun" with "cannon".
6	___	10. All radios must be narrow band by 1996.
82%	___	11. 27 mhz band set aside for convoy ships.

Date of next year's Nats: July 10-14, 1995 88% Yes ___ No
 Location of Next Years Nats: 78% Springfield ___ Maryland

I'm still not sure why we should have a rule allowing ballast intake pumps for submarines - Axis ships have had them for years!

CO2 Regulator Safety

by Frank Pittelli

The purpose of this article is NOT to cause controversy or to upset any specific captains. The purpose of this article is to remind everyone that our hobby is a SAFE hobby and we want it to remain so. That said, we need to discuss some disturbing trends that have developed over the last year or so. Specifically, an increasing number of people are ignoring an important safety rule and modifying their CO2 regulators. Such a problem was predicted three years ago when we approved the CO2 safety rules and specific rules were written to try to prevent such activity. Unfortunately, those rules have been ignored, as I will explain.

As we all know, CO2 operates at higher pressures than freon and there is a need to be a little more cautious. For that reason, we agreed to the following rule:

All CO2 systems must have a manufactured pressure regulator set to no more than 150 psi.

The key word in that rule is

and get started. You can always add another layer if you feel the need. However, many layers of light 1 or 2 oz. cloth are not recommended. Five 2 oz. layers will weigh more, have less strength and require much more time to apply than one 10 oz. layer. Select a cloth weight that will allow you to do the job with 2 or 3 layers. We're going to use a 10 oz. cloth, one layer outside and one layer inside, on this article's cruiser hull.



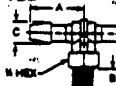
Next, decide on the type of resin you're going to use. Of course the old reliables of polyester or epoxy resins are available and the following procedures can be accomplished using them, but I prefer using thin cyanoacrylate "superglue" or CyA. The big advantage of CyA is that there is no waiting for slower resins to cure. This means that your fiberglassing job is finished as fast as you can do the procedure. The major disadvantage of using CyA as the resin is the odor and the fumes associated with its use. You are encouraged to work in a well ventilated area and use fans to divert the fumes. And, of course, there is the school that says if you can't handle streaming eyes and toasted nasal hairs then you aren't a REAL warship combat modeler anyway. CyA glues are expensive but a surprisingly small amount is used in this method. Between 3-4 oz. is all that has been used on each of several cruiser hulls and one large troop transport hull. Satellite City, the makers of "HOT STUFF", will give you a complimentary two for one voucher on their products. Contact them at P.O. Box 836, Simi, CA 93062; phone: (805) 522-006. They have the best prices I have been able to find.

O.K. You have a form and have selected the proper cloth and resin. Let's fiberglass a hull. Prepare the hull's surface for glassing by spraying a very light coat of 3M 77 spray adhesive (available at hobby shops and hardware stores) over the area to be glassed. The spray adhesive should cover the surface with little pinhole-sized dots rather than a heavy coating. Spray from 18 to 24 inches away and don't linger on any one spot. Since the 3M 77 adhesive stays tacky for hours there is no reason to rush to the next step.

Pre-cut the glass cloth to the approximate shape needed, allowing a little to hang over the edges. There is no particular advantage to covering

A NOTE FROM YOUR UNCLE

BARBED FITTING MAN

	Part No.	Tube I.D.	Dimensions in inches			
			A	B	C	D
STRAIGHT 	Q-1002571*	1/16	.542	.172	.095	.208
	Q-1002572*	3/32	.840	.172	.141	—
	Q-1002573	1/8	.737	.172	.188	—
ELBOW 	Q-1002601*	1/16	.252	.172	.095	.208
	Q-1002602	3/32	.375	.172	.141	—
	Q-1002603	1/8	.500	.172	.188	—
TEE 	Q-1002701*	1/16	.252	.172	.095	.208
	Q-1002702*	3/32	.375	.172	.141	—
	Q-1002703*	1/8	.500	.172	.188	—

Jim Cory in Georgia and Jim Ewers in Oklahoma have discovered some nylon barbed fittings that have several advantages over our traditional brass fittings. These nylon fittings, especially the tees and ells, are light and compact. They have a tapered 10/32" thread that seals and allows the fitting to be directionally oriented without the use of gaskets, pipe compound or teflon tape. The 1/16" I.D. fittings include a molded shroud that eliminates the need for a hose retainer.

These fittings may be ordered from Small Parts Inc., P.O. Box 4650, Miami Lakes, FL 33014-0650; phone: (305) 557-8222. By the way, this supplier has a free catalog that all warship modelers should have in their libraries. All sorts of goodies like tubing, O-rings, gears, soldering and brazing supplies, fasteners, etc. are available. Their service is quick and efficient.

the hull in one or two pieces so plan on using several smaller, more manageable pieces. Don't be concerned about how much or how little adjacent pieces overlap. It doesn't matter if the overlap is $\frac{1}{4}$ or $1\frac{1}{4}$ inches. Lift the cloth into position and lay it on the surface. Perfect alignment isn't necessary. Starting from a side that has some excess, lift the cloth and replace it in the desired position. Lift the other end and pull just enough to remove folds and wrinkles. Replace while maintaining a slight tension. The cloth can be relifted and realigned if desirable. When your placement of the cloth is satisfactory, pass a flat hand over the cloth surface to adhere it to the 3M 77 adhesive and smooth out all wrinkles. Large wrinkles or "bubbles" should be slit with an Xacto blade and rubbed smooth. The cloth will now stay put over unusual contours and even while inverted. Add more pieces until the hull is completely covered with a layer of cloth. You may need to lightly spray more 3M 77 adhesive on the edges of adhered cloth so that adjacent pieces will stick. The spray adhesive neither weakens nor interferes in any way with the fiberglassing procedure. Also, when cutting glass cloth you should try to make all cuts on the bias (45°) rather than with or across the weave of the cloth. This mark reduces the tendency of the cloth to unravel.

Now it's time to apply the thin super glue resin (CyA) to the hull. Tip the hull and start applying CyA at the higher end. As one area of cloth is saturated, the glue moves on to another area. Because of this a small amount of CyA goes a long way and weight is held to

YOU MIGHT BE A TEXAN IN THE AXIS FLEET IF...



You've ever lost a tooth opening a beer bottle.

Subscription to Hull Mysteries in 1995 will be \$9.00. Sorry, it is t first rate increase in 12 years.

"manufactured". That is, the regulator must be produced by a commercial company that is responsible for its safe design and operating characteristics. Since none of us are lawyers (I think), we didn't write an extremely complicated and long statement. We are placing our faith in the manufacturer of CO2 equipment, not our own limited engineering and machining skills.

Even if you don't agree with the rule, the rule still exists and everyone is expected to adhere to it. Furthermore, according to the rules the CD MUST uphold the rule, or be subject to a review by the Executive Board. Since it is a safety rule, the CD can not INTERPRET the rule or cast it aside.

The reason for such a rule is simple, we don't want anyone to get hurt. A regulator that is commercially sold and used by thousands of people is much safer than one that is modified by one of us. Furthermore, if something fails on the high pressure side of the system, the manufacturer is liable and our insurance company will make sure that they pay for the problem. If not, our insurance company could easily say that we caused the problem, violating our own safety rules, and they would probably drop our coverage.

When I first heard that people were modifying their regulators, I asked Dr. Tom Butler to compare the safety of the manufactured regulator to that of one modified according to the diagram that was being distributed around the hobby. Dr. Butler is a professor of material science and has served as an expert witness in court cases for over 20 years. His specialty is the failure of metals under stress. Tom did a number of tests on the regulator and made calculations based on the drawing. His written comments included:

2) I'm concerned by the 1.00 inch diameter at the internally-threaded end. The internal threads have a minor diameter of 0.750 inch and a major diameter of about 0.850 inch. Where the end of the gas bottle seats, the inside diameter appears to be slightly larger than 0.850, perhaps about 0.875 inch. Consequently, the wall thickness remaining is 0.0625 inch. With a fairly thin wall thickness, the region could, especially with repeated use and the fairly sharp re-entrant corners (small radius fillets) at the base of the internally-threaded region, be a location where a crack could develop.

In layman's terms, if you modify the regulator according to the diagram, you will weaken the area where the regulator screws onto the bottle and it may crack. If it cracks, it could simply leak, shoot off a small splinter of brass or shoot off the entire regulator. Granted, most of these events would probably cause only minor injury, but I would not want to be within a few inches of it when it happened. (Have you ever been around a fill hose that was whipping around under pressure?) Furthermore, this analysis assumed that you followed the diagram and CORRECTLY modified the regulator. If you do things wrong, like overheat the metal while machining it or cut too deep or cut

My Best and Worst at the '94 Nats

By Chris Pearce

This year's Nats held several memorable moments for me, and it's hard for me to decide which is the very best, so I'll start off by sharing with you the worst, and go from there...

Worst: Dropping my ship on Thursday. Fortunately, the Queen Elizabeth is built like a brick, and was able to make the second sortie without difficulty.

Second (?) Worst: Having my rudders get discombobulated during Campaign Lite. Thankfully, I had enough control that I was able to find targets for my bb's...

Bad: Letting Will get away on Monday. Unfortunately, a dead in the water Scharnhorst is a more tempting target than a sinking Nagato.

Sad: Three damaging rams (Sorry!) I need a ship with a clipper bow... Either that, or I need to watch where I'm going, not what I'm shooting at...

Best #1: Sinking Axis convoy ships in Campaign battle. My only complaint is that the Axis didn't have more convoy ships for me to sink.

Best #2: Sinking Francis. It's about time I got some paybacks for the times Francis has beat me in one-on-ones.

Best #3: (Tuesday) Sinking Francis again; this time, personally...

Best #4: Sinking Francis, Lief, and the rest of the Axis again and again. It was like a Texas Triple Crown, except bigger!

Best #5: Friday's fleet battle, second sortie, I was treated to the full attentions of the Axis battle fleet (Yes, I was the target), and after starting a Bismarck on its long trip to the bottom, sending a Mutsu packing with plenty of damage, and fighting the other Axis capital ships to a standstill (while taking damage which would have sent any Axis ship to the bottom, or its Captain fleeing in terror), watching the Q.E. sail in after five minutes, ready for more action, (If only I had more ammunition!) and knowing that yes, we had truly done it...

Best #6: After the Q.E.'s juggernaut performance in Friday's fleet battle, while having lunch, Lief commented to a less fortunate Allied captain, "Well, nobody's invincible." I remarked to Lief, "I am." Not too surprisingly, Lief challenged me to a one-on-one. (These Axis have no sense of humor...) However, seeing as the concentrated efforts of the Axis fleet couldn't put the Q.E. out of action, I could hardly waste my time with a mere battlecruiser...

Best #7: Friday, as the Allies swept the awards (a rarity), realizing that we had put the cap on the biggest Nats victory the hobby has seen, and that it was our entire fleet that did it. I want to personally congratulate the award winners, and every other Allied captain who contributed to this year's victory. (Yes, that includes you, Bart...). We've come a long way since 1990 - let's keep up the good work and ensure that next year is another banner year for the Allied fleet.

a notch in the wrong place, you could further weaken the regulator. I have to agree with Dr. Butler when he says that we should:

"consider if the weight savings are substantial enough to take the concomitant risks."

In short, are a few ounces worth risking injury to someone. Many people say that they need to reduce the weight of the regulator to be able to battle a small boat. But these same people use solenoids instead of poppet valves, which are much heavier. I have even heard of battleships equipped with modified regulators and there isn't a battleship in the hobby that can't afford to carry around a few extra ounces. Will Montgomery installed CO2 in his Hiel

Best and Worst at NATS !!!!

by Brian K. Croves

BEST : Seeing all the great friends in Houston, the ALLIED win! Get the MID-WAY on the water. Campaign!!!

WORST : SCORING ; having to be backup CD, Tom Jass having to leave on Tue.

Steve's M's new type of cannon (the 410!)

PBC Enterprizes Inc. Presents

PBC Enterprizes now has Photo-etch parts for U.S. ship and will be adding more in the near future! To get your catalog of plansets, parts, tapes and photo-etch parts Send \$ 6.00 to PBC Enterprizes, 12310 Ocean Laurel Lane, Houston Texas, 77014. ALL New MANUAL OF R/C WARSHIP COMBAT " The How to Do ", OVER 100 pages of need to know tips, from start to finish, is \$ 20.00 + 3.50 S & H.

NAT'S TAPES TO YOU !!!

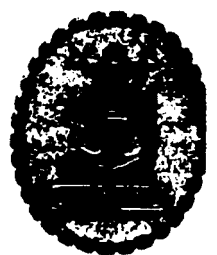
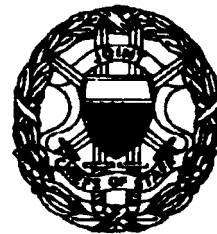
For those of you at the Nats and those who could not make this years Nats. The 1994 official NATS tape is now available on High grade VHS tape. The tape cost 18.50 with the S & H. Hurry tapes are limited!



NATS PICTURES !!!!

The pictures that were take at the Nats will cost \$ 1.00 each print. If those of you that wanted them (I have the list, and will try to call you. If not and you want the pictures call or write to me!) You can call and leave a me a message at (713) 537-1435.

THANK -YOU ALL FOR A GREAT NATS!



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SSBN DEFENSE PATROL

and the boat is now LIGHTER because of the removal of copper tanks and a simplified distribution system.

Even if you don't agree with anything said in defense of the CO2 rules, the fact remains that they are currently part of our safety rules and we are obliged to obey them (or forfeit our insurance) and the CD is obliged to uphold them.

Therefore, I hereby formally request the Executive Board to make a ruling concerning the use of modified regulators. If modified regulators are illegal, then they should say so and instruct all CDs to uphold the rule. On the other hand, if

modified regulators are legal, then they should modify the rules accordingly. (Because this falls under the safety rules, such modifications can be made by the Executive Board itself, without a vote by the membership.)

I agree to live by whatever the Executive Board says. I am concerned about the safety of everyone, but if they think we are being "too safe" than I will not complain. I simply want to make sure that everyone is playing by the same set of rules and that no one person gets a competitive advantage by ignoring any of the rules, let alone a safety rule.

Blow-by-Blow

NATS 94 - Friday

Battle Reports

by
Vern DernBerger

Sortie One. The Axis knew they were beat according to the points, but there was one thing left that could allow them to claim a moral victory. What would be a moral victory? Sinking the great Allied cabin boy Jim Pate. That was the only Axis plan when the battle began.

The battle started with Lief's Moltke alongside of Jim's WashingMachine, inside of the entire Allied fleet. (Lief is a born Allied killer who follows orders at all times.) Jim and Lief circled for several minutes. Jim, in an attempt to run away, weaved his way alongside of the mighty Bismarck captained by the legendary D.W.

Fluegel. Fluegel unloaded on the helpless WashingMachine, while nearby Brian Craven's South Dumpster was circling out of control. (Actually, it's hard to tell when Brian is in control.) On the other side of the lake, Nathan and Mike continued to pound Rick Whitsel's North Constipation relentlessly, while Frank's Mutsu provided tactical support.

Steve "Fab" Baker, in an attempt to help the South Dumpster, rammed it with his HMS Inflatable. While Brian went to check for ram damage, the Moltke sank beneath the waves, having spent all of it's BBs on the WashingMachine. Jim Pate, who went on five very early, worked his way into the big lake, where he had plenty of room to run away. Several galant Axis BBs and BCs turned around and headed back through the slot to pursue the helpless WashingMachine. Jim SANK (repeat SANK), with a large sucking sound, as Brian returned the South Dumpster to the lake. If only Baker hadn't rammed Craven, perhaps Brian could have saved his idol one more time. (Amazingly, Brian's ship was out of control before the ram check and regained control after the ram check ???)

As all of this was going on, Ron Hunt's gorgeous Scharnhorst guarded the slot with his triple stern guns, striking fear into the hearts of all Allied cabin boys. Chris Pearce, and his infamous HMS Quick Elephant, fought alongside of Francis's fearless Lutzow. After several heated sidemount exchanges, mostly from Francis's guns, Chris ran away. (The scores show that Chris received 15 below in the first sortie, while Francis received only 2 below.)

Far from most eyes, Wade's Bismarck sank because of mechanical problems. Marty Hayes' HMS WarpedShip and Willard Adam's North CreamPuff were in the vicinity, but did not contribute significantly. In a somewhat typical display of Allied reliability, Bart's USS Atlantis settled to the bottom with only one hole above, zero on, zero below. The sink was credited to TriPact, who pursued Bart across the entire lake, without any support from the rest of the Allied fleet. Bart was heard to say that he didn't want the Grand Cabin Boy, Jim Pate, to be the only sink during the first sortie. (Actually, scientific analysis of the battle video confirms that Pate's WashingMachine actually sucked the Atlantis below the water because of its massive weight.)

Sortie Two. The second sortie began with only one Allied ship that was hurting: Chris's HMS Quick Elephant. Without Pate to lead them, the Alleyes decided to cover behind the Quick Elephant in what they call a defensive posture. Dave "Dirty" Haynes' Mutsu and Fluegel's sleek Bismarck closed in to kill the Quick Elephant,

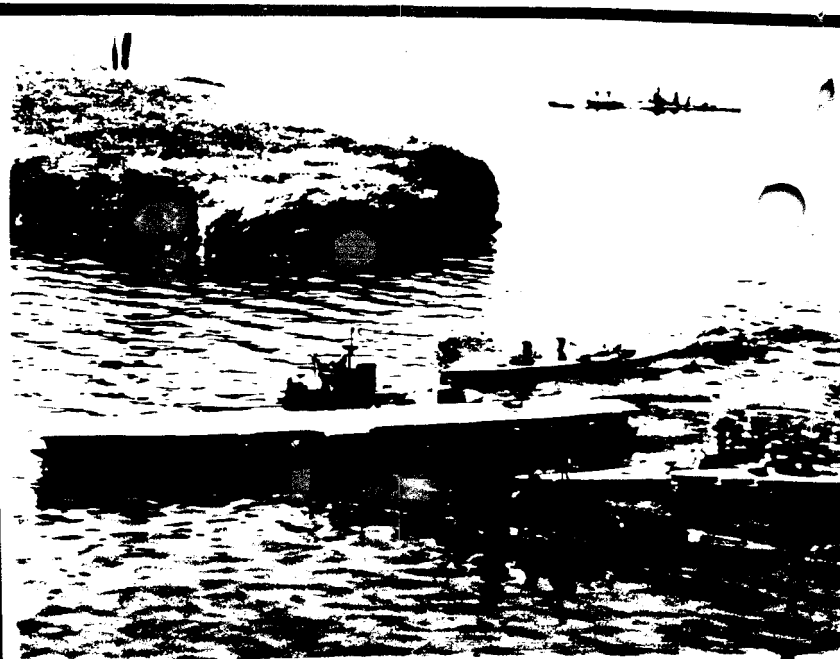


Axis high command at work.

TUBE BREACH GUNS

BY FAB BAKER

When I refitted the Belfast for Andrew Kricke I used (copied) the new Skunkworks tube breaches. On Monday they performed just fine for Andrew. However, on Tuesday things started to go awry. The breach would blow up like a balloon and end up with about 5 BB's stuck in it. Some folks saw this and the word that the new Skunkworks tube breaches were not working started to go around the pits. I would like to straighten this out. These breaches were my version of a Skunkworks breach, not the real thing. The other two Kricke ships had original Skunkworks guns and had no problems. No one else using the Skunkworks guns had this problem. I made a mistake when making Andrew's guns by using a piece of Large Silicone inside a piece of Extra-Large. I ask Steve what the problem was on Tuesday. He told me make both pieces of tube from Extra Large. I did and it was the last time I touched the guns all week. After evaluating the Kricke's experience with the guns during a week of battling I have decided that the Invincible will be refitted with these breaches this Winter! They are so easy to make and no more adjustments!!!



Cravin's giant air craft carrier.

despite the random firing of the Allied defensive fleet. (Picture ten blind men trying to hit a bulleyes with a BB gun while spinning in circles.) Dave ignored the wall of BBs and the repeated attempts by Baker to ram him, and pushed the attack towards Chris's ship, aided by Carl Camarati's V-squared. The Quick Elephant barely survived, aided by Pate's Imperial Guard (just as effective as Sadam Hussein's!!!)

In the meantime, Fluegel's Bismarck retired from the battle after expending all of it's BBs into the sides of Allied ships. Once he was on five, a number of Allied cabin boys showed how fearless they were by chasing him, led by one of the only true heroes in the Allied fleet, Paul "Doc" Broring, with his beautiful, best-of-scale, best-battleship, most-fearless, USS Washington. Will joined forces with Frank, Mike and Nathan to defend the Bismarck from at least 20 Allied ships, but Fluegel gracefully slipped beneath the waves as numerous Allied cabin boys tried to figure out where he was. This ended the chance for an Axis battle victory, according to points, but then again, Pate had already SUNK IN THE FIRST SORTIE and everything else really didn't matter.

Kurt Kricke's Lutzow sank galantly well after most ships were off the water. Kurt was actually surprised that the Alleyes wouldn't stay around and battle with his heavy cruiser. James Foster, who keeps flip-flopping between Allied and Axis like a lady-of-the-evening, pursued the helpless Quick Elephant with his Sverige's stern guns.

One-On-One Battles. In a traditional meeting between Will and Lief, Will's 30-second Hiei fought against Lief's 26-second Moltke. The battle started with a side mount exchange (where speed means nothing) and Lief's guns sounded faster and harder. After emptying his guns, Lief went on five, causing Will to chase after him, despite the speed difference. Since he couldn't be caught, the battle ended with Lief winning 1775 to 580, earning Lief the hotly contested Individual Combat Trophy. Across the lake, TriPact challenged the rest of the world to a three-on-everyone, but the world declined.

After the scoring deadline had elapsed, Paul "Doc" Broring challenged the Grand Cabin Boy Jim Pate to a one-on-one between Doc's Michigan and Jim's WashingMachine. Jim hesitated for a few minutes, because he didn't have at least a 4 to 1 advantage in ships, but he decided that a lowly dreadnaught couldn't hurt his unsinkable battleship. (Jim forgot that Doc belongs to the most feared R/C Warship Combat Club in the world, the Maryland Attack Group.) The battle began with Jim in an unusual position, he actually had to attack someone. Doc, having the much slower ship, defended himself admirably against the repeated passes



Gerald

Dirty

11
↑

The executionist, Admiral Pate.



MY BEST AND WORST
OF NATS

BY FAB BAKER

MY BEST:

- The drive out with Bart and the Kricke's.
- The USS Kidd
- The great Cajun food on the trip!!!
- Watching the GA rookies do so well.
- Seeing all the people I love and respect so much.
- The awards banquet. I was truly moved. Thank you all.

MY WORST:

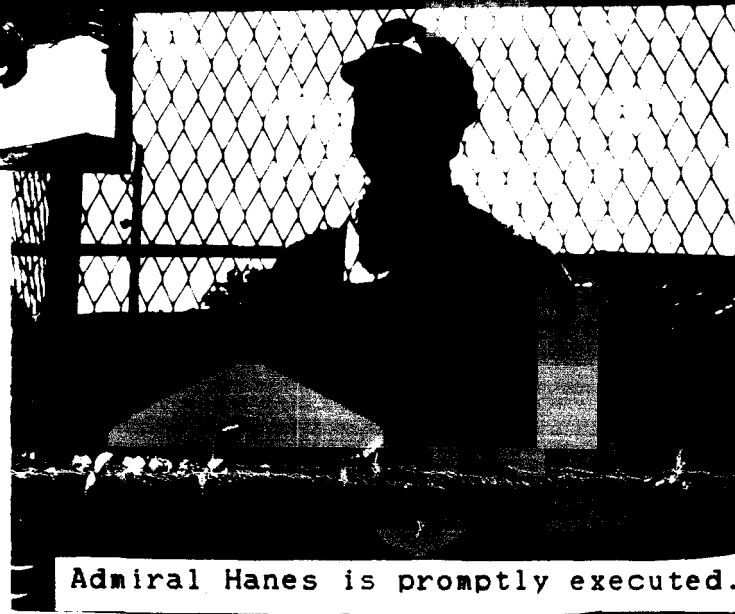
- When Tom left.
- The &#@%\$*&*Fire Ants in Night Battle!
- The week after Nats. (Post Nats Depression)

of the WashingMachine. Jim kept chasing the Michigan, ignoring the fact that his stern was getting lower and lower. Without a full squadron of cabin boys to remind him how to battle, Jim forgot that he had a pump and continued to pursue Doc. Throughout the entire battle (if you could call it that) Doc just kept spinning around, firing volley after volley into the side of Jim's WashingMachine. (At least one person said they thought that Doc was actually taking it easy on Jim, because he didn't want to embarrass the Allied fleet.) Nonetheless, Jim sank FOR A SECOND TIME IN THE SAME DAY. Many people think that this might indicate that Jim should step down from the lofty Grand Cabin Boy position, granting that honor to a true battler like Doc. (Doc said after NATS that he would probably be switching to the Axis side in 1995 because he liked sinking Pate and wanted to fight on a team that actually knows how to battle, not just sit in one place and throw BBs in all directions.)

Awards. NATS '94 ended as it should, with Pate sinking at the hands of a Maryland battler. Sorry, I can't write about the banquet because my camera broke right after taking a picture of the Allied fleet. Here are the award winners:

- Class 2 - Steve Milholland
- Class 3 - Andrew Kricke
- Class 4 - Steve Baker
- Class 5 - Marty Hayes
- Class 6 - Don Cole,
Rick Whitsel,
Brian Craven
- Scale Convoy - Brian Craven
- Scale Warship - Don Cole,
Brian Craven
- Rapid Fire King - Nathan Blattau
- Lifeline - Jim Pate
- Best Diver - Mike Blattau
- Individual - Lief Goodson
- Rookie Of The Year - Randy Kricke
- Best Admiral - Frank Pittelli
- Brian Spycoski - Steve Baker
- Most Feared Allied - Steve Baker
- Most Feared Axis - Will Montgomery
- Von Fluegel - Paul Broring

Everyone was happy to win an award, except Chris, who still hasn't won a major award in the hobby since his rookie year.



Admiral Hanes is promptly executed.

1994 NATS FRIDAY

ALLIED FLEET	Hits	Penalty	Points
Washington (Doc)	40-1-1		475
Alabama (Don)	84-3-10		1415
Inflatable (Steve B)	53-6-5		930
Marsellaise (Steve M)	7-0-5		320
Washington (Willard)	20-2-0		250
N.Carolina (Rick)	53-4-4		830
QuickElephant (Chris)	110-8-27	RAM 200	2650
WarpedShip (Marty)	51-4-16		1410
Belfast (Andrew)	15-2-2		300
WashingMachine (Jim)	28-6-8	SINK 1000	1830
SouthDumpster (Brian)	51-0-2		610
Atlantis (Bart)	1-0-0	SINK 600	610
TOTAL			11630

AXIS FLEET	Hits	Penalty	Points
Mutsu (Dirty)	125-4-6		1650
Moltke (Lief)	82-4-1	SINK 800	1770
Prinz Eugen (Cameron)	1-1-2		135
Bismarck (D.W.)	73-2-7	SINK 1000	2130
Musashi (Gerald)	97-9-14	RAM 100	1895
Adm Scheer (Curt)	25-1-2		375
Scharnhorst (Ron)	23-1-11		830
Lutzow (Francis)	27-0-2	SINK 400	770
Hipper (Eric)	12-0-0		120
Nagato (Will)	34-4-5		690
Pola (Randy)	3-0-0		30
Lutzow (P. Fluegel)	7-0-1		120
Bismarck (Wade)	25-2-10	SINK 1000	1800
Sverige (James)	9-1-0		115
TOTAL			12430

CAMOZZI VERSUS NYCOIL
by Steve Smith

The company I work for uses a lot of pneumatic fittings on the machines we build. Recently, we switched brands to Camozzi (obviously a good Axis company, they even have an office in Dallas).

They have some advantages over Nycoil:

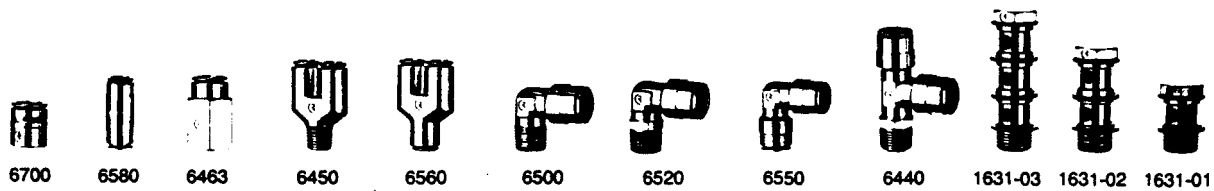
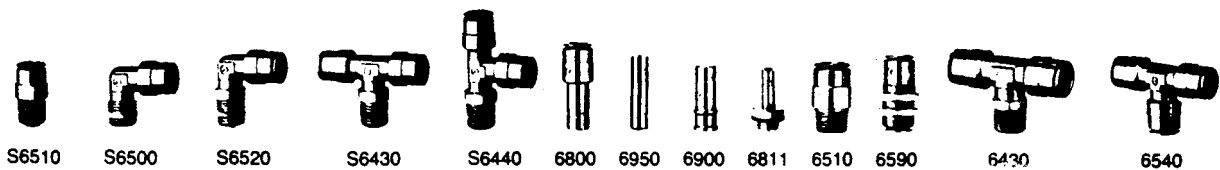
- O-ring seal/retainer does not "chew up" the hose ends, resulting in fewer leaks.
- Larger diameter metal collet makes it easier to release tubes.
- Teflon sealing ring on threaded portion.

Camozzi Pneumatics, Inc.

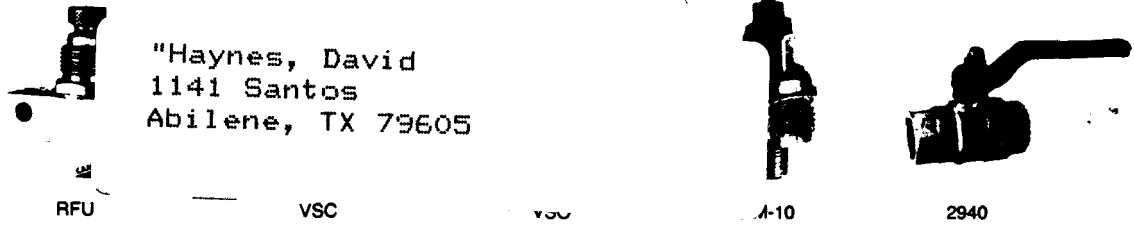
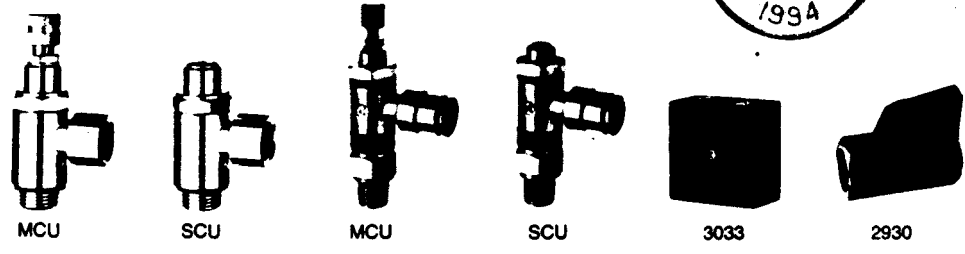
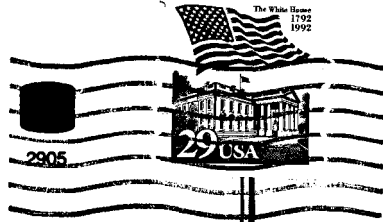
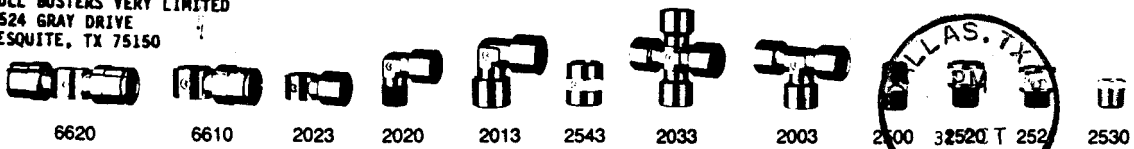
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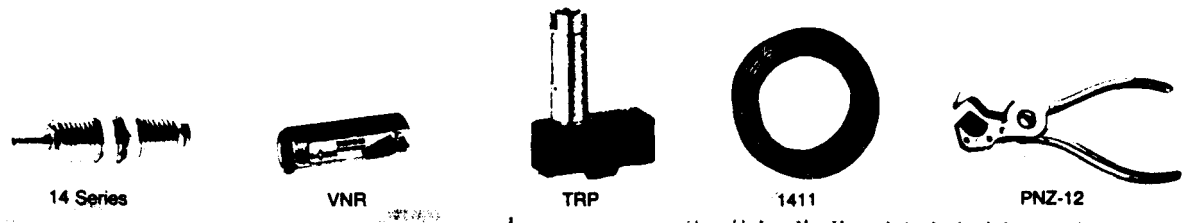
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No NATS Thursday article to print at his time.