

# HULL BUSTERS

December 19.....84

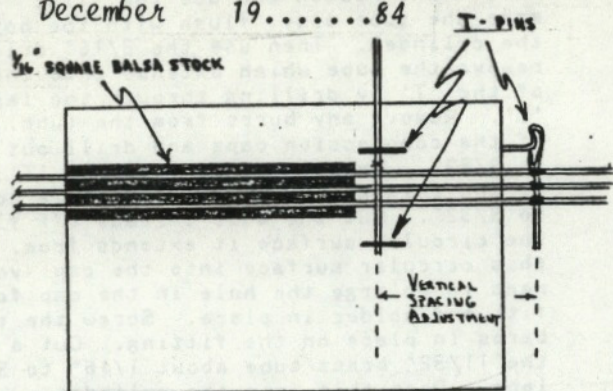


FIGURE #1 AND ONLY

The Strictly R-C Warship Combat Publication

## OBSERVATIONS OF THE FOUNDING FATHER

Greetings fellow combatants! Work is progressing on various peoples singleshot designs. My Mkl2A works fine but requires a mechanical linkage to the servo. The Mkl3 being a gas piston type gun similar to Martin Schneider's requires no linkage but would require a pressurized magazine (like Schneiders). I personally don't like pressurized magazines so I've been working on the Mkl4 which is a piston operated/BB metered gun with a nonpressurized magazine. The nice thing about the gas piston operated guns is that all the servo has to do is push the poppet valve button. It is therefore a much simpler operation to operate multiple guns from one servo. For that reason I believe it will become the "standard gun" of R/C Warship Combat within a couple of years.

The latest news from Dallas is that Fluegel is carrying on his new tradition (he's sinking again, and this time it's in his home waters). David Haines' Myoko did the honors this time. In Amarillo Schneider's Scheer (ex-Convoy ship) sank James West's Hipper. The Allies have been living in peaceful harmony in their research and design labs. My Oklahoma has suffered some additional damage from the Mkl3 tests. I intend to write a How To on single shot guns as soon as I find a truly satisfactory design. Well that's it for now, Be sure and have a happy holiday season (shoot a kraut).

Let's Battle!

*Stan Watkins*



## HOW TO Build Railing

Well after reading Carl's article in this past edition of Hull Busters on the infamous "GEEK GUN", I have been truly inspired to write my own article. The fact that every time I talk a tape with Fluegel and he mentions his need for articles may have influenced me also. My article is concerned with the construction of railing which the "GEEK GUN" can shoot off your ship. I think many of you have seen my ships and are aware that I like the realistic look that detailing adds. It doesn't make it function any better but it does add that special touch. I have had numerous inquiries into my method of constructing railing but have been somewhat hesitant on writing an article until I had tested it on the field of battle. This was finally accomplished in the recent Southeast Regionals. Although only seeing three sorties the railing held up quite well. Only one vertical stanchion was lost. Horizontal members were bent on the main deck railing but they were easily straightened. Superstructure railing was torn out on one occasion but was put back in place with a little Zap CA. So if you want to construct some semi-durable railing, read on.

For approximately 32 cents excluding tax, solder, the electricity to heat your soldering gun, and the approximately 45 minutes of your time, you can construct a 12 inch long section of railing with 3/4 to 1 inch stanchion spacing. The materials needed are:

- 2x3x1 inch Balsa wood block
- 10 inches of 1/16 inch square Balsa stock
- 2 or 3 T-pins
- .020 K&S brass rod (4- 12 inch long pieces)
- Solder (small diameter preferred)
- Soldering Iron (25 - 33 watts)
- Flat needle file
- Patience

The majority of the material is used to construct the railing jig. (No Fluegel this is not an Allied dance step) A small sketch of this jig is shown below assuming it has not been moved to some other obscure location.

Cut the 1/16 inch square balsa stock into 4 sections approximately 2 inches in length. Lay them on the balsa block with a piece of .020 brass rod between them as shown in the sketch. Carefully lift the brass rod from the spacers and then Zap CA the spacers in place.

Install 2 T-pins in the balsa block as shown in the sketch. These pins are used to position the vertical stanchion in place over the horizontal members. The third pin is optional. I place it in the side of the balsa block as shown to give me my vertical spacing. Place the brass rod (3 pieces) between the spacers and pin the vertical rod over them with the T-pins. You are now ready to solder. This is perhaps the trickiest part in the entire construction. Care should be taken to avoid excessive solder on the joints. This makes the cleanup more tedious. I have minimized this by using a very small diameter solder and an iron tip on my soldering iron. I found the copper tip wears rapidly and will form a cup which will collect solder which eventually collects on the railing joint.

After the vertical section is soldered to the horizontal rods I cut the vertical rod at the X's shown on the sketch. Move the vertical rod over the head of the T-pin and lay the next vertical rod in place as you did the first. Do this as often as it takes to complete the 12 inch section.

Now take a flat needle file and clean your railing section. Be careful not to file your joint completely away. That's all there is to it.

I personally think the time I spend in making the railing for my ships is worth it. With the eventual evolution towards the single shot gun I think there will also be a shift towards more detail on our ships. So why not start now.

By: Jeff West

Keep Battling

*[Handwritten signature]*



# A FOSTER SINGLE-SHOT

by James C. Foster

## HOW TO

### Materials:

- 1) 1/4" Compression 'T' fitting
- 1) 1/4" Compression X 1/8" M.P.T. fitting
- 1) Clippard 'T' part #15002-3
- 2) Clippard hose barbs part #11752-2
- 1) DuBro 5/32" lock collar
- 1) 3/16" I.D. 'O' ring
- 1) 1/4" flare nut
- 1) 1/4" flare plug
- 3/32" O.D. Brass Tube

- 5/32" " " "  
 3/16" " " "  
 7/32" " " "  
 1/4" " " "  
 9/32" " " "  
 5/16" " " "  
 11/32" " " "  
 1/4" O.D. Copper Tube  
 Spring (to fit over 1/8" rod)

### Tools:

- 5/16" End Mill or modified Drill Bit  
 3/32" Drill Bit  
 3/16" " " "  
 1/4" " " "  
 9/32" " " "  
 5/16" " " "  
 11/32" " " "  
 Drill Press (optional but highly recommended)  
 Torch and Solder

**Step One:** Piston assembly. Cut a piece of 1/8" Dia. Music Wire (naturally left out of the Materials list!) about 1" long. Drill a 3/32" hole in the 5/32" brass tube about 1/8" from one end. Cut this piece off so it is about 1/4 inch long. Insert this piece of brass into the lock collar and hold in place with the set screw through the hole. File the brass tube so the ends are flush with the surface of the lock collar. File a small notch in one end of the music wire about 1/8" from an end. Insert this end into the lock collar/tube assembly and tighten down the set screw securely. File the end of the music wire flush with the lock collar. If you wish, you can now solder this assy. together. At the least put a drop of super glue on the set screw threads. Make sure the set screw does not protrude above the surface of the lock collar. File if necessary. See Fig. 1 for a picture of the assy.

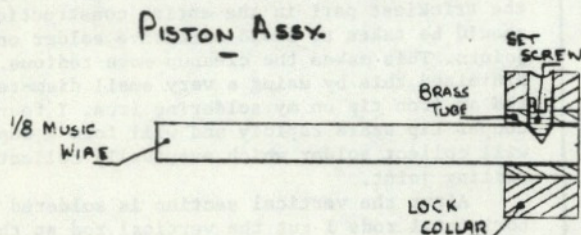


Fig. 1

**Step Two:** Cylinder assembly. Cut a piece of 5/32" brass tube and 3/16" brass tube about 3/8" long. Solder together and set aside. Take the 1/4" Compression 'T' and drill out one of the ends (on the cross bar) to 11/32". A drill press is really essential for this as the hole must be aligned with the axis of the 'T' fitting passage. Slip the previously prepared tube assembly over the rod of the Piston and insert into the drilled section of the 'T' as far as it will go. Holding this in place, solder the tube assembly (NOT the Piston!) into

the 'T' fitting. After it is cool, check and make sure the Piston slides freely back and forth. You may need to burnish the Piston if the alignment of the tube assembly seems good. Remove the Piston and use the 11/32" drill to make the tube assy. flush with the bottom of the cylinder. Then use the 3/16" drill to remove the tube which extends into the passage of the 'T' by drilling through the leg of the 'T'. Remove any burrs from the tube. Take one of the compression caps and drill out the hole to 9/32". Next take the Clippard 'T', #11752-2, and enlarge the hole in the male connector to 3/32". Cut the male threads off flush with the circular surface it extends from. Insert this circular surface into the cap (you may need to enlarge the hole in the cap for a good fit) and solder in place. Screw the two hose barbs in place on the fitting. Cut a piece of the 11/32" brass tube about 1/16" to 3/32" long. Drop this into the cylinder, where it can be soldered in place or left loose. Now comes the fun part, finding a spring that works! I do not have a good source of the ideal spring, so you will have to scrounge one up on your own. As far as specifications are concerned, it needs to slip easily over the 1/8" rod of the Piston, but not so large it drags on the 11/32" brass spacer. Its length must be such that at full compression within the cylinder it is not crushed, and yet must still be able to fully withdraw the Piston. The strength of the spring should be in the medium range as to strong a spring will cause multiple shots and to weak a spring will have difficulty in withdrawing the Piston. All I can say is good luck in finding a good spring and if you do find one, get all you can. If anyone finds a good source, let us all know! Anyway, once you have a spring, drop it in the cylinder and place the Piston on top. Screw on the Cap/connector and begin to adjust the Piston. Adjust the throw of the Piston with the Cap by screwing it in and out. What you want is a throw of 1/8" min. to 3/16" max. Mark the cap when the proper throw is achieved. Now cut the rod off so it is flush with the incoming passage when the Piston is fully withdrawn. After all the Piston adjustments are made, super glue the cap in place to seal and hold the assembly in place. This also makes it easy to get in to the Cylinder for repairs. See Fig. 2 for a picture of the whole mess!

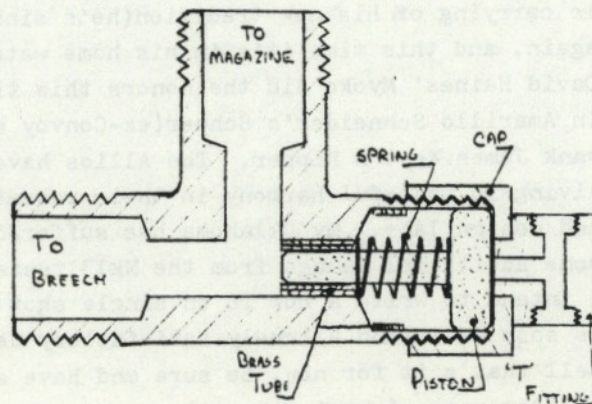


Fig. 2

**Important Note!** Due to the vagaries in the production of the 1/4" 'T's, you may run into two problem areas. One is that there may not be enough brass to drill out the end to a full 11/32". At the best the tolerances are close.

CONT.



Cont.

with a wall thickness of 1/64" the best you can hope for. As an alternate construction method, drill the end out to 5/16" instead of 11/32". If you use this alternate method, you will need to modify the Piston. Clamp the Piston in a drill and while rotating, grind the lock collar down carefully (with a Dremel cutoff wheel in your Dremel) to 5/16" diameter. Go slowly so you do not overshoot and keep the edge square to the axis of the rod. After you have ground the Piston down, bevel the edges of the piston slightly. Another problem that may arise is with the alignment of the passage through the 'T'. If you have trouble with aligning the small tube assembly which is soldered in at the base of the cylinder bore, do not use the 3/16" O.D. brass tube. Just solder the 5/32" O.D. brass tube into the passage. Make sure the solder has completely sealed the space around the tube and it is aligned with the axis of the cylinder bore. Hope these hints help!

**Step Three:** Now what you've all been waiting for, the Foster Breech! Take the 1/4" Compression X 1/8" M.P.T. fitting. Bore out the 1/4" Compression end to 5/16". As you need a flat bottom, a 5/16" end will work best, or alternately modify a 5/16" drill bit to a flat bottom by grinding off the bevel at the end of the bit so it is square to the axis of the bit. To facilitate this operation, first drill the fitting out with the 9/32" drill (or if you can find it, a 19/64" drill bit). Again, as alignment with the passage in the fitting is important, use a drill press or other precise tool. Next, cut off most of the 1/8" M.P.T. threads and drill out to a depth of about 1/8" with a 1/4" drill bit. Solder the 1/4" copper tube which comes from the Cylinder assembly in this 1/4" hole. To make the barrel, you will need a 3" piece of 7/32" brass tube, a 1" piece of 1/4" brass tube, and 3/8" pieces of both the 9/32" and 5/16" brass tubes. Slip the tubing over each other at one end and solder together. When cool, grind the end of this assembly flat and square. Don't grind too much off or you may not be able to clamp down on the 'O' ring! As a final step, slightly bevel the barrel and the fitting holes to allow the BB to self align within the 'O' ring. The 'O' ring is the 3/16" I.D. 'O' ring which can be had at most auto parts stores. Remember to lube with some vaseline for best performance! See Fig. 3.

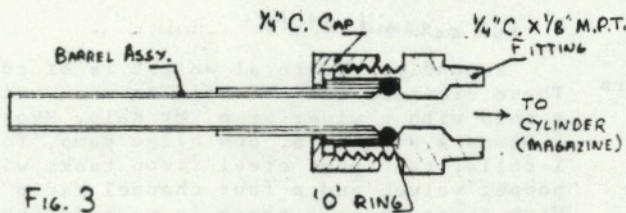
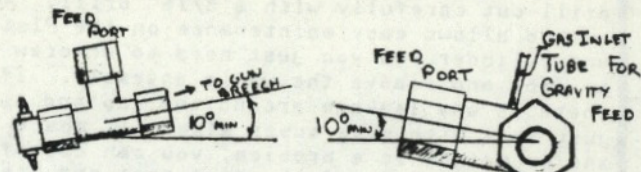


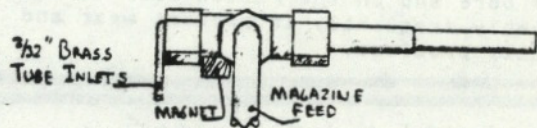
FIG. 3

**Step Four:** Installation, care, and feeding! There will be as many ways to install this gun system as there are people in the hobby, but I will give you a few general guidelines. The magazine and BB feed system can be either a pure gravity feed system, or a combination gas/gravity feed system. As you saw on Fig. 2, the BBs are fed into the leg of the 'T' fitting. There must be some sort of a gravity drop at this point so another BB will feed into the gun after the Piston has withdrawn. While the feed port does not have to be vertical to achieve this gravity drop, it should be at least 10 degrees above the horizontal at a minimum with a side feed system. Additionally, the whole cylinder assembly should be tilted somewhere between 10 and 20 degrees with the Piston at the lower end to prevent more than one BB from rolling into the cylinder passage. A small but strong magnet can also be glued to

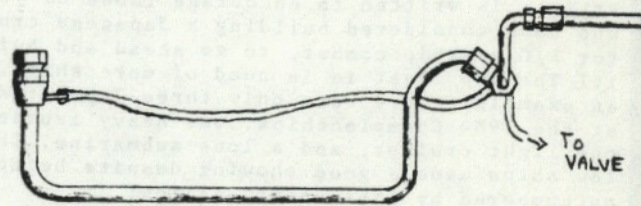


TILT ON CYLINDER TO PREVENT MULTIPLE BB SHOTS - THE USE OF A MAGNET WILL ALLOW HORIZONTAL MOUNTING

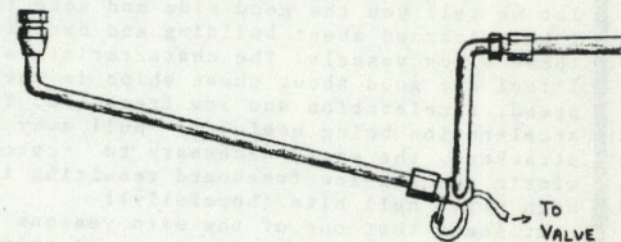
SIDE FEED SYSTEM (GRAVITY OR COMBINATION)



UNITIZED SYSTEM - SIDE FEED SYSTEM/COMBINATION NECESSARY.



COMBINATION GAS/GRAVITY SYSTEM



GRAVITY FEED SYSTEM

FIG. 4

the outside of the cylinder assembly directly under the feed port to prevent more than one BB from rolling through. A magnet would be an absolute necessity if you use the cylinder assembly as your gun breech also. By this I mean if you machine the end opposite the Piston into a Foster breech for a unitized system. As the gun will no doubt be down angled, the magnet is essential in preventing multiple BB feeds. The gas lines are connected as follows: The Freon supply line from the Clippard poppet (MAV-2 valve recommended) connects to one of the two barbs on the end of the cylinder assy. The other barb will supply your firing gas, and the exact input depends on the feed system you are using. If you have a gravity feed system, drill a 3/32" hole into the cylinder assy. just above the Piston rod into the feed port. Solder a piece of the 3/32" brass tubing into this hole and connect with a hose (super glue to brass tube) to the barb on the cylinder end. If you use a combination gravity/gas feed system, run the hose to the end of your magazine as the current systems require. To attach the various tubes to the cylinder, i.e. the magazine and breech feed, you can in most cases use the 1/4" Compression fittings in the normal fashion. You just need to check and make sure the BBs will still feed after the compression collar has been crimped onto the copper tube. If there is a restriction, just

Cont



cont.

drill out carefully with a 3/16" drill. This method allows easy maintenance on the Piston and cylinder, as you just need to unscrew the caps and remove the whole assembly. If there is any leakage around the cap and tube, just seal with some super glue. If space and/or weight is a problem, you can cut off the threaded portions of the feed port and breech feed and solder the tubes directly to the cylinder. See Fig. 4 for some pictures of various installation systems. As far as the care is concerned, it mainly involves keeping the Piston well lubricated. I recommend using a Molybdenum Disulfide based grease.

LUBRIPLATE is a brand name of such a grease. An auto parts store is a good place to find such a grease. Use it liberally on the cylinder bore and on the Piston rod. Grease the assembly frequently to prevent wear and other nasty problems.

Just a few last hints here and I'll let you get on with building your own guns. I suggest that you always carry at least one spare Piston and spring for each gun you are using, and a spare cylinder assembly would not be a bad idea either. If you have trouble with multiple BB shots, you may want to drill a small hole into the cylinder at the lower end of the bore (the spring chamber) to help eliminate any pressure build up in this section. The hole should be in the #70 to #60 wire drill range. This will cause a small amount of gas leakage, but it should not be objectionable if the tolerances of the Piston are not to far off.

Well, good luck and good hunting!

*James E. Fox*

## HOW TO Build A Jap Cruiser

To all prospective Japanese captains! This article is written to encourage those of you who have considered building a Japanese cruiser for R/C warship combat, to go ahead and build it! The Jap fleet is in need of more ships. As an example, there were only three Jap war ships at the 1984 Championships; one heavy cruiser, one light cruiser, and a lone submarine. These few ships made a good showing despite being outnumbered by those nasty Allies!

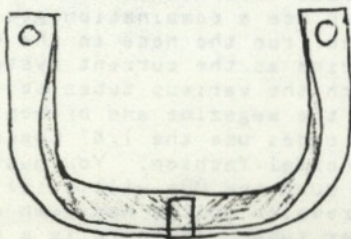
Most of you have heard the negative side or characteristics of these long narrow ships, now let me tell you the good side and some things I have learned about building and battling these sleek vessels. The characteristics that I feel are good about these ships is their speed, acceleration and low freeboard. The acceleration being useful to pull away from attackers, the speed necessary to catch the victim and the low freeboard resulting in fewer high point hull hits (hopefully)!

It seems that one of the main reasons Jap cruisers are not built is the complexity of the hull design. The hulls have complex curves that make building and covering difficult. Several things to do to make the project easier are 1) cover only a small section at a time, say 3 inches or the distance between two ribs only 2) on the difficult curves, like the bow and stern area, wet the balsa liberally to conform to the curves 3) use fast drying adhesives such as Super Jet, Hot Stuff, etc... 4) choose soft flexible balsa and 5) TAKE YOUR TIME!

A second reason for not building these cruisers is the lack of room inside the hull for all the necessary systems. To help overcome this lack of space you can 1) after covering remove all unnecessary portions of the ribs and keel with a dremel tool (fig. 1). It is amazing how much more room is inside once this is done. 2) build the hull upside down, the Tom Yass method, without a keel. I used this method on my Terutsuki class Jap destroyer and loved it.

fig 1

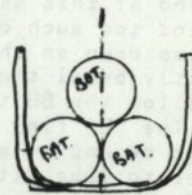
REMOVE shaded AREA



During the planning and building of a Jap cruiser, two main objectives are, achieving side to side stability and keeping weight down. The first objective is best achieved by keeping all weight as low in the hull as possible. Do not put batteries in pyramid style! I recommend them to be put end to end, parallel to the keel in the widest portion of the hull (pic.1) Make sure they can be secured so they do not shift. This can cause a disabling list! Keep weight distributed evenly on each side of the keel line.

Try to keep heavy weight off of the keel line, because in a hard turn the weight will move all the way to the outside of the turn causing the weight distribution to become uneven, the ship will bob side to side and some cases capsize! (fig. 2)

fig 2



BATTERIES placed IN hull pyramid style

OVERWEIGHT to ONE side IN A turn



Secondly, the total weight is of concern. These cruisers can not hold as much weight as a ship with a wider beam. My ship, Myoko, uses 4 Dumas 4.8v motors, one bilge pump, four Gates X-cells, two round steel freon tanks with one poppet valve, and a four channel radio (pic.2). With these systems there is no need for additional ballast, she floats on the water line. I tried using five X-cells, but this was too heavy. Also, the use of metal fittings topside should be avoided. They look nice but add too much weight.

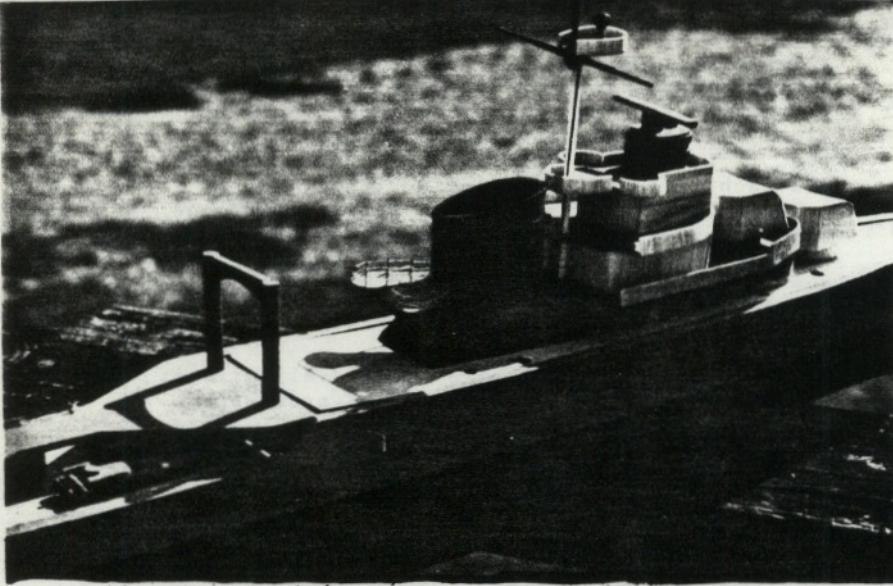
Finally, battling styles are unique to each individual and his ship. This comes, or is developed with experience. With the Myoko it seems that an aggressive style works best, using the speed and acceleration to the best advantage. Kind of a hit and run strategy actually.

I'll end with saying these ships are buildable, perform well in battle and are a sight to see cutting through the water!!!

"Dirty Dave"

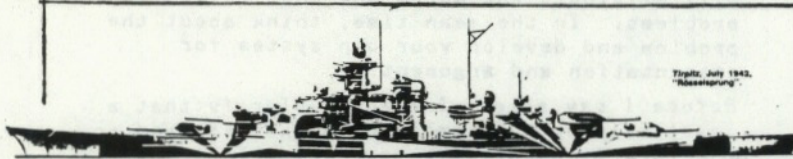
*David Hayes*





Watch out Rookies

Quite a few of the folks at nationals may have heard Mary Hamilton complain to her husband Dan that she wanted a bigger ship than her Destroyer more powerful something more along the lines of a Battleship. Well here it is, Its the Light Cruiser H.M.R.S. Tromp. Its only two inches longer than her Destroyer but don't tell her that. The Tromp is 36 inches long and 3.39 inches on the beam. Actual size is 433 feet length and 40.8 feet on the beam. Tromps displacement is 3,800 tons standard. She carried six--six inch guns in three twin turrents, six torpedo tubes, had a armor belted hull and a armored deck with speed of 33 knots. Not bad for a ship of her tonnage. The model will be powered by Poly Pak motors and four amp nicad batteries. She will carry two guns and one pump for Mary to decide what configuration she will use for that battle. We hope to see you in the spring.



The Second day started at the motel with a review of the video tapes, and then moved to the lake for battle. The first fleet battle was the Andrea Doria vs. Caesar and Massachusetts. The Andrea Doria easily bested the Allied fleet including sinking the Massachusetts.

The next fleet battle with the Doria and Salt Lake City against the Massachusetts and the Caesar ended with another Axis win as the Massachusetts going to the bottom for the second time. The last fleet battle of Doria vs. Salt Lake City and W. Virginia resulted in the Doria winning for a clean Axis sweep of the fleet battles. The one ship on ship battle of the day between Lutzow and Salt Lake City gave the Allies a single win. The Allies were heard to be planning a new campaign for next year.

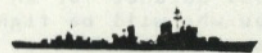
Present at the battles were Joe Vilar, Carl Camurati, Mike Deskin, Dwyer Wedvick, Bob Amend, Rick Schultz, and Marty Hayes. A good time was had by all, even those of us (ahem) who went swimming.

The practicality of single shot guns was at least partially proven. The jam elbow type seemed to work well. The piston type had problems and/or short life spans due to the spring which returns the piston. This should be overcome in the future. Mike Deskin's Salt Lake City with small magazines and no pump stood up against the big boys with their burp guns quite well and seemed to give better than he took. Bob Amend's Lutzow ate up the stern of my Richelieu in the fleeed battle.

In my personal opinion, Cruisers and Destroyers are made more powerful with the use of single shot guns while Battleships are weakened. A single shot gun is very accurate for the more maneuverable ship and less for the slower. The shots from the single shot guns are more powerful because all of the freon is pushing the single BB. However, because of the increased usage of freon, the freon tank cools rapidly and can freeze up.

The regional was an unqualified success. Next year I feel certain that we will have more ships and captains and plans are being made for at least as many battles. I know of at least four more ships being built with at least two to be ready in time for the spring regionals. We, of the Northeast, would like to extend an open invitation to others to come to our battles.

Marty Hayes



NORTHEASTERN FALL REGIONALS

By: Marty Hayes

The fall regionals were held at Woodbury, New Jersey (also the site of the spring regionals). Many thanks to Bob Amend for making the site available.

During the two day event, five fleet battles and two ship to ship battles took place. The weather started out brisk and chilly but warmed up to a reasonable temperature in a short time. Good thing too - as some swimming was involved as a sideline of the event.

Some of the ships were equiped with single shot guns. The Andrea Doria sported a single shot forward (as it did in the summer regionals) and the Lutzow and Salt Lake City both were equiped with jam elbow single shots. The remainder of the fleet mainly ran burp guns.

Arriving at the lake on Saturday, the Maryland contingent found no one. We retraced our steps to a Roy Rogers and settled down to breakfast. Bob Amend found us there and told us everyone was back at his house. So...we went back to his house and rested for several hours until everything got underway.

At the lake, several hours late, the ships were unloaded. The Maryland group had some surprises for everyone at this point. Two new ships, the Massachusetts and the Richelieu, were out for their shakedown cruises. (shakedown was unfortunately the word too, with accent on the down).

The fleet battles on the first day were like this. First battle, Axis - Andrea Doria and Salt Lake City vs. Allied - W. Virginia, The Axis won. Second battle, Axis - Andrea Doria, Lutzow, W. Virginia (called El Monarch) vs. Richelieu, Caesar, and Salt Lake City, Axis won. Perhaps there was a pattern here. The Richelieu and the Massachusetts were falling under the new ship syndrome - no reliability. One ship to ship was fought between the Lutzow and the Caesar which the Lutzow won (representing the Axis). At the end of the day everyone retired to a nearby motel for food and rest.



by James C. Foster

**MERRY CHRISTMAS** and a **HAPPY NEW YEAR!** May the coming year see the fruition of all your dreams and desires.

To help you enjoy the next year even more, here is the information on ship classification and the single shot category.

**ONLY THOSE SHIPS LAUNCHED AND COMPLETED BETWEEN 1905 and 1946 INCLUSIVE WILL BE LEGAL.**

**CLASS I:** 5 Units.

Battleships.

**CLASS II:** 5 Units.

Battlecruisers.

**CLASS III:** 3 Units.

Heavy Cruisers, Light Cruisers over 9000 tons standard displacement, Pre-Dreadnoughts.

**CLASS IV:** 2 Units.

Light Cruisers, CVs Lexington, Saratoga, Akagi, Kaga.

**CLASS V:** 1 Unit, 20 BB max magazine.

Destroyers, Submarines, CVs, CVAs.

(note: Subs may not have a pump)

**CLASS VI:** 1 Unit, 10 BB max magazine.

Gunboats, CVLs, CVEs, and all other ship types not specifically mentioned.

All other rules for the unlimited category are still in effect.

For the single shot category, all previous rules are still in effect, except for the following exceptions:

**MAGAZINE LIMITS:**

Class I: 100 BBs bow and stern, 50 BBs side.

Class II: 100 BBs bow and stern, 50 BBs side.

Class III: 50 BBs.

Class IV: 50 BBs.

Class V: 20 BBs.

Class VI: 10 BBs.

(note: These BB limits are the maximum limits, and may be changed after the results of the battling at the Nationals is evaluated)

Side shooting guns may be down angled any amount.

There may only be one gun per side.

A side gun will count as one full unit!  
(PER GUN!)

A Single Shot gun to be legal must only fire one BB per two stick movements, i.e., move the stick forward to fire, and back to center before the gun can fire again.

There will be a plus or minus 10% tolerance allowed in the gun action, i.e., to shoot 50 BBs the stick can be moved 45 to 55 cycles.

A gun may be challenged by any other combatant. The challenged gun must pass four out of five test firings according to the above specifications to be legal. If a gun is found to be illegal, The gun must be disconnected until the problem is corrected and another test run to see if the gun is now legal, or the captain may elect to participate in the Unlimited category for the duration of the event.

As hinted at above, the Single Shot category is still somewhat experimental, and there will be changes made in the magazine loads during the Nationals in an attempt to find the optimum load balance for an enjoyable hobby. Those of you who will be fighting between now and July may want to do some experimenting yourself in

this respect, as long as you do not exceed the listed maximum loads. Please clearly mark your battle reports not only with SINGLE SHOT, but also list the loads and where the guns were, i.e., 2 guns bow, 75 BBs each, 2 guns side, 50 BBs each. It will help the hobby to have as broad a data base as possible to determine the best magazine loads. It will also be a good idea if those who have perfected a single shot gun will publish the details in **HULLBUSTERS** so others may duplicate and further test your ideas.

One problem which will have to be dealt with at the Nationals rules session is the problem of our current ship classification system. There are so many holes in this system as far as "Unfair Advantages" are concerned that if it were a ship, it would soon achieve a state of negative buoyancy. I will be building a ship to take advantage of one of these glaring loopholes simply to illustrate the problem. The Executive board will be working on a system to present for your approval that hopefully will eliminate the worst and most obvious problems. In the mean time, think about the problem and develop your own system for presentation and argument.

Before I say adieu, I need to clarify that a legal ship must actually have existed, and in the form it existed at some point in time. Thus you cannot legally build a ship in some proposed reconstruction if the reconstruction did not take place and/or was not completed. Also, for future reference, the ship classification as it was **ORIGINALLY** built and completed determine it's class, i.e., a Battlecruiser rebuilt as a Battleship will still be classed as a Battlecruiser.

Well, I hope you are all looking forward to this July and are waiting to see how the Single Shot guns work out for our hobby. I know I am and cannot doubt that the change will definitely be for the better!

*James C. Foster*

FROM THE SECRETARY OF THE NAVY  
Point standings for the R/C Warship Combat Club 1985 combat season.

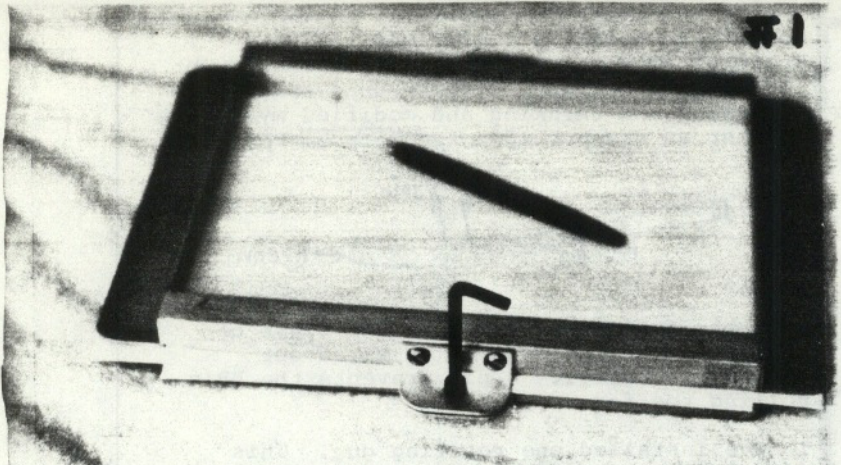
1. Carl Camurati	7791
2. Steve Milhollani	3511
3. John Jass	3046
4. David Haynes	2933
5. Joe Vilar	2469
6. Jan Hamilton	1569
7. Mike Jeskin	1556
8. Terry Darby	1504
9. Bob Amend	1473
10. Bill Hahn	1360
11. Robert Shultz	1141
12. Martin Schnieder	995
13. Tom Jass	993
14. Dwyer wedwick	902
15. J.W. Fluegel	880
16. James Foster	709
17. Robert Russell	596
18. Jim Lisher	490
19. Marty Hayes	473
20. Jeff West	430
21. Gerald Roberts	140
22. James West	135
23. Loy Rasmussen	71
24. Billy Gainer	20

These are the point standings as reported to the Secretary of the Navy thru November 17th, 1984.

*Jan*



The "Magic Molder and Former, Precision Plastic Part WING MFG, Crystal Lake, Illinois" is a quality "Vacuform" Paul Parson of Dallas bought this one and feels it is over priced at \$99; even though, it is high quality. He believes they would be a good club purchase but individuals should make their own. I have made my own and feel it was time well spent (\$99). For "how-to" info, refer to Scale Ship Molders, May, 1982 issue (Vol 5, No 3).



**CLUB LOGO AND MOTTO COMPETITION**

If you want to leave your mark on the hobby for all time, here is your chance! We are going to have an open competition to find a permanent logo and motto for our club!

If you want to participate, just follow these simple guidelines:

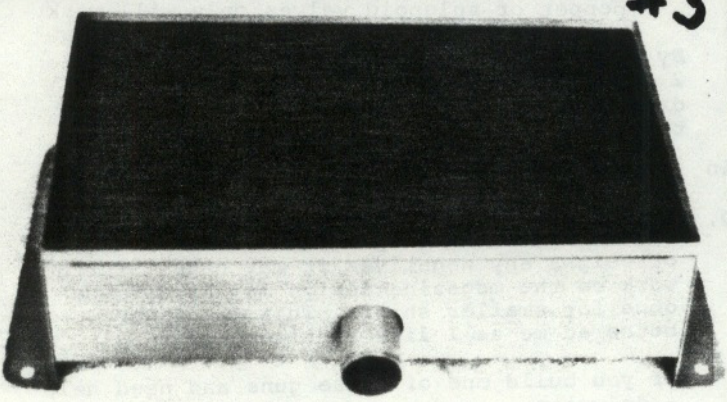
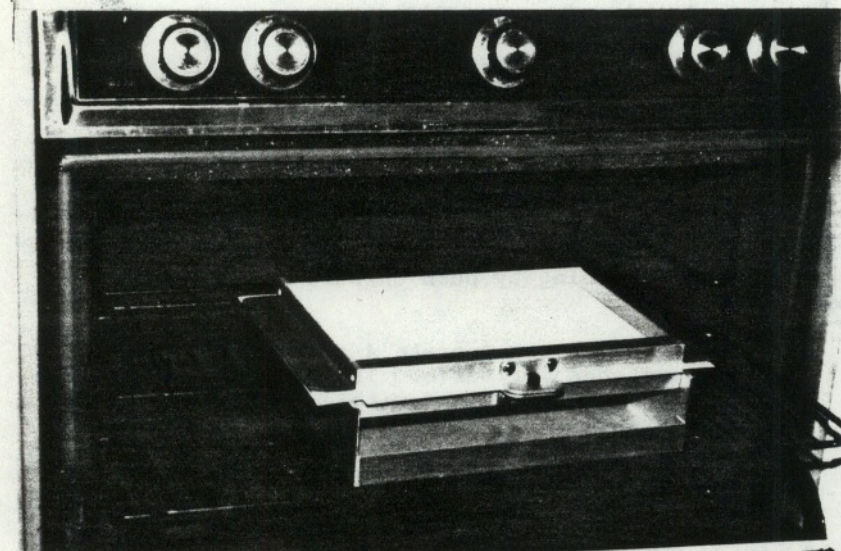
You can make the logo as simple or complex as you wish. It can be any size and any colors you wish. However, you must also submit a simplified black and white representation of your logo that will fit in a square two inches on a side or less. So, plan your logo to present the hobby in some form, that will still be recognizable in the small and simple form of letter heads and other club documents. One suggestion that we already have is the current R/C Warship patch. As far as the motto is concerned, make them short and sweet and easily remembered. You can include them in your logo design, but they will be selected separately so you will still need to submit the motto individually. An example of a motto is Stan's "Lets Battle!"

The selection of the winning logo and motto will consist of two steps. First, the Executive board will screen all the entries and select three finalists in both categories to be presented at the July Nationals. The final logo and motto will then be selected by a vote during the rules session. Unfortunately there will not be a prize for the winning entries, other than the knowledge you will be immortalized!

Send your entries to Tom Jass up in Chi Town, or better yet, to the following address:

Tom Jass  
312 E. Circle Ave.  
Lombard, Ill. 60148

**GOOD LUCK!**



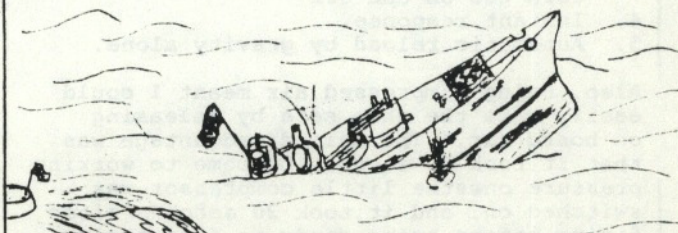
**HOW TO DRAW A R/C COMBAT CARTOON**  
BY Chris Pearce

To make a R/C Combat cartoon, first one must have an idea of something funny even if only to yourself. Then lace it with a large amount of propaganda. If you do this, make it pro-axis or else it may never be printed.!? After this idea has been refined into a form which can be drawn, and translated onto the paper in such a way that the common reader can get the joke, not over their heads.

As far as drawing goes, neatness is important, but it doesn't matter if your picture is accurate looking, unless you are a perfectionist. Make the cartoon 4-3/4 in. wide. Make your lines clear, and text legible, except in cases of "fine print". It may take several tries to accomplish this.

After you have made a satisfactory cartoon, mail it to Fluegel, and make sure it isn't after the time limit, like this article was. Then you can hope Fluegel is not too insulted by the cartoon and prints it. So that is how to make a R/C combat cartoon. Good luck, and have fun, that's the #1 goal.

Q. What is wrong with this picture?



A. Absolutely Nothing



### HOW TO GET CHIMNEY SMOKE

My ship is a WW1 Battlecruiser and these were coal burning. Hence they made enormous clouds of black smoke. Model warships, especially of this vintage benefit greatly from having smoke coming out the chimney. How to get the smoke? Read on. First buy a small quantity of Potassium Nitrate, KNO<sub>3</sub> from your local chemist or chemical supply house. Dissolve two tablespoons full in a pint of water.

Now roll up some strips of newspaper into rolls of paper that fit comfortably into your chimney and put on some rubber bands to keep them rolled up.

Drop the roll into your solution and leave a day to soak. Remove from the solution and allow to air dry for a few days. They will have some fine white powdery crystals on them when dry. When you want your smoke, remove your rubber bands, place in chimney and light. You will get lots of a light to medium grey smoke that is not unpleasant and looks good. The more ventilation passing through your chimney, the more smoke!

Try it - its great! By P. Futschik.

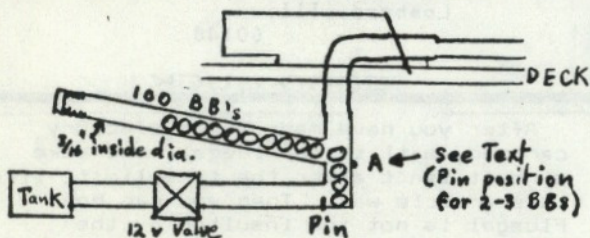
### HOW I BUILT A SINGLE SHOT GUN

P. Futschik,  
47 Powell St.,  
South Yarra. 3141.  
Melbourne.  
AUSTRALIA.

Dear Editor Fluegel,

A big friendly hello to all you model warship combat types. I have been interested in the hobby since 1981 and have built a combat model of a British 1910 Battlecruiser, H.M.S. Lion, which is nearly 6 ft long and weighs 28 lbs.

I decided early on to experiment with building suitable guns myself. They were powered by a car tyre compressor carried in the ship, and fired bursts of about 5 to 8 shots when actuated by a (12v) solenoid valve. The magazine was a long straight angled tube, and the firing chamber as drawn below:

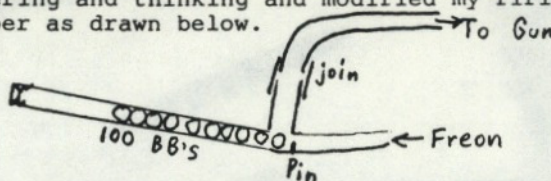


This had a number of advantages namely:

1. Nothing to adjust
2. Easy to homebuild
3. No extra powerful servos required to turn gas on and off
4. Instant response.
5. Automatic reload by gravity alone.

Also, using compressed air meant I could easily make the ship safe by releasing on board air. The main disadvantage was that it took 50 seconds to come to working pressure once the little compressor was switched on, and it took 20 seconds after firing before being ready to fire again. It also used up lots of electricity to drive the compressor.

Now I have recently subscribed to "Hull Busters" (great job Fluegel!) and read about the single shot gun. I have done some soldering and thinking and modified my firing chamber as drawn below.



When the freon is turned on, the blast of gas causes only one BB to be fired out of the gun barrel. A pin prevents the BB's rolling too far.

I have installed one rotating gun. This uses hand bent copper tube with suitable brass tube sleeving, and 90° rotation to one side is provided by a servo which also turns on other switches for pumps.

These guns have been working happily on my ship for some 3 years, with no blockages or other problems. They are easy to soft solder together, which gives more than sufficient strength. No doubt spiral or other shape magazines could be used. Mine are see-through nylon of 8mm O.D. and are joined to the brass tubing by push on/pull off fittings.

One control stick can operate 4 guns using two microswitches per servo. The magazine tubes are closed at one end with a quick release fitting.

The principle of the gun is dependant on two things:

1. Geometry of the firing chamber
2. Sudden rush of gas - no needle valves, poppet or solenoid valves only will work

By the way, it is easy to make a similar 2 or 3 shot gun by modifying the first drawing and placing a pin at position 'A' to prevent BB's falling in further.

### Conclusions

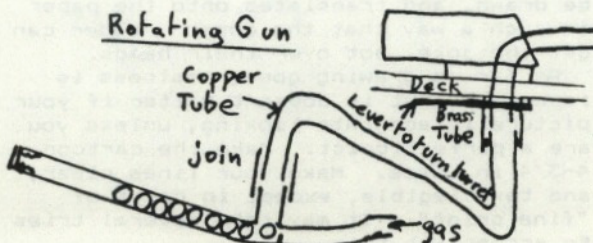
I think that the simplicity of this design outweighs any negatives it may have. Further work on the magazine design may have to be done for smaller ships. This has never bothered me as I like Battlecruisers.

If you build one of these guns and need help - do write.

I hope to come to the Nationals - as an Allies (this year).

*P. Futschik*

P. FUTSCHIK



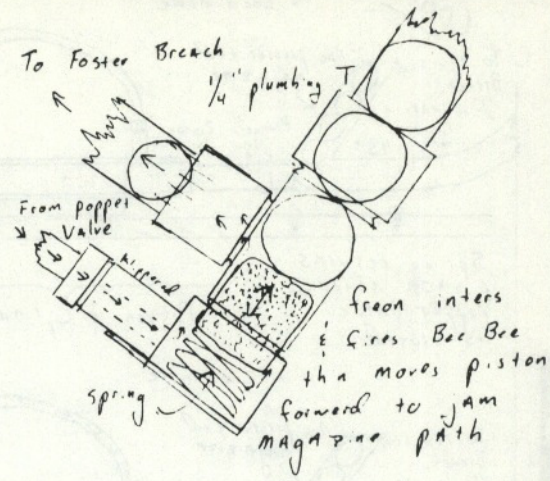


# BABY BATTLERS

By: Fluegel

There are two excellent "See and Say Programs" that are available to you for a self addressed, stamped (80¢) envelope (6 1/2 x 9 1/2). I really haven't had a chance to properly announce this news so, here comes the hard sale. Send the SASE or dollar for the rent of these excellent "How To's". They are specifically aimed at the newly inflicted, I mean the new comers to the hobby. The first one is on Hull Construction and the other one is on Pump Construction. Tom Jass did a wonderful job making these and I feel they would help almost everybody!

Carl Camarati is making a new "Seek and Sink" on who knows what and I hope you will survive and contribute a See and Say to the H.B. Library when you grow up. I happily feel this is a fun and effective way to introduce the unexpected common person into our sick distortion, I mean magnificent obsession. Well lets all retire to our private dock yards and come spring, we can proudly reappear with our new victims, I mean ships.



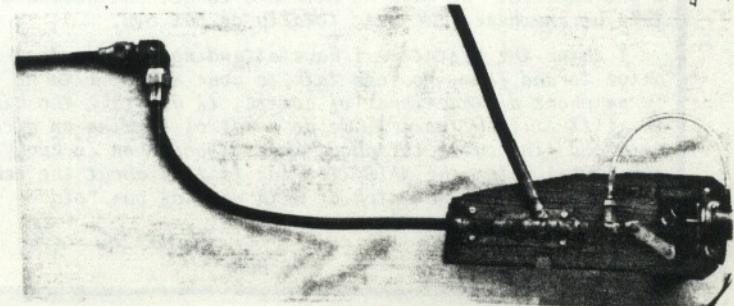
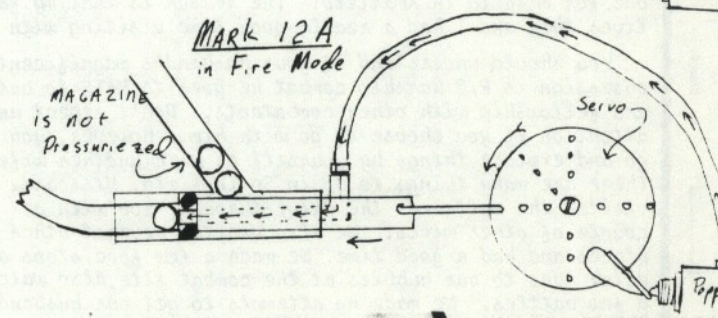
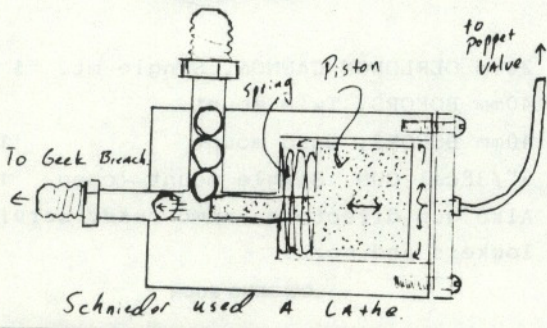
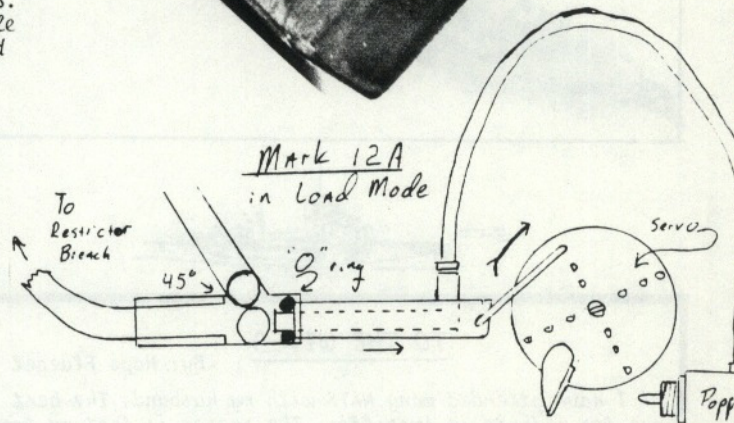
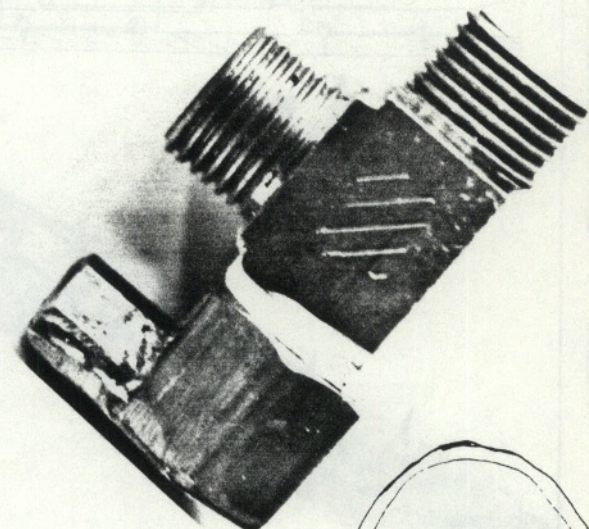
# GUN

BY: Fluegel

I feel a burden to share with everybody the inside knowledge I feel I get on the single shot gun. Because I am the editor and a very adorable and loveable person, people send me stuff (send American dollars). I want to play single shot combat but I want to be shown what works well and is reasonably easy to construct. I know many of you feel the same. That is why I have included the photodiagrams of the five single shot guns I have known. None of them are fully developed so there is no indepth How-to Article. I assure you when a finished gun is developed, I will solicit as article so we can all join in the single shot game.

In the mean time, don't feel less than wonderful to battle with whatever gun ya got! If I can't battle single shot, I'm gonna battle with Foster, Mark 9, and Geek Guns. That's important. If you're not in the "know" about single shot guns, there is still a place for you at the Nats and Boy, are you ever super welcome! In the mean time, Hull Busters will do its best to include everybody into the Hi-tech world.

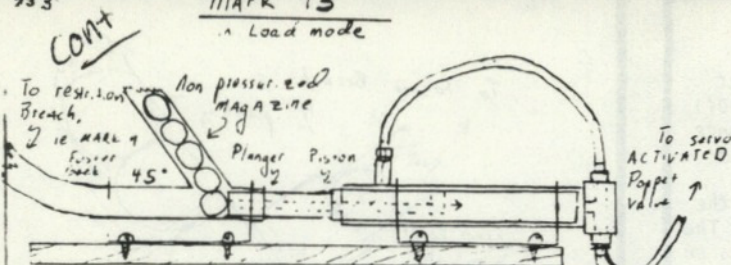
Another field of knowledge that remains a mystery is the new rules. If you are able to battle single shot, and you gain an insight that would help the hobby then you are obligated to lobby the executive board that they to may share your insight. I recommend you talk them tapes and write short articles for Hull Busters. As you participate in your noble crusade be careful and this is an insight from me to you, it is my crusade to impress this upon my fellow crusaders, Be tolerant! Be patient.





Mark 13

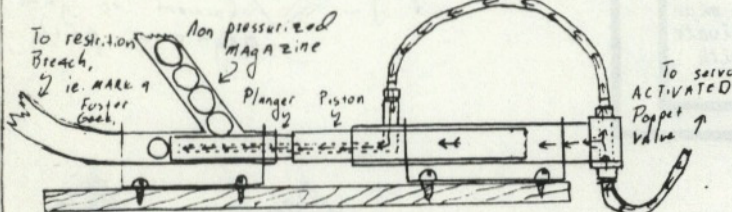
in Load mode



Spring returns piston after poppet valve is closed

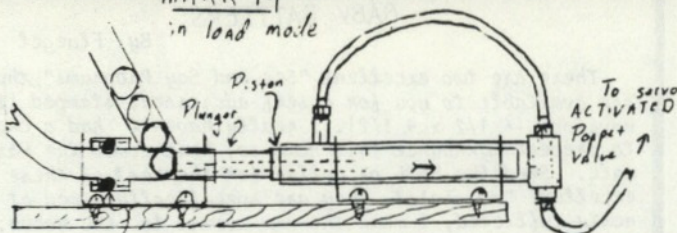
Piston & Cylinder for Mk 13

in fire mode

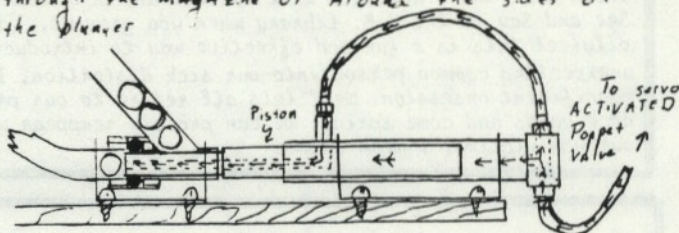


MARK 14

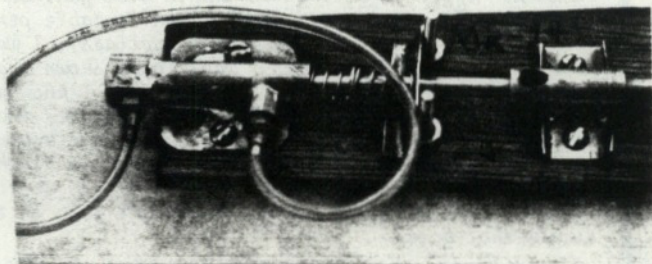
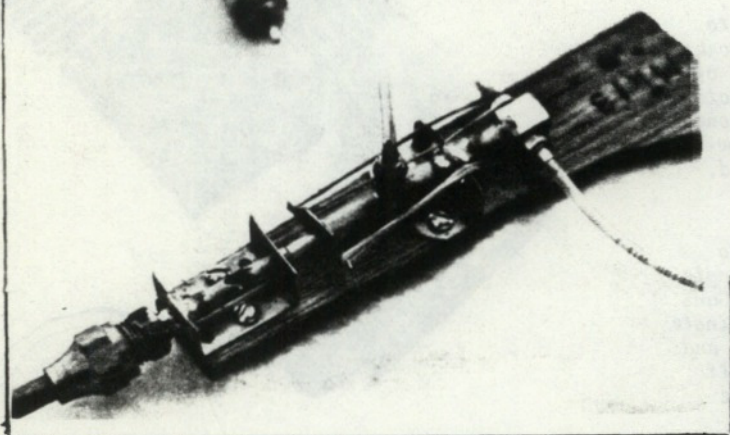
in load mode



O-ring seals gas from piston to plunger to assure no leakage through the magazine or around the sides of the plunger  
Piston & Cylinder for Mk 13 & 14



Piston & Cylinder for Mk 13 & 14



TO THE WIVES

By: Hope Fluegel

I have attended many NATS with my husband. The best one for me<sup>s</sup> held in Amarillo. The reason is that my family lives ther and I had a really good time visiting with them.

You should understand if your husband's magnificent obsession is R/C Warship combat he goes to NATS to battle and fellowship with other combatants. Don't expect any attention if you choose to go with him. However, you can go and explore things by yourself or with another wife. There are many things to do in Springfield, Missouri. I visited the mall and the drive through zoo with a couple of other wives. We also visited several other places and had a good time. We made a few food stops and drink runs to our hubbies at the combat site, also watched a few battles. We made no attempts to get our husbands to take us anywhere. We were totally on our own.

I think the best time I have attending NATS is the drive to and from. You can talk to your spouse with no TV or phone distractions (of course, if you take the kids there'll still be noise). We do a lot of talking on a car trip and find out a lot about what is going on in each of our lives. After the NATS it's fun to talk about the new people we've met and catch up with news of our "old" friends.

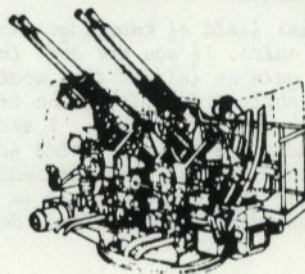
Happy NATS to You.

Hope Fluegel

BIG HOPE

NOW IN OUR SCALE

1/144



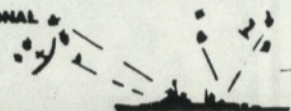
- 20mm OERLOKON CANNON, Single mt. \$ .30
  - 40mm BOFORS, Twin mount .90
  - 40mm BOFORS, Quad mount 1.35
  - 5"/38cal GUN, Single mount—open 1.80
- Also gun directors, ammo ready service lockers and more.

COMING SOON

Japanese 25mm triple AA guns  
British 2 pounder Pom Pom guns

Send large SASE for our new catalog.

COMBAT WARSHIPS INTERNATIONAL  
P.O. BOX 949  
GIG HARBOR, WA. 98335





# NATS to You

By: T. Jass

The 1985 R/C Warship Championship (Nationals) is only 6 months away. Now is the time to evaluate the 1985 battling categories and decide which event(s) to participate in. PLEASE READ CAREFULLY JAMES FOSTER'S ARTICLE IN THIS ISSUE OF HULL BUSTERS. He explains the rules for the single shot fleet and the classifications for aircraft carriers and pre-dreadnaught battleships.

At the 1985 Nats the following battling categories will be authorized:

### A FLEET-UNLIMITED

Ships of all classifications will be eligible for battling within this category. Any type of gun may be used (Mark IX, Foster, Geek, etc.). The ships must meet the rules and regulations that are set forth in the 1985 rules. These battles will be 2 or 3 sorties in duration depending on the number of entrants and the interest in other events.

### B FLEET

As in past years a B Fleet will exist for those inexperienced captains at Nats. Experienced skippers will not be allowed to battle in this class (the CD will be the final judge). In order to make ship preparation easier for these battlers, all gun types (Mark IX, Foster, Geek, etc) will be permitted in B Fleet. These battles will be 2 sorties.

### SINGLE SHOT FLEET

Ships equipped with single shot guns will be eligible for these battles. Both experienced and inexperienced captains can participate. Rules for the single shot fleet are detailed in the President's Column in this issue. The magazine capacities and the single shot gun testing are explained. THESE FLEET BATTLES WILL BE THE NUMBER 1 PRIORITY DURING THE ENTIRE WEEK. Because this is an experimental fleet, we will evaluate several configurations during the week; for example: some battles will be 2 sorties, some 3 sorties; in some battles battleships may be allowed 100 BB magazines forward, sometimes 50 BB magazines; and so forth. This variety will enable us to evaluate the conditions that give us the results we want.

### NIGHT BATTLE & CONVOY

These battle categories will be held if there is sufficient interest. Night battle will be scheduled for Wednesday. We will decide at Nats if these battles will be open to all ships or only single shot ships. Let's keep these two events alive!!

### SMALL SHIP & SUBMARINE FLEET

The small ship fleet will consist of Light Cruisers (2 units) and smaller ships. The sub fleet will consist of subs (even Fluegel can identify subs). In these fleets any gun type may be used. These battles will be 2 sorties. These fleets will be scheduled for a particular day, but as always, if rival skippers can arrange a battle, as Stan Watkins says, "Let the battling begin."

### INDIVIDUAL COMBAT

As in past years these fights are best arranged between the captains involved. The variety of gun types available in 1985 will make these battles exciting.

As you can see, there will be many opportunities available to battle during the 1985 Nats. I will publish a questionnaire in the April 1985 Hull Buster that you can return to me. This will allow me to know in advance the approximate number of contestants at Nats and plan the events to meet your desires.

Build those single shot guns.

Tom Jass  
1985 Nats Contest Director

### MONEY

Your subscription to Hull Busters is used up. Should you wish to continue this madness, send \$6 to "Hull Busters, 3524 Gray Drive, Mesquite, Texas 75150". As always do not over pay for past issues or for 1986 issues the price is \$1 for every remaining even numbered month in 1985. There are plenty of 1982 Annual Issues for sale for \$5 (they are well worth \$3). The 1983 and the 1984 Annual Issues will be published sometime in 1985. Non forty eight states multiply all prices by 3 and send only American dollars. Your support of Hull Busters is sincerely appreciated. Please use the subscription form and fill in the survey when you subscribe.

Subscription <input type="checkbox"/>	Change of Address <input type="checkbox"/>	Feb \$ 6.00
Name _____	_____	Apr \$ 5.00
Address _____	_____	Jun \$ 4.00
City/State _____	_____	Aug \$ 3.00
Zipcode _____	_____	Oct \$ 2.00
Amount Enclosed _____	_____	Dec \$ 1.00
		FOREIGN
		Feb \$18.00
		Apr \$15.00
		Jun \$12.00
		Aug \$ 9.00
		Oct \$ 6.00
		Dec \$ 3.00

Do not subscribe for any past issues or overpay for 198 issues. Enclose the amount for the remaining even numbered months of 1984. Advertising is \$2.00 per column inch (approx 8 lines). In the USA make checks payable to Hull Busters, outside of the USA send ONLY AMERICAN CURRENCY. Send to: Fluegel, 3524 Gray dr., Mesquite, TX 75150. Hull Busters does not sell guns, rules, info packs or anything else, only this Newsletter. CONTRIBUTING AUTHORS are vital! Send Articles typed, single spaced, title it and include a "By line". This is important, the length of your typed lines must be 4 3/4" long. Please use a ruler.

(1) I have battled; Yes \_\_\_ No \_\_\_ . (2) I am building a ship; Yes \_\_\_ No \_\_\_ . (3) There is a realistic (80%) probability that I will participate in this years Championships; Yes \_\_\_ No \_\_\_ . (4) I plan on participating in the following events, Single Shot; Yes \_\_\_ No \_\_\_ , (5) Unlimited, Yes \_\_\_ No \_\_\_ , (6) Small Ship, Yes \_\_\_ No \_\_\_ , (7) Night Action, Yes \_\_\_ No \_\_\_ , (8) Convoy, Yes \_\_\_ No \_\_\_ . (9) I will battle on the Axis \_\_\_ Allies \_\_\_ , side with a (10) BB \_\_\_ , BC \_\_\_ , HC \_\_\_ , LC \_\_\_ , Smaller. (11) My primary frequency is \_\_\_ . (12) I can plug in an optional frequency of \_\_\_ . (13) I am a club member; Yes \_\_\_ No \_\_\_ . I would battle single shot if somebody would show me how to build the gun; Yes \_\_\_ No \_\_\_ . (15) I would pay \$50 for a reliable single shot gun; Yes \_\_\_ No \_\_\_ . (16) NAMS Insurance is a good deal; Yes \_\_\_ No \_\_\_ . (17) I voted on last years rule changes; Yes \_\_\_ No \_\_\_ . (18) My preferred Speed Rule would be; No Speed Rule \_\_\_ , A Maximum Speed Rule \_\_\_ , A Speed Rule by 3 Classes \_\_\_ , 6 Classes \_\_\_ , Scale Speeds \_\_\_ , Other \_\_\_ . (19) I feel the battles would be more fun if they were; More Scale \_\_\_ , Less Scale \_\_\_ . (20) I want to legalize, Rotating Turrets; Yes \_\_\_ No \_\_\_ (21) Thicker Bala Wood; Yes \_\_\_ No \_\_\_ , (22) A Maximum Gun Power; Yes \_\_\_ No \_\_\_ , (23) A Larger than Bee Bee Caliber; Yes \_\_\_ No \_\_\_ . (24) I feel the hobby is controlled by a "Click"; Yes \_\_\_ No \_\_\_ . (25) I feel the hobby is fairly governed; Yes \_\_\_ No \_\_\_ . (26) Nothing works like a Chevy Truck; Yes \_\_\_ No \_\_\_ .

Cut  
Tel. No. ( )  
SURVEY

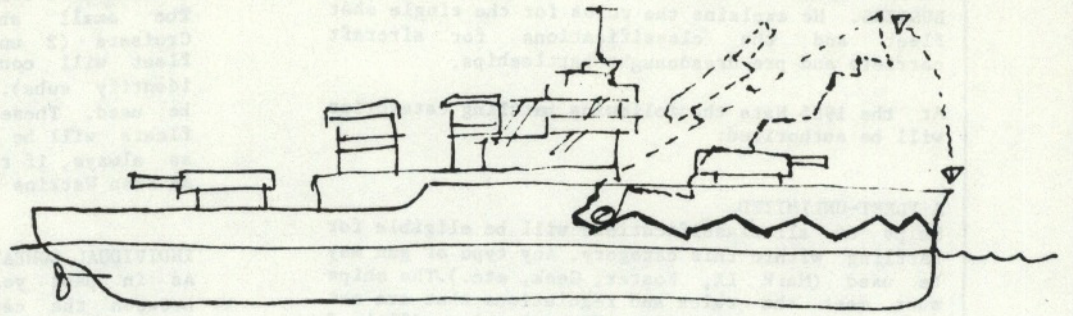
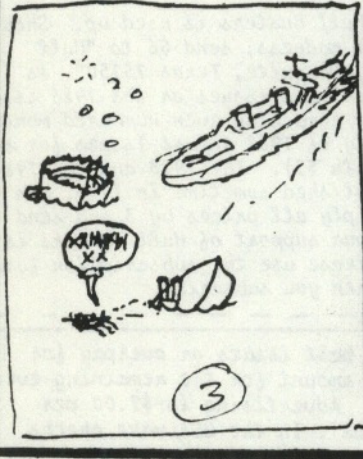
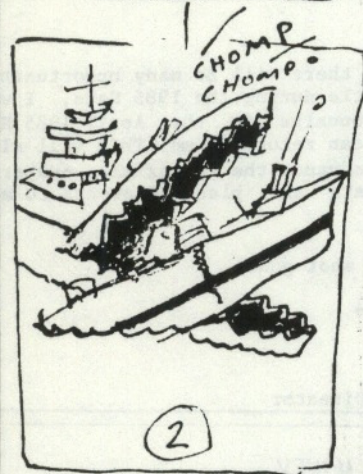
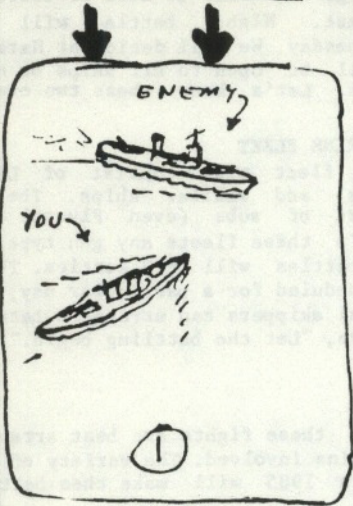


OPERATION:

IS NEAKY TRICKS

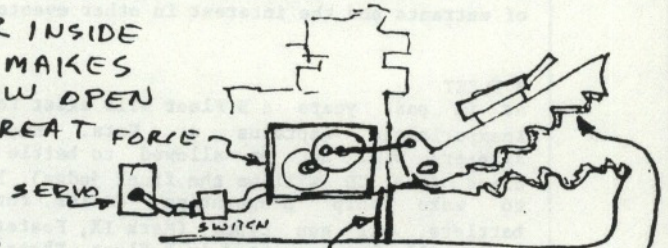
THE ALLIGATOR SHIP TRICK

(Cartoon by Salini.  
When we all miss!)



GEAR-MOTOR INSIDE  
SUPER STRUCTURE MAKES  
HINGED UPPER-JAW OPEN  
& CLOSE WITH GREAT FORCE

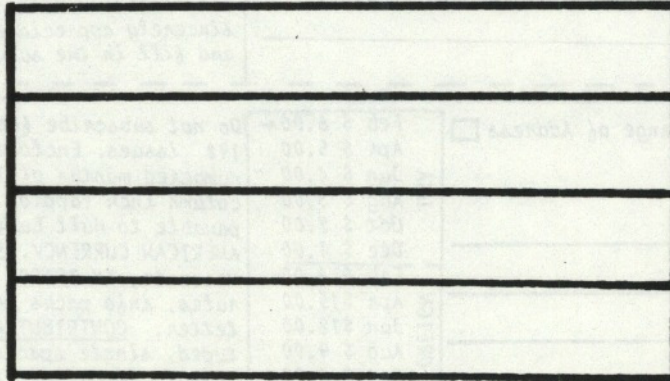
PAINT BLACK ANGLED  
LINES TO HIDE SEAM  
AT LIPS



SEALED  
BULKHEAD TO  
PREVENT FLOODING

HACKSAW BLADE  
PIECES EPOXIED  
TO INTERIOR  
OF HULL

HULL BUSTERS VERY LIMITED  
3524 GRAY DRIVE  
MESQUITE, TX 75150



Merry Christmas