

PACIFIC MODEL WARSHIP CLUB

TECHNICAL MANUAL

2017

This technical manual will attempt to explain the intent and meaning behind of some of the combat rules that this club operates by. I will also cover some of the decisions made by the Executive Board and why certain things may not be in the rule book, but have been deemed to be an unacceptable practice.

It is important to keep in mind that this club holds what we call Rule # 1 to be our guiding principle.

PRIMARY GUIDING PRINCIPLE

It is not intended that these rules be all encompassing. **In this organization, the spirit, and intention of a rule is held to be binding.** The principles of leadership, responsibility, fairness, and accountability govern this club. At no time will parliamentary procedure or rules of order be invoked to subvert these principles. **Using loop holes to beat the system; is not considered to be fair and honest participation.**

The above quote comes directly from the PMWC rules. You might ask why it's repeated here and so prominently featured on the first page of this Technical Manual. For us it's easy to explain, but before we do that credit needs to be given, where credit is due. The foundation for this rule was borrowed from the Queen's Own Model Warship Club, operating out of Washington and Oregon. Their original idea was altered and added to and is now the Guiding Principle you see above. So what does it mean?

Attorneys write laws that we are all suppose to follow, but they are written in such a way that no one can understand them. The reason for this is because they know other attorneys will attempt to find the "loop holes" in the law, in order to break that law or get around following it in the first place.

Since none of us are attorneys, we made no attempt to write up a set of rules that covered every imaginable situation and angle that would naturally come up. Everyone knows what a loop hole is. You know what the spirit or intent of the rules is as well; but "They didn't specifically say I couldn't do this or that". Go ahead and find those loop holes, there are plenty of them to be found. Once you find one and start to plan exactly how to use it, please keep this in mind. You won't get to use it for long! That's where this Technical Manual becomes important.

"We know that everyone understands what fair and honest is and all of us know when reading a rule, what the spirit and intent of it is. If not, read this Technical Manual." In addition, the combination of the Rules and this Technical Manual are not intended to totally cover each and every situation or possibility. Remember the attorney thing, "If you write it they will find the loop hole in it".

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PHILOSOPHICAL ITEMS:

AIR SOURCES:

Originally all ships used Air Conditioning Freon R-22. It was cheap and efficient and depleted our O-Zone Layer at an enormous rate. Freon was still available on the market, but all California Combat Clubs had already switched over to Air-Compressor Systems. An emergency roadside air-compressor would be taken apart for just the compressor and a pressure switch would be added so that the system would charge and automatically turn off at 100psi. Shoot and it would automatically charge up again. The systems worked and worked well, but not so good for rate of fire since it would usually take from 3-8 seconds to recharge. Along came Co2, which had none of the adverse side effects of the Freon. With paintball becoming popular, smaller regulators became available as well as small Co2 tanks. It was the perfect system for our ships. But wait, there was an even better one out there; HPA Gas. One ship installed HPA Gas in it and it so overwhelmed the ships it fought against, it was voluntarily banned on the spot. Needless to say it is not allowed.

ALLIES VERSUS AXIS:

One of the trademarks of 1/72 combat is we have tried to compete virtually 100% of the time using a straight allied/axis format. All German and Japanese ships run together, as do America and British, etc. When playing combat under the 1/144 Big Gun format, they would almost always split teams up equally, which meant that at times you might have a USS Iowa class battleship on each team. A Bismarck fighting against a Yamato, etc. Playing with this kind of format meant that you were required to compete using colored flags. This was one of the reasons many fighting in Big Gun couldn't tell the difference in the appearance of the ships and were always asking for colored flags even when the ships were split up on a straight allied, axis basis. We do have special events where ships of the same nation will be fighting each other, but it's very specific events and extremely rare for us to do this. Get used to combat with no flags and the teams will not always be equal when going out to fight. It's just part of the challenge!

ARMING EXTRA GUNS:

Each ship is regulated as to the number of guns that are allowed to be armed and used in combat, but that number may only be a portion of the actual guns the ship had. For example the French Mogador has four twin turrets or 8 guns, but only five are allowed to be armed. You cannot arm all eight and "turn on and off" some to get to the allowed five. While it breaks no rule or provides you with any actual enhanced performance, it is considered unsportsmanlike and should not be done.

GRANDFATHERED SHIPS:

The question is; are ships that are built incorrectly, grandfathered in and allowed to participate? The answer is, yes and no. Each case would need to be reviewed for its affect and effect on the game. In the case of the Z-Boat being built to short or the B-110's hulls being built incorrectly, it was determined that these differences would alter the performance of these ships, possibly providing them with "enhanced" performance. In the case of the Swedish destroyers, the incorrect superstructures do not give the ships any advantage or disadvantage, so they are allowed to participate. Before working on an older ship be sure to bring it to the attention of the Technical Officer for review. In the case of new construction, either example above would not be acceptable. In addition, grandfathering would not be allowed for any internal system or operating inaccuracies or deviations. Let say an older ship had a pump that had a discharge port that was larger then allowed, but at the time the ship was built it was perfectly fine. The difference would have to be corrected, before being allowed into combat.

So what happened to that nicely build ship that was nearly 5% smaller than scale? No it wasn't "*grandfathered*" in and allowed to participate. The reason for this is that the ship was not currently being operated and the owner did have other ships to run; therefore, in this case it was voluntarily withdrawn from being used in combat. There are also two other, new construction ships that were built to the wrong size and they were also voluntarily withdrawn before being completed. There are cases where ships that "technically" should not be used, but are. In the case of two Swedish Goteborg Class destroyers they are built to the correct length, width and depth; however, the superstructures are configured as built in the 1950's which is out of our operating time period.

HYPOTHETICAL, CAPTURED and RESTITUTION SHIPS:

To be eligible for combat the rules state that the ships had to be launched prior to December 31, 1945. So for example this would exclude the USS Montana Class and German H-39. These ships were started, but never launched or completed. However; what we do allow is that as long as at least one ship in that class was launched, it can be built in any one of the designed or planned configurations that were made during our time period. For example the USS Stewart was captured by the Japanese and converted to the IJN PB-102, which is perfectly fine. IN addition the USS Campbeltown was converted by the British to look "German" and was blown up in St. Nazarene. It was in the possession of the Germans for around 2 hours, so it can be used and operated as an Axis vessel, in the converted Campbelltown configuration. With regard to restitution ships such as the German Z-Boats and several Japanese ships, they are not allowed to be used as allied ship because these ships were turned over to allied navies dring mostly 1946 and later. We are also hoping to avoid having identical class ships appear on both sides which would lead to a lot of confusion during combat.

IMPROVEMENTS VERSUS ENHANCEMENTS:

Improvements are allowed, but enhancements must be approved prior to installation or use. What's the difference you might ask? We want the ships to be improved and work all the time, but not to a point where a change might enhance the performance above the normal of other ships. For example your gun might not be performing well. Shoots every other time or not at all. You make some changes to the gun which improves its performance where it now shoots every time. Just like it's suppose to. This is an improvement and is allowed. In this second example, know that pumps are allowed to discharge out of a 1/4" I.D. port. Put any typical pump using a motor and impeller you want behind it, but only a 1/4" I.D. discharge port. Let say you have found a system that pressure shoots the water out and it triples the normal performance of the typical motor and impeller system. Not allowed; it's an enhancement. We want water to come into the ships and to be able to pump it out... but not too much.

It's important to remember the difference between Improvement and Enhancement, when reading this

THE SUPER SHIP:

Individually the banned system enhancements may have felt unreasonable at the time, but when you think about all of them collectively? Wow, what a ship. HPA Gas, powering Fast Gun pressurized magazines with "O" Ring restrictors, being fired by Electronic Firing circuits and poppet valves. A ship powered by huge powerful electric motors connected to gear drive units and a pair of electronic speed controls. I could go on, but hopefully you get the picture. In order for everyone to put one of these super ships together, we would triple the cost of a standard two gun destroyer. Why would we want to do that to ourselves? We stick with what works fine, just not fantastically.

SUBMARINE TORPEDOES:

After the big explanation about torpedoes on destroyers, why do Submarines get them? Again, until recently torpedoes in 1/144 combat were not torpedoes. They were really just another big deck gun. Torpedoes operate in the water. When fired from the deck of a destroyer, they enter the water and travel under water until reaching the target. In the other combat scale, their submarines firing torpedoes were not firing from any kind of distance, but instead almost ramming as the shot. Sometimes even putting even bigger holes in the ships as they drove into the hull. We keep referring to "until recently". The reason for this and the reason submarines are slowly being entered into the game is there is a new design torpedo. When fired from underwater they travel under water from between 10-15 feet. Perfect for R/C warship combat; however, more experimentation needs to take place before they are fully integrated into the game. Since the new torpedoes must be fired from an underwater location, torpedo boats still use bearing to represent their torpedo.

TORPEDOES ON DESTROYERS:

Can't say never, but someday maybe? In the other 1/144 combat scale, ships of many types may receive torpedoes. Or what they refer to as torpedoes. Often reference is made to the capabilities of the real ships and for most destroyers, their main offensive weapon was the torpedo. So why not allow them. For one, destroyers mostly used their torpedoes against larger targets. Battleships, Carriers, etc., but our game is intended mostly as destroyer versus destroyer. It's true that we now have Cruisers and one day maybe even a Battleship, but for 95% of our combat, these ships are not utilized, so destroyers having torpedoes should not apply. In addition, until recently all the so called torpedoes, were in fact not torpedoes. They have either been large caliber bearing or rods being fired at point blank range. So for the most part it would only add another very destructive element to the game that is not necessary and not practical with the style and form of combat we play.

CONSTRUCTION ITEMS

BARREL SPACING:

Barrel spacing really only applies to ships with multiple gun turrets. If for some reason you have a multiple barrel turret and arm only a portion of the barrels, they should still be located in the proper turret location. For example you have a two barrel turret, but only need to arm one of them. You should not put the single, armed barrel in the center of the turret and not show the second or dummy barrel. There are several simple methods of offsetting a single barrel in a turret, even when rotating.

BARREL LENGTHS and HEIGHTS:

The members bending the stainless steel barrels, usually make them longer than necessary since they never know how much will be needed for a particular installation. They are not easy to cut, but must be to meet maximum barrel lengths. At no time should the ships be operated with longer barrels than what's allowed in the rules. In addition, the height of the barrel above the ship's deck, should be at the proper elevation. Since the proper amount of deck detail must remain on the ship, you cannot raise a gun up a little, just so you can shoot over the detail or a raised superstructure deck

COMPLETE SHIPS:

When a ship enters combat, it must be complete. Proper paint job, complete superstructure, all turrets in place; everything. Much of the deck detail should also be in place, but not necessarily all of it. Some detail can be absent, but a major representation of it needs to be present. The main thing is to have a complete ship, with the proper appearance when entering combat.

DRIVE SYSTEMS:

The accepted normal for all ships has usually been a surplus brushed electric motor, with a direct drive connection to the prop shaft by use of rubber hose or dumas style dog bones. Performance from this type of system is fine once your ship gets up to speed, but stopping and starting is slow, just like when going into a turn where the ship also slows down. While some have said that our 1/72 scale ships run like s***, they do perform just like the real thing. The ships we model are slow to start, slow to stop and slow down when going into a turn. An example of a recent enhancement that was found to increase the ships handling enormously, was through the use of an electronic speed control and gear drive units. This allowed larger ships to stop instantly, start instantly and did not slow down in a turn. After discovering the capabilities of the gear drive units, it was found that brushless motors did much the same thing and cheaper. The problem with this enhancement was either all ships needed to have the drive units or they would be seriously disadvantaged during combat. For over twenty five years the direct drive method has been inexpensive and worked. Everyone was on an equal and level playing field. If everyone had the drive units in their ships, it too would make for equal competition all around, but why add the extra \$100 or more to the cost of a ship? So anything other direct drive brushed motors is not allowed.

FULLY ARMED SHIP:

For many years, you were required to run a fully armed ship. If you were running a ship from the three gun class, all three guns needed to be present and functioning. This was another recent change where this requirement was relaxed. If for whatever reason someone has a say a five gun ship and only wants to run with three; that's fine. Just keep in mind that just because you are competing with fewer guns, does not mean you can take the ammunition from the absent guns and add it to those that are. IN other words you can't take a two gun ship that normally gets 50 shots per gun and run with one gun and 100 rounds.

GUN ACTIVATION:

The only acceptable methods for firing guns is any manually actuated pneumatic valves, or direct pressure applied on an activating plunger (usually from a servo arm). It's been several years since anyone used an electronic switch to fire a poppet valve. These were highly efficient systems, which allowed for quicker "bursts" of air to be released, which also allowed the guns to fire much quicker and use less air. Newer and much more efficient and reliable systems are available today from Battlers Connection and Strike Models. Again if all ships had them, the playing field would be level, but we would also be asking everyone to add another \$100 or more to the cost of a ship. It's not necessary since the current activations systems work, just not all that efficiently. Save another hundred dollars since these gun system enhancements are not allowed.

GUN ELEVATION:

Gun elevation in R/C Combat serves absolutely no purpose. Anything above parallel to the water, even just a little will "launch" your shots across the pond where you can't hit a thing. The rules use to state you could have a few degrees of elevation, but once everyone tried and found its shortcomings, it was removed from the rules. While the rules don't state no elevation, it should not be used at all.

GUN ROTATION and DECK HOLES:

When rotating a gun, especially one with depression it can be difficult to rotate everything necessary under a small hole cut in the deck that does not show. The "hole" cut out under the visible turret should be limited and barely visible once the turret is on the gun. In some cases captains have been forced to cut large holes in the deck, that are clearly visible in order to rotate all the components of the gun. This is not appropriate. There are many ways to avoid doing this, it just takes a little improvising to do it. Before cutting a large "unacceptable" hole in your deck, ask another member that has done it for help.

MAGAZINE SIZES:

All ships receive a regulated number of shots per armed gun on the ship. So a 50 shot gun should not go into battle with any more than that. All magazine sizes are made a little larger, so bearing does not have to be packed in like sardines. If they are, it causes jams and the gun won't function properly, but this does not mean you can make a larger magazine and still try to cram in more than the allowed. At times some magazines have been made almost twice as large as what was really necessary. You are encouraged to make your magazines no larger than is necessary, to properly fill with the regulated number of rounds and no more. This is one area of the game that is not policed and honesty and fair play have always held true. We would like to keep it this way.

PAINTING:

When painting our ships we have tried to be as authentic as possible. In some cases we realize that photos of a particular ship may be limited or totally non-existent. For this reason we have been somewhat flexible. As long as the paint scheme is common to that ship's navy, we have allowed a ship to be painted in the same format. For example you may need to paint a United States ship and cannot locate any pictures of that specific named ship. You do find pictures of a sister ship from the same class and decide to paint the ship in that particular camouflaged scheme which is fine. In some cases, pictures and information is so rare that you have to use the paint scheme from a ship in the same navy, but not that specific class. When possible try to avoid this, but when necessary sometimes this is what you need to do. Only thing would be you cannot take a German paint scheme and apply it to say a Japanese ship.

SILKSPAN PATCHES AS PERMANENT REPAIRS:

The common method of battle field repairs was painters blue tape. Problem was, when it gets wet it comes off. If you find something that sticks, then when you try to peel it off to make a more permanent repair and it takes portions of the hull with it. You could also put the blue tape on the hull and it did not prevent shots from the next round from penetrating. Then many of us started doing temporary repairs in the field after a battle using silk span circle patches and clear lacquer. The lacquer would dry within 30 seconds, would not come off when it got wet and away you went into battle again. When you get home you can lightly sand the patch and cover with your regular paint color. But what about patch on top of patch, on top of yet another patch? While you might think this would be a problem, because of the lamination that is taking place, but it really isn't since most of the balsa hull behind the multiple patches is gone and new shots still easily pass through this "paper hull".

Silkspan for hulls, without a balsa backing is now being used on sinkable cargo ships. The windows that are cut out of the hull are simply covered in tissue paper and painted. Once shot up, you just put on another layer of paper.

So the answer is yes, silkspan patches can be used as permanent repairs on a ship. You will reach a point where the hull does need to be re-sheeted in fresh new layer of balsa.

SPEED CONTROLS:

This is another item where it was encouraged to use simple and cheap push buttons for speed control. A servo in the neutral position and the ship was stopped. Throw the servo one way you go forward, the other and it's reverse. Cost is a couple dollars, gets wet and dries out and away you go again. To adjust your speed, it was smaller or larger props, change to the power voltage or tweak the blades on the props a little. Once set it was like a Ronco Grill; "You Set it and Forget it". Until recently electronic speed controls was frowned upon, but never totally banned. With the new transmitters making it so easy for us to adjust our speed while the ship is being run, these are no longer allowed.

TAPE WATERLINES:

Another recent change made to the rules was to allow Taped Waterlines. Painting a ship's waterline on, between the below the waterline color and the above the waterline colors, can be a royal pain in the you know what. So why only a recent change to allow this; why not all along? Technically putting a tape waterline on the ship's hull is an enhancement. Yes, in most cases we can still shoot through most "masking tapes", but what about pin striping and other types? By putting any tape on the outside of the hull can provide a small degree of additional protection against shots from penetrating your hull. Not

much, but some protection.

OPERATIONAL

AIR PRESSURE:

The air pressure maximum allowed is currently 120 psi. For many years it was just 100 psi, but for some systems the extra was needed for them to function. For other clubs they utilize up to 150psi, which in our opinion is borderline dangerous. Even 120 psi is close, but since we don't allow any closed systems, the ones we do use "leak" air just about everywhere. SO most of the air pressure is lost before going out the barrel. At no time should someone build an open air type system so efficient that using 120psi would move the system into the "enhancement" category. A gun capable of shooting several shots in rapid succession, without loss of effectiveness could be one sign of a possibly enhanced system.

DAMAGE COUNTS:

Until 2015, damage inflicted on the opposing team was counted as one point above the waterline, five points for waterline hits and below the boot was 10 points. Keep in mind that at one time holes in superstructure was even counted. Last year we converted to one hole is one point, regardless of where the hole was in the hull. Since waterline and below hits were rare and infrequent, how much would this change really affect the game other than to greatly simplify damage counting. Well it has hasn't! So it's one hole no matter how big, counts as one point.

FLAGS:

Obviously flying the different nationality flags for our ships is highly encouraged. At least one nations flag we do need to be careful when it's used, because of objections people seem to still have when seeing it. We know that our ships are historical recreations, but some still refuse to recognize this fact. We also try to fly some of the different signal flags that the ships used. In addition "team" recognition flags may be used from time to time, but very, very infrequently. As a practice, we expect captains to learn ship recognition and when you rely on a team flag of one color or another, that will be all you see. In the other combat scales, captains usually look for the Blue Tape flags and know to SHOOT! Some captains couldn't tell the difference between a USS Iowa and an IJN Yamato. Part of the fun is learning to tell one ship from another, friend or foe.

FLOATING AT WATERLINE:

One of the other, primary reasons for going to one hole, one point damage counting was ships floating at their waterline. There are some cases where the ships are just too heavy and could not float at waterline, even with no added ballast. A lot of this was attributed to the construction methods used to put the ships together or the ability of the builder to keep things light enough to be able to ballast correctly. Also, to ballast your ship, it is obviously at rest and you weight it down until level. Then when under power, the bow raises up and the stern drops a little and when a ship goes into a turn the ships rock to expose below the waterline hull areas. If the ships was built by someone new to the hobby and not aware of many construction tricks to keep the weight down, we hardly wanted to penalize this person, by not allowing them to play because the ship floated to low in the water. Since this did effect damage counting, we needed a solution. We allow the ships to float a little low and we combined the damage counting.

RAMMING:

Ramming was another rule that was almost impossible to regulate and enforce. "RAM, RAM", was the other chant heard out across the pond endlessly. We use to impose heavy penalties, then cease fires on the offending ships, but nothing really worked to control or discourage this from happening. Why; it's combat. So to start with, we need to explain why ramming is not allowed. Inadvertent ram damage can be devastating! In one touch of the hulls, you can slice a ship open from deck to the hard section of the bottom, and as much as a couple inches wide. Instant sink. That's not what we want. The one common denominator between every captain is when faced with ramming another ship, we always try to stop or avoid. In many years of combat, you would probably never come up with an example of where someone intentionally rammed another ship unless it was legal. For this reason, ramming is still not allowed, but there is no penalty for accidentally ramming another vessel.

RATE OF FIRE:

Rate of fire was one of the rules that use to be impossible to regulate in the other scale (1/144 Big Gun). It was supposed to be several seconds between shots, but it was quite common to hear captains all over the pond screaming out "RATE OF FIRE...RATE OF FIRE". So if you can't regulate it, find a way around it. How about no rate of fire? Single shot, but no rate of fire? This idea works as long as the guns are not *to efficient*. Fast Gun style guns with the pressurized magazines are so efficient that they can shoot endlessly or until the magazine is empty, and each shot is as strong as the one before it. With the detail we put on the ships: holly cow...this could be bad! So no pressurized magazines. What about some of the other gun designs we use to experiment with: cam guns, closed breach, etc? In the "spirit" of the rule, members need to be careful not to a make their guns overly efficient. The idea is we want to shoot each other, but not **TRASH** our ships. To do this we have always promoted somewhat inefficient guns. They work, but for only two or three shots. The rules do not specifically prohibit guns that shoot strong every shot, until the magazine is empty. Make your guns shoot, every time, but they should not shoot more than two or three shots before pressure behind the shot drops off to be ineffective. Guns should not shoot more than two or three shots before becoming ineffective and unable to penetrate an opposing vessel.

RULE OF THE ROAD:

If ramming is not allowed, why isn't some set of "Rules of the Road" developed and enforced. This would mostly be to cover situations where a ship intentionally turns in front of another, forcing that ship to either stop or ram. The simple answer is that rues of the road is what works in peace time and this is combat. When a ship is cornered, it will do everything necessary to defend itself. This would include cutting in front of an enemy ship, forcing them to back off to avoid the dreaded ram. Since the environment we operate in is combat, this is an acceptable maneuver; however, at the same time there are some restrictions when doing so. At no time do you take advantage of this maneuver and shoot the almost defenseless ship that was forced to stop dead in the water to let you pass. This would be a totally unsportsmanlike tactic and is not allowed. Again there is no penalty for this, because it would be almost impossible to regulate and few if any captains take advantage of this.

SINK AND OTHER PENALTIES:

At one time there were penalties for just about everything. Slowly over the years we have found ways to avoid having endless penalties, but still control the game in an orderly manner. The main reason for limiting the number of penalties we imposed is that "they" were ALWAYS the deciding factor in who won or lost a sortie or battle. Your team may have tore the other team up, but one ship didn't make it back to port and the penalty would throw the win to the other team. Sink penalties were the worst! If someone was sunk, there was it no reason to fight any further unless you wanted to pick someone as the primary target and try to sink them to even things up. Yes; that's combat, but hardly fair and sporting when it was always a rookie or one of the weaker captains and ships that would be the target. Over the years this was one of the primary reasons we lost a lot of captains. It's no fun when you're the primary target and your prize ship is being beat up and trashed, just so the other team could try to win. We are down to just two penalties, Sink and Withdraw and the penalty amounts are not so devastating that a team can't overcome and still win.

SCALE:

The scale error tolerance was recently changed from 5% +/-, to just 2% +/- . The actual reason for this change was one of our older and more nicely built ships "looked off". It looked great, well constructed, but compared to other ships of the same class it appeared very small. At scale the ship was supposed to be a bit over 71", but it was only 68". That's more than a 3" difference, but according to the rules; perfectly legal! By changing from 5% to 2%, it brings this margin down to about an inch and a half. Now that 71"+ ship should be between 69" and 73" (tolerance goes both ways). The tolerance was not to gain an advantage by building a smaller or larger ship, it was simply because we try to build the ships "exactly" correct, but things do happen during construction and we recognize that. A 2% margin of error is still generous without giving away the store.

SCALE SPEED:

The speed at which the various vessels are allowed to travel in combat, is also one of the most controversial. At one time the ships were allowed to travel known "trial" speeds attained during working up or shake down tests of the actual ships. For example the French Destroyer La Fantasque had a design speed of just 37 knots, but during trials one ship in the class made 45.07 knots. In the original set of rules, trial speeds were what we went by. Currently the design speed in Conway's All the Worlds Warship books is considered the bible for this information. The unfortunate down side to our scale speed, is it produces a climate for finding the "Loop Hole" ships. These are the few very powerful ships, fast and maneuverable. The major disadvantage is that there are many ship classes that would make wonderful combat ships, but no one will build them because of a slower or disadvantageous scale speed. There are current efforts being put into changing this in order to level the playing field and making it more attractive to build virtually any ship. Stay tuned!