

International Model
Power Boat Association

IMPBA



OFFICIAL
RULE BOOK

SCALE ELECTRIC
AND STEAM DIVISION

SECTION Q

IMPBA SCALE ELECTRIC and STEAM DIVISION

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SCALE ELECTRIC and STEAM DIVISION

I – HALL OF FAME

A. Criteria

Through the years, several people have been honored by their peers for making a contribution to model boating. The following criteria has been established for making nominations to the Hall of Fame.

1. Significant contributions to the advancement of model boating or competition.
2. Significant contributions to **IMPBA** as an organization.
3. Significant national recognition as a competitor.
4. Significant technical contributions to model boating as a hobby sport without receiving financial gain or manufacture status as a result.
5. Manufactures must make significant contributions in areas other than for, or as a result of, their products to be considered.
6. National championships or records are not required for consideration.

Each district can nominate 2 people each year and any nominees will be voted on at the International Regatta Board meeting. A limit of two (2) of these nominees may be inducted per year.

B. Hall of Fame Recipients



Walt Stroud

To say he's an excellent craftsman and scale boater is not enough. Walt was one of the organizers of the Maumee Valley Model Boat Club in Toledo, Ohio. This club was organized for the specific purpose of advancing the hobby and sport of building and sailing radio-controlled electric, steam and sailboats. This club through Walt's guidance and help hosted IMPBA's first scale boating event with over 100 model scale boats participating. The event was held at the Belmont Country Club, Perrysburg, Ohio and had all the trimmings.

As a member of the "Weak Signals" Radio-Controlled Model Airplane Club in Toledo, Ohio, it was Walt that was IMPBA's ambassador through a lot of hard work and a good relationship with the "Weak Signals" for IMPBA's entry to the Toledo R.C. Conference. IMPBA has been fortunate in promoting Model Boating and a part of the Greatest Model R.C. Show in the country. It is through the efforts of Walt Stroud that IMPBA's scale boaters have earned the respect and leadership of scale boaters throughout the country.

IMPBA is honored in recognizing Walt for his sincere interest in, and his enthusiasm for, the continual advancement in Radio-Controlled Scale Model Boating.

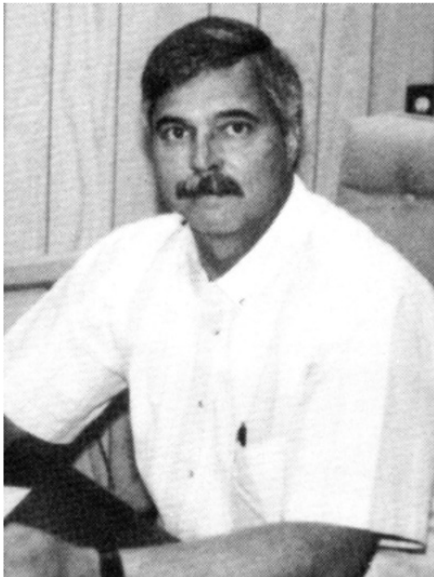


Milt Brounshidle

Milt Brounshidle was a longtime active boater and a member of IMPBA for almost two decades. His interests in the hobby included both scale and power boating. At the time of his death in the spring of 1976, he was serving IMPBA as scale Co-Director.

Milt was one of the founding members of the Buffalo Model Powerboat Club in 1965. He remained an active member in the club, serving as an officer for several years, until his death.

Milt will always be remembered as an excellent craftsman and competitor, and a fine sportsman.



July 29, 1947 - July 5, 1991

R. Skip Temple

R. Skip Temple (IMPBA No. 4837) was well known in the scale boating hobby. After attending (but not participating) in the first two Scale Internats, he founded with the help of a couple of friends the Michigan Miniature Mariners in 1978 as an R/C scale Electric and Steam club. He served the club from President to Treasurer and Secretary as well as putting together a number of Scale Internats held in Rochester, Michigan. He was a true team member. He also was a member of the Maumee Valley Model Boat Club in Toledo.

He served IMPBA as either Director or Co-Director of Scale Boats for 8 years. During that time, he was instrumental in revising the scale rulebook, as well as asking many manufacturers and distributors to donate prizes each year to the Scale Internats wherever they were held. He served as Scale judge and recruited others to judge at the Toledo R/C Expo for five years, all the while promoting the sport and hobby. Skip also won the IMPBA Scale Internats trophy four times.

Skip's mission as a hobbyist was to promote fairness in competition and encourage everyone to strive for excellence. He will be remembered as a fine craftsman, competitor and gentleman.

II - SANCTIONED REGATTAS

- A. A sanctioned Club Regatta shall be defined as an event where prizes or awards are given away to competitors for participation in accordance with IMPBA Rules of Competition and Procedure IV – Insurance.

III - SANCTIONS

- A. A sanction is an authorization or approval of a certain event, which binds the holders of the event to comply with the IMPBA rules and regulations and guarantees that the results of said events will be recognized as official. Sanctions will only be granted to clubs holding events on waters covered by the IMPBA insurance policy. No sanctions will be issued to clubs unless they have previously obtained an IMPBA insurance certificate covering their waters.
 - 1. NO persons may participate as a contestant in an IMPBA sanctioned event unless he/she is a paid up member of IMPBA in good standing.
- B. The granting to a sanction does not include any obligation on the part of any IMPBA officers to be present at any regatta or to officiate thereat. The entire obligation remains within the local club and the club's officials.
- C. The sanction is a protection to the contestants. It is an assurance to them that the rules and regulations will be impartially enforced.
- D. It shall be customary to protect clubs who have fulfilled all sanction obligations for the corresponding dates in subsequent years.
- E. Sanctions will not be granted on the same dates for events within such distance of each other that the sanctioning officials have reason to believe that the success of either regatta or race might be jeopardized.
- F. Sanctions will only be granted to clubs officially registered with IMPBA, who have paid the club registration fee for the calendar year the race is sanctioned in.
- G. Sanction request forms will be forwarded upon receipt of club registration fees.

IV - INSURANCE

A. Summary

IMPBA membership dues include commercial general liability and property damage insurance for individual members, registered clubs, municipal or state park boards or landowners. The IMPBA insurance covers property damage caused by model power boats that are operated on IMPBA insured bodies of water for which member clubs have submitted the correct application, (on a Club Registration and Insurance Application form), and have been issued an insurance certificate. Since rates or coverage's may vary from time to time, up to date insurance information may be obtained from the IMPBA office.

B. Membership Coverage

All members in good standing will be covered at "sponsored, schedule, and supervised activities." This means the coverage is good at sanctioned and club races. IMPBA insurance does cover boaters during open water and practice sessions as long as you are following the safety procedures outlined through the IMPBA, and such events take place on an IMPBA insured body of water only. IMPBA's policy is considered a primary policy and would cover any accidents or property damage that may occur on an IMPBA insured body of water.

C. **Non-Member Coverage**

The insurance does not cover any person who is not a paid member of IMPBA regardless of what other club or organization he may belong. Paid members of other boating organizations may pay a single-event fee for membership dues during that event only. The host club must mail the application and payment to the Executive Office of IMPBA the first working day after accepted.

Therefore, no person may operate or assist in the operation of a model power boat, or enter the pit area, or operate a retrieve boat at any IMPBA sanctioned event on an IMPBA insured pond, and be covered by this insurance, unless he is a paid member of IMPBA.

D. **Applied Sites**

No club may apply for insurance for a body of water presently or previously insured by another IMPBA Registered Club without the permission of that club.

All clubs applying for insurance on a body of water should submit along with the club application, a signed letter from the pond owner, on letterhead, giving their authorization for your particular club to conduct Model R/C Boat Racing at that particular site.

E. **Safety**

It is not the intent of IMPBA to issue insurance to any organization that does not comply with and foster IMPBA Rules and Regulations.

F. **Signs**

"No Swimming" signs must be located at the race site.

V - SCALE EVENTS

The following events are open to all types of R/C boats and shall include SAIL, ELECTRIC, STEAM, AND GAS (except where gas boats are prohibited by pond restrictions). The only rule that shall be observed, is that all craft shall be limited to those which are capable of moving astern by remote control and under their main power, which excludes all those boats that are run in the normal power boat racing categories.

Predicted Log

Precision Steering and Docking

Salvage Event

Conning Event

Realistic Operation

Static Scale Judging

A typical running course is shown in Fig. III. Each buoy gate shall consist of three buoys. Two buoys of the same color shall have a spacing of thirty-six (36) inches and a third buoy of contrasting color shall be placed on the same line, a distance of eighteen (18) inches from one of the first two buoys. (See Fig. I & II). An acceptable alternative would be to have two separate courses, one with a buoy gate spacing of thirty-six (36) inches and the other with a buoy gate spacing of eighteen (18) inches.

All boats with a length of thirty (30) inches or longer, or a beam of greater than six (6) inches will utilize the thirty-six inch buoy gates. All boats with a length shorter than thirty (30) inches and a beam of six (6) inches or less, will utilize the eighteen inch buoy gates.

A high point trophy will be awarded to the contestant who scores the highest overall in the four running events (Predicted Log, Precision Steering & Docking, Conning, and Salvage). If the event is the annual Scale Internats, this contestant shall also be awarded the IMPBA sponsored Scale Internats Trophy, upon which his name shall be engraved. This trophy shall be returned at the following year's Scale Internats for awarding to that year's winner. Scoring for the overall winner shall be by one of the following methods.

Method 1

Arrange all contestants for each event by order of placement (first, second, third, etc.). Each contestant is awarded points based on his order of finish. First place gets 3/4 of a point, second place gets two points, and third place gets three points, ECT. In the case of ties, points are averaged for those contestants tied. As an example, if three people are tied for tenth place, total the tenth, eleventh, twelfth and divide by three. In this case, the total would be 33 points, divided by three contestants would equal 11 points for each contestant. The next individual in line would be given a thirteenth place and thirteen points. Total each contestant's points in this manner for the four events. The individual with the lowest points total would be the high place or points winner. While this method is more complex, it is the preferred method as it eliminates some inconsistencies that can occur by using method 2.

Method 2.

The second method of arriving at the overall winner is to total the four individual event points for each contestant. The high total points score is the overall winner.

A. Predicted Log Event

A run over a prescribed course against total elapsed time, as predicted by the Contestant. Contestant shall submit his predicted time to his contest judge before starting the event. Contestant shall place in order of total time difference, between estimated and actual time taken, lowest time difference shall place first, etc.

1. Several courses of like challenge and difficulty may be used.
2. The course shall be displayed or given to contestants at the start of the event.
3. Entrant will give his estimated time in minutes and seconds to his respective contest judge.
4. Each course shall have a minimum of four (4) buoy gates (exact number to be determined by contest officials) through which a vessel must pass. Two buoy gates must be preselected by contest officials and are to remain the same for all contestants. The remaining gates are to be chosen by each individual contestant, who must inform the scoring judge of his choices prior to starting the course. No penalty will be assessed for striking of buoys.
5. All items will start when a boat's stern leaves the slip, and time will stop when the boat's bow enters the slip.
6. Contestants will not be allowed ANY means of keeping time while on the course. Glances at other areas may be called a scratch.
7. Boat must remain under way with steerage in forward direction at all times after successfully leaving the slip and prior to stopping upon entering the slip.
8. A timing device (Stopwatch) shall be operated by an official for each boat on the course and in the event of a time difference between officials (when more than one timing device is used) the average time can be used.
9. Total event points score will be calculated as follows. Use an equal to or slightly greater than the maximum time difference between predicted and actual times, in seconds, as a points base figure. Subtract each individual's time difference from his base figure to arrive at an event point score. The lowest time difference should have the highest score number.

EXAMPLE:

<u>Name</u>	<u>Predicted Time</u>	<u>Actual Time</u>	<u>Difference</u>	<u>Points (300 base)</u>
Dick Smith	3:00	7:48	288 Secs.	12
* Bob Jones	2:30	2:29	1 Secs.	299
Sam Clark	2:45	3:09	24 Secs.	276

*Winner

10. The predicted log event may be combined with the Precision Steering and Docking event if the contest officials wish to do so.

B. Precision Steering and Docking

This event duplicates the operation of real craft, and models shall operate like their real counterparts, with no modifications to aid that running with false aids on the hull not found on the prototype. Proof must be submitted that these aids existed on that specific ship or craft if questioned by the judges. The judges have to recognize that the screw and rudder might have to be different size than actual scale. The actual scale size of the screw and rudder may be enlarged up to 10 -1/2 on the model.

1. Contestants shall be given the course cards at the start of the event. No verbal assistance is to be given to the contestant when he is on course. Stopping and reversing are permitted during this event.
2. Scoring of points: Hazards shall be counted in the following fashion:
 - a. Clearing of buoys in the proper manner – no contact with them during passage through them shall be worth 10 points.
 - b. Contact with the buoys during passage through them shall be worth 6 points.
 - c. Contact with the outside of the buoys, or passage on the outside of the buoy gate shall worth 0 (zero) points and contestant shall proceed to the next buoy gate.
 - d. Course corrections may be made until the bow of the ship is even with a line formed by the buoys. Once a ship has passed this line, you are committed to continue your forward direction and continue to the next hazard. No second chances at a missed buoy will be allowed.
 - e. Total event point score will be equal to the total accumulated score for the course, including all buoy gates and docking maneuvers.
3. Docking (Floating Dock)
 - a. The boat shall be as close as possible and parallel to the dock and stop within a scale rope throw (Maximum of three (3) inches) and be stopped for three seconds or until your judge tells you to proceed. Wind and waves shall be taken into consideration by the judge.
 - b. Contestants may dock from right or left side of the dock unless instructed otherwise by contestant officials. Host club must provide a dock with right or left docking capability.
 - c. The vessel will maneuver under power to within a scale rope throw of the dock and come to a full and complete stop. The stern of the vessel must remain within the dock limits when stopped unless it is longer than the docking area. The contestant will state to the judge when the docking is complete. The judge will tell the contestant to proceed and the ship shall leave the dock in a smooth manner without causing the dock to move. Dock movement will be allowed without penalty if wind or current is forcing the ship into the dock. Judging shall be assessed only upon completion of the docking maneuver and shall take into account any

adverse wind, wave or current action upon the maneuvering vessel. Any contact (other than that caused by wind or wave/current action) mad with the dock while under power shall result in a score ranging from zero (0) to seven (7) points. The scoring judge based on the force and point of the contact will determine the exact score. As an example, a hard, head-on contact, which results in a vessel climbing the dock, would rate a score of zero (0). A very slight contact by the side of the vessel against parallel side of the dock would rate a score of seven (7). Forces and points of contact between would rate score of from one (1) to six (6) points, based on the judge's appraisal of the maneuver. Seven (7) points shall be the maximum allowable for any maneuver involving powered contact with the dock, unless this contact is deemed to have been caused by adverse wind or wave action. No second attempts will be allowed unless deemed necessary due to adverse wind or wave action. The wind may be used to warp the craft parallel to the dock.

4. Docking (Pier Dock)

- a. Leaving and entering the slip will be judged on a maximum of five points for leaving and five points for entering. Only one try allowed for each maneuver.
- b. Any contact with the dock made upon entering or leaving the dock shall result in a score from zero (0) to four (4) points, based on the judge's appraisal of the force and of the contact. Adverse wind or wave/current action must be considered.

5. General Rules

- a. All successive buoy hazards will be placed in such a manner as to allow a model a minimum of 20 feet of running area between them. The only exception to this rule is the eight buoy channel hazard.
- b. The eight buoy channel is a required hazard. Four separate buoy gates comprise this channel and a successful maneuvering of this hazard would score forty points (ten points for each gate).
- c. The adjustable pier dock shall be adjusted to approximately 1 1/2 times the width of the beam of the competing vessel.
- d. As this event is a test of skill and not a speed event (unless combined with predicted log by contest officials), no additional points shall be given for completion of the course quickly. There There will be, however, a ten minute time limit for completion of the course.

C. Salvage Event

This event is a test of a boat and pilot's ability to recover and retrieve a free floating 'derelict'. A derelict may be a free floating model of shaped piece of wood with a dowel or some articles protruding from the bottom and the forward end on top. These protrusions must be capable of being snared by a line trailed from the competing craft.

1. The derelict will be retrieved by a vessel towing a dragline, which will have two small floats attached. One float will be at the end of the line and the other will be placed forward of this float up to one third the length of the line. Lines of ten, fifteen, and twenty feet in length will be provided for the contestant's choice. Longer lines may be used for ships requiring them. Boats will circle the derelict in a manner so as to foul the trailing line on the derelict's bottom protrusion.
 - a. An alternate method of retrieval will be for the competing vessel to have some sort of pick-up mechanism installed on its deck, and by properly maneuvering and utilizing this mechanism to snag the protrusion on the deck of the derelict.
2. The host club will provide towline and derelict, and contestants should ensure that their boats have a towing cleat or other fixture for line attachment on the model.
3. Scores will be based on elapsed time from start to finish, less a handicap time to be derived as follows:

- a. Each vessel will make a timed, full speed run over distance approximately equal to that from the event starting position (dock) to the position where the derelict will be placed for retrieval. This run will be made with the towline in place, if the line is to be the method of retrieval. The scoring judge will confirm that full forward throttle and trim is used for this run. The time arrived at during this run is the vessel's handicap time.
 - i. Alternate method of calculating handicap times is to group the vessels into four or five groups of times from the shortest to the longest. An example would be vessels with time of 15 to 19 seconds in the first group. 21 to 28 seconds in the second group, etc. The average time for each group would be the handicap time for vessels in that group.
4. Total event score will be calculated as follows:
- a. The elapsed time of the derelict retrieval (from leaving the dock to re-entering the dock), minus the handicap time, equals the total event time.
 - b. Use a figure equal to or greater than the longest single event time in seconds as a base points figure. Subtract each individual's total event time from this base figure to arrive at the event point's score. The lowest event time should have the highest point score number.

EXAMPLE:

<u>Name</u>	<u>Actual Retrieval Time</u>	<u>Total Handicap Time</u>	<u>Event Time</u>	<u>Points (300 base)</u>
Dick Smith (longest time)	5:56	1:09	287 Secs.	13
* Bob Jones	:47	:07	40 Secs.	260
Sam Clark	1:24	:32	52 Secs.	248

*Winner

5. The derelict shall be placed at the same location for each contestant, so that the distance from the starting dock to the derelict is the same for all contestants. Suggested distance is 50 feet minimum from the starting dock.
6. Retrieval time will start when the ship's stern leaves the dock and time will stop when the ship's bow enters the dock.
7. A maximum of ten minutes will be allowed for this event.
8. Sinking of the derelict (unless derelict is a piece of wood)

D. Conning Event

This event is based on the fact that the engineer, and in naval vessels, the helmsman, are sometimes below decks and steering of the vessel is accomplished by following helm and engine orders from those on the bridge. Thus those individuals actually operating the ship are doing so without visual control.

1. The captain and crew stand in the operating area, the captain facing the water, and the crewman with his back to the water. The crewman operates the radio on orders given by the captain, without the crewman seeing the model.
2. The course shall consist of a minimum of ten (10) hazards including the channel (which counts as four of the ten hazards), floating and pier docks. Scoring of points shall be the same as that used in the Precision Steering and Docking event.
3. The competitor to whom points will be awarded and whose model is running may elect to act as either captain or crewman.

E. Most Realistic Operation

In this category, a boat is judged on performance over and above regular control. This award is directed toward the modeler who equips his boat with special operating features, which most nearly approach the operating features of the prototype from which the model is built. While most electric boats have complete rudder and motor control, models of fireboats may be able to stream water from their nozzles, PT boats may fire torpedoes, or a sub may submerge and fire torpedoes at a target vessel. These are realistic operating features that set these vessels apart from the standard vessel and should be recognized in competition.

1. Any operating feature above rudder and motor control will qualify a contestant to enter this category. Each boat entered will display its special operating features for the benefit of the judges.
2. This event is to be judged by at least three knowledgeable persons not competing in the event. The judges will base their results, utilizing their own judging system, by determining which boats have the best operating features and how nearly these features approach those of the prototype.

F. Static Scale Judging

This event affords the judges the ability to critique the model while it is on display on a table or stand, and in a static or non-operating mode. Model must be capable of R/C operation.

1. Proof of authenticity of any prototype scale model is the responsibility of the contestant and must be presented in the event the judges challenge the boat. Photographs, drawings, and blueprints will be acceptable documentation. Recognized scale kits will be assumed to be accurate. Scratch built, freelance models will be acceptable if the model follows prototypical for any function (i.e. a freelance tug must look like an existing tug in general form).
2. At least three knowledgeable persons not competing in the event will act as judges. They must be familiar with models and their construction and will rate the models on the basis of a maximum of 155 points as shown in section G.
3. Boats will be entered and judged in one of two categories: military vessels and nonmilitary vessels. Awards are to be given in both categories.
4. Boats entered in this event must be seaworthy, and must be working R/C model. If a boat is contested, the judges shall require the contestant to place the model in the water, and undergo minimum maneuvers, which shall include full rudder and forward and reverse motion. Models not meeting these requirements shall not be eligible for this event.

G. Scale Point Judging System

1. Construction, 0 to 36 points: This factor deals with apparent workmanship of the builder, proper use of materials, skill and craftsmanship as demonstrated by the model's construction.
2. Detail, 0 to 30 points: This factor deals with the refinement of detail on the model. The amount of subordinate parts added, as well as the complexity of model is considered.
3. Conformity to Scale, 0 to 20 points: This factor with what is commonly called prototypical practice. Logical construction and location of parts in relation to the prototype is considered.
4. Finish, 0 to 20 points: This factor deals with the general appearance of the model as reflected by the surface treatment of the model, to achieve a specific effect through the proper use of materials, painting, aging, weathering, etc.
5. Scratch building, 0 to 25 points: This factor deals with all parts of the model that have been fabricated by the builder and what percentage of the ship has been scratch built. Preformed wood, metal, and plastic are considered basic materials for scratch building.

6. R/C Operating Devices, 0 to 20 points: This factor deals with the number of operating devices (By R/C), which are built into the model. These operating features should conform to those features found on the prototype and a relationship as to what percentage of operating features found on the prototype have been duplicated on the model. Judges must bear in mind any restrictions to incorporation of these features in the model such as size and weight of the finished model.
7. Judge's Bonus, 0 to 10 points: This is an area where a judge may award points directly related to his overall opinion of the model as a whole.

VI - GENERAL RULES

- A. Boats that win first place in the scale judging at the IMPBA Annual Scale Internats will be prohibited from entering any subsequent Scale Internats scale-judging event.
- B. All decisions made by contest officials shall be binding on contestants and shall be considered final.
- C. Any boat failing to complete the course will be returned to shore by the owner and a contest official.
- D. When more than one boat is operating on the course at the same time, boats that started first shall have the right of way. Any boat running a timed event shall have right of way over boats that are engaged in maneuvering events.
- E. Course must not exceed an area encompassed in a 170-foot square. The contestant's running area will be restricted to a 20 –foot length of designated, unobstructed shoreline. Contest officials will mark this and contestants and judges shall be permitted into it.
- F. Optical and/or mechanical devices, used as navigational aids, other than corrective prescription lenses or sunglasses are prohibited for use by contestants.
- G. All craft may be test run for the purpose of seeing that all controls are functioning properly. These boats shall not enter the course areas and should be restricted to an area that will not interfere with contestants running the course.
- H. Predicted log, precision steering and conning events are test of maneuvering and concentration. The handling properties of the craft are the main consideration and no other criteria shall be applied for participation.
- I. All course buoys (hazards) are to be cylindrical in shape (3-8 inches) and of a readily visible color. In addition, vertical lines at least one inch wide of contrasting color shall must be included to emphasize and betray boat contact. Buoy material must be non-injurious to models.
- J. The operating area shall be marked off so as to keep the operators and judges separated from all others while on the course. Contest officials shall be responsible for seeing that spectators and contestants not currently running the course do not intrude into this area.
- K. Any malfunction while competing in a running event which is caused by nature or reasons beyond control of the contestant (i.e. weeds, floating debris, etc.) shall necessitate a rerun of that event if repairs can be made to the disabled craft. In the case of the Conning and Precision Steering events, the rerun will commence at that point on the course at which the malfunction occurred. Timed events shall be rerun in their entirety.

In the case of mechanical or electrical malfunction, a rerun shall be allowed if contest officials deem sufficient time available. If a rerun is allowed, the starting points shall be the same as those for nature caused malfunctions. If time is not available for a rerun, any scores given up to the point of malfunction shall be awarded for maneuvering events and zero points given for timed events.
- L. All contestants must have their radio frequency identified with properly color coded transmitter flags, displayed on the transmitter antenna. Only one frequency may be displayed at a time. All transmitters will be impounded before the start of the event and frequency clips must be used to indicate that an individual's transmitter is on.

- M. Contestants will be awarded only one trophy in each event, regardless of their number of entries. If a contestant places with more than one entry, he will be awarded the trophy for his highest placement, with the trophy for the next placement going to the individual immediately below him or her in point standings. All of a contestant's points or placement standings will be used for each respective entry for purposes of determining overall point's winner.
- N. An insufficient number of entries (determined by contest officials) may be cause for cancellation of that event.
- O. Ties for any position for which a trophy is to be awarded, shall necessitate a rerun of that event to determine trophy and ribbon positions. Different courses may be used for this rerun. The contestant's original scores shall be used for the purpose of computing overall points.
- P. All decisions made by contest judges and officials shall be final and binding on all contestants. In cases of disputes among judges or other contest officials, the decision of the contest director (and/or IMPBA Scale officers in the case of the annual Scale Internats), shall be the final and definitive ruling.

VII - SUGGESTED COURSES

- A. All buoys must be visible from the running area and must not cover or hide another buoy.
- B. The channel hazard should be placed in the central portion of the course area and 50-55 feet from the water's edge. All other buoys and hazards can be placed at the contest director's discretion.
- C. In a straight line out from the centerline of the docking slip, some sort of barrier or floating hazard should be placed approximately 20 feet out, so as to prevent a "straight in" approach from the course. No penalty need be enforced, but good seamanship practice dictates that one should avoid this hazard.

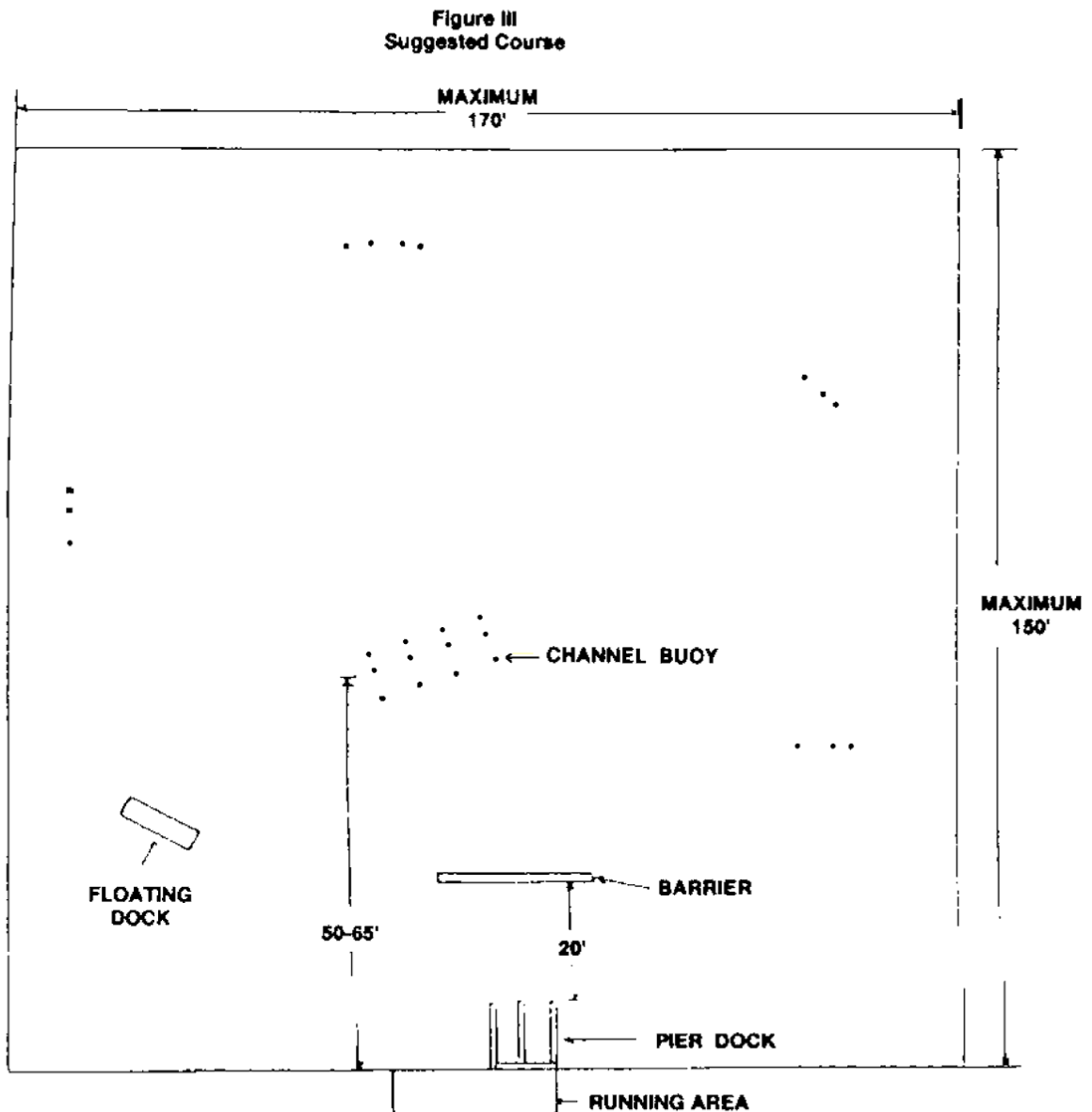
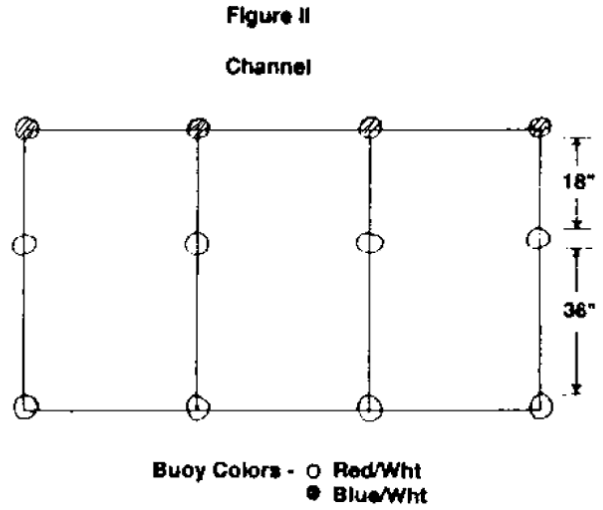
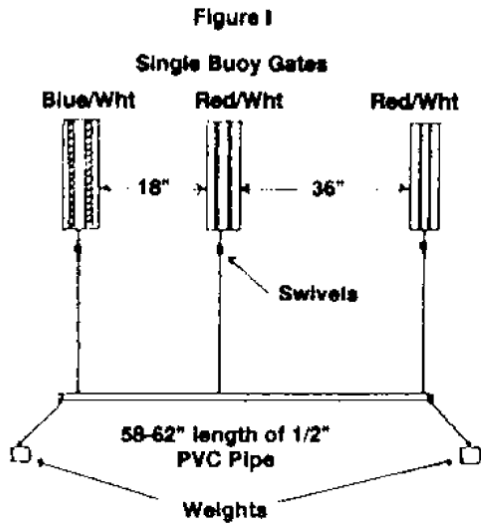
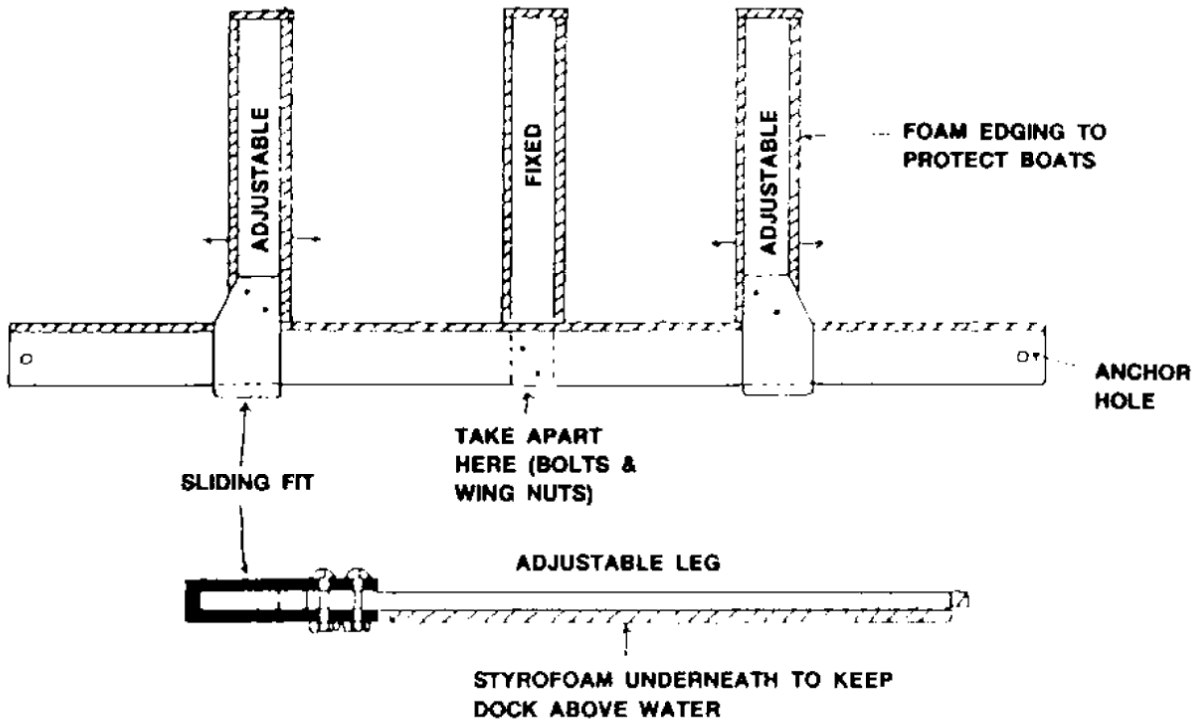
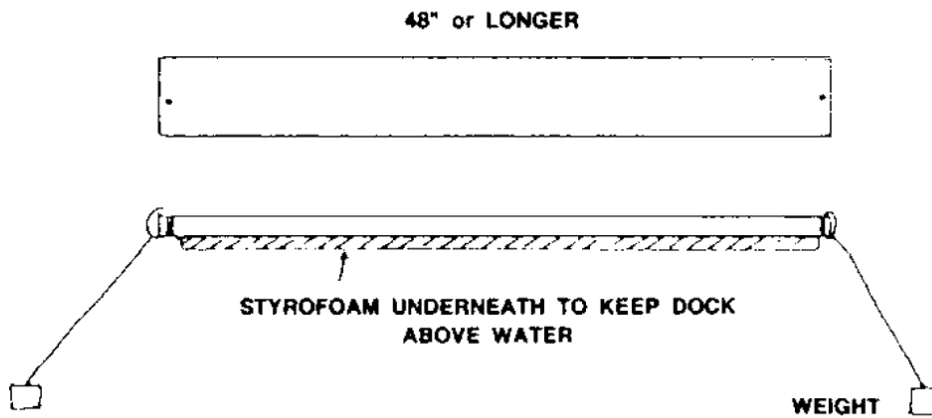


Figure IV



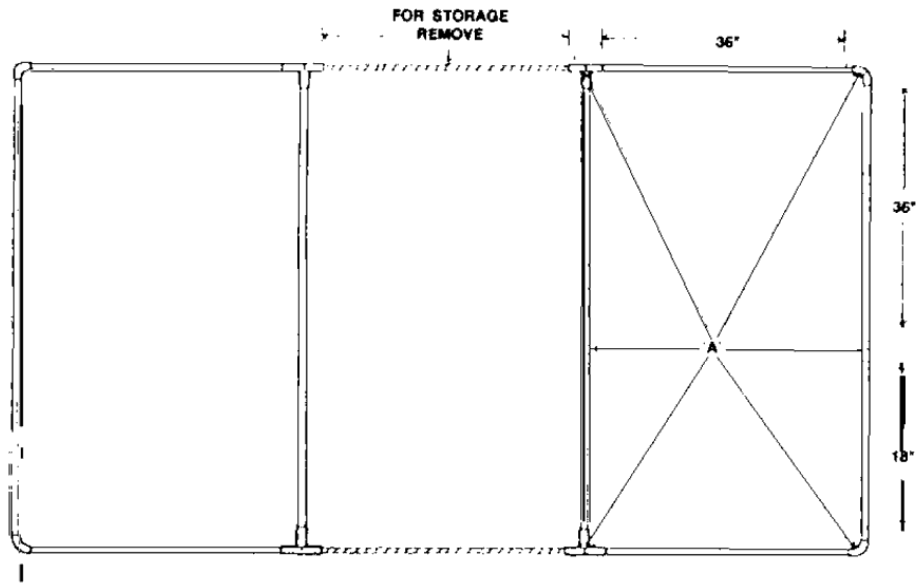
DOCK SECTIONS ARE 2 x 4 OR 1 x 4, SMOOTHED AND PAINTED.
USE STEEL RODS THROUGH ANCHOR HOLES TO HOLD IN PLACE.

Figure V
Floating Dock



MAKE FROM 2 x 6 OR 1 x 6, SMOOTHED AND PAINTED.

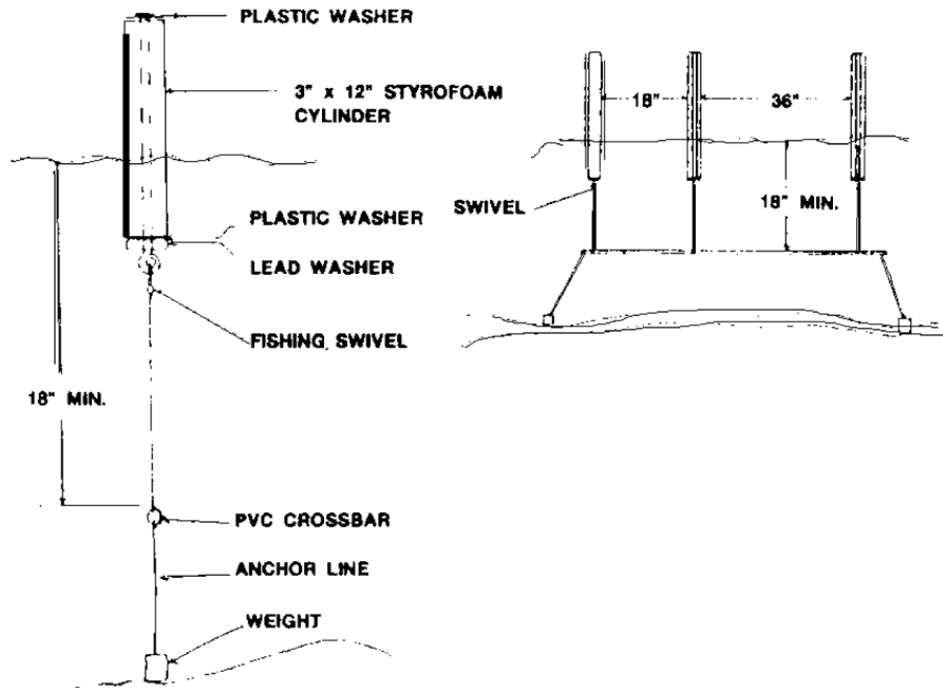
Figure VI
Channel Buoy Structure



MAKE STRUCTURE FROM 1/2 INCH PVC PIPE FITTINGS.
EXACT DIMENSIONS WILL VARY TO ASSURE 18 INCH AND 36 INCH BUOY SPACING.
STRUCTURE MAY BE ANCHORED WITH TWO LINES (ONE FROM EACH END)
ATTACHED TO BOTTOM WEIGHTS.

'A' DRILL 1/16 INCH HOLES FOR ATTACHMENT OF BUOYS.
USE METHOD SHOWN IN FIGURE VII.
STRUCTURE WILL HAVE A TOTAL OF 12 BUOYS ATTACHED.

Figure VII
Typical Buoy



PAINT VERTICAL STRIPES OR LINES ON STYROFOAM BUOYS.
TWO OF THE BUOYS FOR EACH GATE ARE TO BE THE SAME COLOR WITH THE THIRD BUOY
FORMING THE 18" GATE TO BE A CONTRASTING COLOR.

LEAD WASHER SHOULD BE ONLY HEAVY ENOUGH TO ALLOW THREE OR FOUR INCHES OF THE
STYROFOAM CYLINDER TO BE UNDER THE WATERLINE.