RADIO CONTROLLED MARINE TRANSPORTATION Level I

OVERVIEW

Radio controlled marine transportation technology event provides an opportunity for TSA Members to demonstrate their ability to use radio control to solve a marine transportation related problem through good design, artisanship, teamwork, and the function of the marine vehicle. Function, Construction, Design and Teamwork are the primary elements evaluated.

PURPOSE

TSA participants will design, fabricate, test, and race a marine transportation device that's primary functions are control, speed and maneuverability. The part of the vehicle that provides thrust to move the boat must remain above water. No propellers or thrusting devices may be below the water. Each member of the team is to complete a designated part of the course. The event coordinator will inform the teams of the course at the orientation meeting.

ELIGIBILITY

A. Entrance is limited to two (2) teams per chapter.
B. A team will consist of two (2) members from the same chapter.
C. Only registered team members may set up and operate the entry during competition.

TIME LIMITS

A. Entry must be completed during the current school year.
B. Each chapter must enter its boat at the time of registration.
C. Each chapter is responsible for having its entry and team at the orientation session and course at the scheduled times as specified in the conference program.
D. Each team has 15 minutes to prepare its boat for competition.
E. The entry must be completed before arrival.

PROCEDURE

A. Registration

The participants register the boat, technical report, and radio during the event check-in at registration with the event coordinator. Be certain to mark the entry numbers on the sail, technical report, and radio. Each team will be allowed to sign up for a demonstration time. Each team should try to avoid conflicts with other events when selecting a competition time. This will consist of an allotment of practice time on the water and a timed completion of the course.

B. Site and Event Conditions

Entries will compete on an indoor pool or other agreeable venue. The course will consist of a minimum of two (2) markers placed in an open area of the pool. It is the discretion of the coordinator as to the direction, location, and route of the course.

C. Preparation

Participants are to use the preparation time to familiarize themselves with the course. It is the discretion of the coordinator as to the number of vehicles on the course at any given time during practice. If the coordinator, due to the number of entries, chooses to have more than one vehicle practice at a time, they may do so. The team may ask to compete before their preparation time has expired.

D. Competition

Competition will consist of qualifying, semi-finals, and finals. Each qualifying heat will consist of two (2) sets of three (3) timed laps around the determined course. Each team member must pilot the boat around the course for one (1) set. If only one of the team members is in attendance at the conference, that member must navigate both sets of laps. Only the competing team will be allowed on the course during the timed potion of the event. The fastest set of laps will be used to determine whether or not the boat qualifies for the semi-finals. The eight (8) boats with the fastest times will qualify for the semi-finals. Each team will designate one pilot to continue through the semi-finals and final races. The semi-finals and finals will consist of three (3) complete laps with four (4) boats competing during each round. Student teams will be responsible for proper care and maintenance of boats between heats, including charging/changing batteries.

REGULATIONS

A. Vehicle Specifications and Material Limitations.

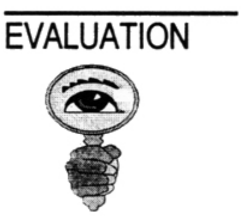
1. All entries will remain in the possession of the student. It is the student's responsibility to have their entry where it needs to be when it needs to be there, free of needed repairs and/or maintenance.
2. Four “AA” batteries will provide all power for the vehicle including the RC operation.
3. The marine transportation device must be student manufactured using custom made and pre-manufactured components.
4. The marine transportation device or any part may not be manufactured from a kit or be a pre-manufactured marine transportation device.
5. Each team must provide three sets of frequency crystals to prevent frequency conflicts.

B. Specific Tolerances

Maximum vehicle sizes at any given point of operation:

1. Length 300mm
2. Width 300mm
3. Height 300mm

These tolerances include any portion of the boat such as the rudder(s), antenna or propulsion device at the maximum point of operation. If the boat exceeds these specific tolerances, it will be the obligation of the judges to deduct a maximum of 20 points from the entry.



OFFICIAL RATING CRITERIA

Design and Construction(engineering and artisanship)	30 points maximum
Appearance	10 points maximum
Quality of work	10 points maximum
Innovation of design	10 points maximum
Technical Report	20 points maximum
Content (technically correct)	5 points maximum
Clarity (clear and well written)	5 points maximum
Technical drawing (accurate and technically correct)	5 points maximum
Completeness (All parts including bibliography)	5 points maximum
Rules violation (specifications or tolerances)	-20 points maximum
Race	50 points maximum

1st Place	50 points
2nd Place	45 points
3rd Place	40 points
4th Place	35 points
5th Place	30 points
6th Place	25 points
7th thru 16th Place	20 points
All other finishers	15 points
Boats unable to navigate the course	10 points

Total Possible Points **100 points**

RADIO CONTROLLED MARINE TRANSPORTATION EVENT COORDINATOR INSTRUCTIONS

PERSONNEL

A. Event coordinator (1)
B. Three (3) event evaluators for the following
   1. Preparation area and radio check out/in
   2. Check-in
   3. Competition judges.
   4. Report and craftsmanship evaluation
C. Timekeeper during competition (may be the event coordinator)
D. Race Coordinator (may be the event coordinator)
E. Two (2) individuals for checking and totaling evaluation sheets

MATERIALS

A. Coordinators box containing:
   1. Official rating forms
   2. Event guidelines
   3. Event entry list
B. Equipment for competition
   1. Stopwatch
   2. A minimum of two (2) markers for course
   3. Caution tape to minimize traffic around course and pool area
   4. Dry-erase board, colored markers, and eraser.
   5. Whistle (to start races)
C. Table and chairs as needed for
   1. Check-in
   2. Radio and vehicle storage
   3. Evaluators

PROCEDURE

A. Event coordinator reviews contents of the coordinator's box
B. Event coordinator follows the directions given in the Procedure section.
C. Event coordinator records and initials
   1. Deductions
   2. Failures to appear
   3. Disqualifications
   4. Protests
   5. Race results

RC MARINE TRANSPORTATION CHALLENGE
LEVEL I

OFFICIAL RATING FORM MIDDLE SCHOOL

EVALUATIVE CRITERIA	ENTRANT'S ID #s								
A. Design and Construction									
1. Appearance	10 pts								
2. Quality of work	10 pts								
3. Innovation of design	10 pts								
Sub-total	30 pts								
B. Technical Report									
1. Content	5 pts								
2. Clarity	5 pts								
3. Technical Drawing	5 pts								
4. Completeness	5 pts								
Sub-total	20 pts								
C. Rules Violation (if any)	-20pts Max.								
Race (see rules form)	50 pts Max.								
TOTAL	100 pts.								

Evaluator's comments/notes:

I certify these results to be true and accurate to the best of my knowledge.

Evaluator's signature ___________________________________