



# TESTED DRIVER PROGRAM STUDENT MANUAL

Revised 4/2021

## Quick Links

[NSSA Tested Driver Program Description\\*](#)

[NSSA Tested Driver Program Class B and C Learner's Permit Application\\*](#)

[NSSA Tested Driver Practical Experience Record – Individual\\*](#)

[NSSA Tested Driver Practical Experience Record – Team\\*](#)

[NSSA Rulebook\\*](#)

[Official Safety Manual and Policy Handbook\\*](#)



\*PDF files require Adobe Acrobat Reader

If you have questions regarding this program, please contact:

**USA Water Ski & Wake Sports**

Attn: Officials Programs

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Auburndale, FL 33823



(863) 324-4341, Ext. 115 or (863) 508-2096 Direct



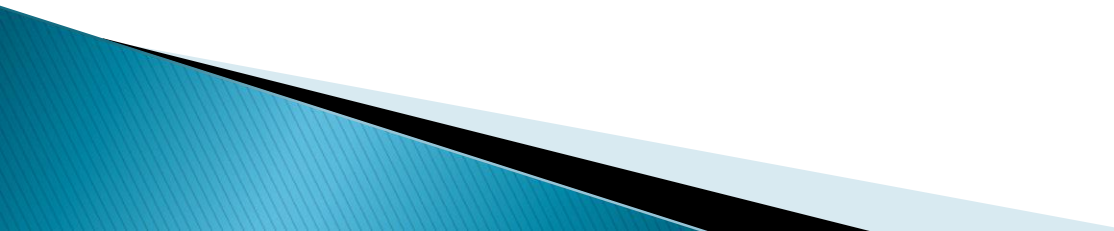
[officials@usawaterski.org](mailto:officials@usawaterski.org)

# NATIONAL SHOW SKI ASSOCIATION TESTED DRIVER PROGRAM

## ▶ Overview

The National Show Ski Association (NSSA) Tested Driver Program is designed to cover very basic information about the types of boats that you will find in a water ski show. It is very important for drivers to understand the basic handling characteristics of each type of boat used in a water ski show. This basic understanding should assist drivers if they are ever put into a situation in which a quick decision needs to be made to protect the safety of the skiers. This information may also prove to be useful when deciding what types of acts your boat can pull. Drivers will learn what to check before the boat is launched, how to launch a boat properly and what safety precautions to take. This course will cover towboat driver basics and pick-up boat driver basics. The fundamentals of pulling large quantities of skiers off the performance platform along with various show patterns also will be covered.

## ▶ Student Goals

- Identify general types of boats used in water ski shows
  - Acquire basic understanding of the rules and regulations for operating a boat
  - Demonstrate an understanding of the safety precautions necessary for operating a boat during a water ski show or water ski practice
  - Demonstrate knowledge of methods for towing a variety of water ski acts
  - Demonstrate knowledge of operating a boat in a multiple boat pattern
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## ▶ Acknowledgements

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Bob Shuman

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# I. BASIC INTRODUCTION TO BOATS

Types and characteristics of boats used in a water ski show:

## A. Outboard Boats – Single Rig

- ✓ Back up well
- ✓ Easy to maneuver
- ✓ Turn well in tight areas
- ✓ Good for small high speed acts (i.e., small barefoot pyramid)
- ✓ Good wake for swivel and double acts
- ✓ Most effective with 200 horsepower motor or better


## B. Outboard Boats – Twin/Triple Rigs

- ✓ Used for pulling large acts
- ✓ Large acts will pull best from transom
- ✓ Do not turn well in tight areas at high speeds
- ✓ Optimum maneuverability is achieved at idle speed if you use forward and reverse to pivot the boat
- ✓ Achieve proper throttle technique to maintain correct speed for acts
- ✓ Use progressive motion to pull extremely large acts (high 20s – mid 30s). Progressive Motion is a process whereby the driver needs to get the boat moving at a speed sufficient enough to pull the act off the dock. The speed should always be constant with a gradual acceleration as or right before the ropes go tight. To define the actual speed is difficult as all boats are rigged differently with weight and motor mounting. The concept is to get the mass of the boat moving quick enough to overcome the weight to be pulled off the dock and not allow the boat to get into a plowing action. If the driver allows the boat to plow, in an effort to get the boat planed off, the driver will lose skiers.
- ✓ Twin rigs are very difficult to steer if you do not have hydraulic steering

## C. Inboard Boats

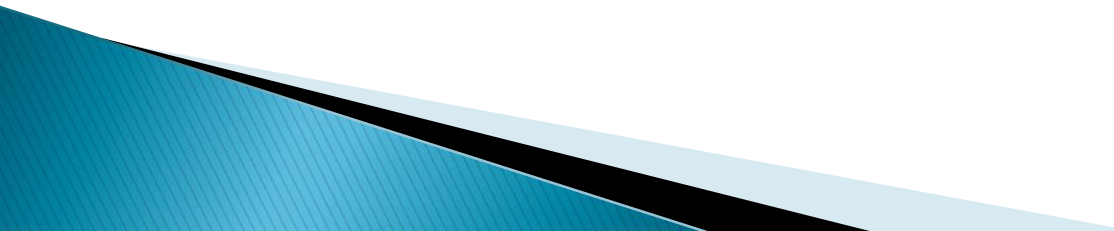
- ✓ Turn extremely tight under power (i.e., 360 degrees around the boat)
- ✓ Track well for acts such as jumping
- ✓ Difficult to back up
- ✓ Easy to throttle (hold speed)
- ✓ New inboards with true fuel injection have better horsepower (1995)
- ✓ Perform better with four-blade props
- ✓ Some have right prop rotation; some have left prop rotation

## D. Pick-up Boats

- ✓ Need to maneuver well
  - ✓ Need adequate horsepower
  - ✓ Best if rigged with a bilge pump
  - ✓ Gunnel should be high enough to carry 4–5 passengers
- 



## E. **Barges** (pontoon boats with seats removed)

- ✓ Difficult to steer until you learn pivot point
  - ✓ Used for portable dock
  - ✓ Carry props or backdrops
  - ✓ Do not slow down quickly
  - ✓ Do not back up well
- 

## II. LAUNCHING YOUR BOAT

### A. Before you launch:

- ✓ Check for adequate fuel and oil
- ✓ Check battery for charge
- ✓ Steering and throttle controls free
- ✓ Drain plug in hole
- ✓ Fire extinguisher onboard and serviceable
- ✓ Appropriate personal flotation devices

### B. Before startup:

- ✓ Be aware of fuel vapors – if boat is equipped with a blower, operate five minutes before startup
- ✓ Make sure water depth is sufficient to launch and power-up boat

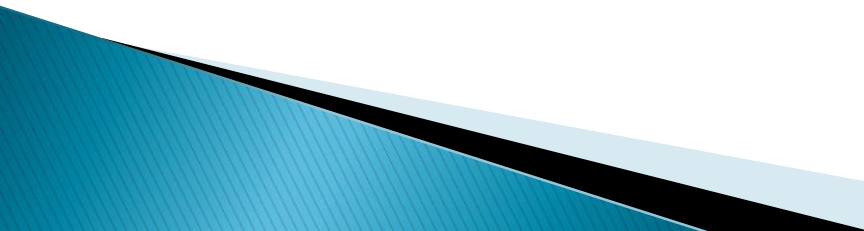
### C. Startup:

- ✓ Check oil pressure on Inboards
- ✓ Make sure water is exiting power-head on outboards
- ✓ Monitor gauges during operation

# III. SAFETY PRECAUTIONS

- A. Driver should take time to become familiar with the boat
  - 1. Control sensitivity
  - 2. Docking characteristics
  - 3. Handling characteristics of his/her boat and all other boats used by the Team
  - 4. Never drive the boat directly toward the crowd, a skier, the dock, etc. (if steering or throttle fail, you place teammates and spectators in a compromising position)
  - 5. Pass fallen skiers on the driver's side of the boat
  - 6. Never, in any circumstance, should the driver leave the boat

7. Driver should not lean over the side of the boat to assist with ski pick-up or help skiers get into the boat (this is the responsibility of the spotter). Driver should be free to maneuver the boat.
8. Spotter must always wear a personal flotation device (PFD) and be prepared to enter the water immediately
9. After a fall, it may take a moment for the skier to assess his/her condition and give the "OK" signal. Even after receiving the "OK" signal, the boat crew must make a judgment about whether or not the skier is really OK (sometimes the signal is automatic).
10. Follow all guidelines for rendering assistance as outlined in the "Show Safety Manual"
11. If pick-up boats are busy with other functions, towboat drivers may be called upon to act as pick-up boats. It is beneficial to know their jobs.

- B. Driver should become familiar with the ski area
1. See Chapter 2 of the [NSSA Policies and Procedures Manual](#) – "Class A Show Site Selection Recommended Criteria" for ideal site conditions for a show
  2. Be aware of hazards:
    - a. Moving Hazards
      - ✓ Current
      - ✓ Water depth
      - ✓ Width
    - b. Natural Feature Hazards
      - ✓ Rocks
      - ✓ Riverbanks
      - ✓ Plants and animals
- 

c. Man-made Hazards

- ✓ Bridge piers
- ✓ Marker buoys
- ✓ Dams
- ✓ Utility cables and lines
- ✓ Floating debris

d. Environmental Hazards

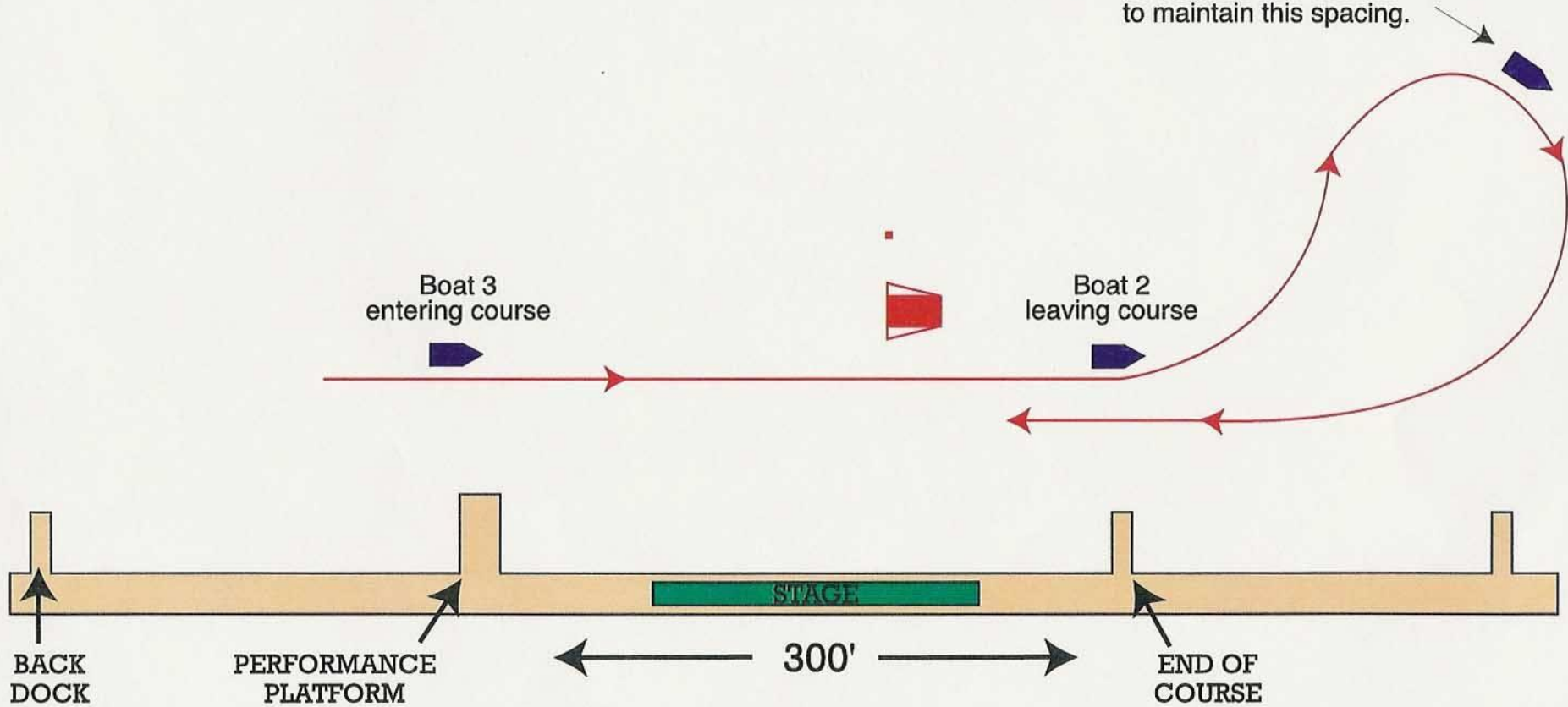
- ✓ Weather (wind, fog, sun, precipitation)
- ✓ Cold water (medical conditions associated with it)
- ✓ Light conditions (dawn or dusk; location of sun)
- ✓ Remoteness of area

## IV. TOWBOAT BASICS

- A. The first boat entering the show course should:
  - 1. Always be positioned closest to the shore
  - 2. Always have the right-of-way
- B. Additional boats in patterns:
  - 1. Should enter as first towed skier(s) exit show course
  - 2. Should be positioned about half a boat width to the left side to allow the driver to pass fallen skiers safely on the driver's side of the boat
  - 3. Boat 3 should be entering the course as Boat 2 is leaving; Boat 1 should be far enough into the turn to re-enter as Boat 3 exits (see Figure 4)
  - 4. The turn radius of Boats 2 and 3 should be slightly larger than previous boat to keep the water as smooth as possible for the skiers in the turn (see Figure 5)

# Multiple Boat Spacing

Boat 1 is far enough into turn that it will be reentering course when Boat 3 is just leaving course. Adjust speed in turn as necessary to maintain this spacing.



**FIGURE: 4**

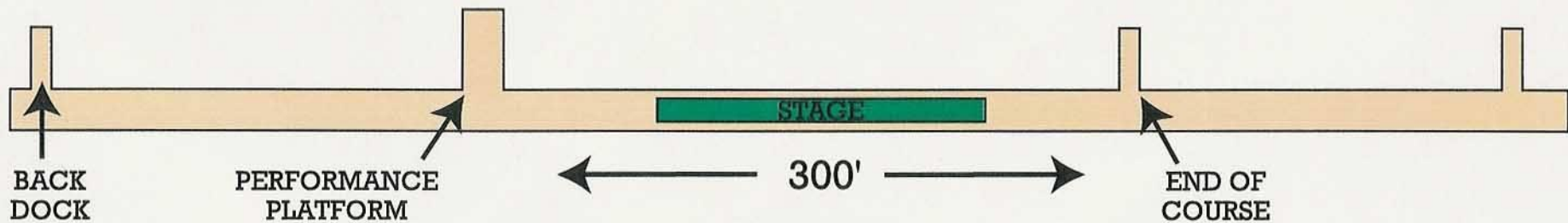


# Multiple Boat Turns

Radius of turn for 2nd & 3rd boat is slightly larger than turn of previous boat (keeps water as smooth as possible for skiers in the turn)

Follow "close to," but not directly behind boat in front  
\*\*about 1/2 boat width to the LEFT to allow fallen skier to be passed safely on DRIVER's side

3rd Boat  
2nd Boat  
1st Boat

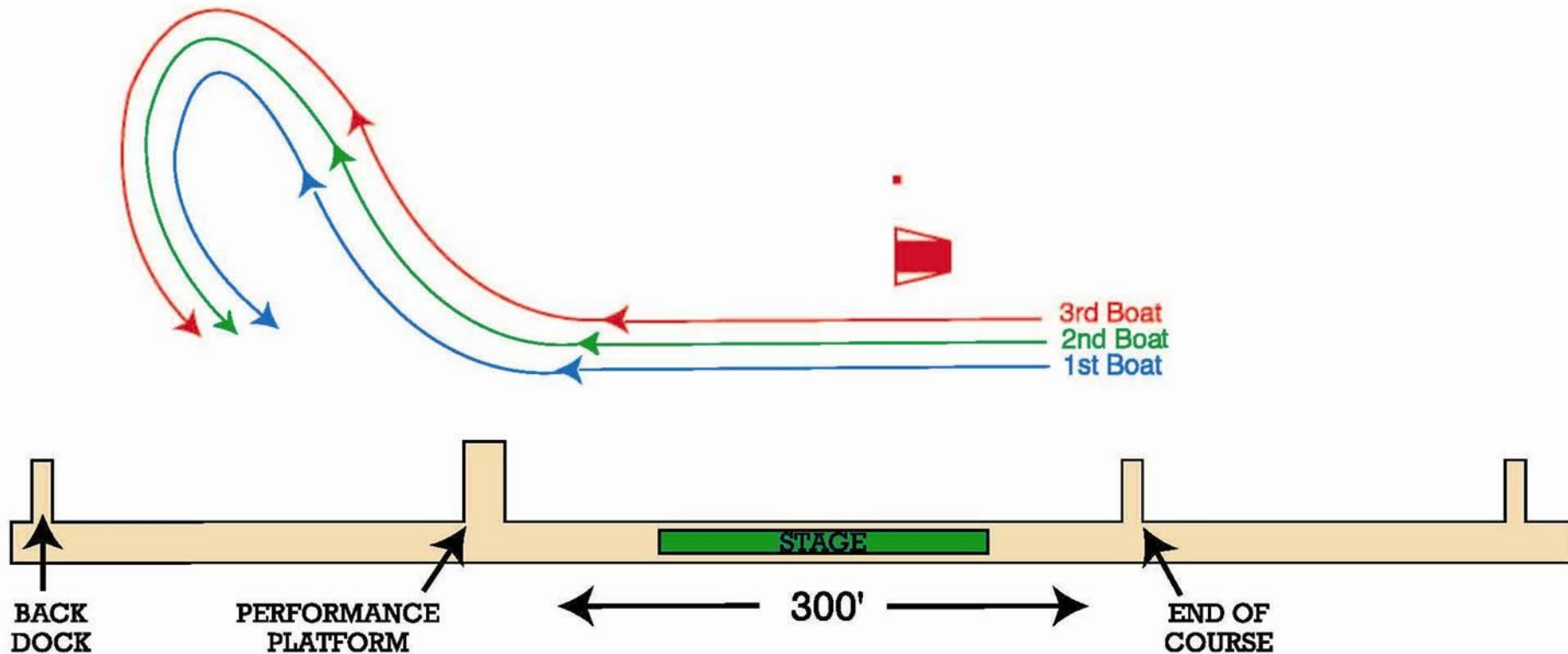


**FIGURE: 5**

# Multiple Boat Turns

Follow "close to," but not directly behind boat in front  
\*\*about 1/2 boat width to the RIGHT to allow fallen skier  
to be passed safely within Drivers view

Radius of turn for 2nd & 3rd boat is slightly larger  
than turn of previous boat  
(keeps water as smooth as  
possible for skiers in the turn)

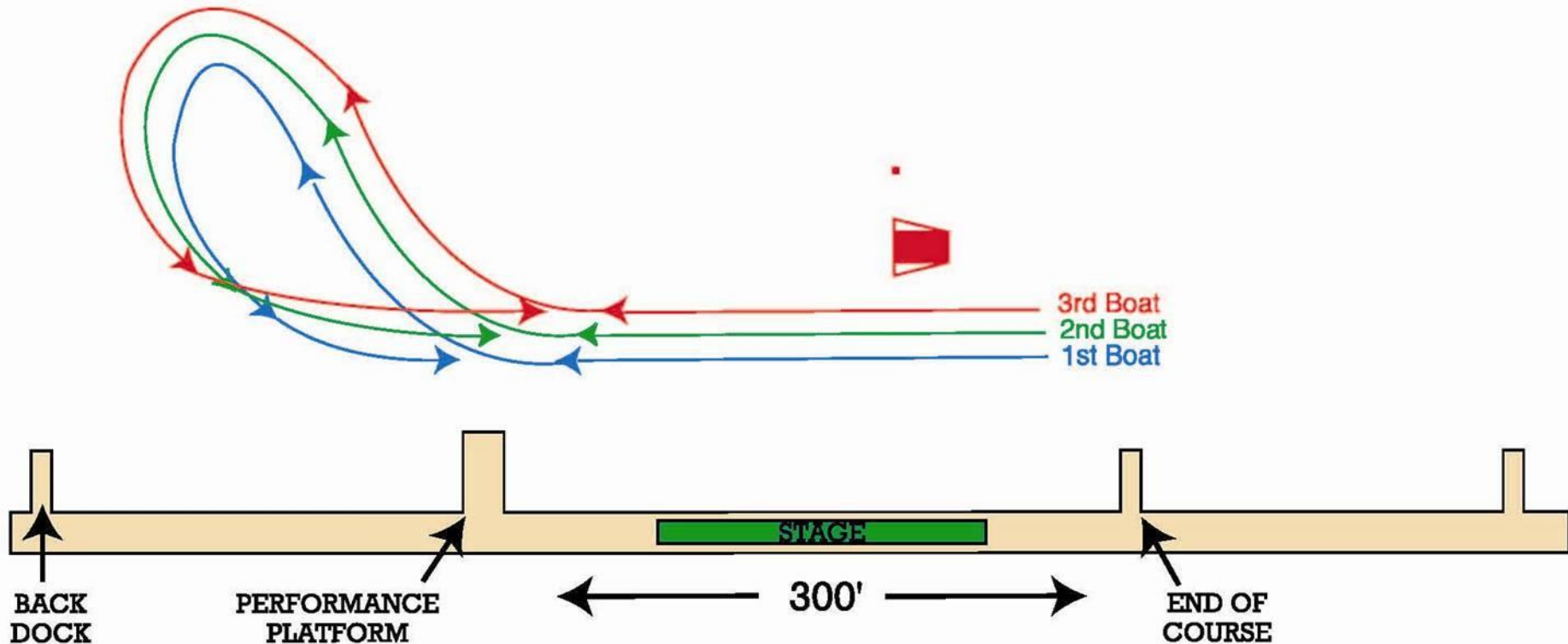


**FIGURE: 5b**

# Multiple Boat Turns

Follow "close to," but not directly behind boat in front  
\*\*about 1/2 boat width to the RIGHT to allow fallen skier  
to be passed safely within Drivers view

Radius of turn for 2nd & 3rd boat is slightly larger  
than turn of previous boat  
(keeps water as smooth as  
possible for skiers in the turn)



**FIGURE: 5c**

C. Practice pulling straight off the dock

1. Tendency is to veer off to the left (away from shore)
2. Biggest problem with large acts like ballet or pyramid

D. Do not rush into the first corner off the dock

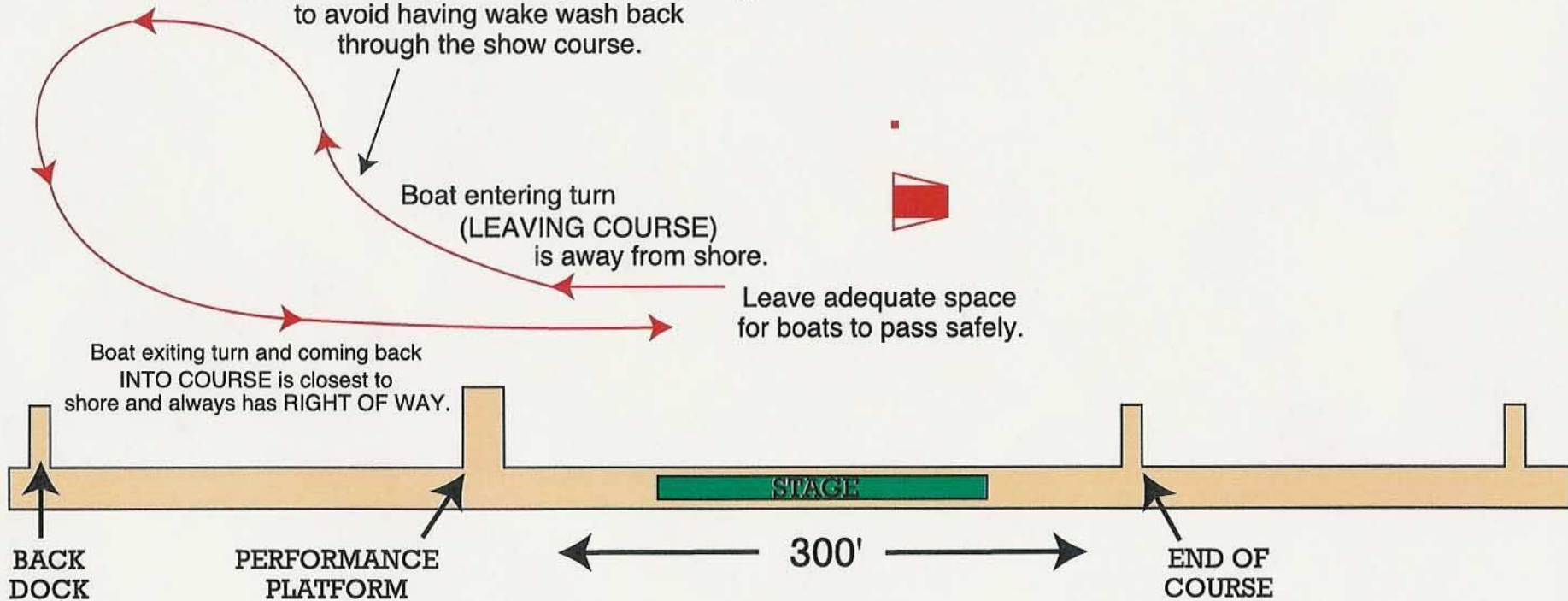
1. Allow skiers to complete first pass
2. Initiate turn as skier exits the course
3. Start turn at a 45 degree angle – turning too sharply will send waves through the show course (see Figure 3)

# Turns: Entering and Leaving the Course

## Notes:

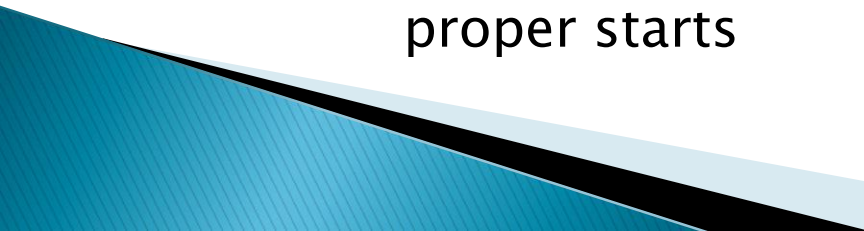
1. Boat entering course is always closest to shore.
2. There should NEVER be two boats in the course at the same time going in opposite directions on the same line.
3. Run as parallel to shore as possible, but NEVER steer the boat directly toward another boat.

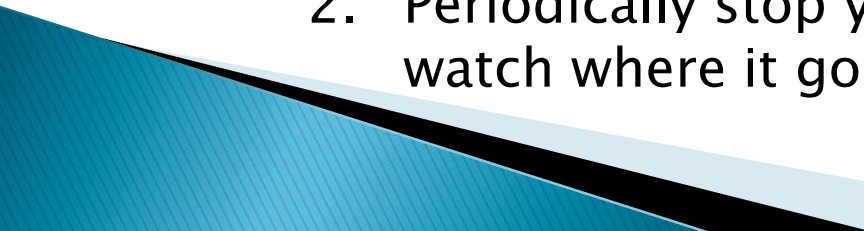
Leave course at approximately 45 degree angle to avoid having wake wash back through the show course.



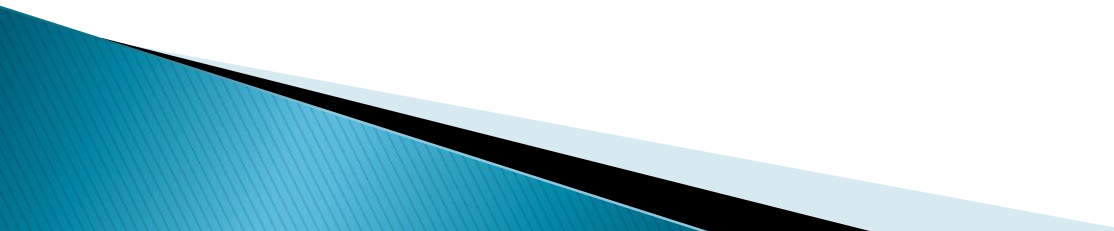
**FIGURE: 3**



- E. When pulling multiple skiers use progressive motion to get them off the dock
  - F. When a skier pulled by a boat in front of you falls, point directly at the skier with your hand/arm
    1. This lets the skier know you see him/her
    2. Allows you to signal to the skier which way to swim to stay out of your path
    3. In tournament situations, judges will know you see the fallen skier (no gray hairs or safety violations)
  - G. Communicate with your skiers
    1. Know the desired boat speeds for the act
    2. Let the skiers know what you need in the corners to maintain proper spacing
    3. Let skiers know that you need to see coils of rope for proper starts
- 

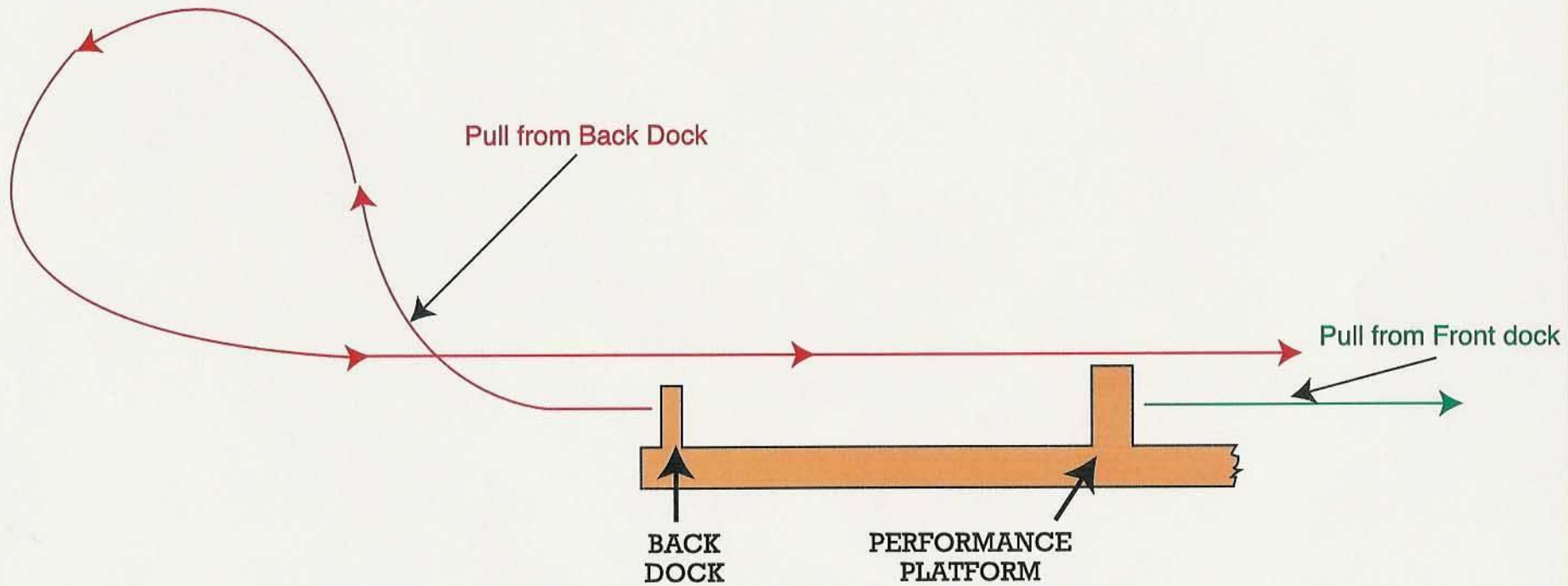
4. Explain to skiers what you expect of them if they fall  
– they need to look at the approaching boat to know which way to swim
  5. Understand that skiers' desired speed might change as conditions change – be flexible
- H. When picking up a fallen skier, pass him on the driver's side of the boat
- I. If the current act requires a pin, watch for ropes in the water by fallen skier(s)
- J. When approaching an injured skier or pick-up boat that is assisting an injured skier, proceed slowly with caution – No Wake
- K. Get a feeling for your boat wake
1. Practice patterns without skiers
  2. Periodically stop your boat and observe your wake; watch where it goes
- 

The following diagrams  
are examples of typical  
towboat patterns and  
large act pulls



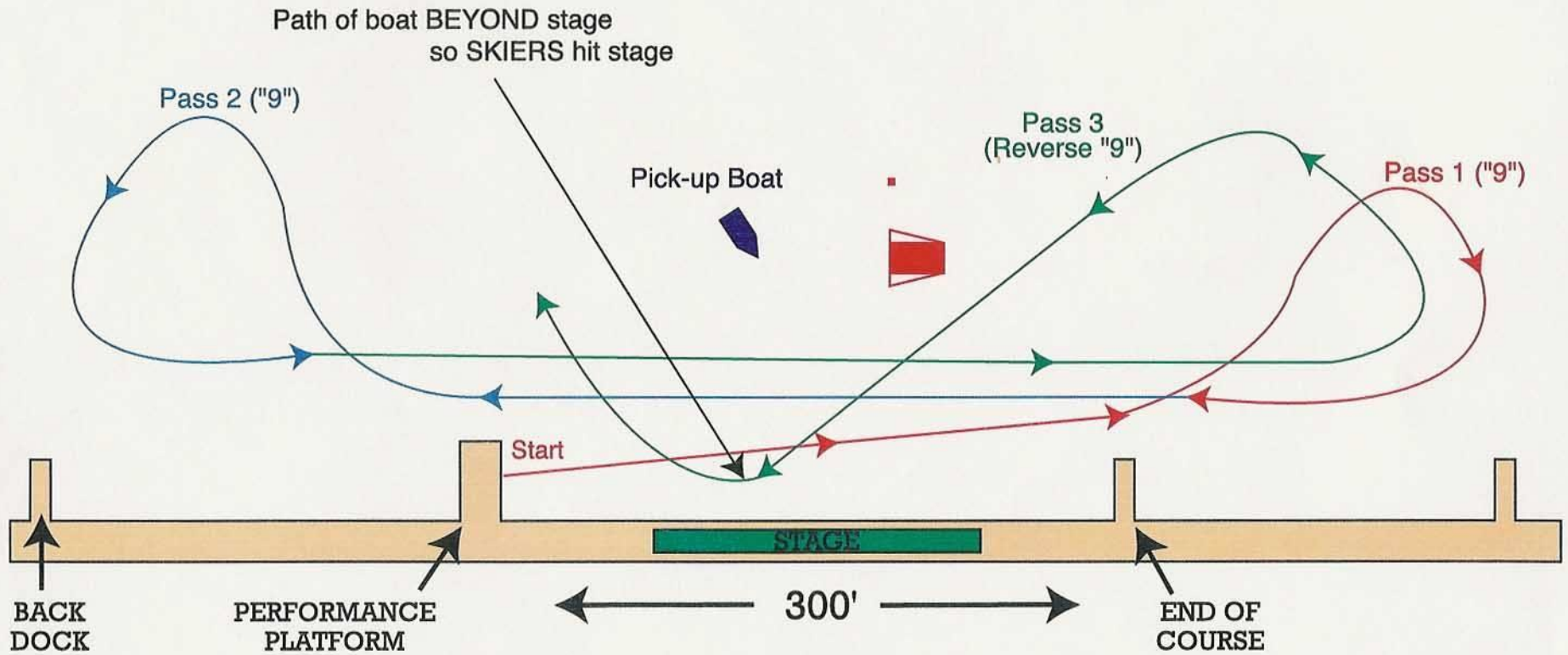


# Initial Pull Variations



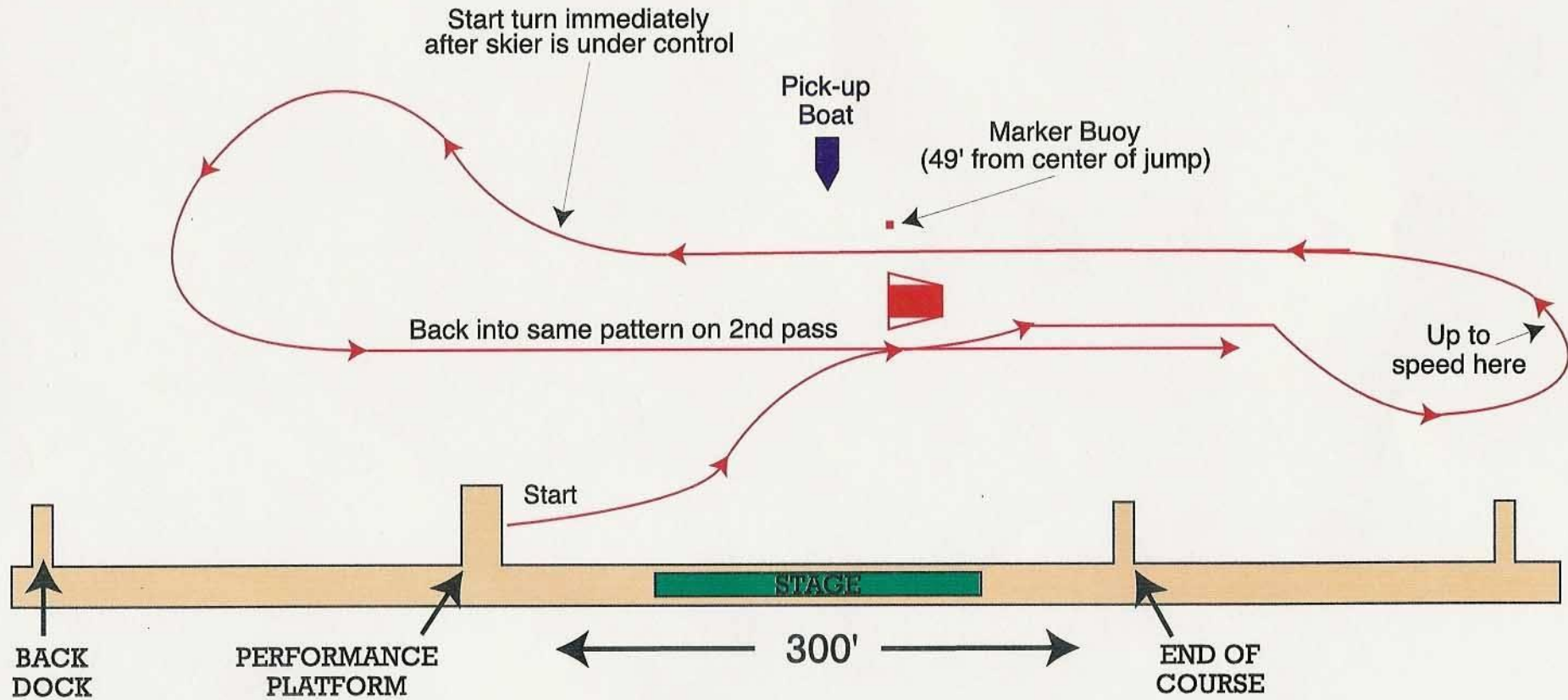
**FIGURE: 2**

# "9" Pattern



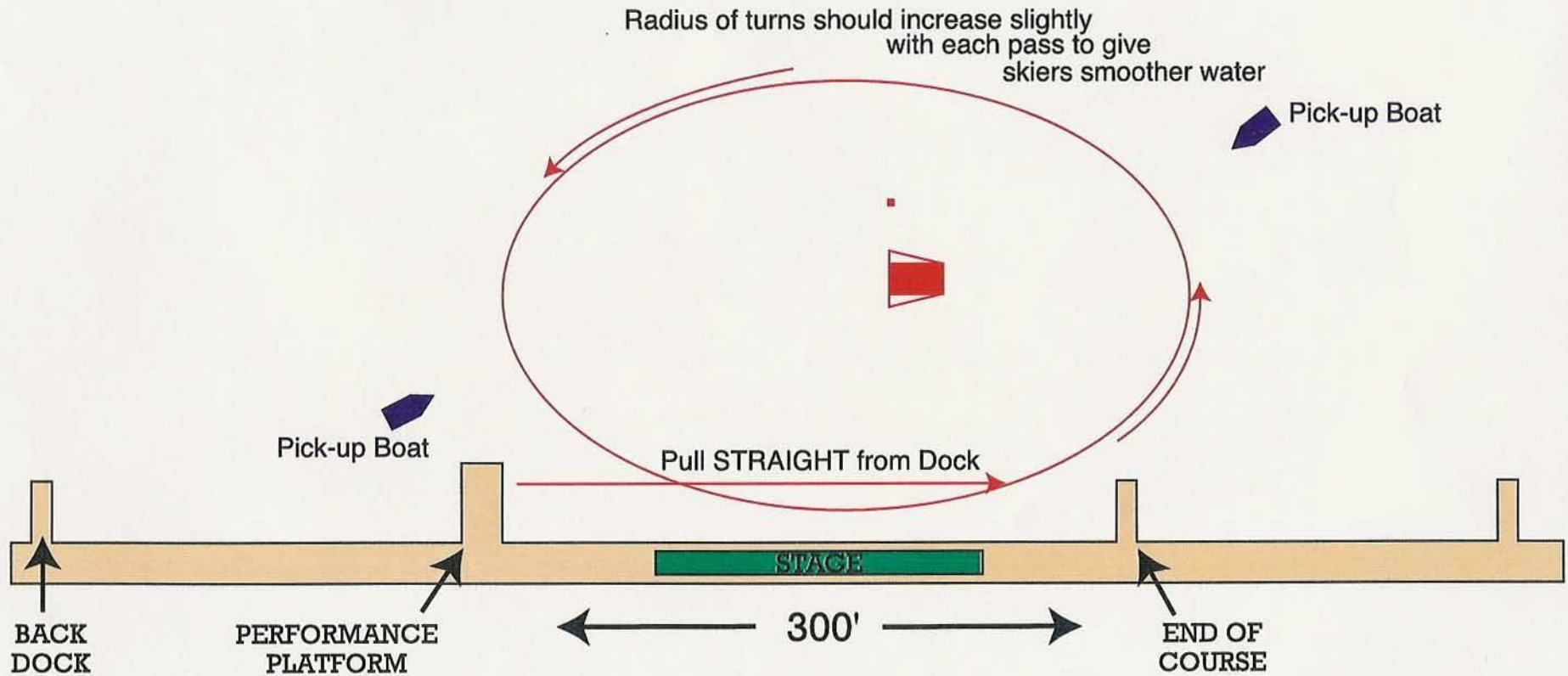
**FIGURE: 6**

# Jump Pattern



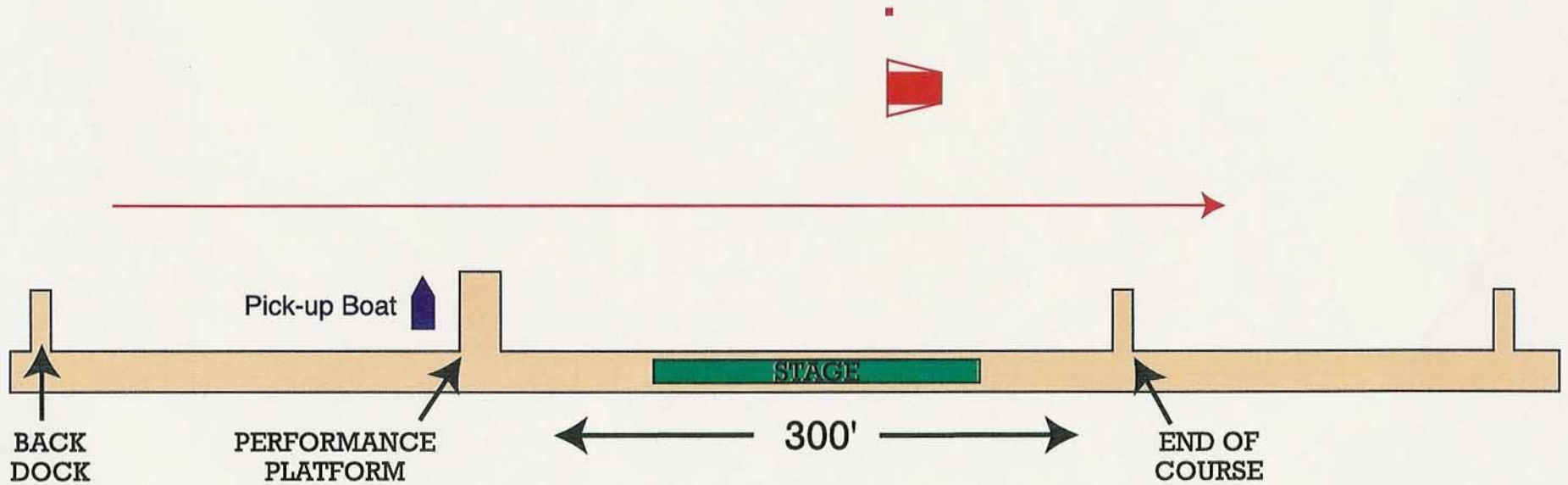
**FIGURE: 7**

# Circle Pattern



**FIGURE: 8**

# Straight Thru Pattern



***FIGURE: 9***



# Around the Boat

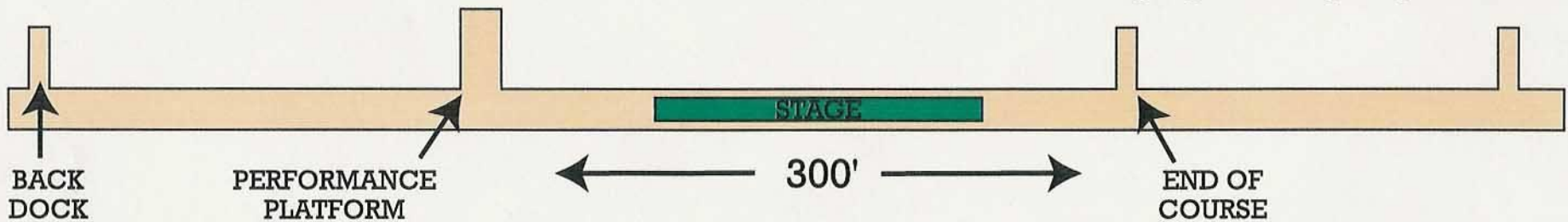
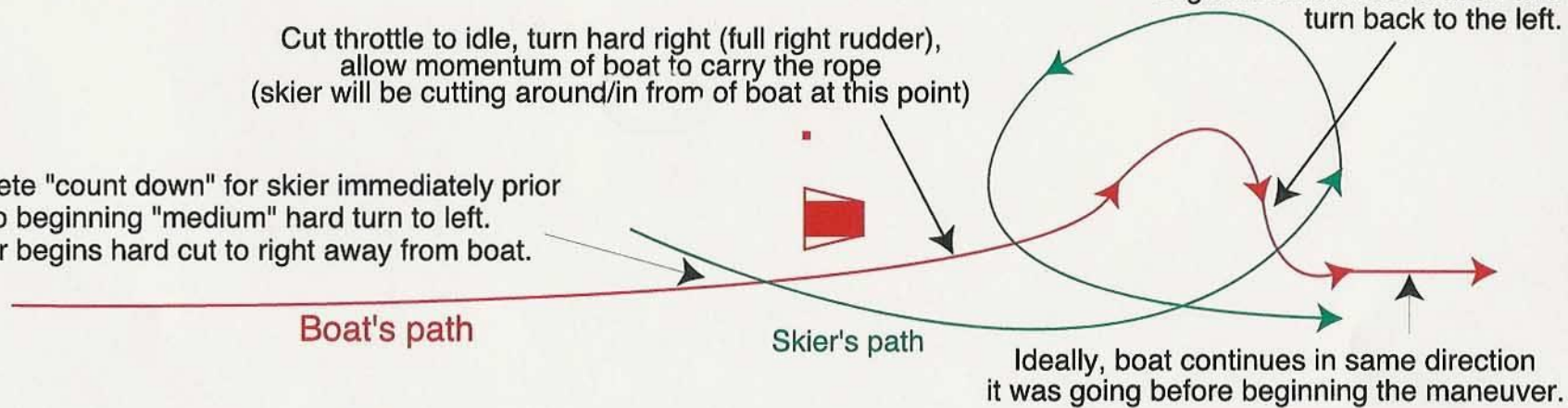
**\* Note \***

Maneuver may be done on either side of the jump, **HOWEVER BE CAREFUL OF THE JUMP**

Cut throttle to idle, turn hard right (full right rudder), allow momentum of boat to carry the rope (skier will be cutting around/in from of boat at this point)

Complete "count down" for skier immediately prior to beginning "medium" hard turn to left. Skier begins hard cut to right away from boat.

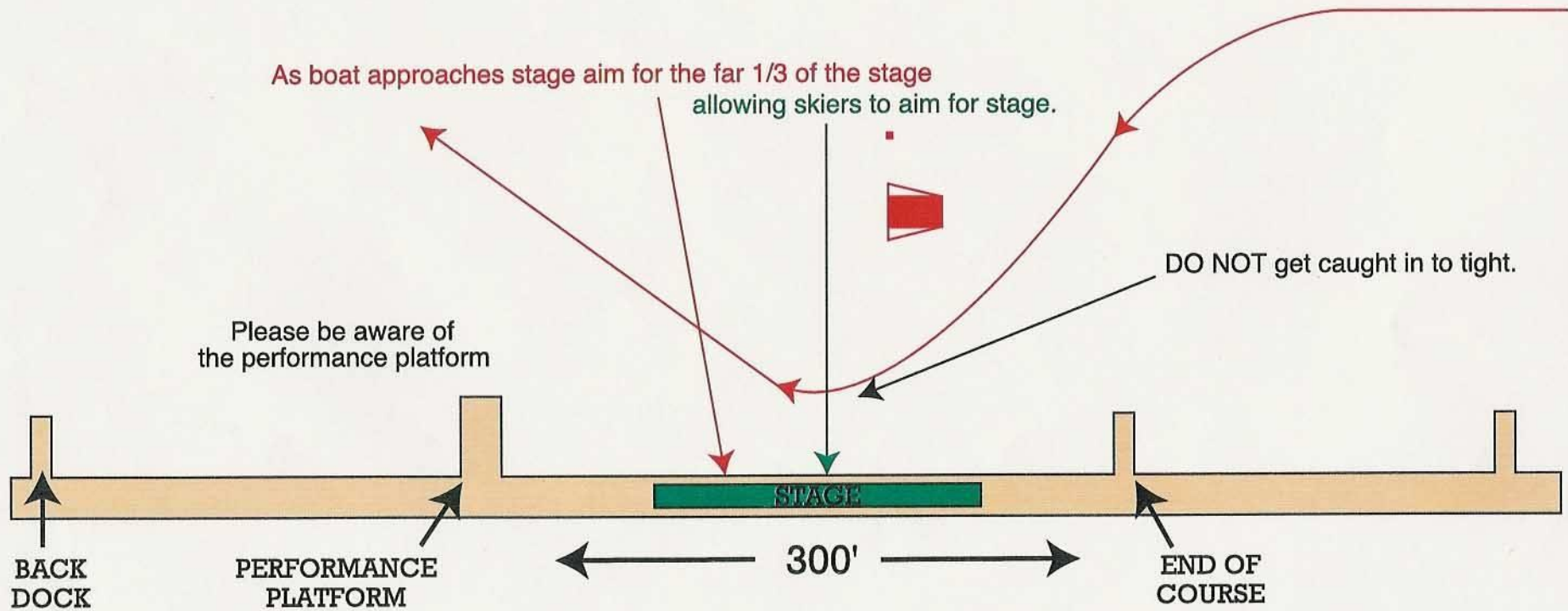
After passing under rope and ensuring skier is beyond (to the Left) bow of boat, begin medium acceleration and turn back to the left.



**FIGURE: 10**

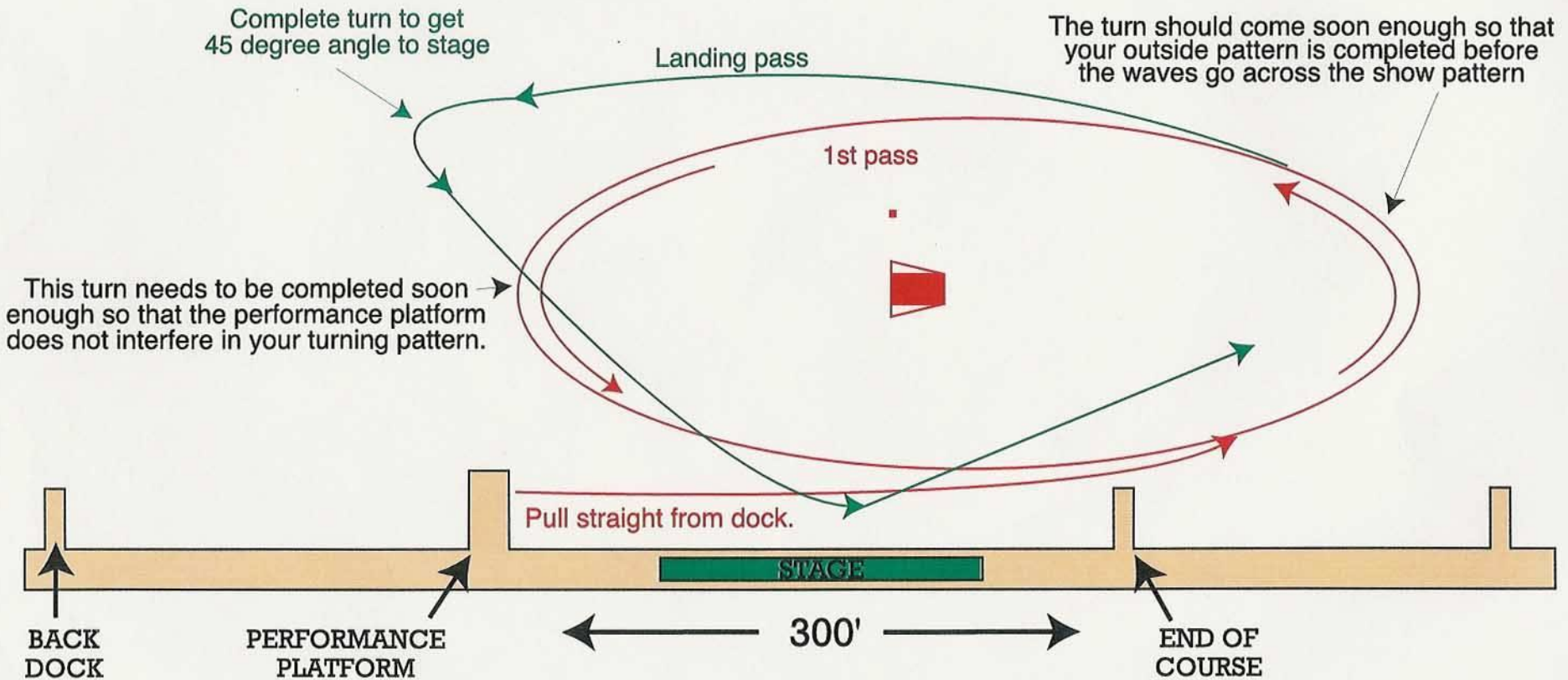
# Large Act Landings

Pattern is the same from either end of show course



**FIGURE: 11**

# Oval Pyramid Pattern



**FIGURE: 12**




# V. PICK-UP BOAT BASICS

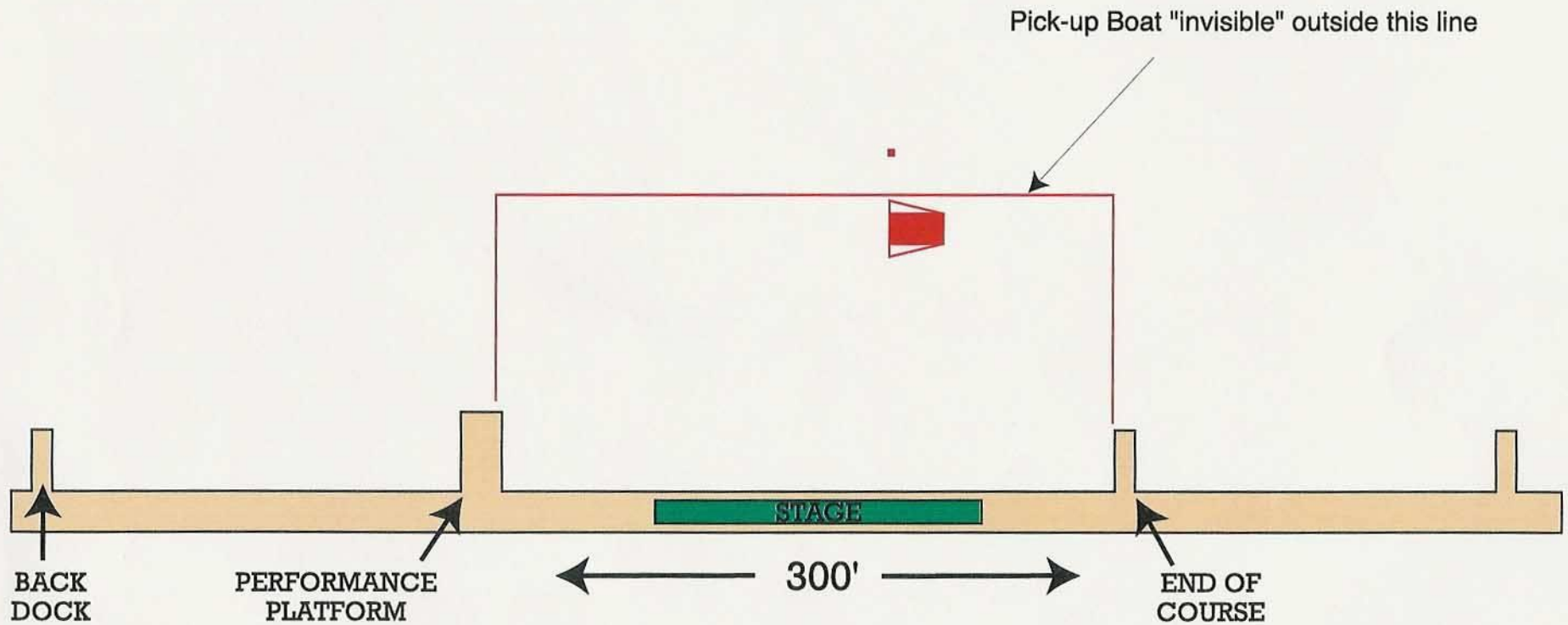
## A. Primary responsibility is skier safety

1. Rider must be prepared/capable to assist an injured skier
2. Driver should anticipate and be moving toward high-risk falls
3. Boat(s) should be positioned outside the viewing area of the show course where the driver can still see the skiers and be in a position to respond in a timely manner (see diagram for suggested positioning of the pick-up boat)

## B. Secondary responsibilities

1. Pick up fallen skiers and dropped skis
  2. Shuttle skiers
  3. Never produce a wave that interferes with acts in the show
  4. Stay out of the show course viewing area
- 

# Show Course



***FIGURE: 1***