
PERSONAL WATERCRAFT OPERATIONS/RESCUE

INSTRUCTOR GUIDE

approved by



as a component of the

FIRE SERVICE TRAINING
AND EDUCATION PROGRAM

First Edition, Summer 1996

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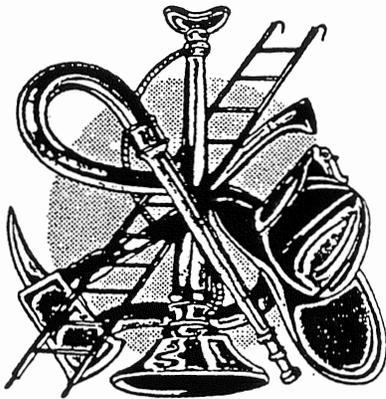
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A C K N O W L E D G E M E N T S

The development of the material contained in this guide was coordinated by the Training Division of the California State Fire Marshal's Office and approved by the State Training and Education Advisory Committee (STEAC) and the State Board of Fire Services (SBFS). This curriculum is appropriate for fire service personnel.

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Acknowledgment and thanks are extended to the following members of the Training Division for their diligent efforts and contributions that made the final publication of this document possible.

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We gratefully acknowledge the following individual who served as the principal developer for this document.

<p>Tony Hargett, Engineer Sacramento County Fire District</p>

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and

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INTRODUCTION

This publication is intended to serve as an Instructor's Guide. The Guide has been designed to include lesson plans, activity sheets, study sheets, information sheets, overhead transparency masters, and quizzes when possible. Suggested application methods have been identified throughout each lesson for the instructor's use at appropriate times during their presentation.

The success of the students in this course depends greatly on the instructor's conformance to the student behavioral objective prescribed at the start of each lesson. The remaining portion of the lesson plan has been designed to serve only as a guide; and as such, should not preclude instructors from adapting their lesson plans to best meet the needs of the students.

Each page within the Instructor Guide is identified in the upper left corner with either of two headings (Instructor Guide or Student Info) that identifies the purpose of the information contained on the page.

INSTRUCTOR GUIDE

Material on these pages is intended to serve as an outline of instruction in lesson plan form. For each topic identified in the course outline, a lesson plan has been developed that contains: a time frame, level of instruction, behavioral objective, materials needed, references, preparation statement, and lesson content.

- **TIME FRAME.** The minimum, estimated duration required for "in class" presentation based on a 7 hour, one day course.
- **LEVEL OF INSTRUCTION.** Identifies the instructional level which the material was designed to fulfill. Obviously, instructors have the latitude to increase the level based on time available, local conditions and the students' apperceptive base.
- **BEHAVIORAL OBJECTIVE.** The behavioral objective is a statement of the student's performance desired at the end of instruction. Instructors must make sure that enough information is given in the presentation to enable the student to perform according to the goal.
- **MATERIALS NEEDED.** This should be a complete list of everything instructors will need to present the lesson, including Information Sheets, (handout materials), visual aids, quizzes, and so on.
- **REFERENCES.** These are the specific references the curriculum development team utilized when developing the lesson plan. In addition, references may be listed as additional study aids for instructors to enhance the lesson -- books, manuals, bulletins, scripts, visual aid utilization plans and the like.

- **PREPARATION.** The motivational statements in this section connect the student with the lesson plan topic through examples or illustrations relating to their occupation, injury, and even mortality. Instructors may modify this section to better fit their students' environment.
- **LESSON CONTENT.** Includes information utilized in the four-step method of instruction.

Presentation Includes

Everything the Instructor says or displays

Content

Notes

Overhead and/or Slide cues

Distribution of Information
Sheets

Application Includes

Everything the student participates in

Questions to the students

STUDENT INFO

They contain information related to specific topics within the curriculum in the form of information sheets, activity sheets, study sheets, charts, forms, etc. These pages must be copied and distributed to the students as indicated in the lesson.

CONSIDERATIONS FOR LESSON DELIVERY

The information within the course is designed for presentation without the use of commercially or locally developed films, video tapes and slides. This does not mean that instructors are prohibited from employing audio/visual aids during the course. Instructors are encouraged to utilize any audio/visual which will assist in the presentation of material and attainment of performance goals.

The students should be required to review the material previously covered and scan the material in upcoming class sessions. This will facilitate topic development and provide instructors with a more receptive student base for class discussions.

PERSONAL WATERCRAFT OPERATIONS

COURSE OBJECTIVE: To...

- a) Introduce emergency service personnel to the codes and regulations that impact personal watercraft operations
- b) Provide emergency service personnel with a thorough knowledge of personal watercraft operations.
- c) Prepare emergency service personnel with a strong working knowledge of personal watercraft operations in both static and dynamic water.
- d) Provide emergency service personnel an opportunity to apply their knowledge through demonstrations.
- e) Provide emergency service personnel with knowledge for maintaining and performing inspections on personal watercrafts.

COURSE CONTENT:.....16:00 HOURS

Lesson Plans

1-1	Personal Watercraft Safety Training with Test.....	1:30
2-1	Philosophy Of Personal Watercraft Use	0:30
3-1	Orientation And Terminology Of Personal Watercraft.....	0:45
4-1	Methods of River Reading.....	1:00
5-1	Performing Pre-Operation Inspection.....	0:30
6-1	Launching a Personal Watercraft.....	0:15
7-1	Mounting a Personal Watercraft.....	0:15
8-1	Shoring A Personal Watercraft.....	0:15
9-1	Righting A Personal Watercraft.....	0:30
	Basic Manuever Course.....	3:00
10-1	Traveling In Dyanmaic Water.....	1:00
11-1	Hover And Ferry A Personal Watercraft.....	0:30
12-1	Servicing A Flooded Personal Watercraft.....	0:30
13-1	Performing A Victim Pick-Up.....	1:30
14-1	Performing A Victim Pick-Off.....	1:30
15-1	Performing A Rope Crossing.....	1:30
16-1	Trailing A Personal Watercraft.....	0:30
17-1	Placing A Personal Watercraft Back In Service.....	0:15
18-1	Performing Daily And Weekly Check.....	0:15

TEXT & REFERENCES:

- California Boating And Waterways Safety Course
- Rescue 3 International Swift Water Rescue Student Manual, 1991
- Personal Watercraft Owners Manual
- Physical Geology
- River Rescue
- Understanding The Physics Of Moving Water

PERSONAL WATERCRAFT?

DIDN'T THEY JUST COME OUT A COUPLE YEARS AGO?

Personal watercraft (PWC) have been in use longer than most people realize. In 1968, the Sea-Doo Division, of the Bombardier Corporation, invented the first sit down style personal watercraft, and put into play what is now one of the most popular water sports in the world, the recreational and competitive riding of personal watercraft. Unfortunately for Sea-Doo they didn't know it at the time. From that time, the Sea-Doo Corporation has put their engineering knowledge to the test and studied Rotax engines for personal watercraft use.

In 1973, the Kawasaki Corporation improved the jet drive system developed by a gentleman named Clay Jacobson Sr. This system included homemade items such as a Coleman ice chest for a cover. It may have been barbaric in today's terms, but the idea sprouted the birth of personal watercraft. Kawasaki took the idea and ran with it; however, they didn't make it very far. As with the personal watercraft Sea-Doo developed, the first developed stand-up jet ski was not accepted with open arms.

There was very little market for personal watercraft, the cost was considerably high for such an unfamiliar sport and even fewer people had even heard of a PWC.

In 1976, Kawasaki started the first Jet-Ski only shops. Among the first were "Butches" in Michigan, and a shop right here in California located in Orange County, simply named "Jim's Jet Skis".

Kawasaki patented their hull and pump design in 1976 which stayed in effect for ten years. Kawasaki had the market all to themselves for ten years, unfortunately Kawasaki missed a large segment of the market as they only produced the stand-up type personal watercraft with their patented pivot handle during those ten initial years. The first stand-up had a 440 cc engine, which proved to be under powered for many riders. The next one built was a 550 cc which was only a bored out 440 and suffered from many mechanical problems. Other watercrafts Kawasaki developed were the semi-sit down X2 and a larger 650 stand-up. It wasn't until their patent expired in 1986 that the Yamaha corporation came out with the first true sit down watercraft. It was in 1990 that other manufacturers started to develop sit down type watercraft including Kawasaki.

The personal watercraft market is dominated by only six manufacturers Sea-Doo, Yamaha, Polaris, Kawasaki, Artco, and Mastercraft Wet-Jet. Together they sell on average 500,000 sit down personal watercrafts a year at a cost of between \$4,000-\$8,000 dollars each. Comparatively, today the stand-up watercraft is all but obsolete. Only two are still being produced, the Kawasaki 750 and the Yamaha Super-Jet, which only include 15% of the market. The market belongs to sit-down watercraft for two reasons. One they are much easier to ride for the beginner and two they have the power needed to pull larger persons around a body of water. This same attraction intrigued the Rescue and Law Enforcement agencies. The personal watercraft is extremely maneuverable, extremely fast, and can get into tight locations with excellent control. This machine was just what was needed for patrolling rivers, lakes and oceans. The introduction of the Sea-Doo three seater in 1991-92 made the watercraft an even better tool because now great stability was added to its list of merits.

PERSONAL WATERCRAFT FOR RESCUE AND LAW ENFORCEMENT

Rescue agencies saw the personal watercraft as a great, quick response, tool for emergency use. With the addition of a basket or platform on the rear of the watercraft it becomes a transportation device for injured or drowning victims. In 1991, the manufacturers developed the government loan program to better the reputation of personal watercraft, and to allow emergency service agencies to use personal watercraft for better protection of the communities. Personal watercraft have already proven themselves in the water rescue arena with life saving results, and is still at it's infancy of use. Every year, agencies are finding new and different ways to use personal watercraft and every year more and more agencies request watercraft from local business to the extent that 25,000 watercrafts are donated annually to law enforcement and rescue agencies.

THE SPORT MAY BE IN JEOPARDY

While personal watercraft may be fun and exciting to ride and have developed into what appears to be a very simple machine to operate, the industry is in trouble. Every year more and more personal watercrafts are sold to people with little or no

experience in personal watercraft, boats or being on the water. The thrill of getting the personal watercraft air-borne is leading to more and more injuries of running into boats or each other. The government of this country will soon become involved in what is now a free and independent recreational and leisure sport. This class has been developed for you to accept this training and interpret it into a respect of personal watercraft use, along with everyone else that uses the water for recreation, sport or emergency services. If this respect cannot be accomplished then emergency responders will suffer from the loss of availability of personal watercraft for emergency service use on our waterways.

INSTRUCTOR GUIDE

TOPIC: Personal Watercraft Safety Training

TIME FRAME 1:30

LEVEL OF INSTRUCTION: I

BEHAVIORAL OBJECTIVE:

Conditions: A written quiz

Behavior: The student will

- recognize regulations governing the operation of personal watercraft on all waterways
- demonstrate a working knowledge of personal watercraft safety
- identify the procedure of report filing for any personal watercraft incident
- understand the operations of a personal watercraft jet drive system

Standard: With a minimum of 80 % accuracy according to Information Sheet 1-2, Pages 1 through 11

MATERIALS NEEDED:

- Writing board with markers/erasers
- Overhead projector and screen
- Overhead transparencies 1-1 through 1-21
- Written quiz
- Information Sheet 1-2 Pages 1 through 11

REFERENCES:

- Information Sheet 1-2 Pages 1 through 11
- California Boating and Waterways Regulations

PREPARATION:

To prepare you for the training you are about to undertake, you must thoroughly understand personal watercraft safety. Personal watercrafts are unlike anything you have ever operated. They are fast, they turn with enough force to throw an operator or passenger overboard. They can become air borne when in swells of water, and they can glide with no power for one hundred feet or more. Now put all of this into a body of water with other personal watercrafts, boats and swimmers around you and you can see the severe need for safety and proper training. The personal watercraft industry is suffering due to the number of riders that

don't know the rules of the road. Having personal watercraft used within the emergency services gives the industry a good name. It is up to you to maintain this positive image of personal watercraft.

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>I. California Boating Laws</p> <ul style="list-style-type: none">A. A personal watercraft is considered a boat within the State of CaliforniaB. A personal watercraft is subject to the same laws and regulations that govern boats within the State of California.C. This includes registration, equipment requirements, accident reports, and safety requirements <p>II. Personal Watercraft (PWC) Registration</p> <ul style="list-style-type: none">A. If it's used in California then it must be registered in CaliforniaB. A registered personal watercraft receives<ul style="list-style-type: none">1. Certificate of ownership2. Certificate of number3. Set of registration stickersC. The Certificate of number must accompany the personal watercraft. <p>This is like your vehicle registration. If stopped by law enforcement they will ask for your certificate of number</p> <ul style="list-style-type: none">D. The set of registration stickers must be properly displayed with your registration numbers. <p>Must be read from left to right. Must be displayed high above the waterline. Must be on the forward half of the bow. Must be located of both sides. Must be in bold block letters Must be at least three inches high</p>	<p>What do these regulations include?</p> <p>What is a comparison to the certificate of number for you vehicle?</p> <p><u>OHT 1-1</u></p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>Must contrast to color of background Place registration sticker in line and three inches towards the stern from the numbers</p> <p>III. Personal Equipment Requirement.</p> <p>A. Personal Flotation Device (PFD)</p> <ol style="list-style-type: none">1. Required by LAW !!!2. Most important piece of safety equipment3. Must say "U.S. Coast Guard Approved" on the label4. Should fit comfortably snug <p>B. 1B-1 Fire Extinguisher</p> <ol style="list-style-type: none">1. Must be located on personal watercraft at all times.2. Must be maintained to operate efficiently <p>C. Recommended but not required equipment</p> <ol style="list-style-type: none">1. Swift Water Helmet2. Thermal Protection<ol style="list-style-type: none">a) Wet Suitb) Dry Suit3. Gloves4. Booties5. Protective eye wear <p>IV. Personal Watercraft Requirements</p> <p>A. Ventilation is required in fuel tank compartments. Personal watercraft from the factory have appropriate ventilation, however; if the personal watercraft has been modified this ventilation must be checked to see if requirements are still met.</p>	<p><u>OHT 1-2</u></p> <p><u>OHT 1-3</u></p> <p>What would be good equipment to wear while operating the personal watercraft? <u>OHT 1-4, 1-5</u></p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
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B. Mufflers not exceeding 82 decibels are required. Personal watercraft from the factory have appropriate mufflers, however; if the personal watercraft has been modified the muffler must be tested to see if requirements are still met.

C. Because personal watercrafts do not have navigational lights they may not be operated between dawn and dusk.

V. Basic Safety Regulations

A. As the operator of a personal watercraft, your main priority is to keep a sharp lookout for other watercraft, swimmers, obstacles.

Failure to keep a sharp lookout is a major cause of accidents among personal water craft operators.

This simple neglect is the main reason our government is spending time writing legislature to rid the state of this nuisance.

PLEASE PAY ATTENTION

B. Overloading of a personal watercraft results in difficult operation.

It places a great deal of stress on a small engine trying to push a large load.

It is important to know and maintain the weight limitations of your personal watercraft.

C. Speed on personal watercrafts is limited by law

When no limits are posted, operate so as to not endanger others.

As the operator of the personal watercraft you will be held responsible for any damage caused from your personal watercraft's wakes.

OHT 1-6

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
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When within 200 feet of an area frequented by swimmers your speed will not be over five (5) miles per hour. Which is basically at idle. No matter how much fun it brings you, do not attempt to "buzz" boats, skiers or other watercraft. Also do not "wet down" others on a beach or in other watercraft. Law enforcement will construe your actions as reckless or negligent.

No person under the age of 12 may operate a personal watercraft alone.

VI. Navigational Rules

A. Navigational rules are the rules of the waterway

It is assumed that you know the navigational rules and will operate you personal watercraft accordingly

When meeting head on, neither craft has the right of way. Both crafts shall alter their course to the right. Pass each other on theleft.

When crossing in front of another craft, the craft on the right has the right of way. The craft to the right shall maintain it's course and speed until it passes your route of travel.

When approaching another craft from the stern and overtaking that craft, you must keep your personal watercraft away from the craft. If your the craft that is being overtaken, maintain your speed and course.

In general, fishing crafts, rafts and crafts under sail have the right of way because they are either stationary or very slow to control.

OHT 1-7, 1-8

VII. California Waterway Marking System

A. When operating a personal watercraft away from a main body of water, (larger river, the ocean, a lake) red buoys will mark the right side of the channel and green buoys will mark the left.

OHT 1-9

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
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The opposite is true when operating a personal watercraft toward a main body of water, (larger river, the ocean, a lake), red buoys will mark the left side of the channel and green buoys will mark the right.

If a number is seen instead of a colored buoy, even numbers represent red buoys and odd numbers represent green buoys.

- B. Safety buoys indicate a hazard, a law, or information

VIII. Trailering

- A. You must register your trailer with DMV
- B. A trailer must be load rated to tow your personal watercraft's weight
- C. Assure that the trailer hitch and the vehicle towing ball are of equal rating and the same size. Never attempt to use a smaller ball than what is required by the trailer hitch.
- D. Trailer lights should be inspected on every outing. Check tail, brake and flashing capabilities.
- E. When launching or loading your personal watercraft :
 - 1. Disconnect the trailer lights
 - 2. Allow the trailer hubs to cool to touch. Sudden cooling of bearings can cause water to enter and cause damage.
 - 3. Back the trailer into the water until rails are into water.

OHT 1-10

IX. Accidents

- A. If you are involved in an accident with your personal watercraft, you shall:
 - 1. Give assistance to others involved

OHT 1-11, 1-12

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>2. Give your full identification to any other person injured or owner of damaged property</p> <p>3. If a disappearance or death occurs, the operator shall by the quickest means available notify Boating and Waterways and the nearest Law Enforcement agency.</p> <p>Contact a Rescue or Law Enforcement agency and later worry about Boating & Waterways notification.</p> <p>B. A written report must be completed and sent to Boating and Waterways if:</p> <ol style="list-style-type: none">1. a person dies, disappears or is injured beyond normal first aid.2. total damage to all property is more than \$500 or there is a complete loss of a craft <p>C. When accidents include disappearance, or death occurring within 24 hours, or an injury requiring more than basic first aid, the report must be completed within 48 hours of the occurrence.</p> <p>D. All other reportable accidents must be submitted within 10 working days</p> <p>E. Operator inattention and lack of knowledge to own limitations are the main cause of accidents.</p> <p>Your watercraft can quickly reach high speeds and can turn sharply. Without knowledge of your operational limitations, you could get into an accident.</p> <p>Drive courteously, and above all use good common sense. Don't do anything to another watercraft you wouldn't want done to you.</p> <p>A good rule of thumb is if your not familiar with the area or the regulations, keep the personal watercraft close to an idle until you find out.</p>	<p>What would be the more realistic thing to do?</p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
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X. Alcohol Facts

- A. Studies show that alcohol is a factor in 59% of boating accidents
- B. A person with a blood alcohol concentration of .08% may not legally operate a personal watercraft
- C. With alcohol onboard, your ability to balance will be reduced. You may not know it until you make that one turn. Once you are in the water it is even more difficulty to re-board your personal watercraft with your balance degraded.
- D. People are more daring after a drink or two. They will attempt to operate beyond their limitations. They may not even realize this until it is too late.
- E. Alcohol does not warm you. This is a myth. Alcohol opens blood vessels near your skin surface allowing more heat to escape and hypothermia to transpire quicker. This will decrease your survival time in cold water.
- F. If arrested for operating your personal watercraft under the influence, refusing to be tested may result in an increased penalty, if convicted.

OHT 1-13

XI. Water Conditions

- A. Waves are created by wind blowing across lakes and oceans. A larger body of water will produce larger waves.
- B. Waves in rivers are also caused by wind, but the dynamic movement of the water absorbs a lot of the energy of the wind. More river waves are caused from the bottom load such as rocks then from wind.

OHT 1-14 Lesson Plan 7

Do long and winding rivers produce large waves from the wind?

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
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- C. Operating a personal watercraft in a river requires constant attention of your watercraft's attitude and the surrounding environment. Turning a personal watercraft side ways against the flow of a river is like putting a wall into the water. The effect can throw you off and the water will push you back against the watercraft.
- D. Lesson Plan 8 will illustrate the requirements needed to operate a personal watercraft in a river.

XII. Operation and Limitations

OHT 1-15

- A. Personal watercraft use a Marine Jet Drive System consisting of:
 - 1. Jet Pump
 - 2. Impeller
 - 3. Directional Nozzle
- B. Water is drawn into the intake grate and forced out by the impeller through the directional nozzle.
 - 1. Superb maneuverability, extreme movements
 - 2. Faster water is forced out , faster you go
 - 3. No water forced out, no directional steering ability
- C. Keep debris away from the intake grate:
 - 1. Don't operate in shallow water
 - 2. Don't operate in heavy debris ridden water
- D. If watercraft loses power due to an obstruction
 - 1. Immediately shut off watercraft
 - 2. Rock the craft from side to side to free obstruction
 - 3. Attempt to start again

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>E. If watercraft still has no power or reduced power</p> <ol style="list-style-type: none">1. Idle into the closest shore.2. With engine off and safety lanyard pulled, attempt to reach into the intake grate to feel for the obstruction and remove it.3. If possible roll the watercraft onto it's gunnel and look into the intake grate or directional nozzle for obstruction. <p>F. If there is no success, trailer the personal watercraft and seek professional service.</p> <p>G. If an overheating beeper sounds, idle the watercraft back to shore. Trailer the watercraft and seek professional service.</p>	
<p>XIII. Remounting Personal Watercraft</p> <ol style="list-style-type: none">A. Illustrate slidesB. This will be practiced out on the course	<p><u>OHT 1-16, Lesson Plan 6</u></p>
<p>XIV. Righting a Tipped Personal Watercraft</p> <ol style="list-style-type: none">A. Illustrate slidesB. Always follow manufacturer's recommendationC. This will be practiced out on the course	<p><u>OHT 1-17, Lesson Plan 10</u></p>
<p>XV. Pre and Post Ride Inspections</p>	<p><u>OHT 1-18, 1-19 Lesson Plan 4</u></p>
<p>XVI. Personal Watercraft Terminology</p>	<p><u>OHT 1-20, 1-21 Lesson Plan 3</u></p>

SUMMARY:

Your knowledge of this information will allow you safe and enjoyable riding of your personal watercraft for years to come. Your understanding of the way to properly operate your personal watercraft will keep you safe and others safe around you. Being considerate while riding your personal watercraft around other boaters, swimmers, and bathers will assure a positive and publicly accepted future of personal watercraft use for both recreation and rescue throughout the nation.

EVALUATION:

The student will be evaluated in accordance with stated performance objectives at a time to be determined by the instructor

ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz. Study your Information Sheets for our next lesson.

PERSONAL WATERCRAFT SAFETY TRAINING TEST

Circle the most correct answer.

1. Personal watercraft have a separate and more rigid set of regulations and laws due to their speed and maneuverability than do boats.

TRUE

FALSE

ref: PWC Safety Training, page 3; I B

2. The State of California, Department of Boating and Waterways, consider a personal watercraft:

- A. A unique and special type of watercraft
- B. A boat**
- C. A water bike
- D. A jet ski

ref: PWC Safety Training, page 3; I A

3. If you purchase a personal watercraft from a private party, it is your responsibility to register the craft with the Department of Motor Vehicles.

TRUE

FALSE

ref: PWC Safety Training, page 3; II A

4. Proper display of your C.F. numbers would be placing them on the upper part of the hull above the water line near the stern.

TRUE

FALSE

ref: PWC Safety Training, page 3; II D

5. The most important piece of personal safety equipment is a:

- A. Whistle
- B. Tanning Lotion
- C. Personal flotation device (PFD)**
- D. Protective eye wear

ref: PWC Safety Training, page 4; III A

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6. Any personal flotation device (PFD) will do for you while you are operating your watercraft.

TRUE

FALSE

ref: PWC Safety Training, page 4; III A

7. To test if your personal flotation device (PFD) fits correctly:

- A. Coordinate the color with your personal watercraft
- B. Purchase one (PFD) that will fit your whole family
- C. **Adjust the straps so the (PFD) fits snugly and perform a breathing test.**
- D. Purchase the latest and safest design (PFD) that has at least five straps of tubular webbing with high strength buckles

ref: PWC Safety Training, page 4; III A

8. The fire extinguisher used on your personal watercraft should be at least a:

- A. Water extinguisher
- B. **1B-1**
- C. 10B-1
- D. A fire extinguisher is not required on the smaller watercrafts

ref: PWC Safety Training, page 4; III B

9. It is considered acceptable to use your watercraft extinguisher on two to three small fires before serviceing of the extinguisher is needed.

TRUE

FALSE

ref: PWC Safety Training, page 4; III B

10. Opening the engine compartment of your personal watercraft before use is a safety requirement because it allows:

- A. You to see if water is leaking into your hull
- B. You to check that the spark plug wires are attached
- C. The release of any moisture
- D. **The release of any fuel vapors**

ref: PWC Safety Training, page 4; IV A

11. You are allowed to ride your personal watercraft at night if you have a flashlight.

TRUE

FALSE

ref: PWC Safety Training, page 5; IV C

18. A person only needs to know navigational rules if he or she:

- A. Operates a personal watercraft on the ocean
- B. Is the owner of the personal watercraft
- C. Operates a personal water craft in a ship channel
- D. **Operates a personal watercraft**

ref: PWC Safety Training, page 6; VI A

19. After a 10 year old rides for 12 or more hours with a competent operator he or she can operate the personal watercraft alone.

TRUE

FALSE

ref: PWC Safety Training, page 5; V C

20. If damage occurs to a marina from your watercraft wake, where there is no posted speed limit, who is responsible ?

- A. The marina owner
- B. The law enforcement agency for that waterway
- C. **The operator of the personal watercraft**
- D. The manufacture of your watercraft design

ref: PWC Safety Training, page 5; V C

21. When meeting another watercraft head on:

- A. **Both watercrafts should alter their course to starboard**
- B. The faster boat has the right of way
- C. Both watercrafts should alter their course to port
- D. The first boat there has the right of way

ref: PWC Safety Training, page 6; VI A

22. When crossing the path of another watercraft you shall:

- A. Do it quickly and get out of their way
- B. **Give way to the watercraft from the right**
- C. Never cross the path of another watercraft
- D. Both watercraft should alter their course

ref: PWC Safety Training, page 6; VI A

23. When over taking a watercraft from the stern you shall:

- A. Yell out a warning that you are passing on their starboard side
- B. Yell out a warning that you are passing on their port side
- C. Keep out of the way of the watercraft being overtaken**
- D. Ride behind the craft until the O.K. to pass is given

ref: PWC Safety Training, page 6; VI A

24. In general, fishing boats, rafts and crafts under sail:

- A. Get in the way of personal watercraft operators
- B. Are trying to ban all personal watercrafts
- C. Are never checked by law enforcement
- D. Have the right of way**

ref: PWC Safety Training, page 6; VI A

25. Red buoys in California always mark the right side of a channel.

TRUE

FALSE

ref: PWC Safety Training, page 6; VII A

26. A channel buoy in California will either be painted a color or have a letter on it.

TRUE

FALSE

ref: PWC Safety Training, page 6; VII A

27. Safety buoys are used for:

- A. Refueling Stations
- B. Marina Locations
- C. Information purposes**
- D. All of the above

ref: PWC Safety Training, page 7; VII B

28. Buoys in California waters are all cylindrical tube shaped with information on them.

TRUE

FALSE

ref: PWC Safety Training, page 7; VII B / Students guide page 4

29. A bolt together trailer is safe to haul your personal watercraft if it is registered with the Department of Motor Vehicles.

TRUE

FALSE

ref: PWC Safety Training, page 7; VIII B

30. It is important to perform routine maintenance on your trailer including:

- A. Wheels and tires
- B. Bearings and hubs
- C. Lights
- D. **All the above**

ref: PWC Safety Training, page 7; VIII B

31. Your personal watercraft trailer need only be licensed if you:

- A. Plan on taking it out of state
- B. **All watercraft trailer must be licensed**
- C. Use it at more than one body of water
- D. Carry other person's watercraft on your trailer

ref: PWC Safety Training, page 7; VIII A

32. One of the main causes of personal watercraft accidents is:

- A. Engine size compared to hull type
- B. Poor maneuverability
- C. Riding with a friend
- D. **Operator inattention**

ref: PWC Safety Training, page 8; IX E

33. If involved in an accident and both watercrafts have dings in their gel-coat, a report is required by the Department of Boating and Waterways

TRUE

FALSE

ref: PWC Safety Training, page 8; IX B

34. If involved in an accident with another watercraft and major damage is done to only one watercraft a report is required by the Department of Boating and Waterways

TRUE

FALSE

ref: PWC Safety Training, page 8; IX B

35. If involved in an accident and both watercrafts have little damage, but one operator had to be seen by a doctor, a report is required by the Department of Boating and Waterways

TRUE

FALSE

ref: PWC Safety Training, page 8; IX B

36. When involved in an accident with another watercraft you must:
- A. Give assistance to others
 - B. Give I.D. to any person injured or owner of any property damaged by you.
 - C. Make a written report with the Department of Boating and Waterways if needed.
 - D. **All of the above**

ref: PWC Safety Training, page 7; IX A

37. An operator with a blood alcohol concentration of _____% may not legally operate a personal watercraft.

- A. 1.0
- B. .10
- C. 0.8
- D. **.08**

ref: PWC Safety Training, page 9; X B

38. One of the first things you lose when consuming alcohol is your:
- A. **Balance**
 - B. Vision
 - C. Depth perception
 - D. Warmth

ref: PWC Safety Training, page 9; X C

39. Generally people attempt to perform more daring and bold acts after a couple of drinks

TRUE

FALSE

ref: PWC Safety Training, page 9; X D

40. Waves are created by:

- A. Rotation of the earth
- B. Winds**
- C. Gravity
- D. Clouds

ref: PWC Safety Training, page 9; XI A

41. When riding your personal watercraft in rivers you should be cautious of:

- A. Debris in the water
- B. Rocks below the surface
- C. The effects of the current
- D. All of the above**

ref: PWC Safety Training, page 9; XI C

42. Personal watercrafts use a marine jet drive system comprising of a:

- A. Out board engine
- B. Propeller
- C. Directional nozzle**
- D. All the above

ref: PWC Safety Training, page 10; XII A

43. The marine jet drive system works by:

- A. Bringing water into the directional nozzle and using the propeller to push it out.
- B. Bringing in water through the intake to the impeller and out the directional nozzle**
- C. Allowing the impeller to push water through the intake and out through the directional nozzle
- D. Allowing the propeller to bring in water to the directional nozzle

ref: PWC Safety Training, page 10; XII B

44. The movement of the handle bars give the personal watercraft it's maneuverability.

TRUE

FALSE

ref: PWC Safety Training, page 10; XII B

45. Personal watercrafts should not be started in less than:

- A. Twelve inches of water
- B. Eight inches of water
- C. Two feet of water**
- D. Four feet of water

ref: PWC Safety Training, page 10; XII C

46. If a personal watercraft tips over, you should follow the manufacturer's recommendations for righting it.

TRUE

FALSE

ref: PWC Safety Training, page 10; XII B

47. If a personal watercraft suddenly loses power by ingesting an obstruction into the intake grate you should:

- A. Continue riding, it will eventually fall out
- B. Make a sudden sharp turn to port
- C. Immediately shut off the watercraft and rock it side to side**
- D. Attempt to get the watercraft air borne to dislodge the object

ref: PWC Safety Training, page 10; XII D

48. It is best to do your pre-ride inspection before you put you personal watercraft into storage.

TRUE

FALSE

ref: PWC Safety Training, page 11; XV

49. Which operation is not completed in the post-ride inspection ?

- A. Check hull for damage
- B. Remove lanyard and place in compartment
- C. Make sure oil injection tank is full**
- D. Turn off the fuel

ref: PWC Safety Training, page 11; XV

50. To assure that personal watercrafts will remain on the waterways of this State for years to come you must ride.
- A. Attentively, considerately, safely and with common sense
 - B. Considerately, safely, attentively and with common sense
 - C. Safely, attentively, considerately and with common sense
 - D. **All of the above**

ref: PWC Safety Training, page 5; V B

CALIFORNIA FIRE MARSHALS OFFICE

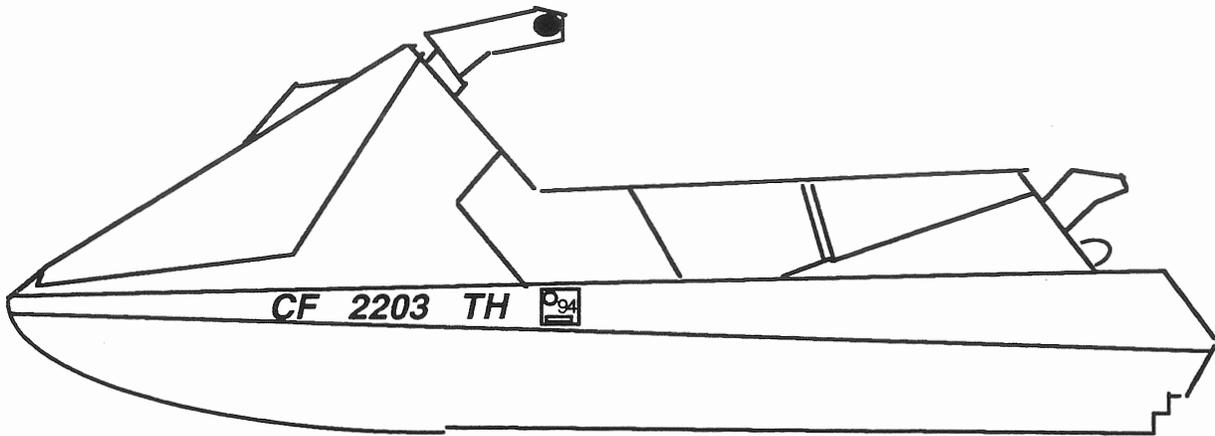
PERSONAL WATERCRAFT

SAFETY TRAINING REVIEW

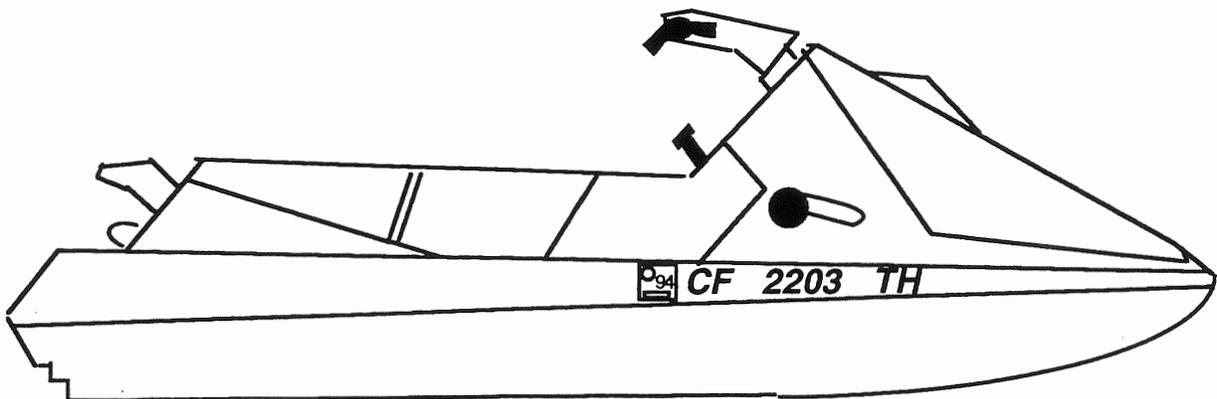
		<u>KEY</u>								
	T F	A	B	C	D	T F	A	B	C	D
1		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	26	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
2		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	27	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
3		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	28	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
4		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	29	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
5		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	30	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
6		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	31	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
7		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	32	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
8		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	33	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
9		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	34	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
10		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	35	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
11		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	36	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
12		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	37	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
13		<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	38	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
14		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	39	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
15		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	40	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
16		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	41	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>
17		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	42	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
18		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	43	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
19		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	44	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
20		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	45	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
21		<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	46	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>
22		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	47	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
23		<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	48	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>
24		<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	49	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>
25		<input type="radio"/>	<input checked="" type="radio"/>	<input type="radio"/>	<input type="radio"/>	50	<input type="radio"/>	<input type="radio"/>	<input type="radio"/>	<input checked="" type="radio"/>

Once you have completed your review, please bring your answer sheet and test up to the instructor. Thank-you.

REGISTRATION # LOCATION



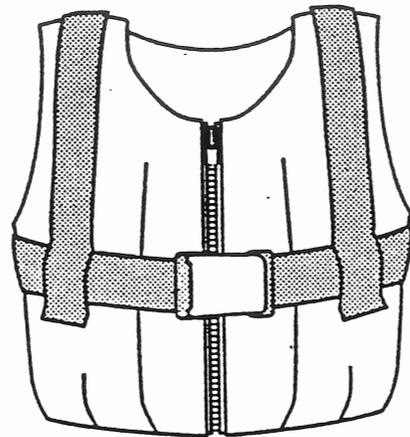
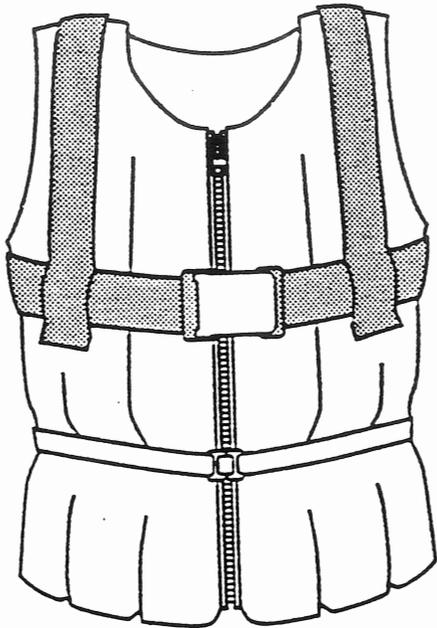
PORT SIDE



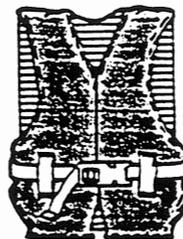
STARBOARD SIDE

PERSONAL FLOTATION DEVICE

MOST IMPORTANT PIECE OF EQUIPMENT

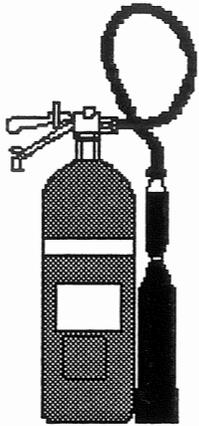


Off-Shore Life Jacket
(Type I PFD)



Flotation Aid (Type III PFD)

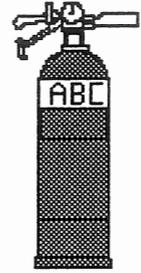
FIRE EXTINGUISHER



Carbon Dioxide
Extinguisher



Halon
Extinguisher



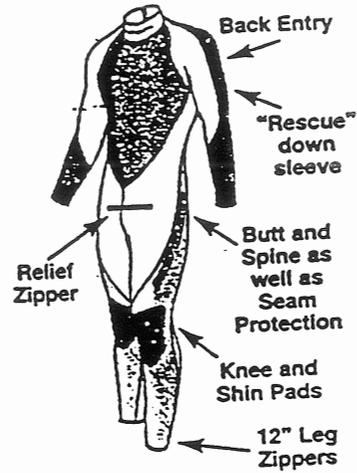
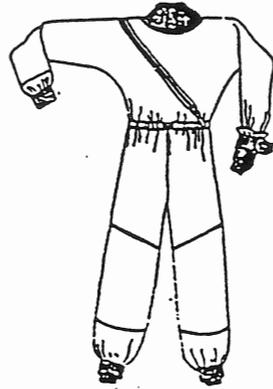
Dry Chemical
Extinguisher

All extinguishers must be readily accessible (preferably not stowed next to common fire sources), and they must be kept in a serviceable condition.

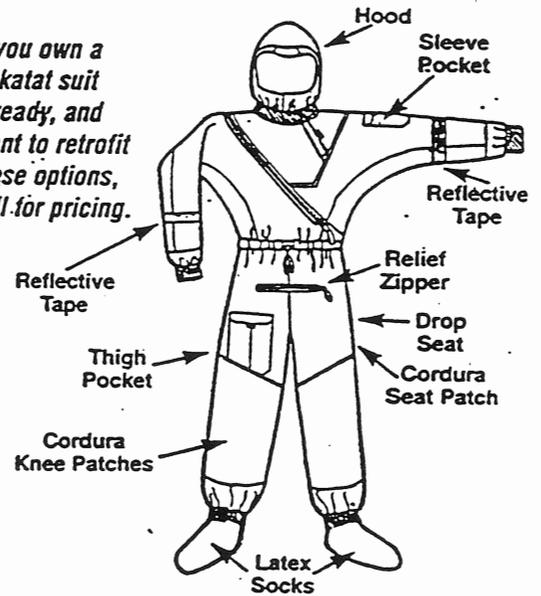
FIRE EXTINGUISHER REQUIREMENTS

Boat Length	Without fixed extinguishing system in machinery space	With fixed extinguishing system in machinery space
Less than 26 ft.	1 B-I	None
26 ft. to under 40 ft.	2 B-I or 1 B-II	1 B-I
40 ft. to 65 ft.	3 B-I or 1 B-II and 1 B-I	2 B-I or 1 B-II

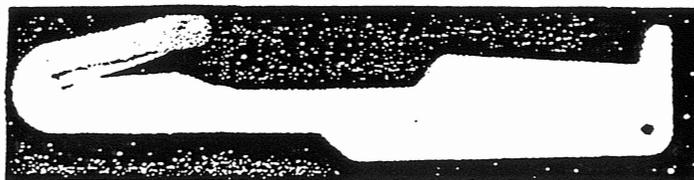
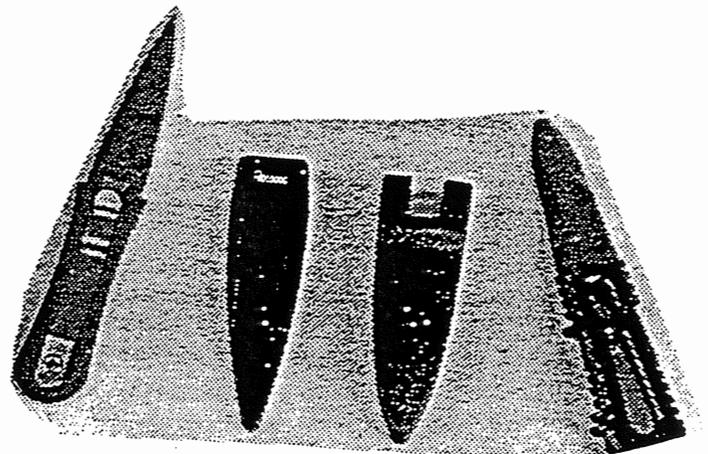
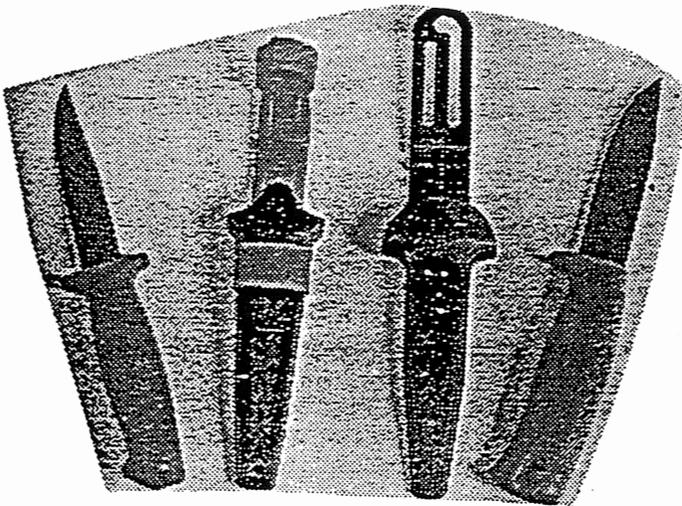
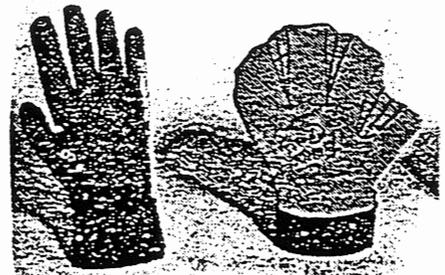
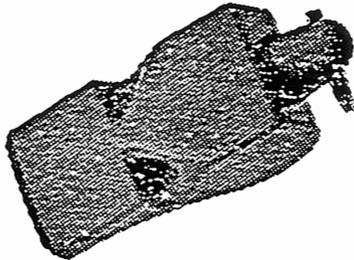
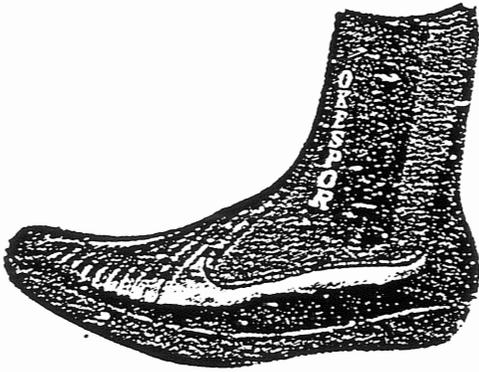
BODY AND HEAD PROTECTION



If you own a Kokatat suit already, and want to retrofit these options, call for pricing.



RECOMMENDED EQUIPMENT



BASIC SAFETY REGULATIONS

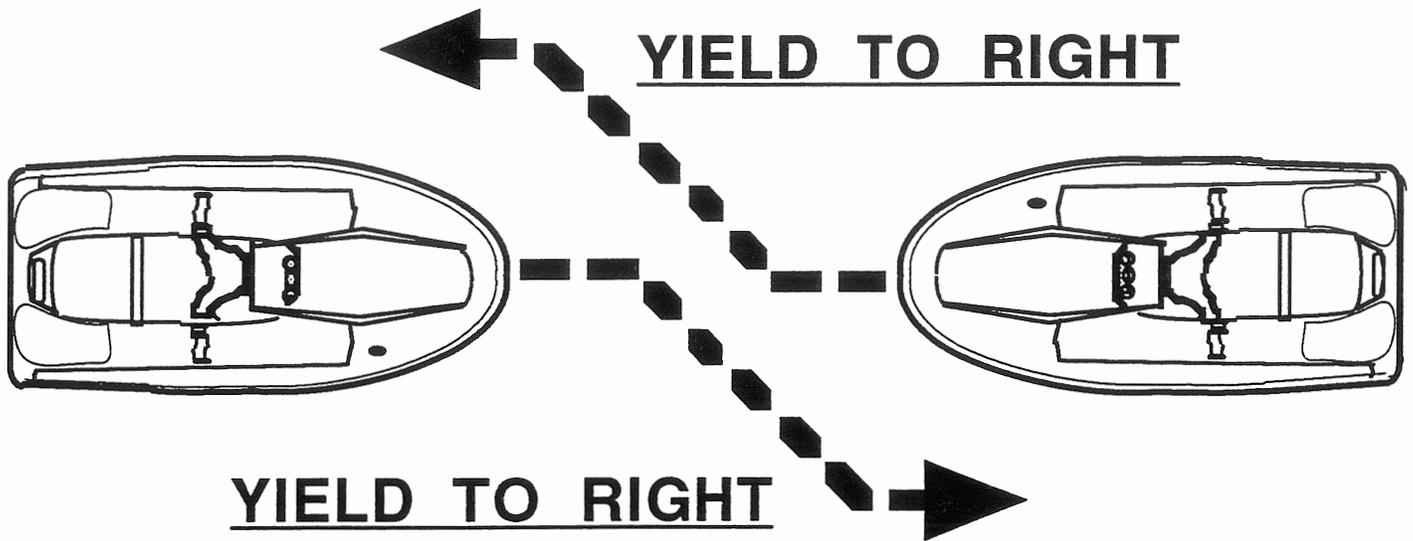
*PAY ATTENTION
KEEP A SHARP LOOKOUT*

*DO NOT OVERLOAD THE
PERSONAL WATERCRAFT
KNOW THE WEIGHT LIMITATIONS*

*KNOW YOUR SPEED LIMITATIONS
DO NOT EXCEED YOUR COMFORT RANGE
KNOW THE LEGAL SPEED LIMITS
IF UNSURE, MAINTAIN 5 MPH*

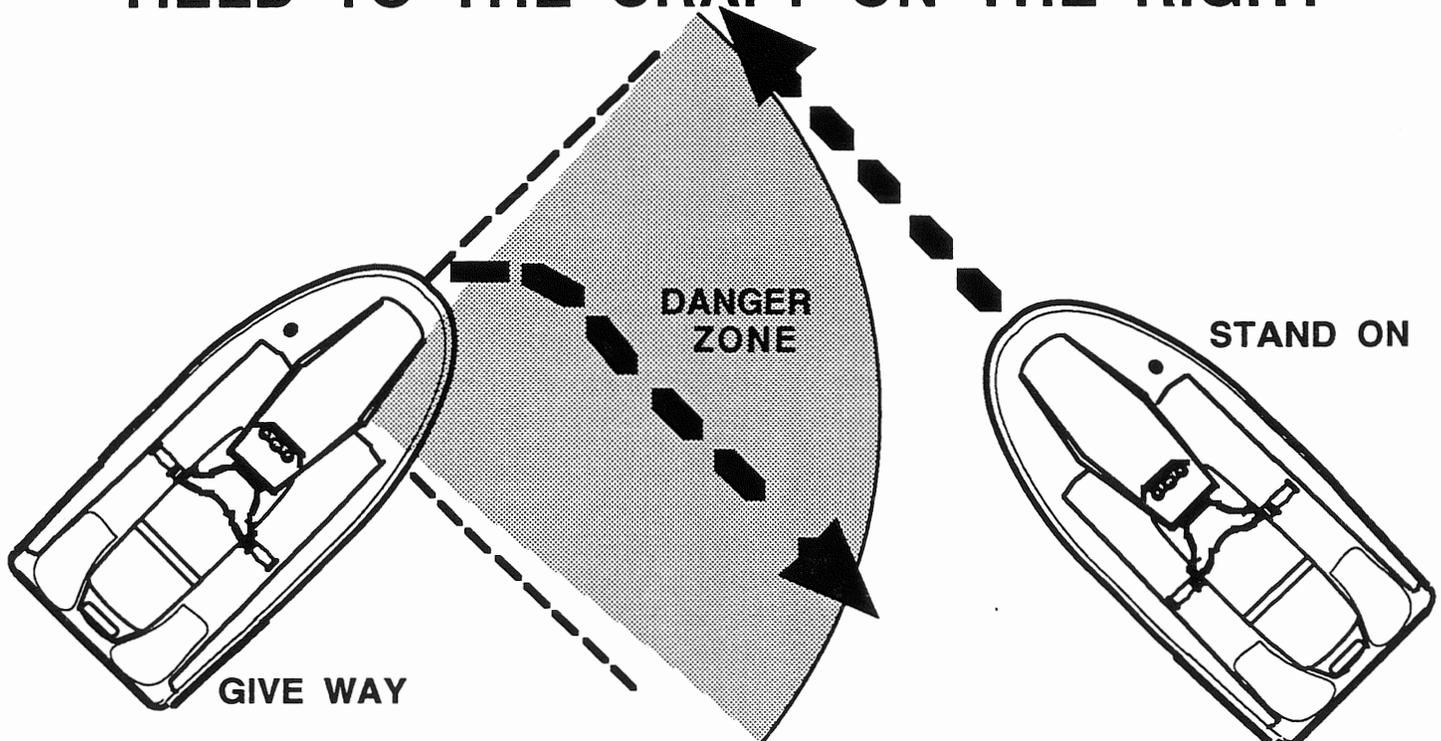
NAVIGATIONAL RULES

WHEN APPROACHING HEAD ON



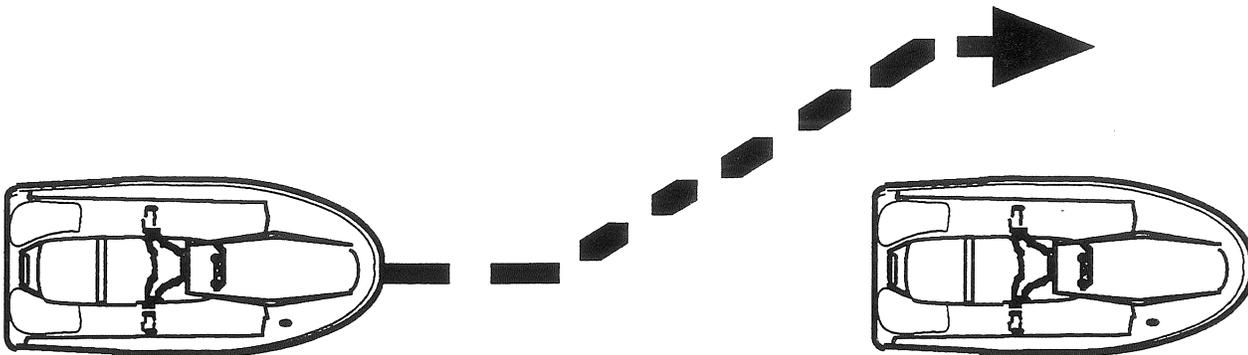
WHEN CROSSING ANOTHERS PATH

YIELD TO THE CRAFT ON THE RIGHT



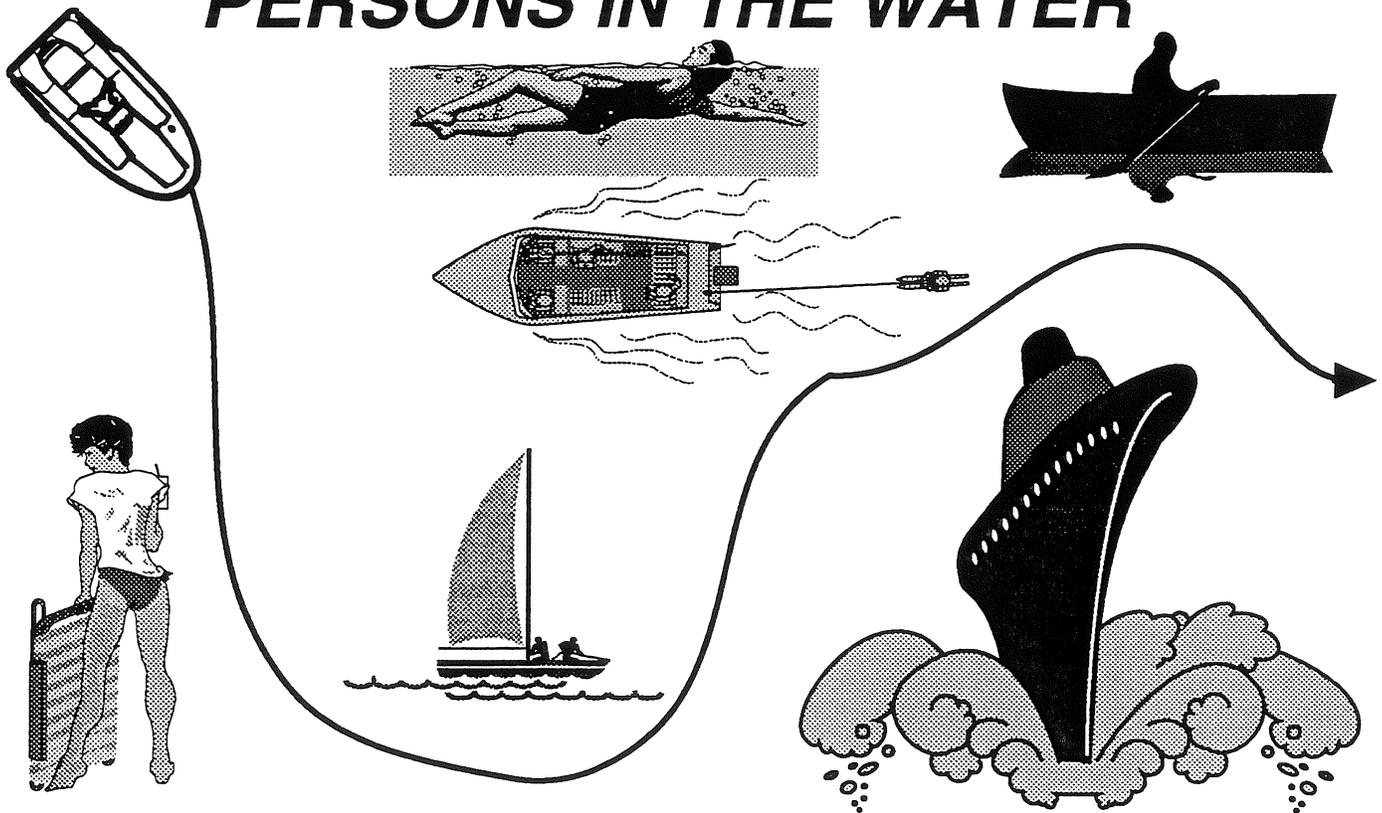
NAVIGATIONAL RULES

WHEN APPROACHING FROM BEHIND



PASS TO THEIR LEFT

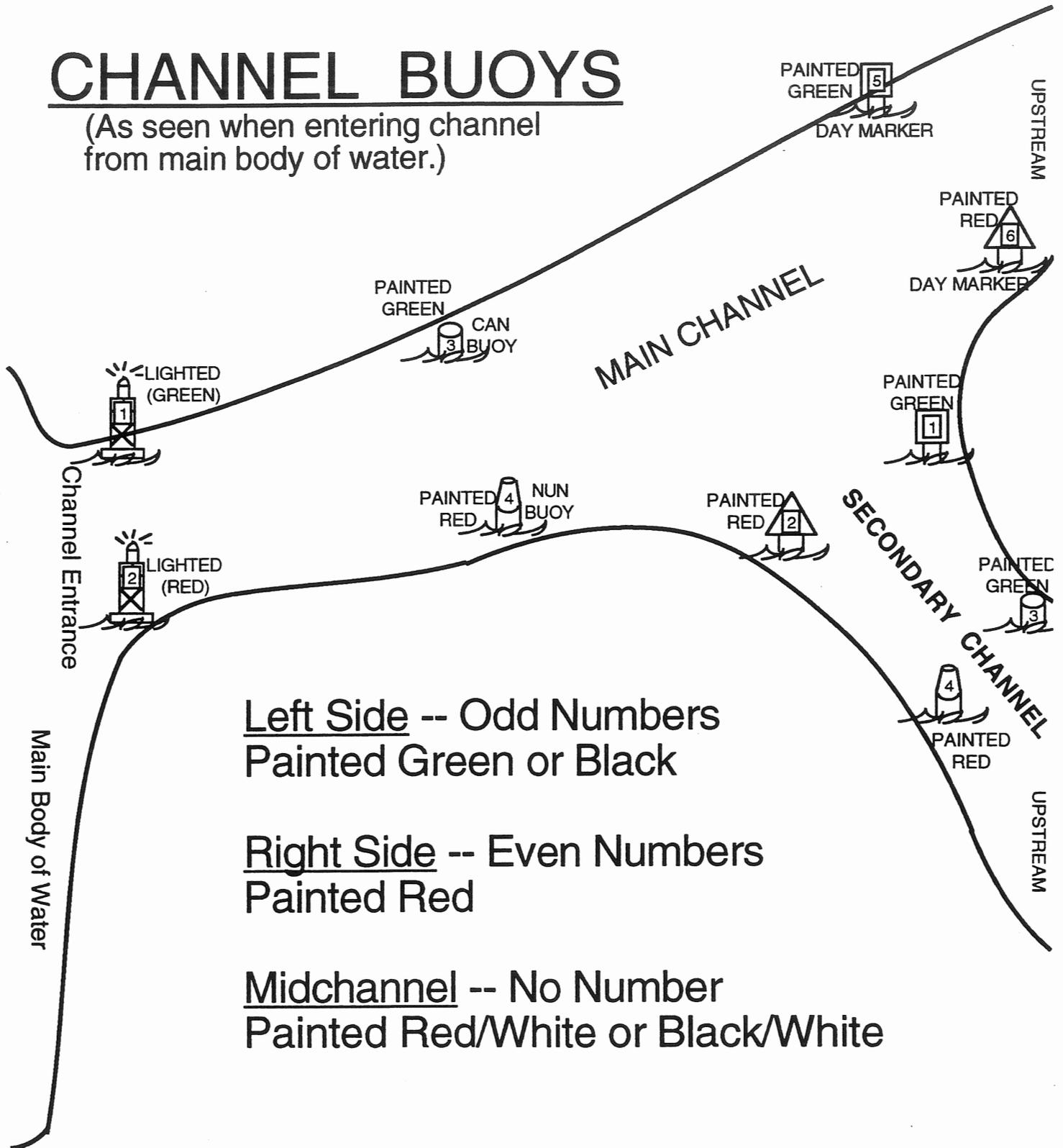
YIELD TO ALL OTHER CRAFT AND PERSONS IN THE WATER



CALIFORNIA WATERWAY MARKING SYSTEM

CHANNEL BUOYS

(As seen when entering channel from main body of water.)

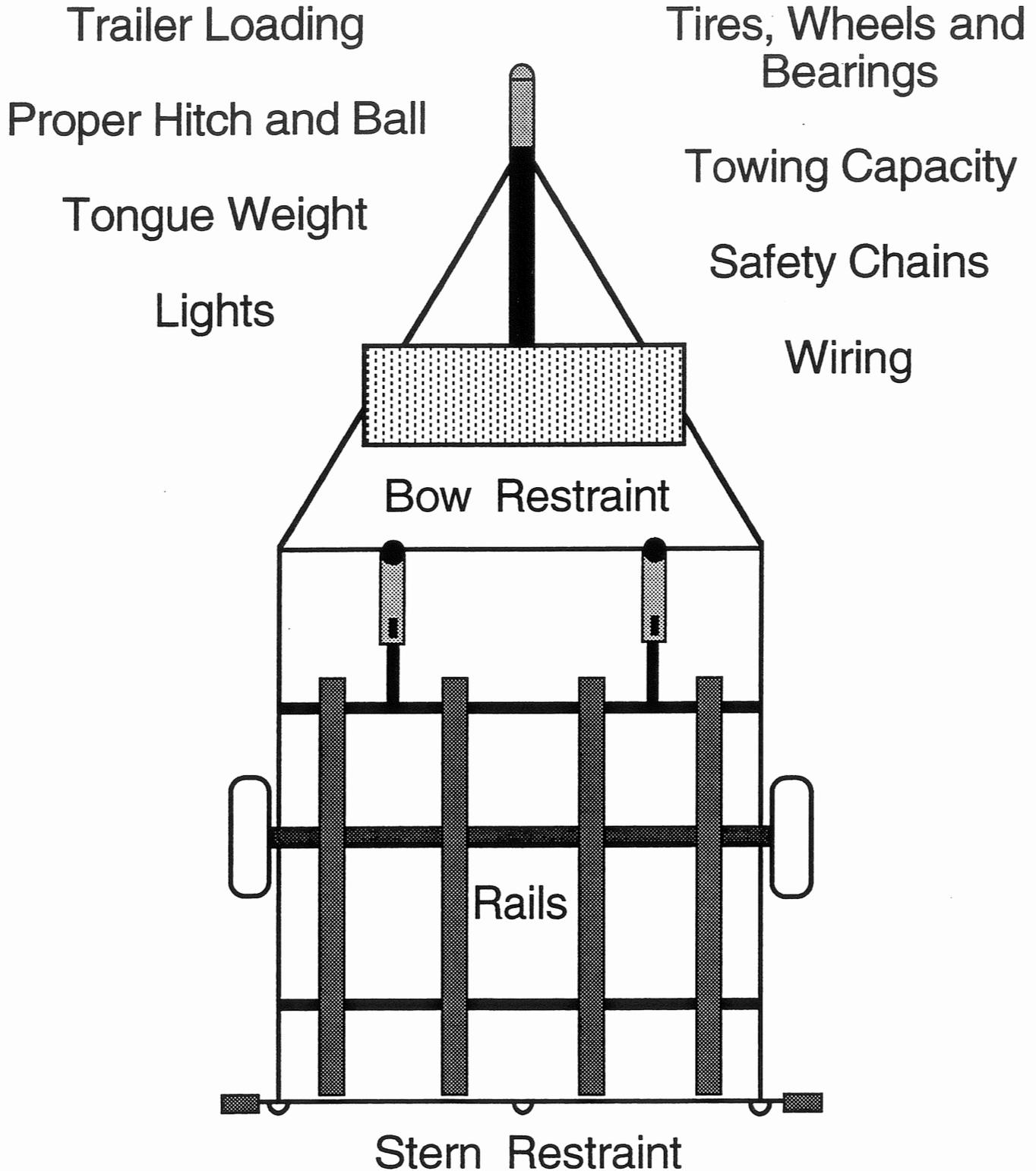


Left Side -- Odd Numbers
Painted Green or Black

Right Side -- Even Numbers
Painted Red

Midchannel -- No Number
Painted Red/White or Black/White

PERSONAL WATERCRAFT TRAILER



BOATING ACCIDENT FORM

CALIFORNIA BOATING ACCIDENT REPORT

THE OPERATOR OF EVERY RECREATIONAL VESSEL IS REQUIRED BY SECTION 656 OF THE HARBORS AND NAVIGATION CODE TO FILE A WRITTEN REPORT WHENEVER A BOATING ACCIDENT OCCURS WHICH RESULTS IN DEATH, DISAPPEARANCE, INJURY THAT REQUIRES MEDICAL TREATMENT BEYOND FIRST AID, TOTAL PROPERTY DAMAGE IN EXCESS OF \$500, OR COMPLETE LOSS OF A VESSEL. REPORTS MUST BE SUBMITTED WITHIN FORTY-EIGHT (48) HOURS IN CASE OF DEATH OCCURRING WITHIN 24 HOURS OF THE ACCIDENT. DISAPPEARANCE, OR INJURY THAT REQUIRES MEDICAL TREATMENT BEYOND FIRST AID. ALL OTHER REPORTABLE ACCIDENTS MUST BE SUBMITTED IN WRITING WITHIN TEN (10) DAYS. REPORTS ARE TO BE SUBMITTED TO THE DEPARTMENT OF BOATING AND WATERWAYS, 1629 S STREET, SACRAMENTO, CA 95814-7291, (916) 322-1833. FAILURE TO SUBMIT THIS REPORT AS REQUIRED IS A MISDEMEANOR AND IS PUNISHABLE BY A FINE NOT TO EXCEED ONE THOUSAND DOLLARS (\$1,000), OR IMPRISONMENT NOT TO EXCEED SIX (6) MONTHS, OR BOTH.

COMPLETE ALL BLOCKS (PRINT OR TYPE ALL INFORMATION. INDICATE THOSE NOT APPLICABLE BY "NA." THOSE UNKNOWN BY "UN.")

1. OPERATOR'S NAME AND ADDRESS AGE _____		2. RENTED BOAT <input type="checkbox"/> YES <input type="checkbox"/> NO	3. OPERATOR'S EXPERIENCE THIS TYPE OF BOAT <input type="checkbox"/> UNDER 20 HOURS <input type="checkbox"/> 20 TO 100 HOURS <input type="checkbox"/> 100 TO 500 HOURS <input type="checkbox"/> OVER 500 HOURS OTHER BOAT OPERATING EXPERIENCE <input type="checkbox"/> UNDER 20 HOURS <input type="checkbox"/> 20 TO 100 HOURS <input type="checkbox"/> 100 TO 500 HOURS <input type="checkbox"/> OVER 500 HOURS	
HOME PHONE () WORK PHONE ()				

4. OWNER'S NAME AND ADDRESS HOME PHONE () WORK PHONE ()		5. NUMBER OF PERSONS ON BOARD	7. FORMAL INSTRUCTION IN BOATING SAFETY <input type="checkbox"/> NONE <input type="checkbox"/> AMERICAN RED CROSS <input type="checkbox"/> USCG AUXILIARY <input type="checkbox"/> STATE <input type="checkbox"/> US POWER SQUADRON <input type="checkbox"/> OTHER (SPECIFY)	
		6. NUMBER OF PERSONS TOWED (I.E. SKIING ETC.)		

VESSEL NO. 1 (YOUR VESSEL)

8. BOAT NUMBER	9. BOAT NAME	10. BOAT MANUFACTURER	11. BOAT MODEL	12. MFGR. HULL IDENT. NO.
13. TYPE OF BOAT <input type="checkbox"/> OPEN MOTORBOAT <input type="checkbox"/> CABIN MOTORBOAT <input type="checkbox"/> AUXILIARY SAIL <input type="checkbox"/> SAIL ONLY <input type="checkbox"/> HOUSEBOAT <input type="checkbox"/> RAFT <input type="checkbox"/> CANOE <input type="checkbox"/> KAYAK <input type="checkbox"/> JET SKI/WETBIKE <input type="checkbox"/> ROWBOAT <input type="checkbox"/> OTHER (SPECIFY) _____		14. HULL MATERIAL <input type="checkbox"/> WOOD <input type="checkbox"/> ALUMINUM <input type="checkbox"/> STEEL <input type="checkbox"/> FIBERGLASS <input type="checkbox"/> RUBBER/VINYL <input type="checkbox"/> PLASTIC <input type="checkbox"/> OTHER (SPECIFY) _____		15. PROPULSION <input type="checkbox"/> OUTBOARD <input type="checkbox"/> INBOARD <input type="checkbox"/> INBOARD-OUTBOARD <input type="checkbox"/> JET <input type="checkbox"/> SAIL <input type="checkbox"/> PADDLE/OARS <input type="checkbox"/> OTHER (SPECIFY) _____ TYPE OF FUEL _____
16. BOAT DATA NUMBER OF ENGINES _____ LENGTH _____ MAKE OF ENGINE _____ BEAM (WIDTH) _____ HORSEPOWER (TOTAL) _____ DEPTH (TOP OF INNER TRANSOM TO KEEL) _____ YEAR BUILT (ENGINE) _____ YEAR BUILT (BOAT) _____		17. PRIMARY BOAT USE <input type="checkbox"/> RECREATIONAL <input type="checkbox"/> COMMERCIAL <input type="checkbox"/> FOR-HIRE <input type="checkbox"/> WORK BOAT		18. PREVIOUS ACCIDENTS INVOLVING THIS BOAT DATES _____

VESSEL NO. 2 (OTHER VESSEL INVOLVED)

19. BOAT NUMBER	20. BOAT NAME	21. BOAT MANUFACTURER	22. BOAT MODEL	23. MFGR. HULL IDENT. NO.
24. NAME OF OPERATOR AGE _____ HOME PHONE () WORK PHONE ()		25. ADDRESS		
26. NAME OF OWNER HOME PHONE () WORK PHONE ()		27. ADDRESS		

WITNESSES

NAME _____	AGE _____	ADDRESS _____	TELEPHONE NUMBER _____
NAME _____	AGE _____	ADDRESS _____	TELEPHONE NUMBER _____
NAME _____	AGE _____	ADDRESS _____	TELEPHONE NUMBER _____

ACCIDENT DATE AND LOCATION

29. DATE OF ACCIDENT	30. TIME ____ AM ____ PM	31. NAME OF BODY OF WATER	33. LOCATION (AS PRECISELY AS POSSIBLE)
		32. LAST PORT OF CALL	
34. STATE	35. NEAREST CITY OR TOWN	36. COUNTY	

ENVIRONMENTAL CONDITIONS

37. WEATHER <input type="checkbox"/> CLEAR <input type="checkbox"/> RAIN <input type="checkbox"/> CLOUDY <input type="checkbox"/> SNOW <input type="checkbox"/> FOG <input type="checkbox"/> HAZY	38. WATER CONDITIONS <input type="checkbox"/> CALM <input type="checkbox"/> CHOPPY <input type="checkbox"/> ROUGH <input type="checkbox"/> VERY ROUGH <input type="checkbox"/> STRONG CURRENT	39. TEMPERATURE (ESTIMATE) AIR _____ °F WATER _____ °F	40. WIND <input type="checkbox"/> NONE <input type="checkbox"/> LIGHT (0 TO 6 MPH) <input type="checkbox"/> MODERATE (7 TO 14 MPH) <input type="checkbox"/> STRONG (15 TO 25 MPH) <input type="checkbox"/> STORM (25 MPH AND OVER)	41. VISIBILITY <input type="checkbox"/> GOOD <input type="checkbox"/> FAIR <input type="checkbox"/> POOR	42. WEATHER ENCOUNTERED <input type="checkbox"/> WAS AS FORECAST <input type="checkbox"/> NOT AS FORECAST <input type="checkbox"/> FORECAST NOT OBTAINED
--	--	---	---	---	---

22

23

ALCOHOL FACTS

**ALCOHOL IS A FACTOR IN 59% OF
BOATING ACCIDENTS**

**BLOOD ALCOHOL CONCENTRATION OF
.08% OR ABOVE IS ILLEGAL IF OPERATING
A PERSONAL WATERCRAFT**

**YOUR ABILITY TO BALANCE
WILL BE REDUCED**

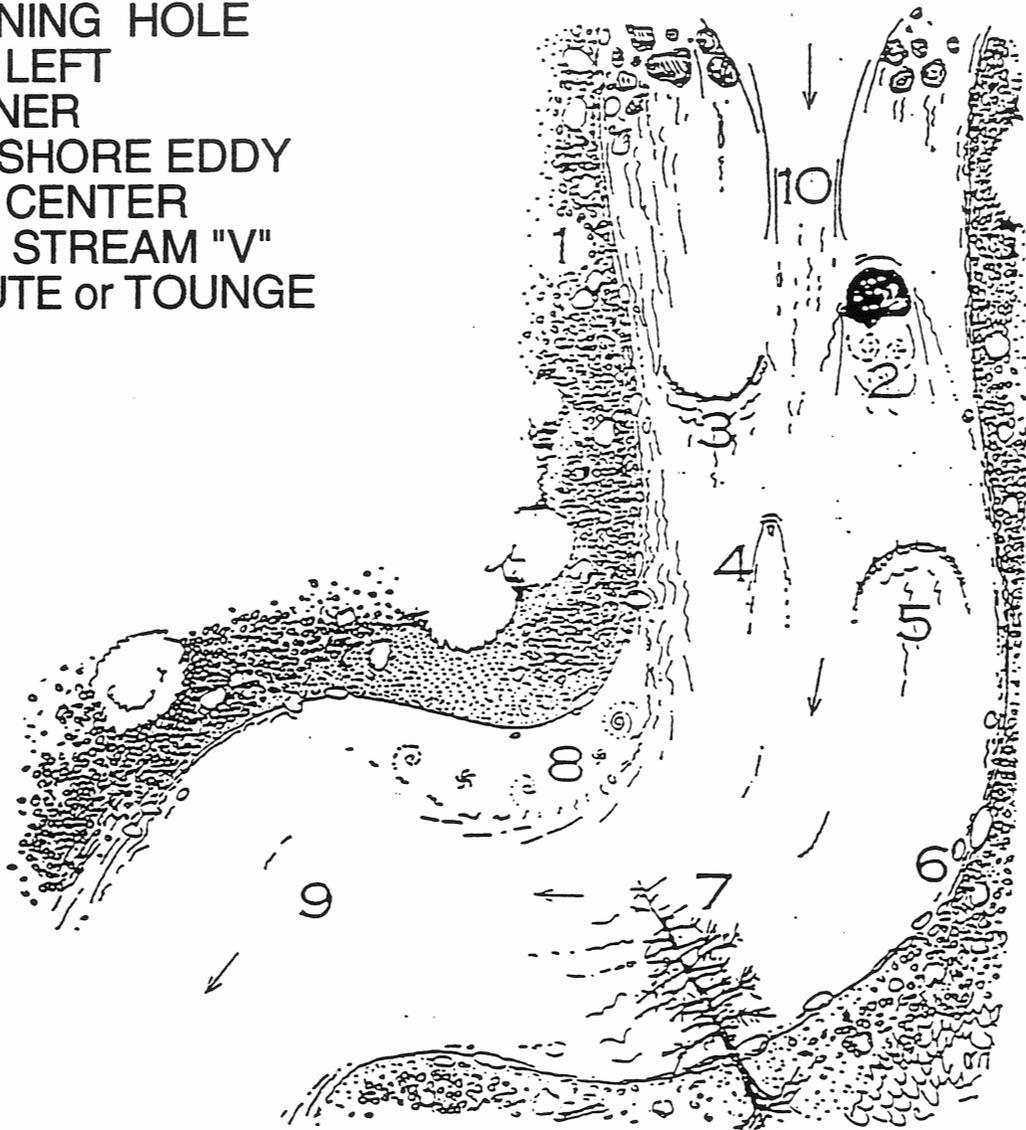
**PEOPLE BECOME MORE DARING AFTER
ONE OR TWO DRINKS OF ALCOHOL**

**ALCOHOL DOES NOT
WARM UP YOUR BODY**

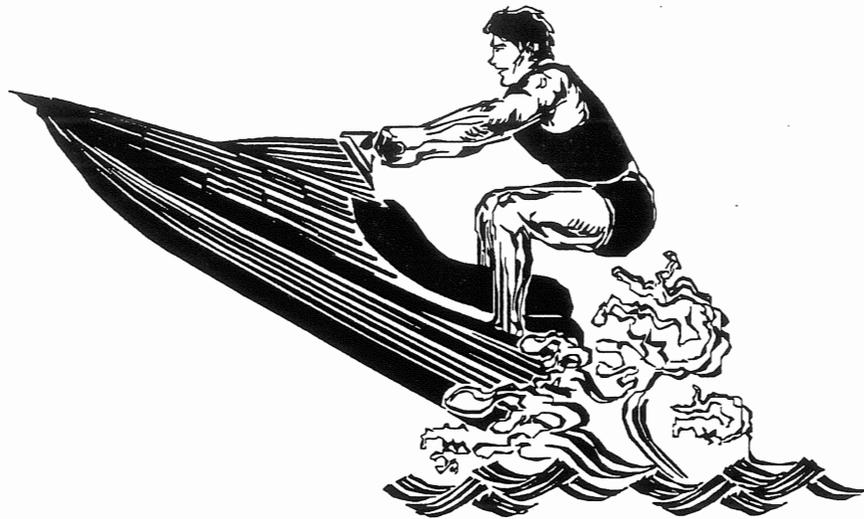
**YOU MAY RECEIVE AN INCREASED
PENALTY IF YOU REFUSE TO BE TESTED**

RIVER READING TERMINOLOGY

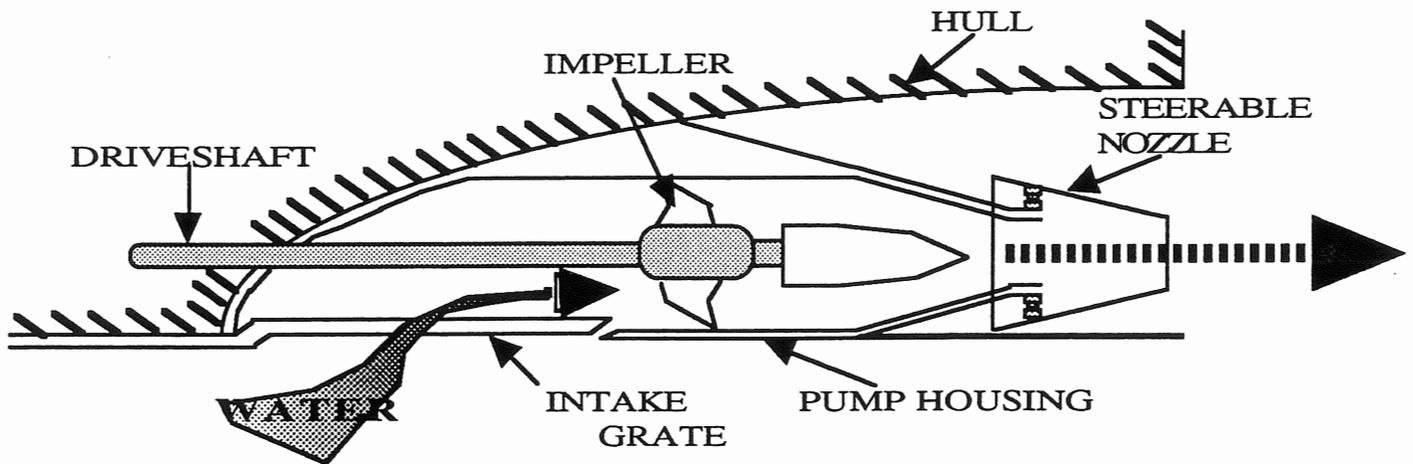
1. RIVER RIGHT
2. EDDY
3. SMILING HOLE
4. UPSTREAM "V"
5. FROWNING HOLE
6. RIVER LEFT
7. STRAINER
8. LONG SHORE EDDY
9. RIVER CENTER
10. DOWN STREAM "V"
or SHUTE or TOUNGE



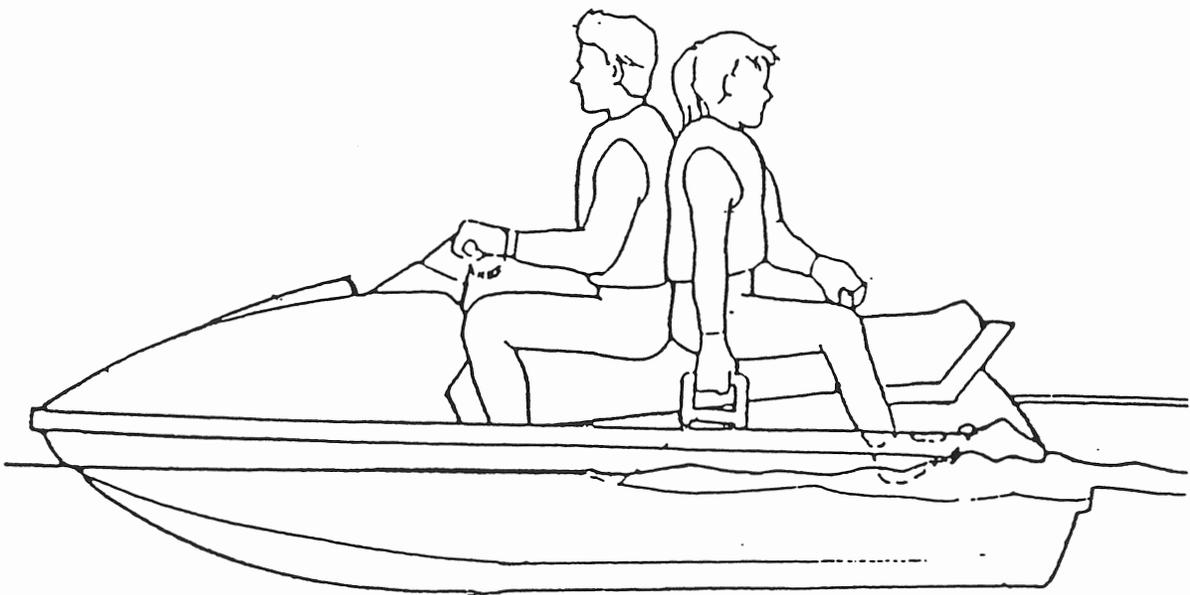
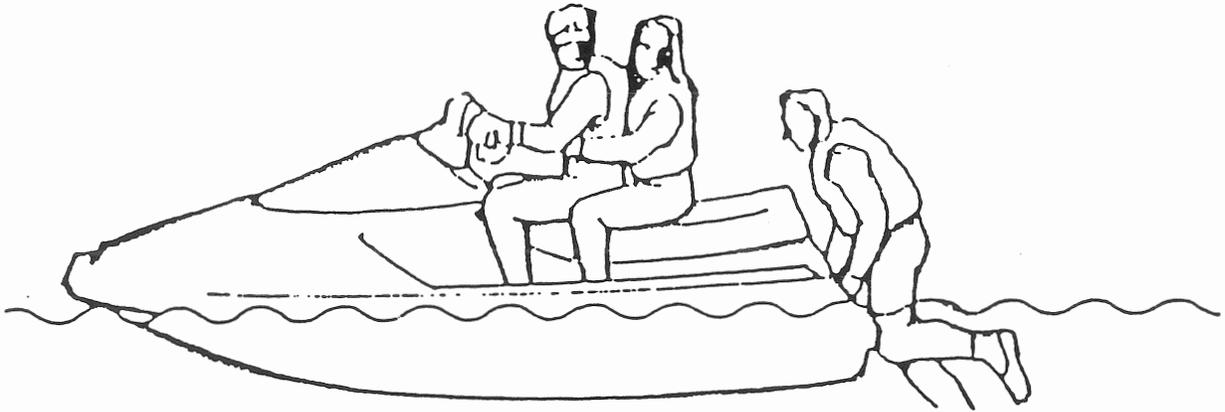
MARINE JET DRIVE



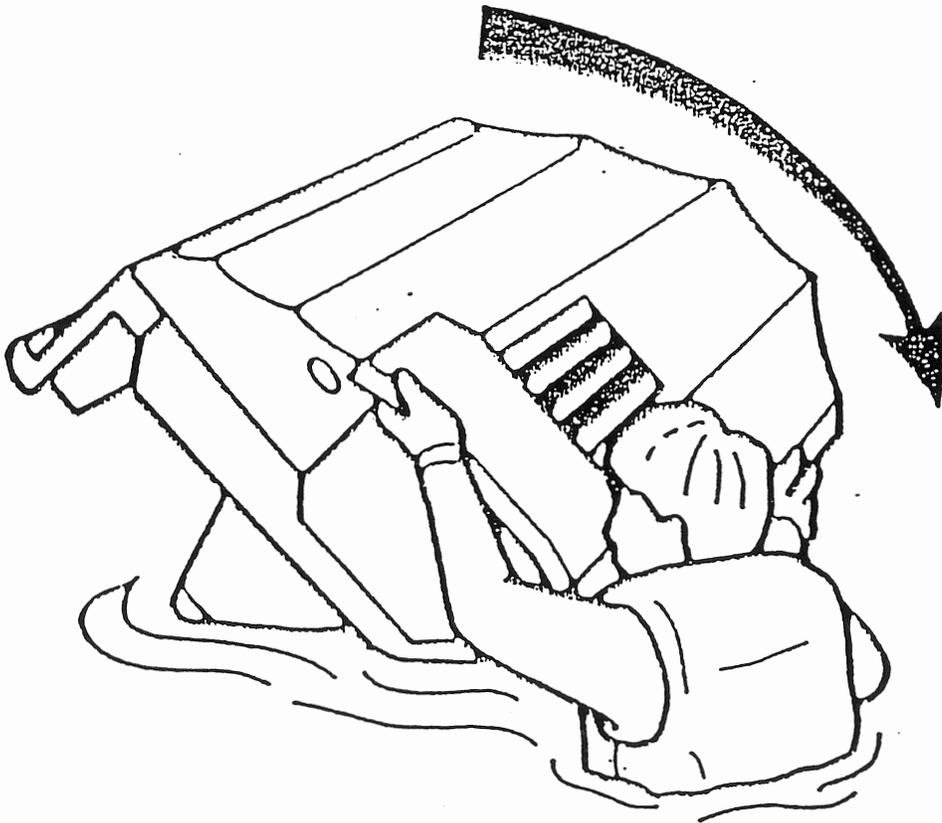
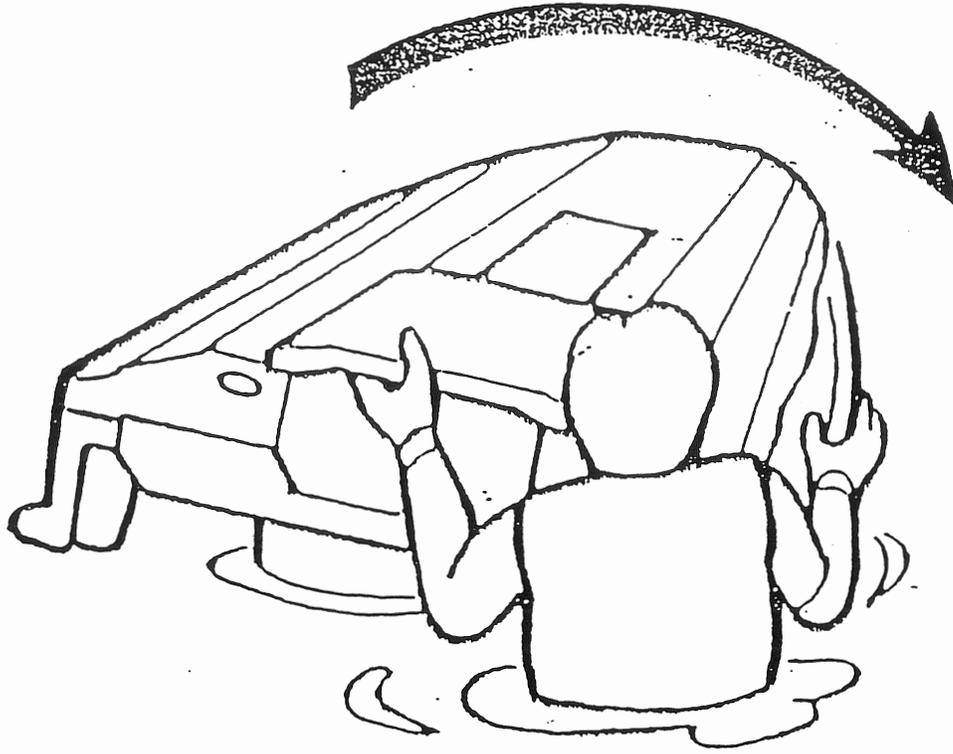
JET DRIVE



REMOUNTING



RIGHTING



PRE - OPS INSPECTION

EXTERIOR

- 1. CHECK HULL FOR DAMAGE**
- 2. CHECK INTAKE GRATE**
- 3. CHECK IMPELLER**
- 4. ASSURE BILGE PLUG IS IN AND TIGHT**
- 5. CHECK STEERING**
- 6. CHECK THROTTLE LEVER OPERATION**
- 7. VENT FUEL VAPORS**

INTERIOR

- 8. CHECK FUEL**
- 9. CHECK TWO STROKE OIL**
- 10. CHECK ALL HOSES AND CLAMPS**
- 11. CHECK CABLES AND SLIDE RODS**

LAUNCHING

- 12. RELEASE BOW & STERN RESTRAINT**
- 13. TURN ON GAS**
- 14. START PWC**
- 15. LAUNCH PWC**

POST - OPS INSPECTION

EXTERIOR

- 1. START AND RUN WATER OUT OF PUMP**
- 2. TURN OFF FUEL**
- 3. REPLACE LANYARD IN COMPARTMENT**
- 4. CHECK HULL FOR DAMAGE**
- 5. CHECK INTAKE GRATE**
- 6. CHECK IMPELLER**
- 7. ASSURE BILGE PLUG IS IN AND TIGHT**
- 8. CHECK STEERING**
- 9. CHECK THROTTLE LEVER OPERATION**
- 10. WIPE DOWN ENTIRE EXTERIOR**

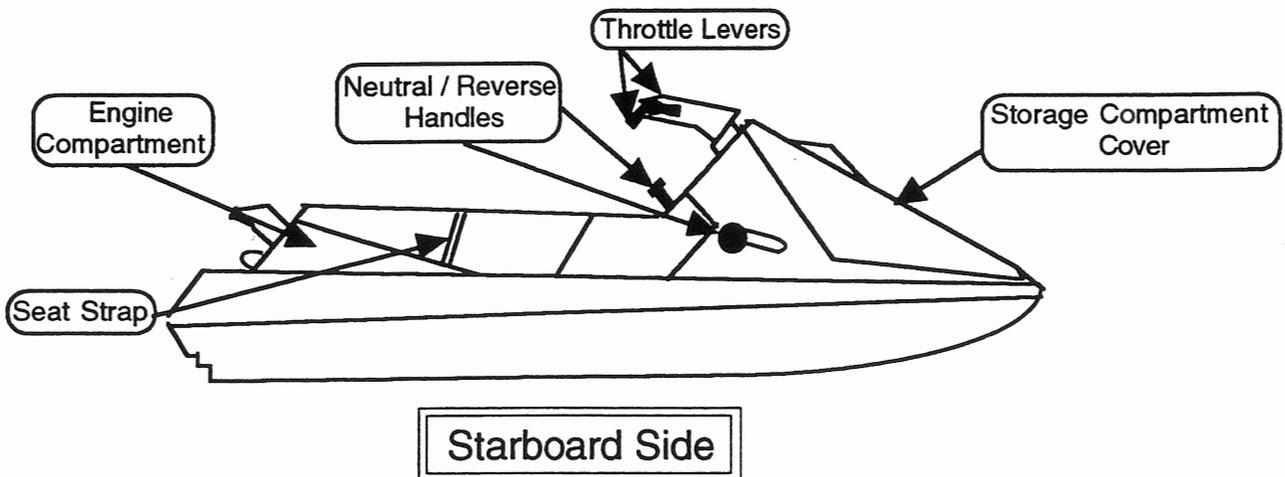
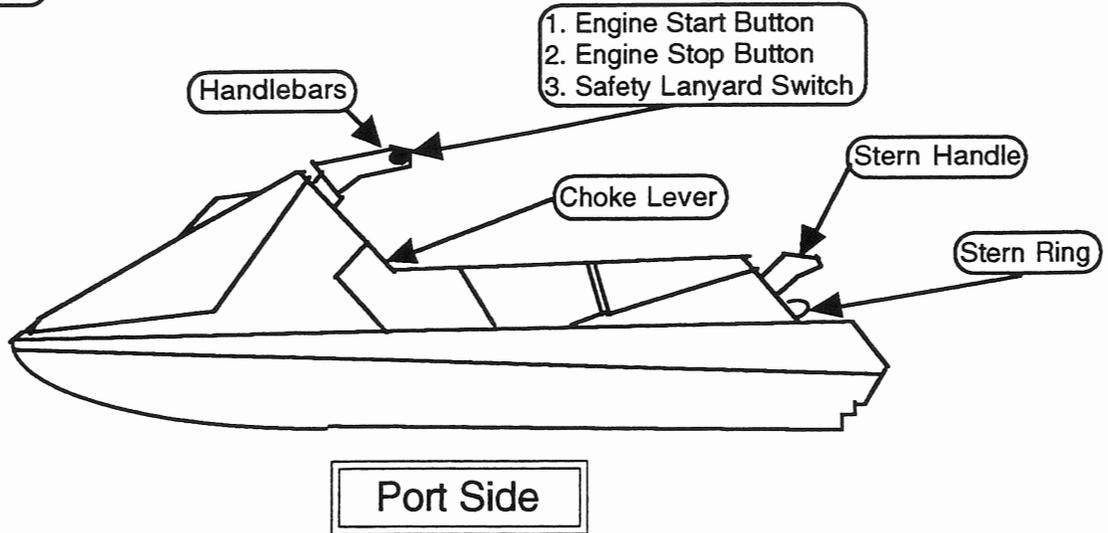
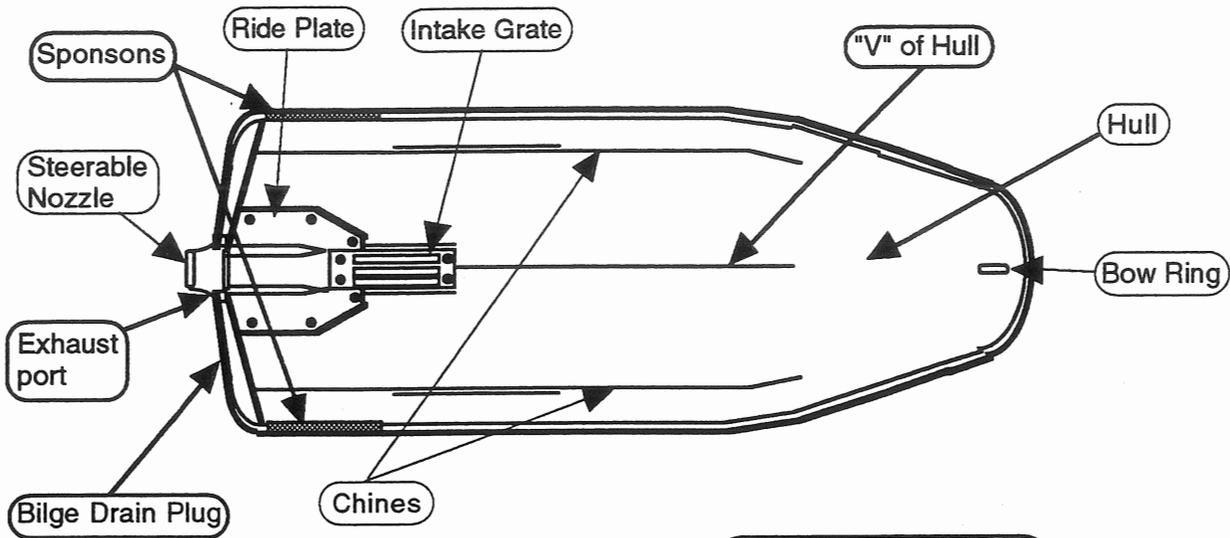
INTERIOR

- 11. REFILL FUEL**
- 12. REFILL TWO STROKE OIL**
- 13. CHECK ALL HOSES AND CLAMPS**
- 14. CHECK CABLES AND SLIDE RODS**
- 15. REMOVE FRONT BASKET**
- 16. USE SPONGE TO REMOVE ANY WATER**
- 17. LEAVE SEAT OFF UNTIL DRY**

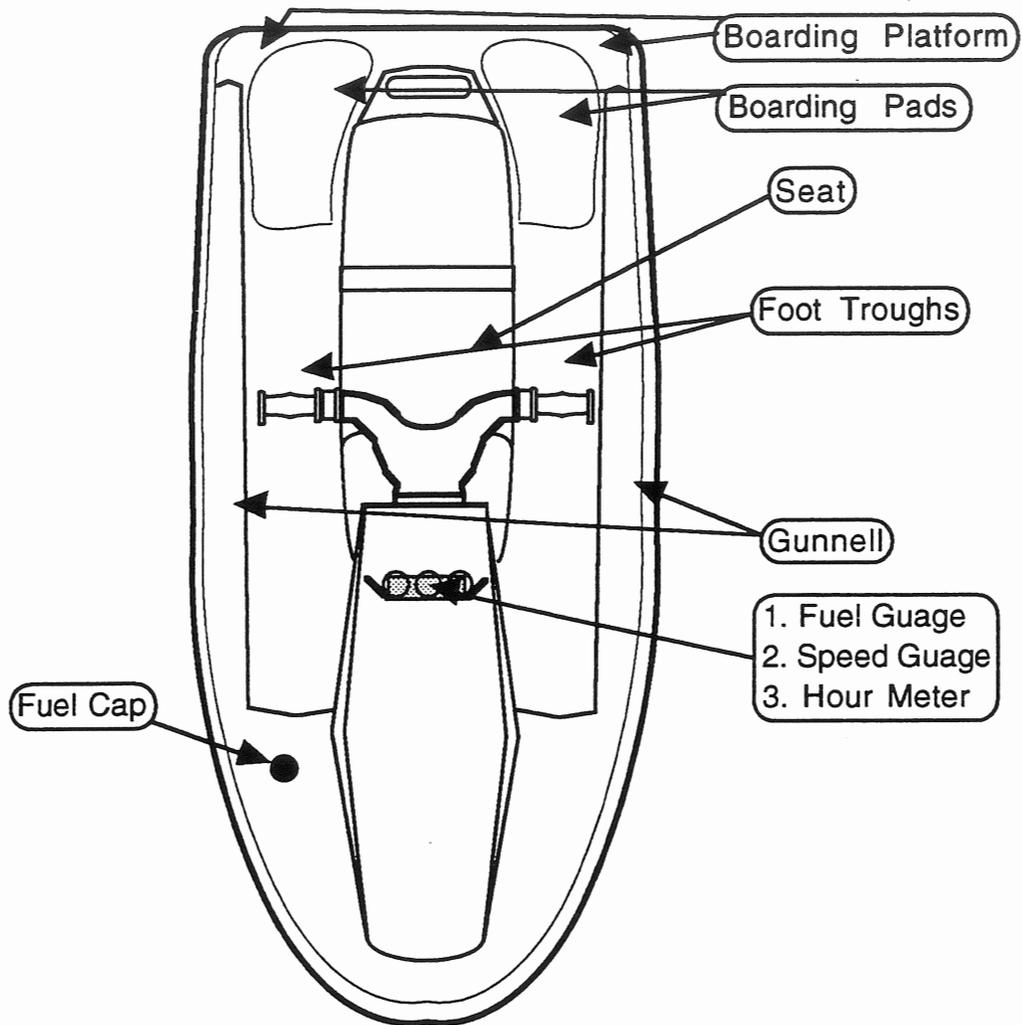
RECORD KEEPING

- 18. DOCUMENT HOURS ON PWC**
- 19. DOCUMENT ANY DAMAGE**

PWC TERMINOLOGY



PWC TERMINOLOGY



INSTRUCTOR GUIDE

TOPIC: Philosophy Of Personal Watercraft Use

TIME FRAME: 0:30

LEVEL OF INSTRUCTION I

BEHAVIORAL OBJECTIVE:

Condition: A written quiz

Behavior: The student will

- identify prerequisites required to operate personal watercraft for emergency services
- adhere to the training rules while operating personal watercraft on courses
- recognize the components needed for a successful rescue operation

Standard: With a minimum 80 % accuracy according to Information Sheet 2-1, Pages 1 through 2

MATERIALS NEEDED:

- Overhead projector and screen
- Overhead transparencies 2-1 through 2-2
- Written quiz
- Information Sheet 2-1 Pages 1 through 2

REFERENCES:

- Rescue 3 International Swift Water Rescue Manual
- California boating and waterways regulations

PREPARATION:

The public has become aware of the number of deaths that occur every year on the local water ways. It is your responsibility to learn and know the safety philosophy towards a personal watercraft. Adherence to these philosophies will mean certain support for the personal watercraft industry and for the Government loan programs. You must feel completely confident in your swift water skills, your river reading and swimming capabilities to maintain your high level of proficiency in the water. You must also be very confident in your training and continue to maintain your ability on the personal watercraft as time passes. This can

only be done with constant training. Your ability to follow these guidelines at all times will assist you in preventing any accidents or misfortune. The rules are developed for the protection of the emergency service person while performing rescues or other job related duties

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>C. No personal watercraft will be operated directly behind another personal watercraft unless the rear watercraft is at least one hundred feet behind the forward watercraft.</p> <p>D. Personal watercraft will <u>never</u> be brought directly onto shore.</p> <p>This practice will cause hull and possibly pump damage to the personal watercraft</p> <p>E. Personal watercraft will only be operated in the seated position.</p> <p>If standing is required to navigate a river, or through a tight area, short periods of standing will be permitted</p> <p>F. There shall be no more than one personal watercraft on a training course at anytime.</p> <p>G. Do not, at anytime while operating a personal watercraft, speed in congested areas.</p> <p>H. Do not, at any time while operating the personal watercraft, exceed the weight limitation.</p> <p>Immediate overloading of the personal watercraft for transportation of a victim to a close location is permitted</p> <p>I. Do not continue to operate a personal watercraft that shows evidence of power loss or has a overheating warning beeper sounding.</p> <p>J. Always follow right of way and navigational requirements when operating the personal watercraft.</p> <p>K. Always stay to the left or port side when overtaking another water craft.</p>	<p>Why shouldn't personal watercraft be brought onto shore?</p> <p>When would you be required to stand on your personal watercraft?</p> <p>When would you realistically overload your personal watercraft?</p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>L. Because of the personal watercraft maneuverability, always give the other craft the right of way.</p> <p>M. Personal watercraft will never be started or plowed in less than two feet of water.</p> <p>N. Personal watercraft will never be operated while at full plane in less than four to six inches of water.</p> <p>If entry shows water less than four to six inches immediately shut off power and plane over low water and then restart once in deeper water and continue</p> <p>IV. Objectives for Personal watercraft</p> <p>A. Enhance water rescue program</p> <p>B. They are not the answer to every question</p> <p>C. Additional component</p> <ol style="list-style-type: none"> 1. Shore Crew 2. In Water Crew 3. Boat Crew 4. Personal Watercraft Crew <p>D. All components are needed for a successful rescue operation</p> <p>E. Use of personal watercraft in dynamic water rescue is still growing</p>	<p>What would you do if you thought the water was less than four to six inches</p> <p><u>OHT 2-2</u></p> <p>What are some of the other components required in river responses</p> <p>What are some of the instances you have experienced where all the components would have made a successful rescue?</p>

SUMMARY:

The swimming and boating public is counting on you and your ability to make this personal watercraft rescue program work. If you follow the philosophy stated in this lesson plan you will be able to identify the prerequisites needed to operate a personal watercraft. Your adherence to the training rules will provide you safe operations while recognizing the needed components for a successful rescue. Dedicated training will prepare you for any personal watercraft operation.

EVALUATION:

The student will be evaluated in accordance with stated performance objectives at a time to be determined by the instructor

ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz. Study for our next session

RULES TO LIVE BY

1. Must be in proper protective equipment
2. Maintain an idle when near other crafts and people
3. Never operate your PWC directly behind another
4. Never bring PWC onto shore
5. Maintain a sitting position when operating your PWC
6. Only one PWC on the training course at a time
7. Do not speed in congested areas
8. Never exceed the weight limit of your PWC
10. Shut off an overheating PWC and seek help
11. Always follow the rules of the road
12. Never start your PWC in less than 2 feet of water
13. Never operate at full speed in less than 6" of water

OBJECTIVES OF PWC RESCUE

1. ENHANCE YOUR WATER RESCUE PROGRAM
2. OPERATE WHERE PRESENT CRAFT CANNOT
3. COMPLIMENT OF WATER RESCUE TEAM COMPONENTS
 - A. SHORE CREW
 - B. IN WATER CREW
 - C. BOAT CREW
 - D. PWC CREW
4. ALL TEAM COMPONENTS ARE NEEDED
5. DEVELOP DIFFERENT TYPES OF RESCUES
6. WORK AS PART OF A TEAM WITH OTHERS THAT USE PWC AS RESCUE CRAFTS

LAW ENFORCEMENT

COAST GUARD

ARMED FORCES

INSTRUCTOR GUIDE

TOPIC: Personal Watercraft Orientation And Terminology

TIME FRAME 0:45

LEVEL OF INSTRUCTION I

BEHAVIORAL OBJECTIVE:

Conditions: A written quiz

Behavior: The student will

- understand the Government Loan Program
- identify the personal watercraft used by emergency services
- recognize the terminology used for personal watercraft
- identify the terminology used during personal watercraft operations

Standard: With a minimum 80 % accuracy according to Information Sheet 3-1, Pages 1 through 2

MATERIALS NEEDED:

- Overhead projector and screen
- Overhead transparencies 3-1 through 3-7
- Graphic quiz
- Information Sheet 3-1, Pages 1 through 2

REFERENCES

- California Boating and Waterways Manual
- Personal watercraft owners manual

PREPARATION:

Understanding the Government loan program will assist the agency desiring to obtain personal watercraft for emergency services. Attempt to comprehend a thorough grasp of personal watercraft terminology. Your understanding of the personal watercraft terminology will assist you during training and rescue operations. The need to know the terminology that others are using for a specific part or tool, will mean the difference between confusion and understanding during rescue operations with fellow personal watercraft team members. Your understanding of operational terminology must be clear in your mind before

actually ever getting on a personal watercraft for an emergency operation.

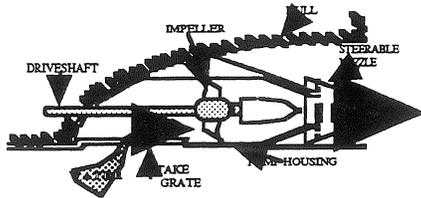
INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>I. Government Loan Program</p> <ul style="list-style-type: none"> A. Personal watercraft dealer. Usually will require local dealer due to demand of requested personal watercraft from other agencies B. Returned every nine months to one year depending on the dealer's policy. Damage must be repaired and all original decals replaced to original location at agency's cost C. Apply every year for personal watercraft in September and receive in March of following year D. Must show proof of insurance before personal watercraft can be obtained by the agency. People are civil suit happy. Emergency services are easy targets E. U.S. Coast Guard, Life Guards, Law Enforcement and Fire Protection Agencies. <p>Assist with enforcement and life protection during dwindling budgets. Provides positive image of PWC to public. Provide a quick and effective rescue of strandard members of the public within bodies of water.</p>	<p><u>OHT 3-1</u></p> <p>Is insurance required for agency's using personal watercraft for emergency services?</p> <p>What are uses for personal watercraft?</p>
<p>II The PWC Marine Jet Drive System</p> <ul style="list-style-type: none"> A. System is comprised of a: <ul style="list-style-type: none"> 1. Jet Pump 2. Impeller 3. Directional Nozzle 	<p><u>OHT 3-2</u></p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
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JET DRIVE



- B. Water is drawn into the jet pump due to a pressure reduction from the rotation of the impeller. Water comes in through the intake grate and forced out by the impeller through the directional nozzle.
- C. The directional nozzle gives the personal watercraft it's superb maneuverability.
- D. If no water is being forced out of the directional nozzle, there is no maneuverability.
- E. The faster water is forced out the directional nozzle the quicker and more extreme the movements of the personal watercraft will be.
- F. Many agencies choose this type of watercraft propulsion due to its capability of shallow water draft and no a propeller safety factor.

III Personal watercraft use by Law Enforcement and Rescue agencies.

- A. Sea-Doo Three Seater
Manufactured by Bombardier
Headquarters in Austria, Pronounced as Bom-Bar-Dee-Ay
 - 1. They also build Ski-Doo snow mobiles, Lear jets, and Mono-rail systems at Disneyland

How does the Marine jet drive system work ?

Can the personal watercraft be maneuvered when no water is being forced out?

Name a few different brands of personal watercraft used for emergency services?

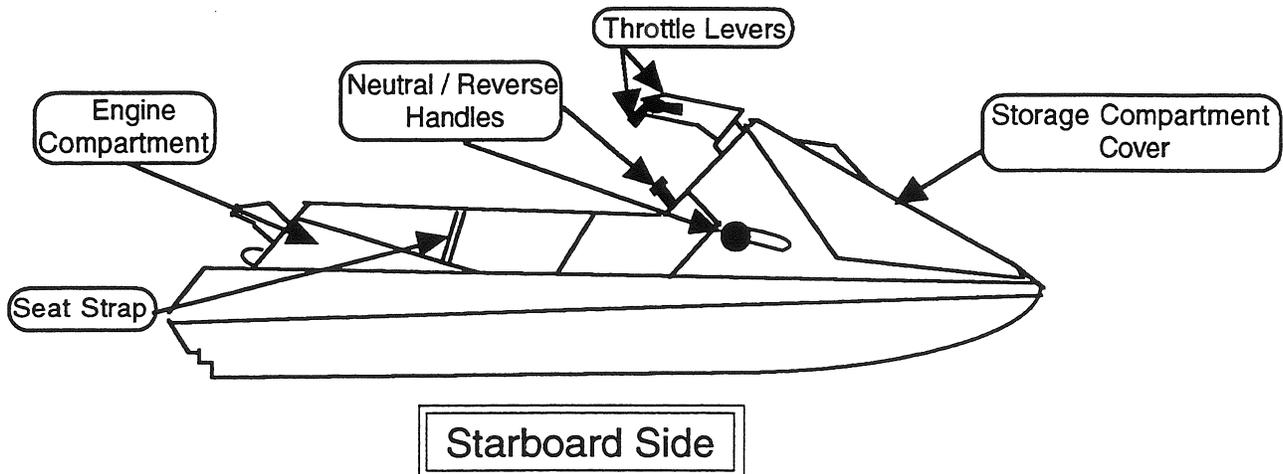
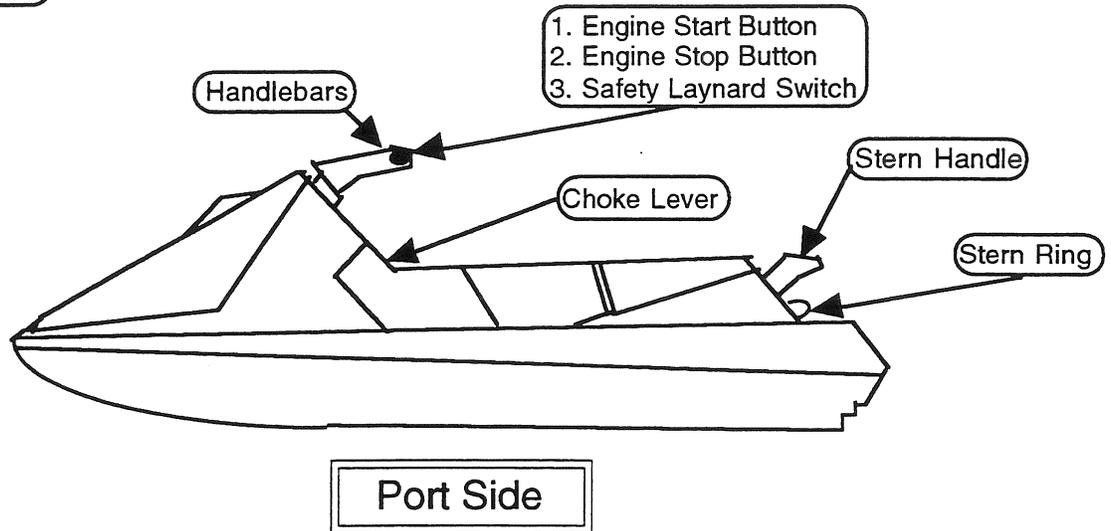
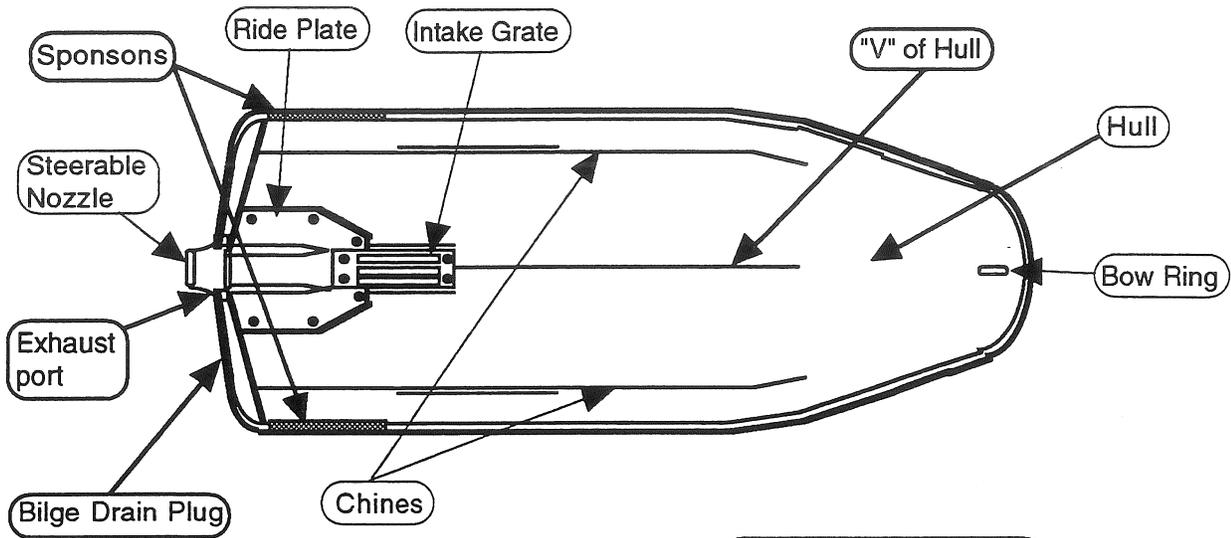
INSTRUCTOR GUIDE

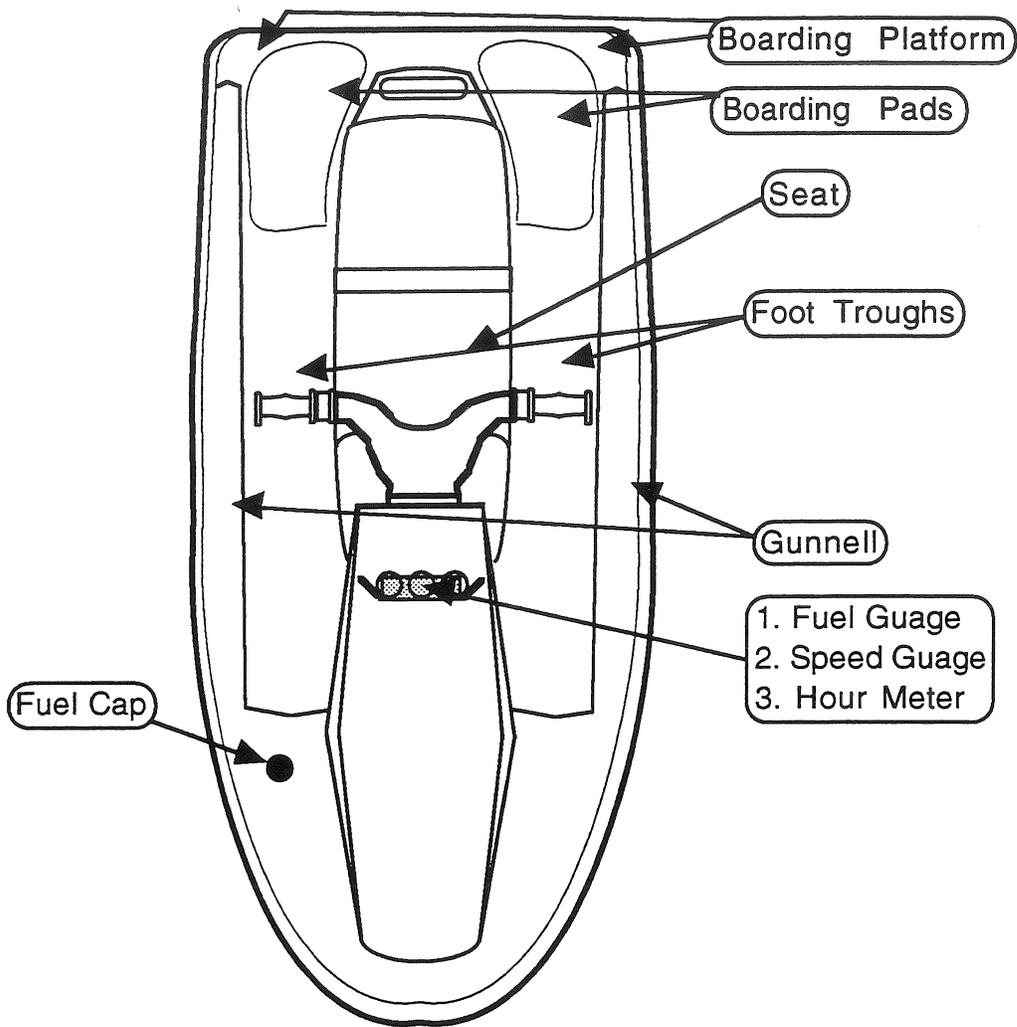
PRESENTATION	APPLICATION
<p>B. Yamaha Three Seater First built in 1995, The "Wave Venture"</p> <p>1. They also build Motorcycles, Quad runners, snowmobiles, boats, generator, guitars</p> <p>C. Polaris Three Seater First built in 1992. First 3 cylinder on the market. Built in Rousac, Minnesota</p> <p>1. They also build Snowmobiles, quad runners</p> <p>D. Kawasaki Three Seater First stand-up in 1973</p> <p>1. They also build Motorcycles, quad runners, scotters, snowmobiles</p> <p>E. Artco's Tiger Shark Three Seater First built in 1993</p> <p>1. They Also build Snowmobiles</p>	
<p>IV. Personal Watercraft Terminology</p> <p>A. Common three seater design</p> <ol style="list-style-type: none">1. Handlebar2. Throttle Lever3. Engine Stop Button4. Choke Lever5. Fuel Tank Valve6. Safety Lanyard Switch7. Starting Button8. Seat Opening9. Rear Grab Handle10. Boarding Pads11. Cooling System Bleed Outlets12. Jet Pump Nozzle	<p>Do you know of any other items these manufacturers build?</p> <p><u>OHT 3-3, 3-4</u></p>

INSTRUCTOR GUIDE

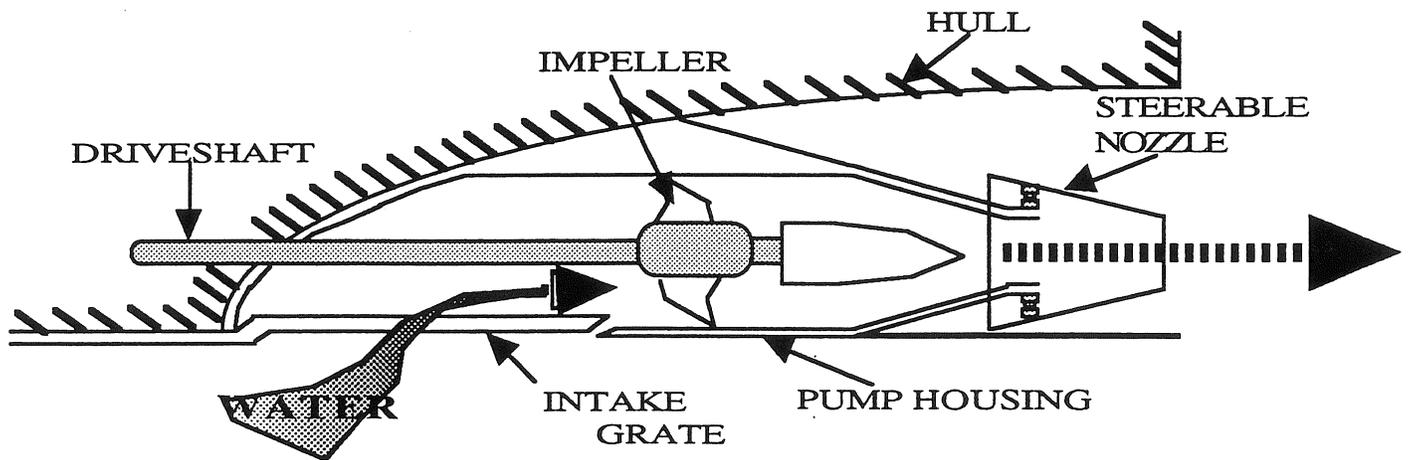
PRESENTATION	APPLICATION
<ul style="list-style-type: none">13. Air Intake Opening14. Bilge Drain Plug15. Bow and Stern Ring17. Floor board19. Storage Compartment Cover20. Cover Latch21. Storage Compartment22. Boarding Platform23. Seat Strap24. Overheating Beeper28. Engine Compartment29. Oil Reservoir and Dipstick30. Tool Kit31. Storage Containers32. Fuel Tank Cap33. Jet Pump Water Inlet34. Rear Vent Grills35. Reverse / Neutral Handle36. Reverse / Neutral Gate37. Storage Compartment Cover Drains38. Storage Compartment Locking Mechanism	

INSTRUCTOR GUIDE





JET DRIVE



INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>VI. Operation Terminology</p> <p>A. Pilot</p> <p>The pilot is the person that operates the personal watercraft during training and rescue operations. This should be the person most comfortable and most skilled at personal watercraft operation.</p> <p>B. Rescuer</p> <p>The rescuer is the person that will perform the actual victim contact during training and rescue operations. This person may either be located behind the pilot on the personal watercraft or in a rescue device pulled behind the personal watercraft.</p> <p>C. Mounting and Dismounting</p> <p>This is simply the action of getting on or getting off the personal watercraft while on the trailer, in the water, or on the shore line.</p> <p>D. Swiftwater launching and loading</p> <p>This is the action of placing or removing a personal watercraft from a trailer into a dynamic body of water. Due to the force of dynamic water it is easiest and safest to launch and load a personal watercraft from a trailer with the rear of the personal watercraft and trailer pointed or angled with the down stream flow of the water. This will allow the waters force to assist in launching the personal watercraft and give better control when loading the personal watercraft.</p>	<p><u>OHT 3-5</u></p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>E. Positive and negative attitudes</p> <p>The attitude is simply the upstream or down stream direction of a personal watercraft. A personal watercraft pointed upstream is under the most optimum control and is referred to as being in a positive attitude. A personal watercraft pointed downstream is under the control of the dynamic flow and is referred to as being in a negative attitude.</p> <p>F. River right, river center, and river left</p> <p>As you stand and look downstream at a river, river right will be the right side of the river. River center will be in the middle and river left will be on the left side of the river. These terms are used when describing locations in a certain area. Such as: Watch for the snags on river right.</p> <p>G. Hover</p> <p>To hover is to maintain a constant position on a dynamic flow of water. The pilot must apply just enough power to the personal watercraft to over come the force from the dynamic flow. This is constantly used during personal watercraft operations.</p> <p>H. Ferry</p> <p>To ferry is to create a high pressure on one side of the personal watercraft and a low pressure on the other side of the personal watercraft. The pilot must come to a hover position and then angle the personal watercraft against the dynamic flow. The pressure difference will push the personal watercraft from one side of the dynamic flow to the other.</p>	<p>What is River Right, River Center and River Left?</p> <p><u>OHT 3-6</u></p> <p><u>OHT 3-7</u></p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>I. Plow</p> <p>To plow a personal watercraft is to drop the rear of the personal watercraft deeper into the water. This action causes the intake to be closer to river bottom allowing the pump intake to ingest debris into the pump which could cause damage to the personal watercraft. This action occurs during initial acceleration from a hover position.</p> <p>J. Debris</p> <p>Debris is any substance that is found with in the confines of a static or dynamic body of water. Debris can be garbage thrown into the water or natural vegetation growing from the bottom. In either case debris ingested into the pump intake will damage the personal watercraft and possibly leave the personal watercraft useless.</p>	

SUMMARY:

With the information you have acquired on the orientation of personal watercraft you will be able to pass onto the public, other firefighters and other fire fighting and law enforcement agencies, what is available to us through government loan programs and the different types of watercrafts available. You will also be able to converse with fellow water rescue team members the proper terminology used during training and actual emergencies leaving no chance for missed communication.

EVALUATION:

The student will be evaluated in accordance with stated performance objectives at a time to be determined by the instructor

ASSIGNMENT:

Fill in the terminology blank spots of a three seater personal watercraft graphic. Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz. Study for our next session

GOVERNMENT LOAN PROGRAM

USUALLY USE A LOCAL DEALER

YOUR AGENCY MUST REAPPLY EVERY YEAR

RETURN YOUR PWC'S TO THE DEALER EVERY NINE TO 12 MONTHS AND OBTAIN NEW ONES

USUALLY AGREED TO HAVE DEALER PERFORM ALL MAINTENANCE

MUST PROVIDE OWN INSURANCE AND PROOF OF INSURANCE WHEN REQUESTING PWC'S

USED BY MANY AGENCIES

COAST GUARD

LAW ENFORCEMENT

LIFE GUARDS

USAR TEAMS

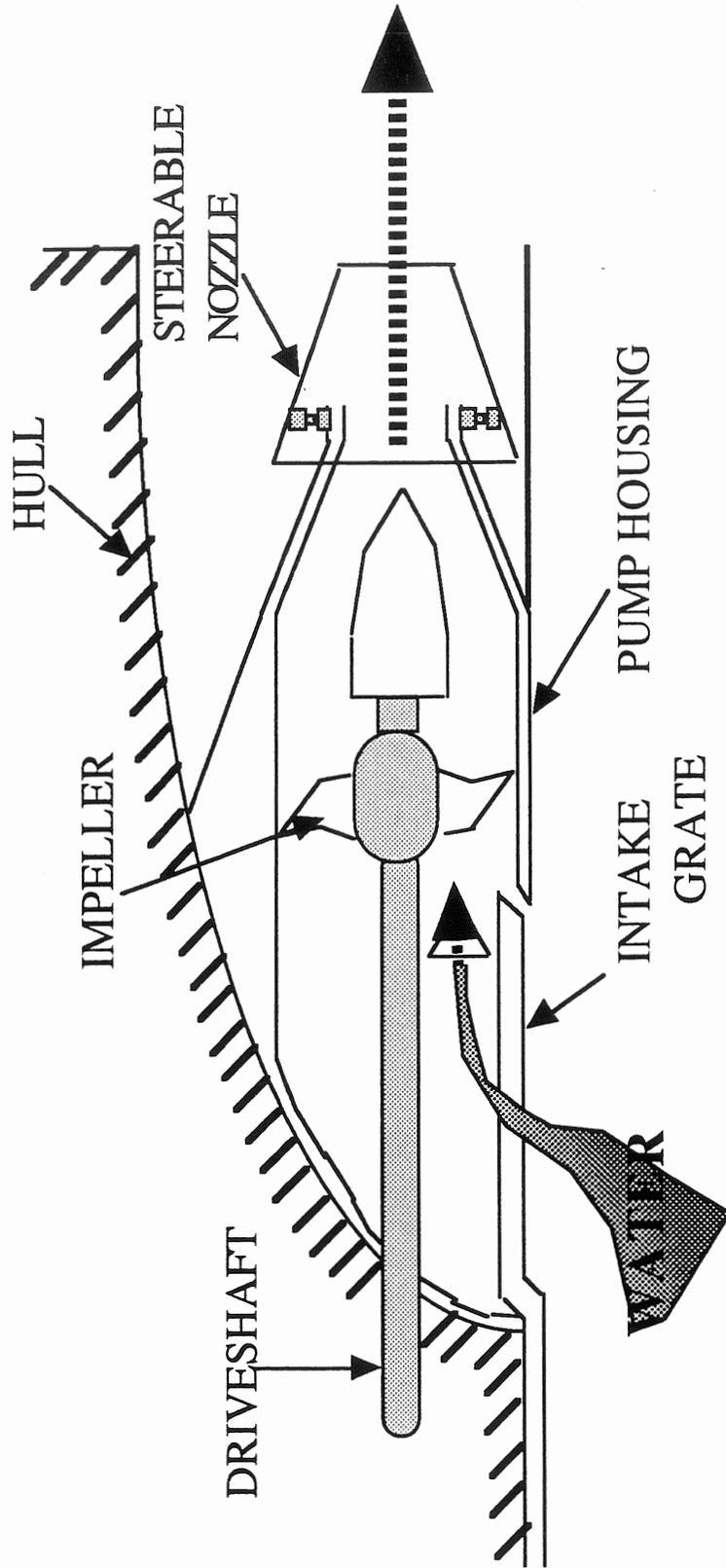
FIRE AGENCIES

DEA

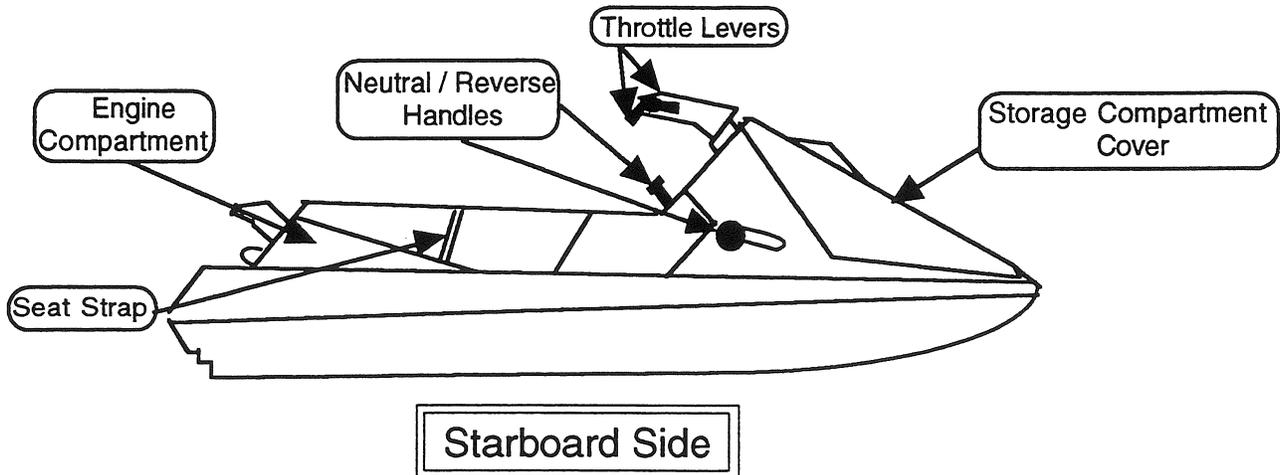
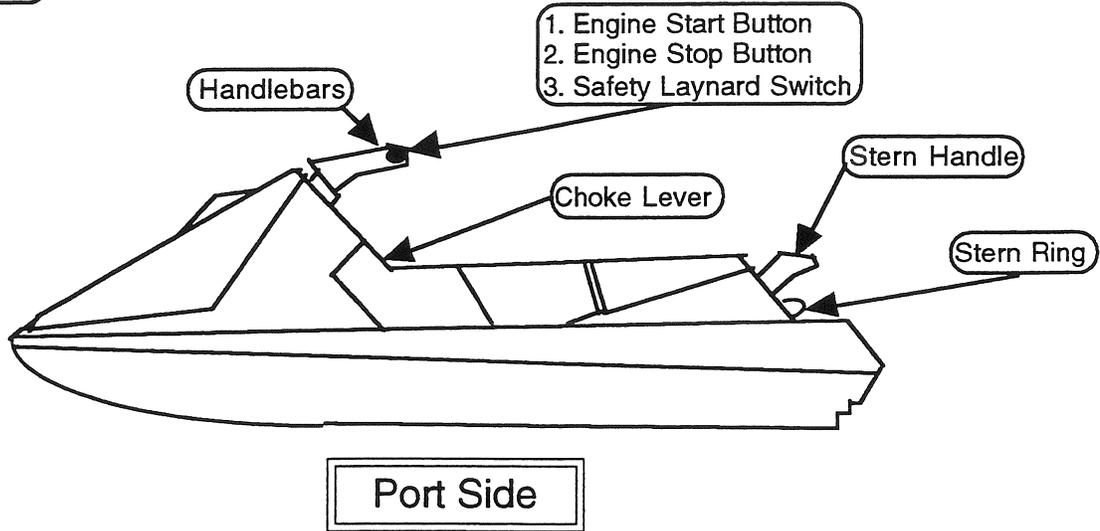
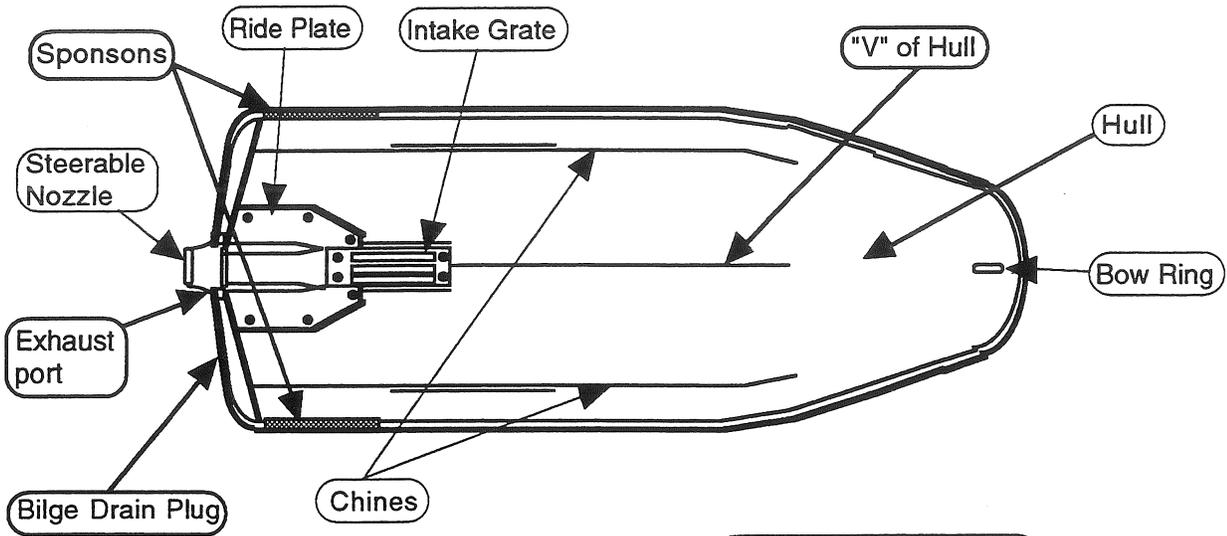
HELPS THE MANUFACTURE'S IMAGE

MARINE JET DRIVE

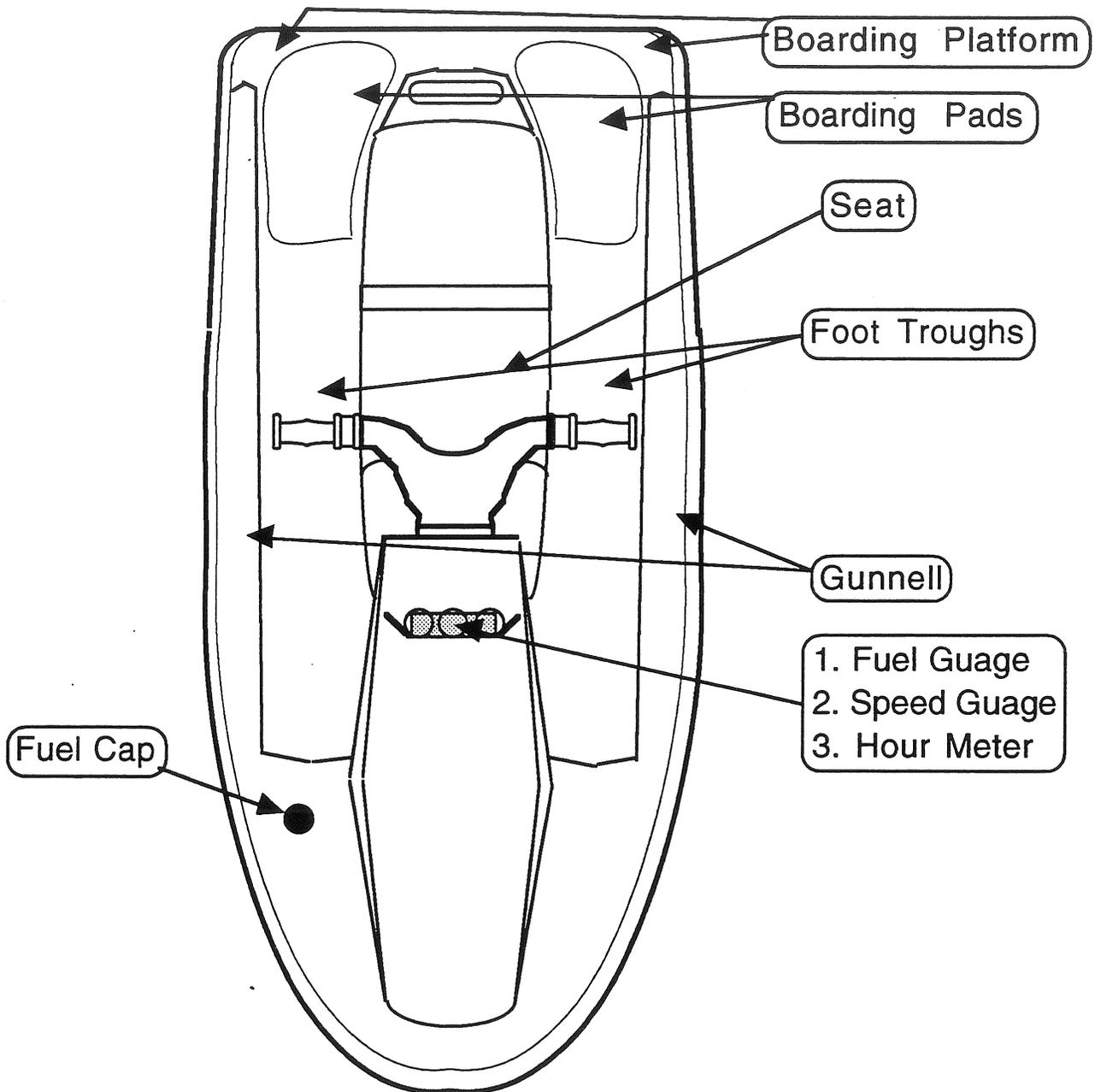
JET DRIVE



PWC TERMINOLOGY



PWC TERMINOLOGY



OPERATIONS TERMINOLOGY

PILOT

RESCUER

MOUNTING AND DISMOUNTING

SWIFTWATER LAUNCH AND LOAD

POSITIVE AND NEGATIVE ATTITUDES

RIVER RIGHT, RIVER CENTER, RIVER LEFT

HOVER

FERRY

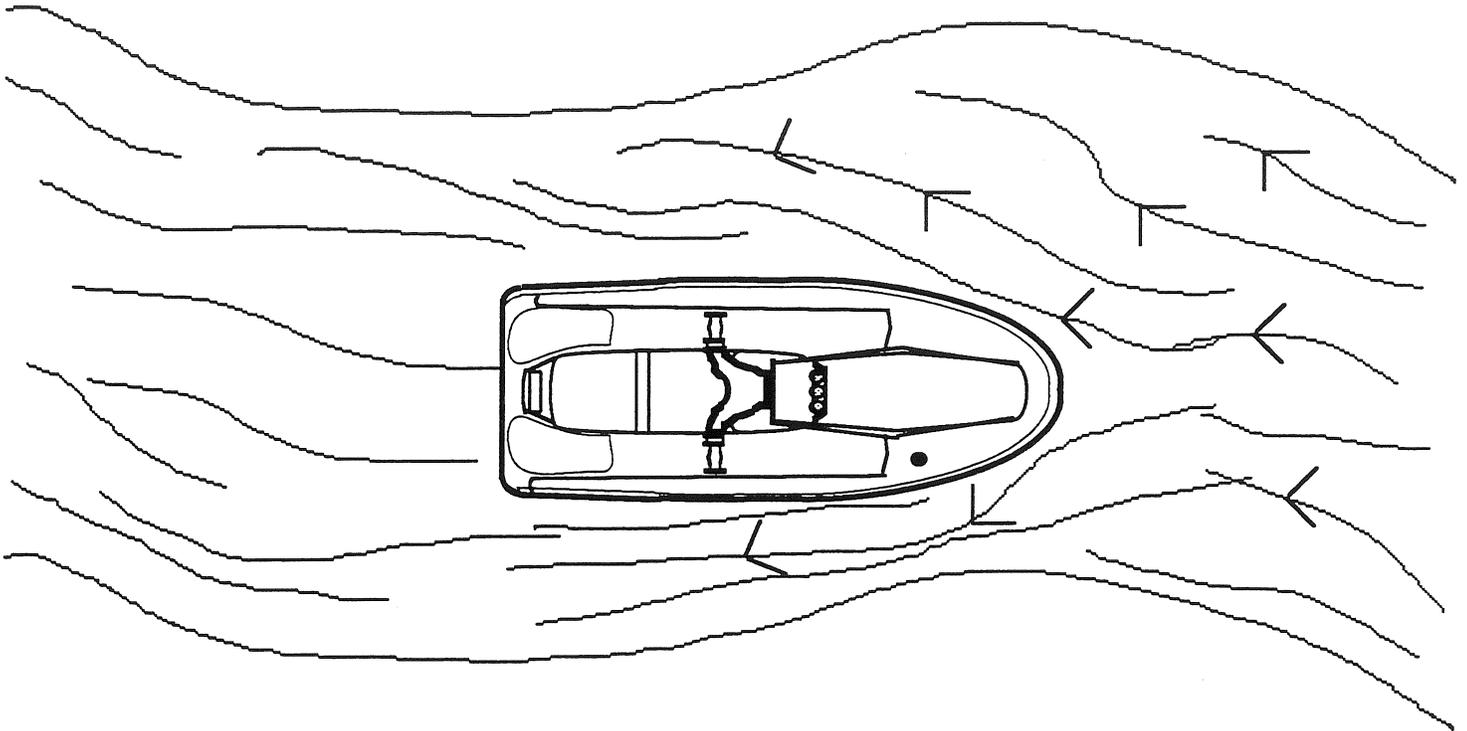
PLOW

DEBRIS

OPERATIONS TERMINOLOGY

THE HOVER POSITION

BECOMING STATIONARY IN ONE SPOT WHILE THE DYNAMIC WATER FLOWS AROUND YOU



THIS MANEUVER IS USED THROUGHOUT ALL OPERATIONS WITH A PERSONAL WATERCRAFT

YOUR SPEED MUST EQUAL THAT OF THE DYNAMIC WATERS FLOW AND YOUR ANGLE MUST BE NETURAL TO ALLOW NO SIDE TO SIDE FERRYING OF THE PERSONAL WATERCRAFT

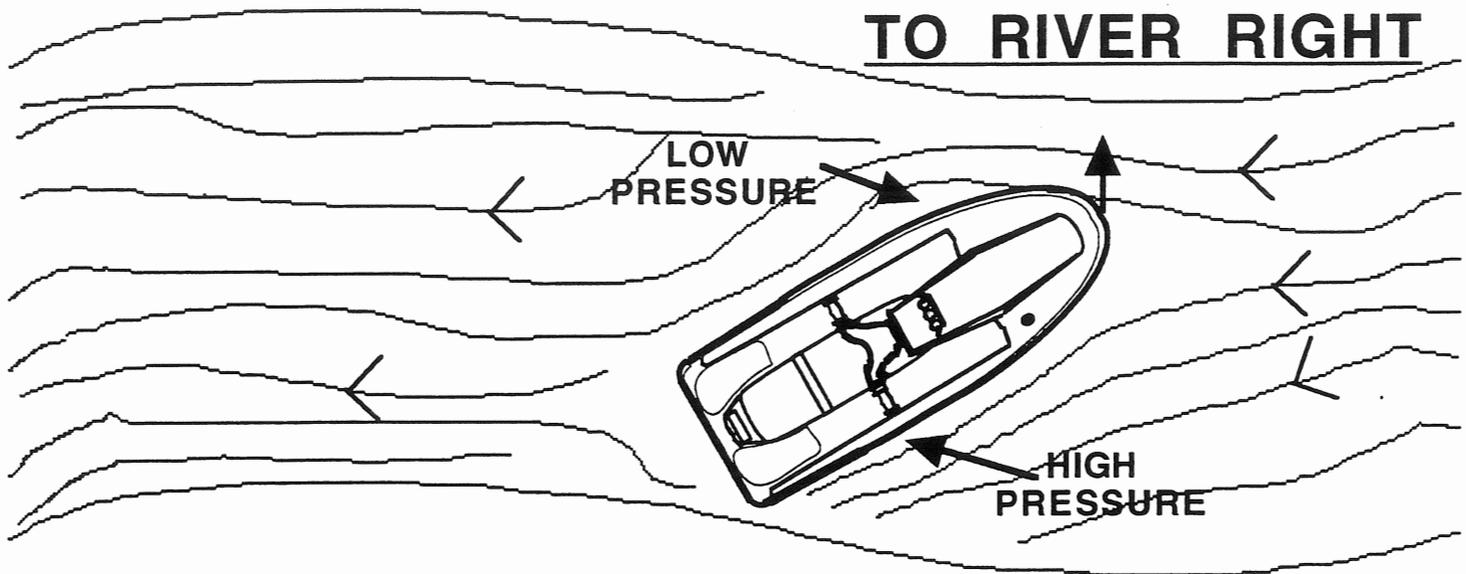
OPERATIONS TERMINOLOGY

THE FERRY POSITION

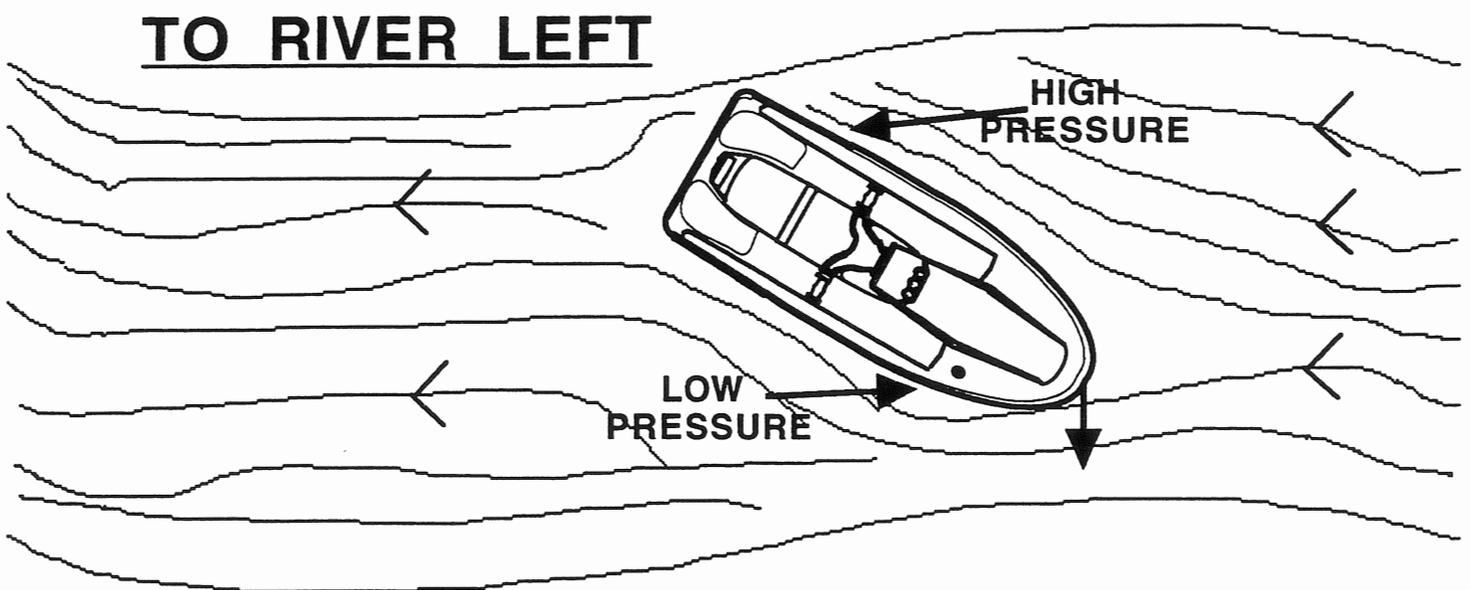
THIS MANEUVER ALLOWS YOU TO CROSS A DYNAMIC FLOW WHILE MAINTAINING A POSITION BETWEEN TWO POINTS ON EITHER SIDE OF THE FLOW.

THIS WILL ALSO BE USED IN OPERATIONS WHILE ON YOUR PERSONAL WATERCRAFT

TO RIVER RIGHT



TO RIVER LEFT



TOPIC: Methods Of River Reading

TIME FRAME: 1:00

LEVEL OF INSTRUCTION: I

BEHAVIORAL OBJECTIVE:

Condition: A written examination

Behavior: The student will interpret and apply the knowledge of the methods of river reading

Standard: With a minimum 70 % accuracy according to the Information Sheet 4-1, Pages 1 through 2

MATERIALS NEEDED:

- Writing board with markers/erasers
- Overhead projector and screen
- Overhead transparencies 4-1 through 4-6

REFERENCES:

- Physical Geology, James S. Monroe & Reed Wicander 1992
- River Rescue, Les Bechdel & Slim Ray 1989

PREPARATION:

The principles of reading river topography is just as important to your safety as it is to the life saving efforts for the victim. Establishing a safe and quick path down or up river can be essentially important to the overall rescue operation when performing dynamic water rescues. Your ability to master, reading river topography, will be crucial to either a successful, professional rescue or the failure of one, and the loss of a life. People perish in dynamic water sources every year. Your ability to travel in dynamic water, where people are in need of your assistance is imperative. You must have complete confidence in your ability to read river topography.

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>I Running Water</p> <p>A. Laminar Flow</p> <ol style="list-style-type: none">1. Lines are parallel with one another2. Flow occurs in parallel layers3. No mixing between layers <p>B. Turbulent Flow</p> <ol style="list-style-type: none">1. Streamlines are intertwined2. Complex mixing of fluid3. Almost all dynamic water ways <p>C. Water Speed</p> <ol style="list-style-type: none">1. Velocity of River 100 foot span divided by time of travel in seconds. (ex. $100 / 17 = 5.9$ FPS)2. Computing To Miles Per Hour Feet Per Second X 3600 (seconds in an hour) = ? ? / 5280 (feet in a mile) = Miles Per Hour <p>D. Force of water</p> <ol style="list-style-type: none">1. Current velocity<ol style="list-style-type: none">a) Measure of down stream distance traveled in timeb) Expressed in miles per hourc) Varies within streams	<p>Who can tell me the difference between laminar flow and turbulent flow ?</p> <p><u>OHT 4-1</u></p> <p>What is the flow in our local water ways ?</p> <p><u>OHT 4-2</u></p> <p><u>INSTRUCTOR NOTE</u> Compute an example water velocity on a dry marker or chalk board</p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<ul style="list-style-type: none">d) Channel Shapee) Channel roughness2. Force<ul style="list-style-type: none">a) Rescuers Legsb) Rescuers Bodyc) Pressure against your personal watercraftd) Expressed in pounds per square inch	<p><u>INSTRUCTOR NOTE</u> Describe a situation during a flood when this much force would be on the rescuers legs.</p> <p><u>INSTRUCTOR NOTE</u> Describe a situation during river rescue when this much force would be on a rescuers body.</p> <p><u>INSTRUCTOR NOTE</u> Portray a situation where a personal watercraft would be swamped and under this much pressure.</p>
<p>II Stream Erosion</p> <ul style="list-style-type: none">A. Potential energy<ul style="list-style-type: none">1. Water at rest2. Dams, high elevation, water tablesB. Kinetic energy<ul style="list-style-type: none">1. Energy of motion2. Most dissipated as heat within stream by turbulence.3. 5 percent available for erosion4. Dissolved particle and solid particles	<p><u>OHT 4-3</u></p> <p>What percentage of water is available to erode ?</p>

INSTRUCTOR GUIDE

METHODS OF RIVER READING

PRESENTATION	APPLICATION
<p>C. Hydraulic action</p> <ol style="list-style-type: none">1. Power of running water2. Set particles in motion <p>D. Abrasion</p> <ol style="list-style-type: none">1. Exposed rock worn and scraped2. Sediment in water causes most erosion <p>III Stream deposition</p> <p>A. Most during Floods</p> <p>B. Most deposition is in slower water</p> <p>C. Current Vector</p> <ol style="list-style-type: none">1. Most rivers are sinuous2. Velocity of stream is faster on outside of curve<ol style="list-style-type: none">a) Point of little depositionb) Area of deeper water3. Velocity is slower on inside of curve<ol style="list-style-type: none">a) Point of depositionb) Area of shallow water <p>IV River Characteristics</p> <p>A. Elevation drop</p> <ol style="list-style-type: none">1. Low head dam2. Ledge hydraulic3. Weirs	<p>Where would you consider the best route to travel up a river is?</p> <p><u>OHT 4-4</u></p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>a) Difficult to see from upstream</p> <p>b) Impossible to get out of without help</p> <p>c) Backwash / Washing machine action</p> <p>d) Boil line</p> <p>B. "V"s"</p> <p>1. Upstream</p> <p>a) Object pointing above surface</p> <p>b) Downstream water flow around an object</p> <p>c) Stay away at all cost</p> <p>2. Downstream</p> <p>a) Hydraulic effect of down stream flow caused by convergence of channel</p> <p>b) Flow will take the path of least resistance</p> <p>c) Usually points to direction of travel due to water picking lowest point in river bottom</p> <p>C. Haystack, Standing waves</p> <p>1. Rhythmic series of waves caused by:</p> <p>a) Convergence of main river channel</p> <p>b) Underwater obstacles or ledges</p> <p>c) Increasing river gradient changing hydraulic effect of holes to series of waves</p>	<p><u>OHT 4-5</u></p> <p>Do we want to be around upstream "V"s ?</p> <p>What causes a haystack wave to occur within a river?</p> <p>Who has gone over rapids and been tossed up and down in the water?</p> <p>Is it safe to take a personal watercraft over haystacks?</p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<p>D. Eddies</p> <ol style="list-style-type: none">1. Horizontal reversal of water flow where the pressure of the current along side an object causes the water behind the obstacle to reverse flow upstream <ol style="list-style-type: none">a) Use for escape from main currentb) Beware of pull into an eddy <p>E. River Spit</p> <ol style="list-style-type: none">1. A spit is simply a continuation of a shore line that projects down river commonly between a cove and the rivers current.2. Avoid crossing over spits until an inspection has been done to determine depth of water <p>F. Current Vector</p> <ol style="list-style-type: none">1. That part of the river moving the fastest and is usually the deepest part.2. Flow is mostly laminar due to little or no obstructions3. Most objects will be carried within the current vector4. When hover and ferry maneuvers are performed it will be within the current vector <p>G. Helical Flow (turbulence)</p> <ol style="list-style-type: none">1. The flow of water between the current vector and the shore line2. Water slows as it contacts the shore and friction is produced	<p>How can we use eddys to our advantage in river rescue ?</p> <p><u>OHT 4-6</u></p> <p>What does the current vector allow us to do while on our personal watercrafts?</p>

INSTRUCTOR GUIDE

PRESENTATION	APPLICATION
<ul style="list-style-type: none">3. Other water passing by will also contact shore and slow down causing upstream circles along the shore. 4. Helical flow is what you look for to bring you out of the current vector and into the shore line	<p>How can the helical flow aid us in our river rescue objectives?</p>

SUMMARY:

Your ability to read the rivers topography is extremely important as a majority of rescues occur in a dynamic water environment. Travel along the river will be a necessity for any water rescue. Your knowledge of the flow, topography, and characteristics of a river will allow your personal watercraft rescue team to expeditiously respond from one point on the river to another. It is also critical that you know what the personal watercraft will do once involved in these river hazards.

EVALUATION:

The student will be evaluated in accordance with stated performance objectives at a time to be determined by the instructor.

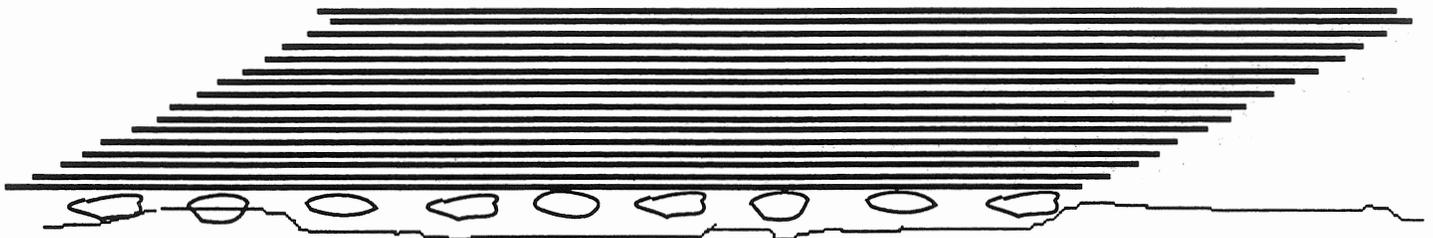
ASSIGNMENT:

Review your notes and appropriate pages in your handbook or Information Sheets in order to prepare yourself for the upcoming quiz. Study for our next session.

RUNNING WATER

THE TWO DIFFERENT TYPES OF FLOWS CONFINED
WITHIN PARALLEL BOARDERS SUCH AS A RIVER OR A
CHANNEL ARE
CHANNEL ARE
LAMINAR AND TURBULENT

LAMINAR FLOW



LINES OF FLOW CALLED STREAMLINES ARE ALL
PARALLEL WITH ONE ANOTHER. ALL FLOWS OCCUR IN
PARALLEL LAYERS WITH NO MIXING BETWEEN LAYERS.
LAMINAR FLOW IS GENERALLY SHALLOW AND CAUSES
LITTLE EROSION.

TURBULENT FLOW



TURBULENT FLOW: THE STREAMLINES INTERWINE, CAUSING A COMPLEX MIXING
OF THE FLUID. OCCURS IN ALMOST ALL STREAMS.
TURBULENT FLOW IS VERY ENERGETIC AND THUS IS
CAPABLE OF CONSIDERABLE EROSION AND SEDIMENT

DETERMINING VELOCITY

To compute the velocity of a river divide a 100 foot span by time of travel

$$\frac{100 \text{ foot span}}{\text{Time of travel}} = \frac{100'}{17 \text{ sec}} = 5.9 \text{ ft. per second}$$

<i>Time To Travel 100 Feet</i>	<i>Feet Per Second</i>	<i>Miles Per Hour</i>
<i>5 seconds</i>	<i>20.0 fps</i>	<i>13.60 mph</i>
<i>10 seconds</i>	<i>10.0 fps</i>	<i>6.80 mph</i>
<i>15 seconds</i>	<i>6.7 fps</i>	<i>4.56 mph</i>
<i>20 seconds</i>	<i>5.0 fps</i>	<i>3.40 mph</i>
<i>25 seconds</i>	<i>4.0 fps</i>	<i>2.72 mph</i>
<i>30 seconds</i>	<i>3.3 fps</i>	<i>2.35 mph</i>

THE FORCE OF WATER

<i>Current Velocity</i>	<i>On Legs</i>	<i>On Body</i>	<i>On Swamped Watercraft</i>
<i>3 MPH</i>	<i>16.8 lbs</i>	<i>33.6 lbs</i>	<i>168 lbs</i>
<i>6 MPH</i>	<i>67.2 lbs</i>	<i>134 lbs</i>	<i>672 lbs</i>
<i>9 MPH</i>	<i>151 lbs</i>	<i>302 lbs</i>	<i>1512 lbs</i>
<i>12 MPH</i>	<i>269 lbs</i>	<i>528 lbs</i>	<i>2688 lbs</i>

STREAM EROSION

POTENTIAL ENERGY

Water at rest
Dams, Water Tables, Lakes

KINETIC ENERGY

Energy of motion
Dissipates as heat in turbulence
5 % available for erosion
Dissolves solid particles

HYDRAULIC ACTION

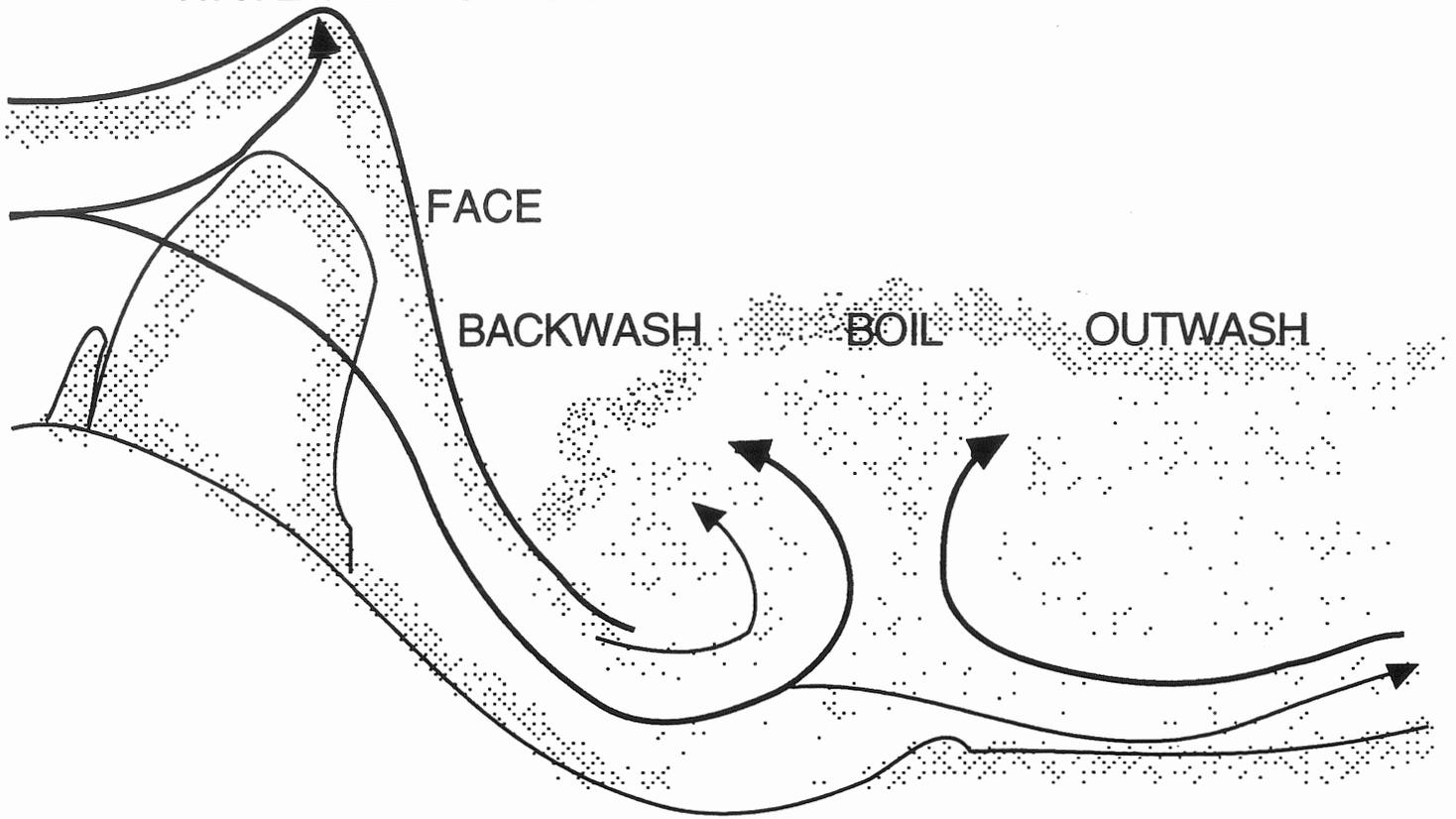
Power of running water
Gets particles in motion
Causes abrasion

ABRASION

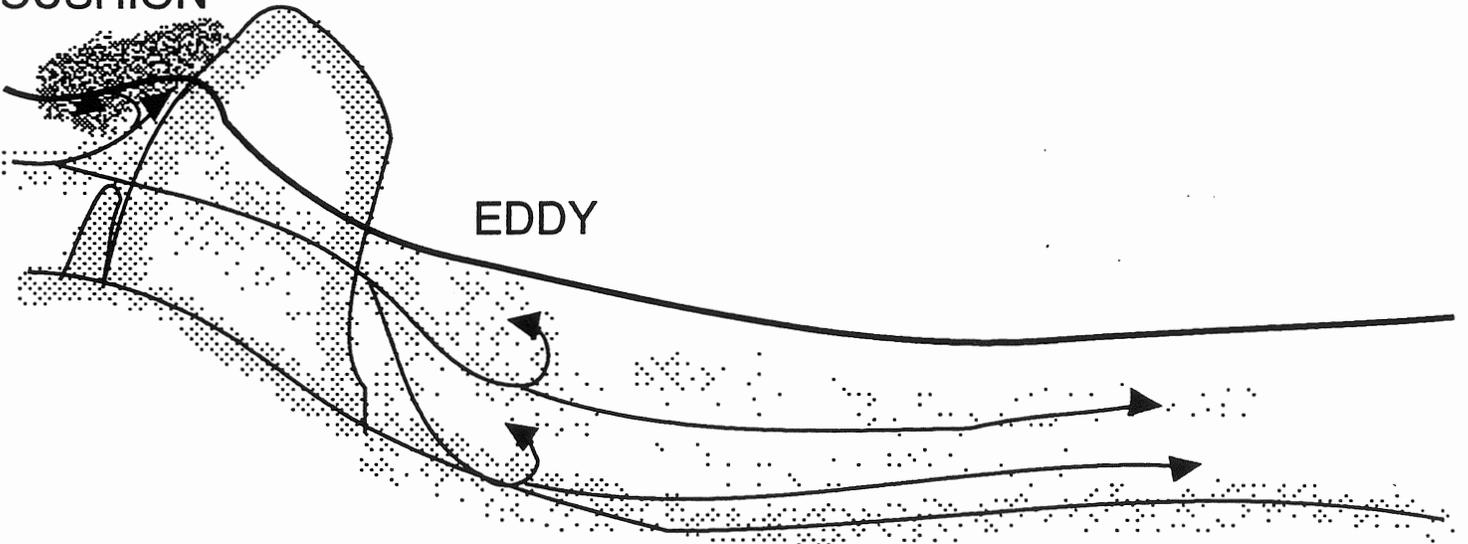
Exposed rock worn and scraped
Sediment in water causes most erosion

RIVER CHARACTERISTICS

WAVE / HAYSTACK

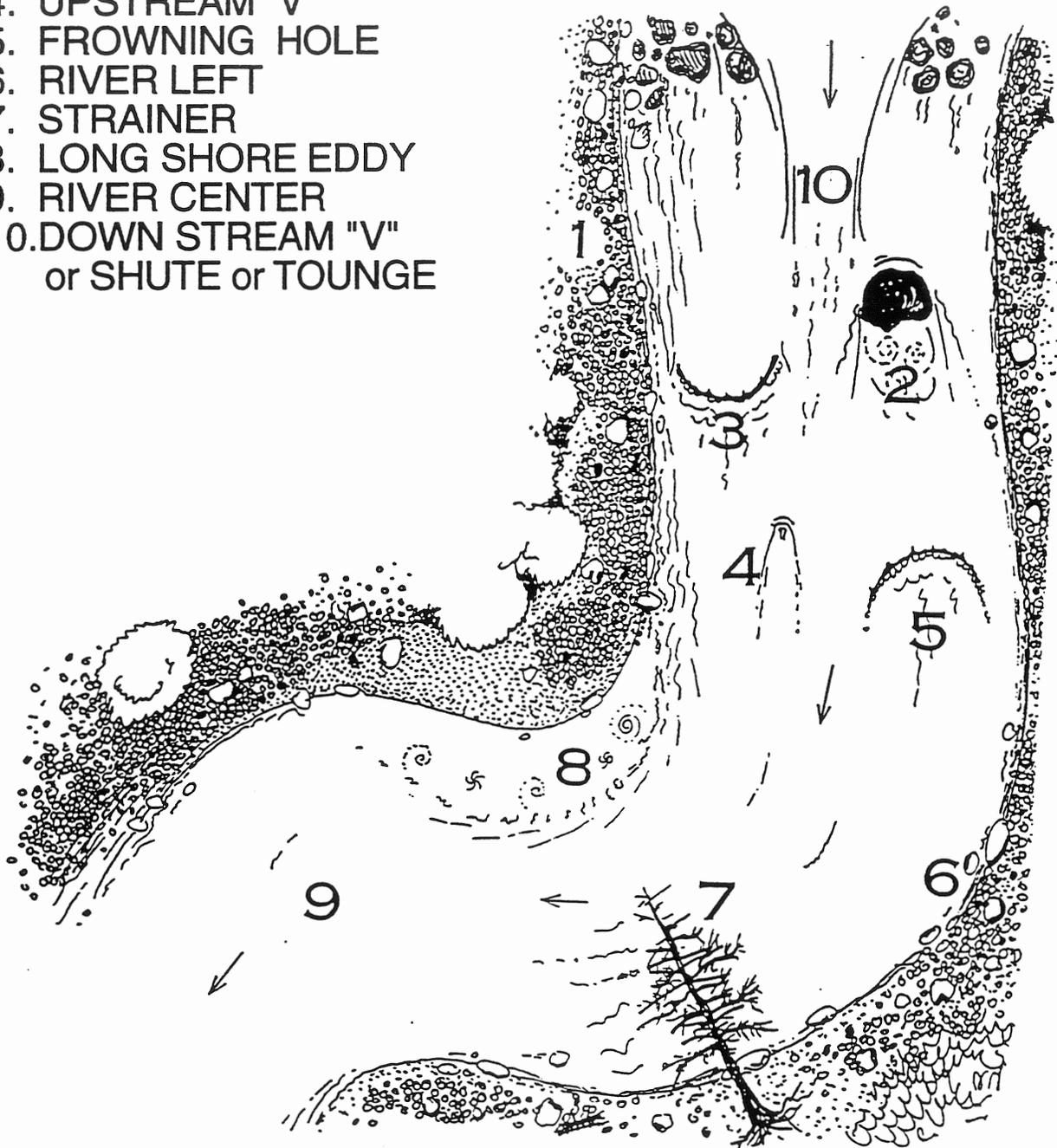


CUSHION

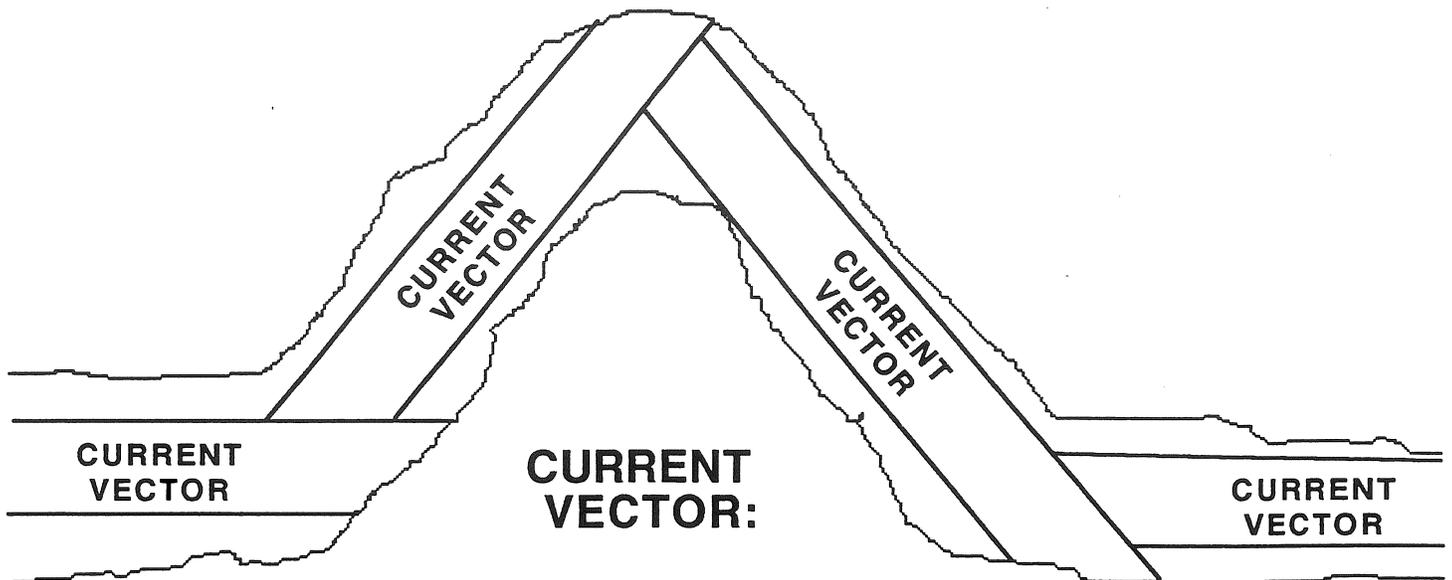


RIVER CHARACTERISTICS

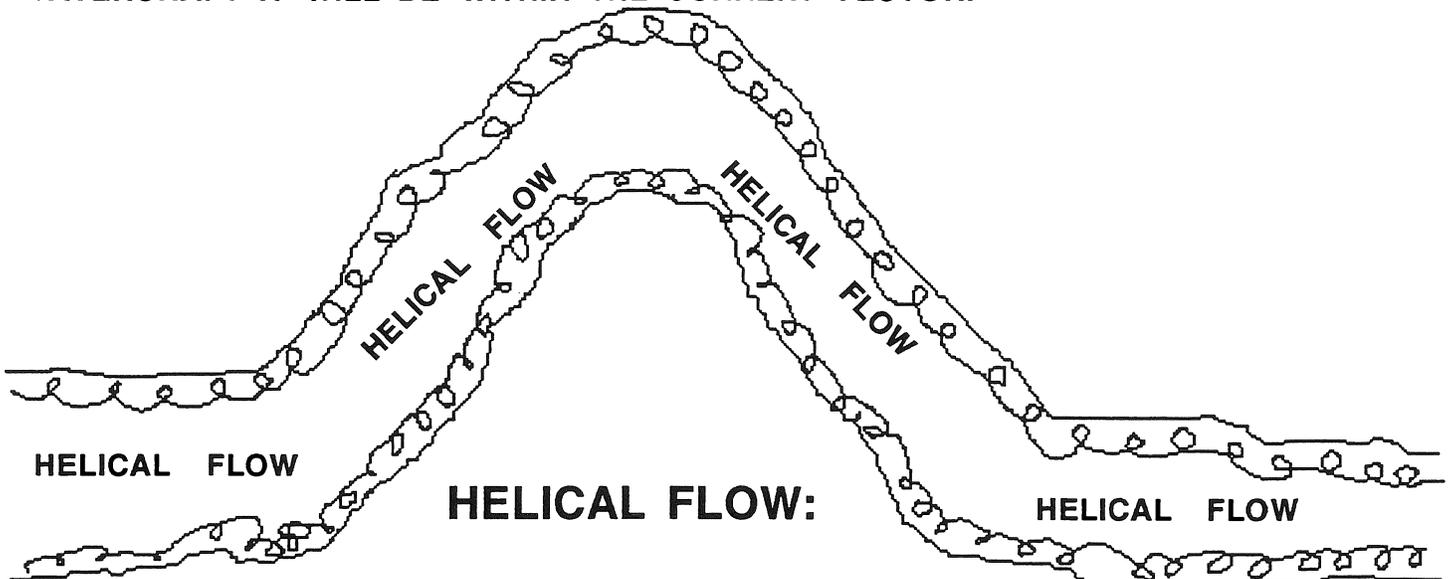
1. RIVER RIGHT
2. EDDY
3. SMILING HOLE
4. UPSTREAM "V"
5. FROWNING HOLE
6. RIVER LEFT
7. STRAINER
8. LONG SHORE EDDY
9. RIVER CENTER
10. DOWN STREAM "V" or SHUTE or TOUNGE



RIVER CHARACTERISTICS



IS THAT PART OF THE MOVING WATERS FLOW WHICH IS GREATLY LAMINAR. IT IS NORMALLY THE DEEPEST PART OF THE FLOW AND RUNS THE FASTEST. THERE IS LITTLE TURBULENCE DUE TO THE LACK OF ROCKS OR OBSTRUCTIONS BELOW THE SURFACE. THIS PART OF THE WATERS FLOW WILL CARRY MOST OBJECTS PLACED IN THE CURRENT. AS YOU FERRY ANGLE AND HOVER YOUR PERSONAL WATERCRAFT IT WILL BE WITHIN THE CURRENT VECTOR.



IS THAT FLOW WHICH FILLS IN BETWEEN SHORE AND CURRENT VECTOR OR LAMINAR FLOW. AS THE WATER CONTACTS THE SHALLOW SURFACE NEAR THE SHORE, THE WATER STARTS TO FLOW IN A CORKSCREW MOTION. IT RISES UP TO THE SURFACE NEXT TO THE MAIN CURENT AND FLOWS TOWARD THE BANK, THEN DIVES DOWN ALONG THE BOTTOM TILL IT REACHES THE MAIN CURENT AGAIN. THE HELICAL FLOW IS SLOWER THAN THE CURRENT VECTOR AND ALLOWS A PERSON THE CHANCE TO PULL HIM OR HERSELF OUT OF THE MAIN CURENT, BUT BE PREPARED BECAUSE IT MAY ALSO PULL YOU BACK INTO THE MAIN CURRENT.

TOPIC: Performing A Pre-Operation Inspection

TIME FRAME 0:30

LEVEL OF INSTRUCTION II

BEHAVIORAL OBJECTIVE:

Condition: Personal watercraft on trailer

Behavior: The student will

- identify the items checked for a pre-operation inspection
- perform a pre-operation inspection on a personal watercraft

Standard: Completion of all operations shall be performed within two minutes in accordance to job breakdown

MATERIALS NEEDED:

- Pre-operation inspection job breakdown
- Personal watercraft on trailer
- Flashlight
- Information Sheet 5-1 Page 1

REFERENCES

- Personal watercraft owner's manuals

PREPARATION:

Your ability to quickly and efficiently perform a pre-inspection check of the personal watercraft is crucial to your overall use and rescue operations. Personal watercraft shall be inspected before use during any training or rescue operation. For law enforcement and rescue team members, the more rapid the pre-inspection is completed the quicker the personal watercraft can be used for it's determined needs.

INSTRUCTOR GUIDE

PERFORMING A PRE-OPERATION INSPECTION

OPERATIONS	PRESENTATION	KEY POINTS
1. Exterior of personal watercraft		<ul style="list-style-type: none">1a. Quickly check the hull for any damage that may have occurred during past training or rescue operations.b. Check intake grate for any foreign materialc. Check impeller for damage or debrisd. Assure bilge plug is tightly in placee. Assure steering nozzle turns easily and unrestrictedf. Assure throttle lever operates smoothly and returns quickly and tightg. Remove seat to vent fuel vapors from engine compartment
2. Interior of personal watercraft		<ul style="list-style-type: none">2a. Assure fuel tank is fullb. Assure two stroke oil tank is fullc. Check all hoses and clampsd. Check cables and slide rods (steering, throttle, etc.
3. Launching		<ul style="list-style-type: none">3a. Release both bow and stern restraintsb. Turn gas to "ON" positionc. Start watercraft using choke if engine is cold. Do not run for more than 5-10 secondsd. Launch personal watercraft for law enforcement or a rescue operation

SUMMARY:

It is important to perform a thorough pre-operation inspection before launching the personal watercraft into any body of water. You will feel confident during your training or rescue operation knowing that all major items have been inspected to be full or in service. This simple and quick two minute, (or less), inspection is well worth the time and should be required by any agency using personal watercraft for emergency services.

EVALUATION:

Each student will perform a pre-inspection of a personal watercraft completing the task within two minutes in accordance to the job breakdown

The student will perform a pre-inspection of a personal watercraft without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz

Under the supervision of your instructor, perform pre-inspections of a personal watercraft until confident.

PRE- OPERATIONS CHECK LIST

~~~~ EXAMPLE ~~~~

- CHECK ENTIRE HULL FOR ANY DAMAGE
- CHECK INTAKE GRATE FOR DEBRIS
- CHECK IMPELLER FOR DAMAGE
- ASSURE BILGE PLUG IS IN PLACE AND SECURE
- ASSURE STEERING NOZZLE MOVES EASILY
- ASSURE THROTTLE LEVER OPERATES SMOOTHLY
- REMOVE SEAT TO VENT FUEL VAPORS
- ASSURE FUEL TANK IS FULL
- ASSURE TWO STROKE OIL TANK IS FULL
- QUICKLY CHECK THAT HOSES AND CLAMPS ARE SECURE
- QUICKLY CHECK CABLES AND SLIDE RODS
- TURN FUEL VALVE ON
- ATTACH SAFETY LANYARD TO KILL SWITCH

# INSTRUCTOR GUIDE

**TOPIC:** Launching A Personal Watercraft

**TIME FRAME:** 0:15

**LEVEL OF INSTRUCTION** II

**BEHAVIORAL OBJECTIVE:**

**Condition:** Personal watercraft on trailer

**Behavior:** The student will

- select an appropriate location to launch a personal watercraft
- back the tow vehicle and personal watercraft into a body of water
- launch a personal watercraft into dynamic water

**Standard:** Completion of all operations shall be performed with in three minutes in accordance to job breakdown

**MATERIALS NEEDED:**

- Thermal protection
- Personal flotation device
- Swift water helmet
- Launching job breakdown
- Personal watercraft on trailer with tow vehicle
- Information sheet 6-1 Page 1

**REFERENCES:**

- Personal watercraft owner's manual
- Towing vehicle owner's manual

**PREPARATION:**

Quickness of placing personal watercraft into action is imperative to conducting an efficient and successful drowning rescue. The operation must be performed smoothly and with coordination between a three member team. The possibility of onlookers and media watching your operation is greatly conceivable. Your successful completion of this maneuver will allow you to launch a personal watercraft in a timely, safe and smooth manner

# INSTRUCTOR GUIDE

LAUNCHING A PERSONAL WATERCRAFT

## OPERATIONS

## PRESENTATION

## KEY POINTS

1. Select a shore launching point

- 1a. River right or left, if in dynamic water
- b. Free of grass or snags
- c. Cove or long shore eddy
- d. Sandy or small rocks
- e. Accessible by towing vehicle

2. Back trailer to water line

- 2a. Use a spotter
- b. If in dynamic water, angle the towing vehicle and trailer so the personal watercraft enters the water with the aft of the personal watercraft facing down river
- c. Disconnect stern tiedown restraints
- d. Disconnect bow ring restraint
- e. Unplug trailer lights from tow vehicle

3. Back trailer into water

- 3a. Pilot wearing personal protection equipment should mount and prepare to start personal watercraft
- b. With spotter, back trailer into water until personal watercraft intake grate is just submerged in water. The pilot can double as the spotter while on the personal watercraft
- c. Pilot starts and warms up personal watercraft for 10-15 seconds minimum
- d. With spotter, continue backing trailer into water until personal watercraft can launch from trailer by using the reverse control or manually remove by pushing or pulling off trailer
- e. If in dynamic water source, pilot to obtain a positive attitude hover position in two feet of water (minimum)

# INSTRUCTOR GUIDE

LAUNCHING A PERSONAL WATERCRAFT

OPERATIONS

PRESENTATION

KEY POINTS

- f. Pull trailer out of water and place near water line out of the way of other incoming equipment
- g. If needed, the rescue device shall be attached at this time, or rescuer will now mount personal watercraft

## SUMMARY:

The operation you have just performed must be done quickly and with confidence. This is the first stage of our rescue operation and it must be performed flawlessly. Time is of the essence, error and poor performance will result in an unsuccessful response to a drowning victim. Your capacity to skillfully back-up the tow vehicle with the trailer behind it, will start the sequence of a successful rescue operation.

## EVALUATION:

Each student will launch the personal watercraft completing the task within three minutes in accordance to the job breakdown

The student will launch the personal watercraft without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

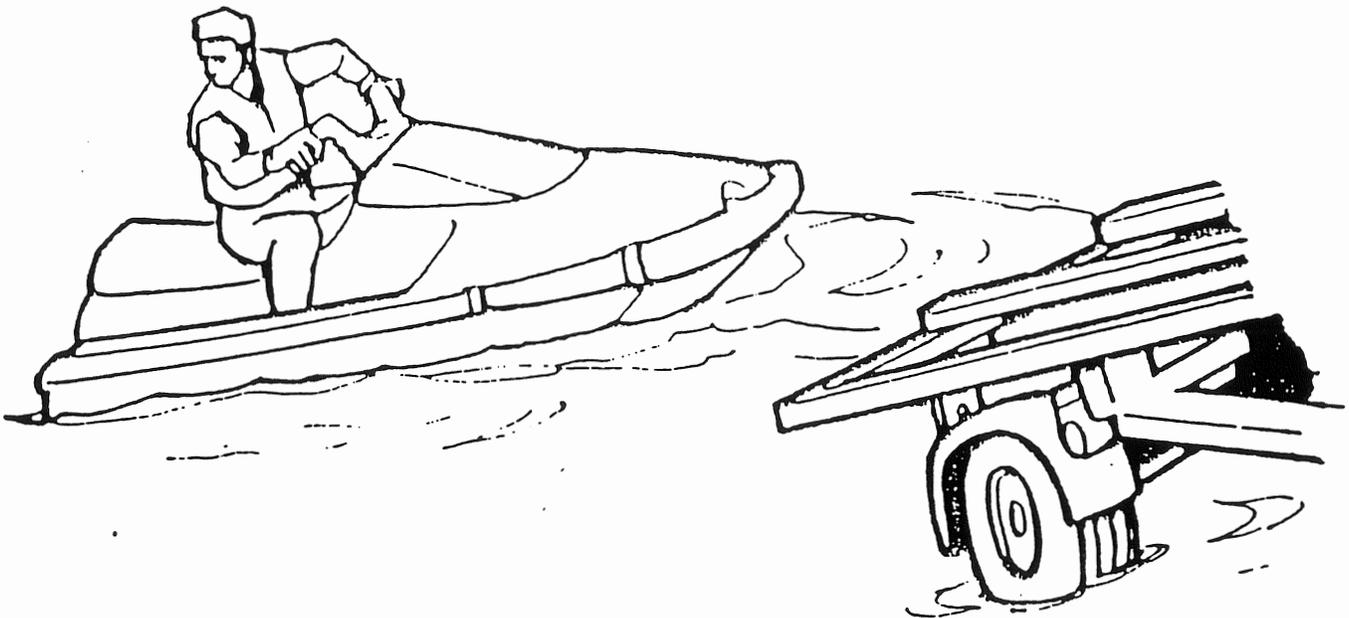
## ASSIGNMENT:

Review your notes and appropriate Information Sheets to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, perform the launching skill until confident for certification skill sign off.

## LAUNCHING

1. Assure completion of pre-operation check
2. Assure all restraints are removed and the personal watercraft is ready to be placed into the water.
3. If water is dynamic, attempt to back trailer into water with rear of trailer facing down stream. This will allow you to obtain a positive attitude upon launching from trailer.
4. After the successful launch, prepare to allow mounting of rescuer.
5. You are the pilot of that craft, make sure you are capable and experienced before attempting any type of rescue.



# INSTRUCTOR GUIDE

**TOPIC:** Rescuer Mounts Personal Watercraft

**TIME FRAME:** 0:15

**LEVEL OF INSTRUCTION:** II

**BEHAVIORAL OBJECTIVE:**

**Condition:** Personal Watercraft On Trailer

**Behavior:** The student will

- recognize the proper depth needed to mount a personal watercraft
- identify the need for good communication between pilot and rescuer
- with acquired balance, mount a personal watercraft
- identify the position of the rescuer on the personal watercraft

**Standard:** Completion of all operations shall be performed within thirty seconds in accordance to job breakdown

**MATERIALS NEEDED:**

- Thermal protection
- Personal flotation device
- Swiftwater helmet
- This mounting job breakdown
- Personal watercraft

**REFERENCES:**

- Personal watercraft owner's manual

**PREPARATION:**

Your ability as a rescuer to embark a personal watercraft will mean the successful completion or failure of a water rescue operation. It is imperative that you apply your self to this maneuver. With out a rescuer to perform an operation, the operation becomes futile. Your ability in this maneuver will make the water rescue team a thriving success.

# INSTRUCTOR GUIDE

RESCUER MOUNTS PERSONAL WATERCRAFT

| OPERATIONS                                | PRESENTATION | KEY POINTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                      |
|-------------------------------------------|--------------|-----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Ready personal watercraft for mounting |              | 1a. Pilot to hover personal watercraft in two feet of water (minimum)<br><br>b. If in dynamic water, maintain a positive attitude<br><br>c. Communicate with pilot when ready to mount personal watercraft                                                                                                                                                                                                                                                                                                      |
| 2. Mount personal watercraft from shore   |              | 2a. Steady personal watercraft by placing one hand on the rear of the seat<br><br>b. Place right foot on left side of aft platform<br><br>c. Grasp rear seat handle firmly with other hand<br><br>d. Pull yourself onto personal watercraft and turn placing your left foot on the right side of the aft platform<br><br>e. Straddle the seat firmly placing your lower back against the lower back of the pilot. Grasp rear seat handle if needed to maintain balance                                          |
| 3. Mount personal watercraft from water   |              | 3a. Obtain a swift water position with aft of personal watercraft at your chest, bow pointing down river<br><br>b. Place hands on aft of personal watercraft at the edges<br><br>c. After receiving an "all right" from the pilot, Push the aft of the personal watercraft down while lifting yourself out of the water<br><br>d. Place either knee onto the aft platform and grasp the rear seat handle with your dominate hand<br><br>e. Pull yourself up and onto the personal watercraft, straddle the seat |

# INSTRUCTOR GUIDE

RESCUER MOUNTS PERSONAL WATERCRAFT

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OPERATIONS

PRESENTATION

KEY POINTS

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- f. While pilot steadies personal watercraft, turn around so your facing aft (working position)

## SUMMARY:

Every member of the personal watercraft rescue team should be proficient at this task. At any time you may be the member of the team placed in the rescuer position. You must become competent at recognizing the proper depth needed to mount your personal watercraft. Communication between you and your pilot is vital for continuity of team work. Continued training in this position will provide you with the balance required to perform in the rescuers obligations.

## EVALUATION:

Each student will embark the personal watercraft as the rescuer completing the task within thirty seconds in accordance to the job breakdown

The student will embark the personal watercraft as the rescuer without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

## ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, perform second person mounting of the personal watercraft until confident for certification skill sign off.

**TOPIC:** Shoring A Personal Watercraft

**TIME FRAME:** 0:15

**LEVEL OF INSTRUCTION:** II

**BEHAVIORAL OBJECTIVE:**

**Condition:** Personal watercraft, body of water

**Behavior:** The student will

- identify a location to shore a personal watercraft
- perform hover and ferry maneuvers
- allow dismounting of rescuer and pilot
- recognize benefit of proper shoring for victim

**Standard:** Completion of all operations shall be performed within one minute in accordance to job breakdown

**MATERIALS NEEDED:**

- Thermal protection
- Personal flotation device
- Swift water helmet
- This job breakdown
- Personal watercraft
- Information Sheet 8-1 Page 1

**REFERENCES:**

- Information Sheet 8-1 Page 1

**PREPARATION:**

Upon completion of training, or a rescue operation, it is imperative that proper shoring of the personal watercraft be performed to keep from damaging the gel coat on the hull. Cobbles, pebbles, and even sand can place dings and scratches into the gel coat hull. This maneuver has to be perfected because when performing rescue operations a victim may be on the personal watercraft that is frightened, nervous, injured, or weak and cold. Confidence and smoothness are assets for this maneuver because being performed close to shore, it will be seen by bystanders and, of course, the local media, if on scene.

# INSTRUCTOR GUIDE

| OPERATIONS                      | PRESENTATION                                          | KEY POINTS                                                                                                                                  |
|---------------------------------|-------------------------------------------------------|---------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Select a shore point         |                                                       | 1a. River right or river left                                                                                                               |
|                                 |                                                       | b. Free of grass or snags                                                                                                                   |
|                                 |                                                       | c. Cove or long shore eddy                                                                                                                  |
|                                 |                                                       | d. Sandy or small rocks                                                                                                                     |
| 2. Position personal watercraft | 2a. Obtain up river attitude                          | b. Hover river center from selected shore point                                                                                             |
|                                 |                                                       | c. Line up with point on shore                                                                                                              |
| 3. Ferry towards shore          | 3a. Selected shore point at river right or river left | b. Change angle of personal watercraft                                                                                                      |
|                                 |                                                       | c. Adjust angle to speed of current                                                                                                         |
|                                 |                                                       | d. Maintain throttle to speed of current                                                                                                    |
| 4. Dismounting of rescuer       | 4a. When crew consist of two persons                  | b. Two feet of water (minimum)                                                                                                              |
|                                 |                                                       | c. Communicate with pilot before dismounting personal watercraft                                                                            |
|                                 |                                                       | d. Dismount on river left or river right, and with in two feet of water minimum, maintaining contact with the personal watercraft           |
| 5. Dismounting of pilot         | 5a. When crew consist of pilot only                   | b. Two feet of water (minimum)                                                                                                              |
|                                 |                                                       | c. Swing proper leg over seat so both legs are on the same side of the personal watercraft as your shore point. (River right or river left) |
|                                 |                                                       | d. Shut off personal watercraft and pull dead man tether while coasting into shore                                                          |

# INSTRUCTOR GUIDE

SHORING A PERSONAL WATERCRAFT

OPERATIONS

PRESENTATION

KEY POINTS

6. Shoring personal watercraft

- e. Dismount in two feet of water minimum maintaining contact with the personal watercraft
- 6a. Grasp bow with both hands
- b. Communicate personal watercraft contact is secure
- c. Pilot shut off personal watercraft
- d. Rescuer pulls personal watercraft onto shore carefully and in sandy soil if possible
- e. Assure secure shore position before leaving personal watercraft location

## SUMMARY:

While this maneuver may seem simple and unworthy of continued training, you will soon see the damage to the gel coat of your personal watercraft if you do not train on this maneuver. You must locate a spot that will do minimal damage to your personal watercraft if you must bring it up on shore. The communication between the pilot and rescuer must be professional and effective. Also remember that the smoothness of this maneuver will bring comfort to a rescued victim as you bring them onto shore.

## EVALUATION:

Each student will shore a personal watercraft completing the task within one minute in accordance to the job breakdown

The student will shore a personal watercraft without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

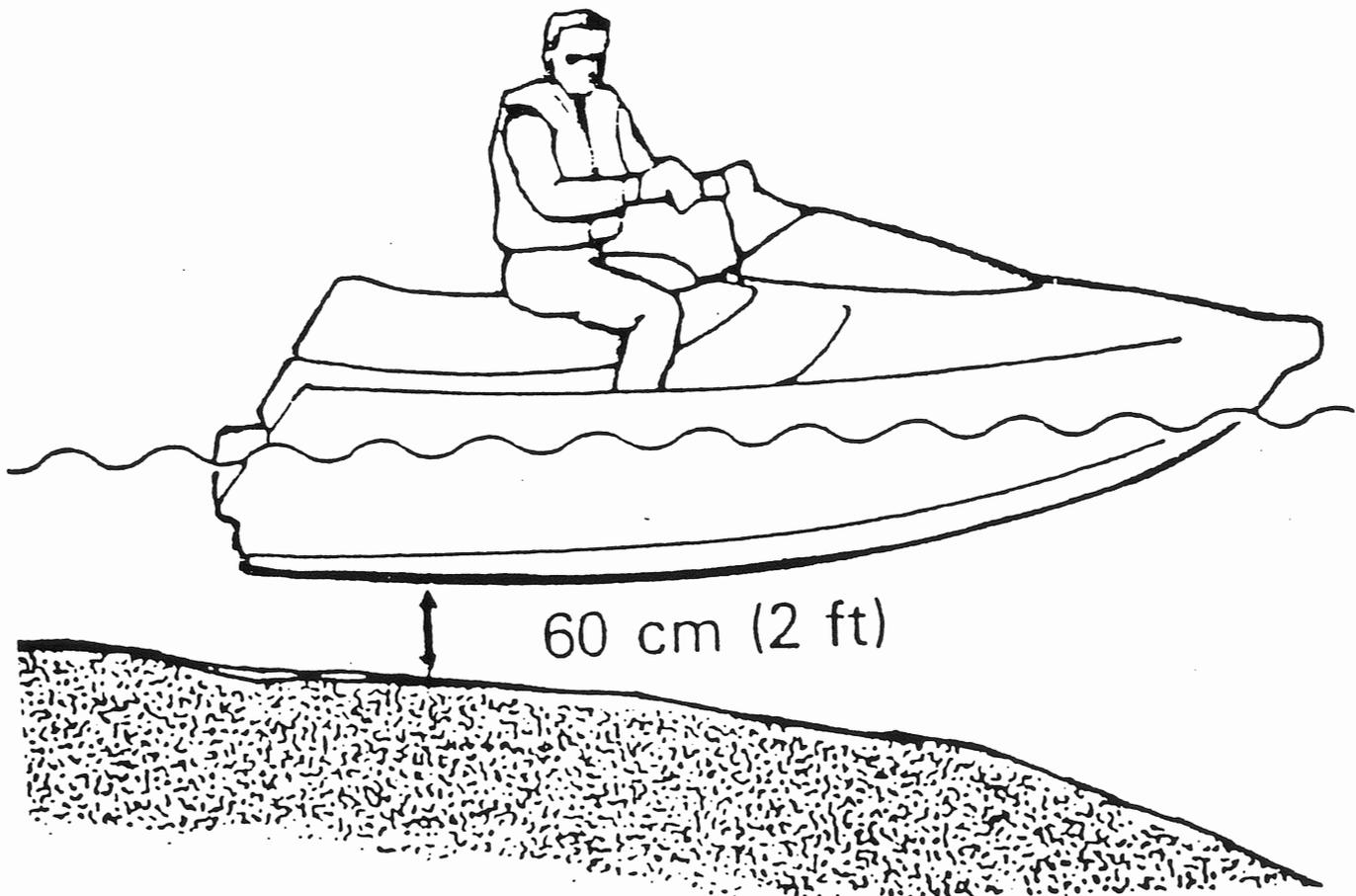
## ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, review shoring a personal watercraft skill until confident for certification skill sign off.

## SHORING

1. Slow down to idle speed before reaching point of shoring.
2. Determine depth of water below personal watercraft. No shallower than two (2) feet
3. Bring either leg from one side to the other, placing both legs over the gunnel on the same side of the personal watercraft.
4. When two (2) feet of water has been reached, kill the engine to personal watercraft and slide over either gunnel stepping onto river bottom while holding the personal watercraft away from shallow areas and the shore line.
5. Maintain security of the personal watercraft in water. Never bring the personal watercraft onto shore. Damage will occur to the hull finish.



# INSTRUCTOR GUIDE

**TOPIC:** Righting A Tipped Personal watercraft

**TIME FRAME:** 0:30

**LEVEL OF INSTRUCTION:** II

**BEHAVIORAL OBJECTIVE:**

**Condition:** Personal watercraft, body of water, dynamic or static

**Behavior:** The student will

- recognize the need to safely upright an overturned personal watercraft in static or dynamic water
- recognize the safe swim position
- identify the direction a personal watercraft must be righted to prevent damage

**Standard:** Completion of all operations shall be performed with in one minute in accordance to job breakdown

**MATERIALS NEEDED:**

- Thermal protection
- Personal flotation device
- Swift water helmet
- This job breakdown
- Personal watercraft
- Student Info Sheet 9-1, 1

**REFERENCES:**

- Personal watercraft owners manual
- Rescue 3 International Swift Water Rescue Manual

**PREPARATION:**

Competent ability with your personal watercraft will allow you to reach, and aid persons in need of your assistance. But because of an incorrect turn or maneuver, you are the one in the water. You must know what to do to recover; get back on your personal watercraft and return to aid those in need. The result of this training will allow you increased confidence, and the knowledge to quickly upright and remount your personal watercraft

# INSTRUCTOR GUIDE

RIGHTING A TIPPED PERSONAL WATERCRAFT

| OPERATIONS                               | PRESENTATION | KEY POINTS                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Flip personal watercraft              |              | <ul style="list-style-type: none"><li>1a. Confirm water is deep enough to flip personal watercraft, then stand up on personal watercraft</li><li>b. Firmly grasp left hand grip</li><li>c. Lean body weight to right</li><li>d. Flip over personal watercraft while entering into water</li><li>e. If in dynamic water, obtain a swift water position</li></ul>                                                                          |
| 2. Make contact with personal watercraft |              | <ul style="list-style-type: none"><li>2a. Obtain contact with personal watercraft by swimming back to stern end or if in dynamic water, ferry angle or do a belly roll and swim to personal watercraft</li><li>b. Keep the personal watercraft between you and down river</li><li>c. Also if in dynamic water, obtain swift water position on up river side of personal watercraft, stabilize personal watercraft and yourself</li></ul> |
| 3. Upright personal watercraft           |              | <ul style="list-style-type: none"><li>3a. Following proper up-righting reference from the owners manual, grasp intake grate with dominate hand and reach over hull with other hand</li><li>b. Place knees upon hull</li><li>c. Lean body weight back up righting personal watercraft. Assure you are out of the way while personal watercraft flips towards you</li><li>d. Obtain a swift water position if in dynamic water</li></ul>   |

# INSTRUCTOR GUIDE

RIGHTING A TIPPED PERSONAL WATERCRAFT

OPERATIONS

PRESENTATION

KEY POINTS

4. Position personal watercraft

- 5a. Maneuver personal watercraft with bow pointing away from you or if in dynamic water, point bow down river and stern of personal watercraft is at your chest.
- b. Re-Mount personal watercraft from water
- c. Re-start personal watercraft
- d. Resume personal watercraft operations

## SUMMARY:

As you become more and more competent with personal watercraft operations you will find less of a need to perform this maneuver. However, you must continue to train on this maneuver so as to always feel comfortable righting your personal watercraft in a manner in accordance to the owners manual for that particular personal watercraft. When in dynamic water, the safe swim position of an SRT is imperative to protect you from injury. This maneuver should not be performed until the safe swim position is acquired.

## EVALUATION:

Each student will up-right the personal watercraft completing the task within one minute in accordance to the job breakdown

The student will up-right the personal watercraft without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

## ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, perform the up-righting skill until confident for certification skill sign off.

## OBJECTIVE

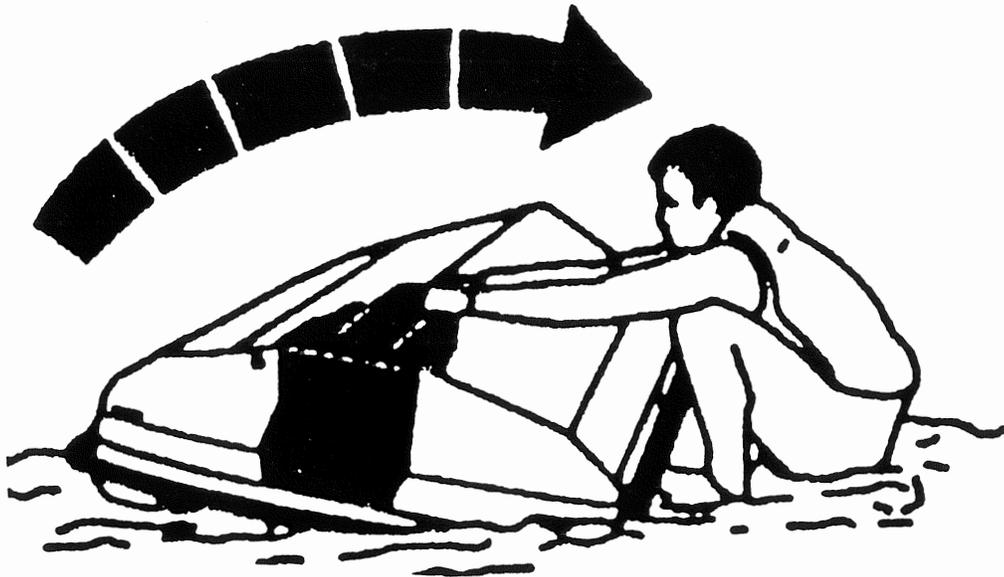
# MAINTAIN THE PERSONAL WATERCRAFT BETWEEN YOU AND DOWN RIVER CURRENT, REMOUNT AND CONTINUE OPERATIONS

## PROCEDURE

1. Make contact with the personal watercraft from the upriver side.
2. Obtain a swiftwater position while remaining in contact with the personal watercraft.  
Position the personal watercraft so the bow is to your right and the stern is to your left.
4. Position yourself at the stern portion of the personal watercraft, reach up and grab the intake grate.
5. While pulling on the intake grate, place your knees on the sponsons and lean back.
6. The personal watercraft should now be righted, if not follow steps 1 through 5 again until the righting procedure is completed.
7. While still on the upriver side of the personal watercraft, position it so the bow is pointed down current.
8. Position yourself at the stern (upriver side) of the personal watercraft, maintaining firm contact with the loading platform.
9. Re-mount the personal watercraft and obtain the pilots position, attach safety lanyard.
10. If a rescuer or victim needs to re-mount also, steady the craft for him/her to mount.
11. Start the personal watercraft and resume rescue or training operations.

## CAUTION

TO AVOID POSSIBLE ENGINE FLOODING  
WHEN ROLLED OVER:



MAKE SURE ENGINE IS OFF

---

GRAB INLET GRATE AND STEP ON  
BUMPER RAIL

---

ROLL BOAT CLOCKWISE



FIGURE "8"

# CALIFORNIA FIRE MARSHAL PERSONAL WATER CRAFT TRAINING COURSE



FULL TURN



HALF TURN



SLALOM

FINISH



START

3 FEET MINIMUM

# INSTRUCTOR GUIDE

**TOPIC:** Traveling In Dynamic Water

**TIME FRAME:** 1:00

**LEVEL OF INSTRUCTION:** II

**BEHAVIORAL OBJECTIVE:**

**Condition:** Personal Watercraft, Dynamic Water Source

**Behavior:** The student will

- recognize obstructions in a dynamic body of water
- understand the power of dynamic water against a personal watercraft
- choose the best route through obstacles in a dynamic water source
- navigate a personal watercraft through a dynamic water source
- understand river hydrology by reading shore geology

**Standard:** Completion of all operations shall be performed within course guidelines in accordance to job breakdown

**MATERIALS NEEDED:**

- Thermal protection
- Personal flotation device
- Swift water helmet
- This job breakdown
- Personal watercraft

**REFERENCES:**

- Physical Geology, James S. Monroe & Reed Wicander 1992
- Understanding The Physics Of Moving Water, McCoy & Winder Epson House 1989

**PREPARATION:**

People recreate near and perish in dynamic water sources every year. Your ability to travel in dynamic water, with a rescuer, to the area where people are in need of help is imperative. You must have complete confidence in your ability to operate in dynamic water to complete a successful

rescue. When lives are held in the balance due to your ability, is not the time to decide you need more training. Reality will prove you need to complete the rescue as soon as possible, or you may never see the victim again.

# INSTRUCTOR GUIDE

TRAVELING IN DYNAMIC WATER

| OPERATIONS                               | PRESENTATION | KEY POINTS                                                                                                                                                                                                                                                                                                                                                                 |
|------------------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Travel within laminar flow of current |              | 1a. While traveling up river or down river maintain your personal watercraft's long axis of the hull, parallel to the current                                                                                                                                                                                                                                              |
| 2. Speed while on dynamic water          |              | 2a. When traveling on dynamic water you will obtain either a full plane or maintain an idle speed, both up and down river.<br><br>b. If control of personal watercraft can be obtained at lower speeds without plowing, it is acceptable to use the lower speed                                                                                                            |
| 3. Avoid Plowing                         |              | 3a. Keep the personal watercraft in a horizontal position in the water<br><br>b. Plowing will place the intake grate closer to river bottom, allowing ingestion of debris                                                                                                                                                                                                  |
| 4. Turning in dynamic water              |              | 4a. Look behind you to both sides and assuring there is no one near<br><br>b. make your turns as fast as possible<br><br>c. maintain safety and security of personnel<br><br>d. When hull is perpendicular to current it will act as a wall in the water and allow uncontrolled travel of the personal watercraft down current and possibly cause you to go out of control |
| 5. Choosing where to start your turn     |              | 5a. Always choose a point at which you wish to end up after the turn<br><br>b. On a down river turn, start your turn equal with or upriver from the point you wish to end up when completed<br><br>c. On an up river turn, start your turn upriver from the point you wish to end up                                                                                       |

# INSTRUCTOR GUIDE

TRAVELING IN DYNAMIC WATER

## OPERATIONS

## PRESENTATION

## KEY POINTS

- | OPERATIONS                         | PRESENTATION | KEY POINTS                                                                                                                                                                                                                                                                                                                                                                                   |
|------------------------------------|--------------|----------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 6. Up river and down river "V"s    |              | <ul style="list-style-type: none"><li>6a. A "V" pointing up river is caused by an object near or breaking the water surface (AVOID ALL UPSTREAM "V"s)</li><li>b. A "V" pointing down river is the merging of water from two shallower areas.</li><li>c. These will usually be the path of travel; however</li><li>d. Inspect these "V"s if you are not familiar with the area</li></ul>      |
| 7. Current vector                  |              | <ul style="list-style-type: none"><li>7a. Most rivers are sinuous</li><li>b. Their flow velocity varies from one side to the other</li><li>c. As water flows around curves it flows faster near the outer bank</li><li>d. This velocity causes little deposition which will usually offer the deepest part of the river</li><li>e. Attempt to travel on the outside of river turns</li></ul> |
| 8. Cushions, pillows and haystacks |              | <ul style="list-style-type: none"><li>8a. Caused by items immediately or farther below the surface</li><li>b. Pushes water up and causes white water in some instances</li><li>c. Stay clear of most cushions and pillows</li><li>d. Avoid haystacks until the area is inspected for depth</li></ul>                                                                                         |
| 9. Eddies                          |              | <ul style="list-style-type: none"><li>9a. Horizontal reversal of water flow</li><li>b. Low pressure of an eddy will pull a personal watercraft into the eddy</li><li>c. Use eddies to hold your personal watercraft at a specific point</li></ul>                                                                                                                                            |

# INSTRUCTOR GUIDE

TRAVELING IN DYNAMIC WATER

OPERATIONS

PRESENTATION

KEY POINTS

10. Deposition

- 10a. Normally located at slower places along the river such as inside of turns, outside edge of coves etc...
- b. Also caused by the delta of other tributaries
- c. Avoid areas of deposition until inspected for depth.

## SUMMARY:

You should be extremely confident in your ability to travel along a dynamic water source. A moving personal watercraft contacting an obstruction, or placed against the awesome power of dynamic water, can do great damage to you and the personal watercraft. You should be capable to read the signs of a river and decide the best route to travel. This ability will assure a safe passage from your point of entry to the victim and back to a victim removal point.

## EVALUATION:

Each student will travel a dynamic water course completing the trip until confident with their river reading ability in accordance to the job breakdown

The student will travel a dynamic water source and read the river without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

## ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, travel up and down a dynamic water source, reading the river until confident for certification skill sign off.

Navigating a personal watercraft up or down a dynamic source, is a skill one must continually maintain through training and reconnaissance of the dynamic source.

---

## 1. TRAVEL WITHIN THE LAMINAR FLOWS

While traveling up or down river maintain your personal watercraft's long axis of the hull to the current within the laminar flow.

## 2. SPEED WHILE ON DYNAMIC WATER

When traveling on dynamic water you must maintain either a full plane or maintain an idle speed, both up and down river.

## 3. AVOID PLOWING

Keep the personal watercraft in a horizontal position in the water. Plowing drops the stern of the personal watercraft deeper into the water. This places the intake grate at the bottom of the personal watercraft closer to river bottom, allowing ingestion of debris.

## 4. TURNING IN DYNAMIC WATER

Look behind you to both sides assuring there is no one behind you before making a turn. Maintain safety and security of your rescuer or victim by communicating a turn before one is made, and which way the turn will be made. Make your turn as fast as possible so as not to place the side of the personal watercraft against the current for a prolonged period of time. When the hull is perpendicular to the current, it will act as a wall in the water and allow uncontrolled travel of the personal watercraft down current and possibly cause you to get out of control.

## 5. WHERE TO START YOUR TURN

Before making your turn, choose the point at which you wish to end up after the turn is made. on an upriver turn, start your turn upriver from the point you wish to end up at when completed. On a down river turn start your turn equal with or just upriver of where you wish to end up at when the turn is completed. NEVER make a turn right next to a person in the water.

## 6. UPRIVER AND DOWN RIVER "V's"

A "V" pointing upriver is caused by an object near or breaking the surface of the water. The object penetrates the surface and causes the water to go around the object. Due to the unknown material of the object, avoid all upstream "V's".

A "V" pointing down river is the merging of water from two higher locations to a lower location. This is usually the deepest part of the river and the water flowing through the "V" is called a "chute" or "tounge". These will usually be your best route of travel. However, if you are not sure of the depth, or the material of object causing the "V", stop your personal watercraft, get off and inspect these areas.

## 7. CURRENT VECTOR

Because most rivers are sinuous, their flow velocity varies from one side of the river bank to the other. As water flows around a curve the flow is faster on the outside of the curve and slower on the inside of the curve. Due to the quicker water on the outside of the curve most erosion is taken place there. This will usually be your safest route of travel. Due to the slower water on the inside of the curve most deposition occurs there. Due to this deposition shallow areas are formed with sedimet and larger items. This will usually be the route to avoid during river travel.

## 8. CUSHIONS, PILLOWS AND HAYSTACKS

Cushions and pillows are caused by items just below the surface or which are breaking the surface. A cushion is that area of water which pushes upstream when it comes in contact with an object out of the water. This is actually the upstream part of a upstream "V". The cushion against larger objects can assist you in getting away from being pinned onto the object.

The Pillow is the area of water which rolls over the top of an object just below the surface of the water. A car just submerged below the surface of the water will have a pillow going over the top of it. This will assit a person in getting over an object even thorough the person should expect to encounter contact with what ever the object is just below the surface.

A haystack is the swelling of water above the water surface. This is caused by an object, or uneven river bottom, just below the surface of the water. It can also be caused by a larger object deeper below the surface during fast moving flows. It can also be caused by a narrowing of a channel and the water having to release it's energy in the form of pushing up. It can also be caused by two or more tributaries merging into each other releasing energy by pushing up water in the form of a haystack. Haystacks are also caused standing waves, because while they rise above the surface of the water and most times break over onto them selves, they never progress up or down stream.

## 9. EDDIES

An eddie is simply a horizontal reversal of water flow. That is that when water must go around an object from the upriver side, the water must rejoin its self on the down river side. You see water is known for taking the path of least resistance. On the down river side of an eddie is a low pressure system which actually brings water into it. It will also bring you into it if the eddie is large enough. While this maybe of help to you, sometimes you may not want to be brought into a eddy, so beware of them. Eddies are a good location to search for victims due to their reversal of flow.

## 10. Deposition

Normally located at slower parts of flow along a river such as the inside of bends or the outside of a river cove, deposition is also controlled by the increase and decrease of flow. The area where a tributary enters into a static source, or a dynamic source, is known as a Delta. These are good locations for deposition in the form of bars. During high flows, such as floods, deposition can be a point of flat land once the water recedes. It can also be a point just down stream of a rocky area which the high flows of the flood moved down stream. Water is awesome and can move any object on this earth, and whats amazing, is it does it with very little effort. BEWARE !!!!!



# INSTRUCTOR GUIDE

HOVER AND FERRY A PERSONAL WATERCRAFT

---

**TOPIC:** How To Hover And Ferry A Personal Watercraft

**TIME FRAME:** 0:30

**LEVEL OF INSTRUCTION:** II

**BEHAVIORAL OBJECTIVE:**

**Condition:** Personal Watercraft, Dynamic Water Source

**Behavior:** The student will

- recognize a suitable point to perform hover and ferry maneuvers
- perform a hover maneuver
- perform a ferry maneuver

**Standard:** Completion of all operations shall be performed within one minute in accordance to job breakdown

**MATERIALS NEEDED:**

- Thermal protection
- Personal flotation device
- Swift water helmet
- This job breakdown
- Personal watercraft
- Information Sheet 11-1 Pages 1 & 2

**REFERENCES:**

- Understanding the physics of moving water
- Information Sheet 11-1 Pages 1 & 2

**PREPARATION:**

You are about to be trained in the most important aspect for the use of personal watercrafts. That is that they can maintain their position within a dynamic flow. This maneuver is very important when doing water rescue and body recovery. Hovering and ferrying will be the two most used maneuvers you will use while performing rescue operations. It is imperative that you are proficient at these two maneuvers. Your ability to perform them could mean

the difference between a successful or unsuccessful rescue operation.

# INSTRUCTOR GUIDE

HOVER AND FERRY A PERSONAL WATERCRAFT

| OPERATIONS                   | PRESENTATION | KEY POINTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                               |
|------------------------------|--------------|------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Choose a spot to hover    |              | <ul style="list-style-type: none"><li>1a. Pilot to hover personal watercraft in two feet of water (minimum)</li><li>b. Maintain upstream positive attitude</li><li>c. Choose a spot with no debris and no marine vegetation which can become ingested into the intake</li></ul>                                                                                                                                                                                                                                                                                                                                                          |
| 2. Hover personal watercraft |              | <ul style="list-style-type: none"><li>2a. Approach hover spot from down river traveling up river</li><li>b. Slow personal watercraft speed as you approach hover spot</li><li>c. Maintain the personal watercraft in a horizontal position, do not plow</li><li>d. Maintain just enough personal watercraft speed to overcome the speed of the current</li><li>e. Attempt to keep the personal watercraft in one spot as long as you can before the current moves you away</li></ul>                                                                                                                                                     |
| 3. Ferry personal watercraft |              | <ul style="list-style-type: none"><li>3a. Obtain a steady hover position</li><li>b. Choose a spot to ferry to, at either river right, or river left. Attempt to ferry to a point of little debris or marine vegetation</li><li>c. Angle personal watercraft either to river left or river right</li><li>d. Once you are angled, the personal watercraft will develop a stern, upriver high pressure and a bow, down river low pressure</li><li>e. Allow current to push personal watercraft across river</li><li>f. Maintain the needed speed to overcome the force of the current against the hull of the personal watercraft</li></ul> |

## SUMMARY

The hover and ferry maneuvers will be used every time you operate a personal watercraft on a dynamic water source. These two maneuvers must be completed with competence and expertise. Your ability to maintain one position while water rushes by you is the main benefit to these personal watercraft. These are the two maneuvers that will allow you to make contact with a victim in need either for rescue, assistance, or performing a search.

## EVALUATION:

Each student will hover and ferry the personal watercraft completing the task within one minute in accordance to the job breakdown

The student will hover and ferry the personal watercraft without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

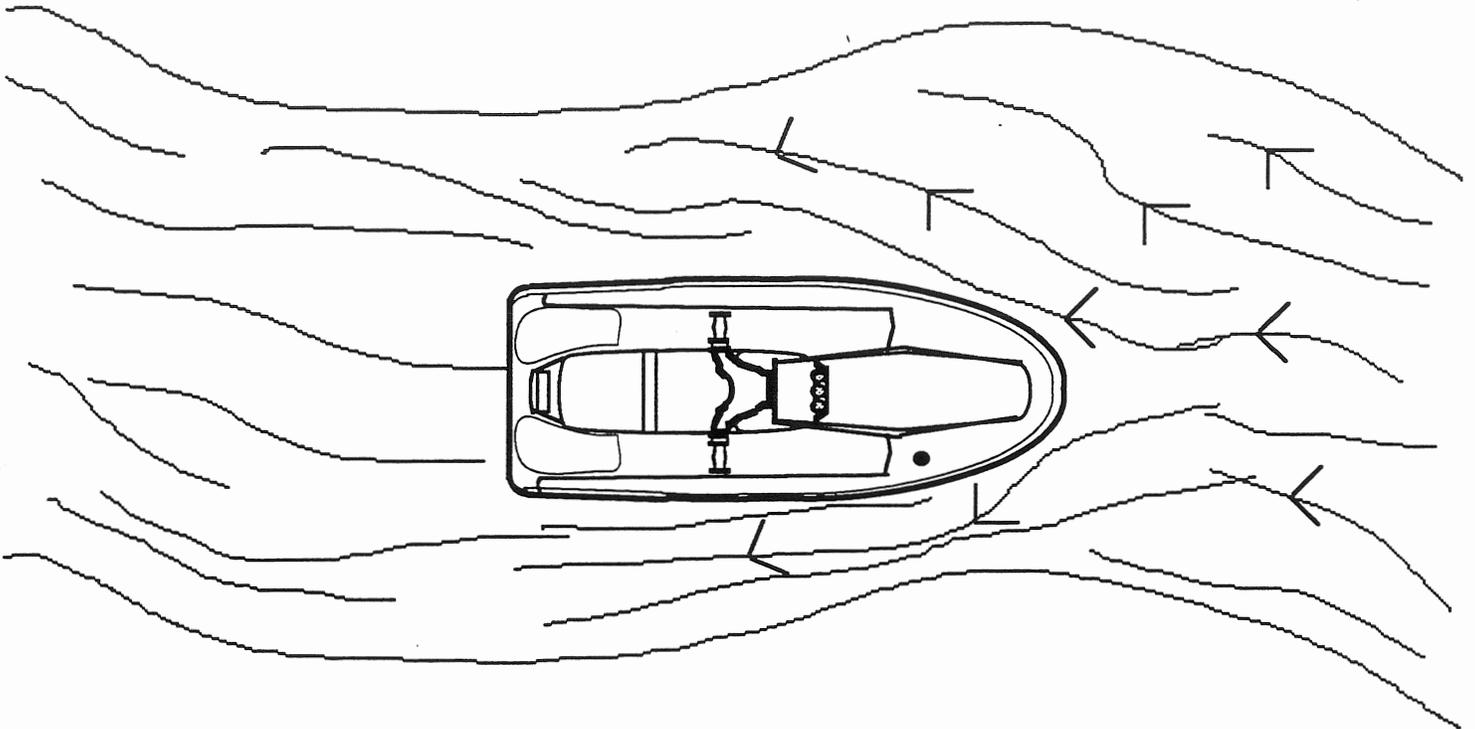
## ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, perform the hover and ferry skill until confident for certification skill sign off.

# **THE HOVER POSITION**

**BECOMING STATIONARY IN ONE SPOT WHILE THE DYNAMIC WATER FLOWS AROUND YOU**



**THIS MANEUVER IS USED THROUGHOUT ALL OPERATIONS WITH A PERSONAL WATERCRAFT**

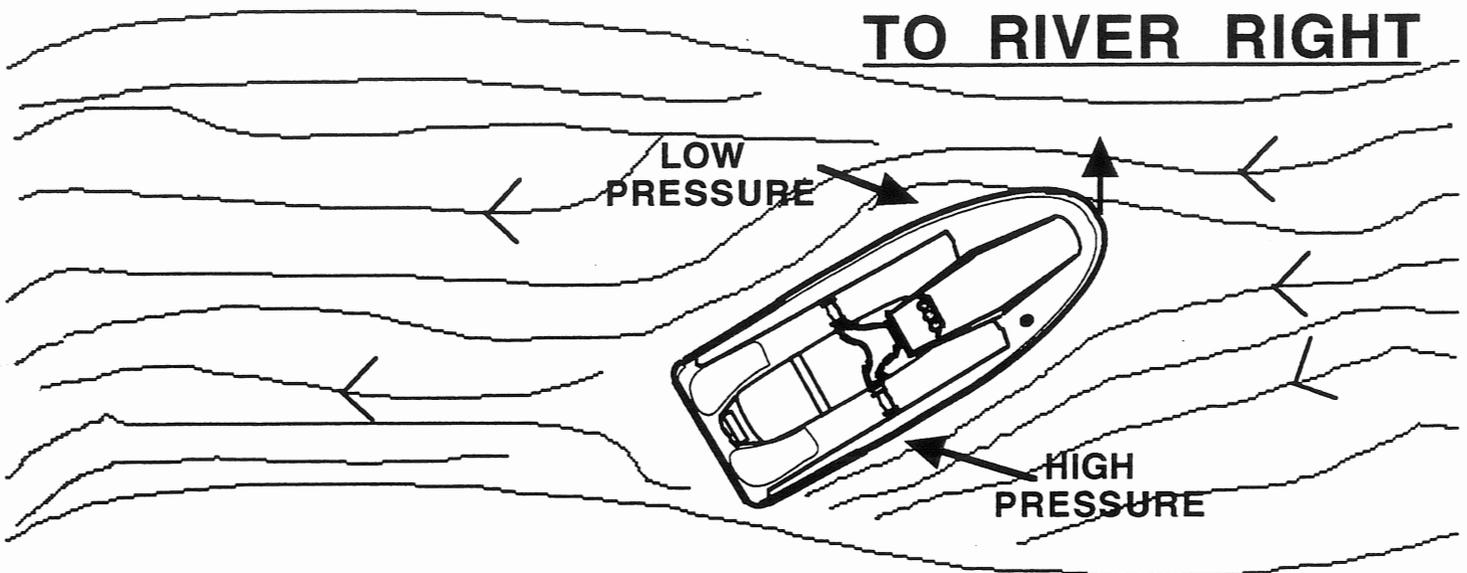
**YOUR SPEED MUST EQUAL THAT OF THE DYNAMIC WATERS FLOW AND YOUR ANGLE MUST BE NETURAL TO ALLOW NO SIDE TO SIDE FERRYING OF THE PERSONAL WATERCRAFT**

## THE FERRY POSITION

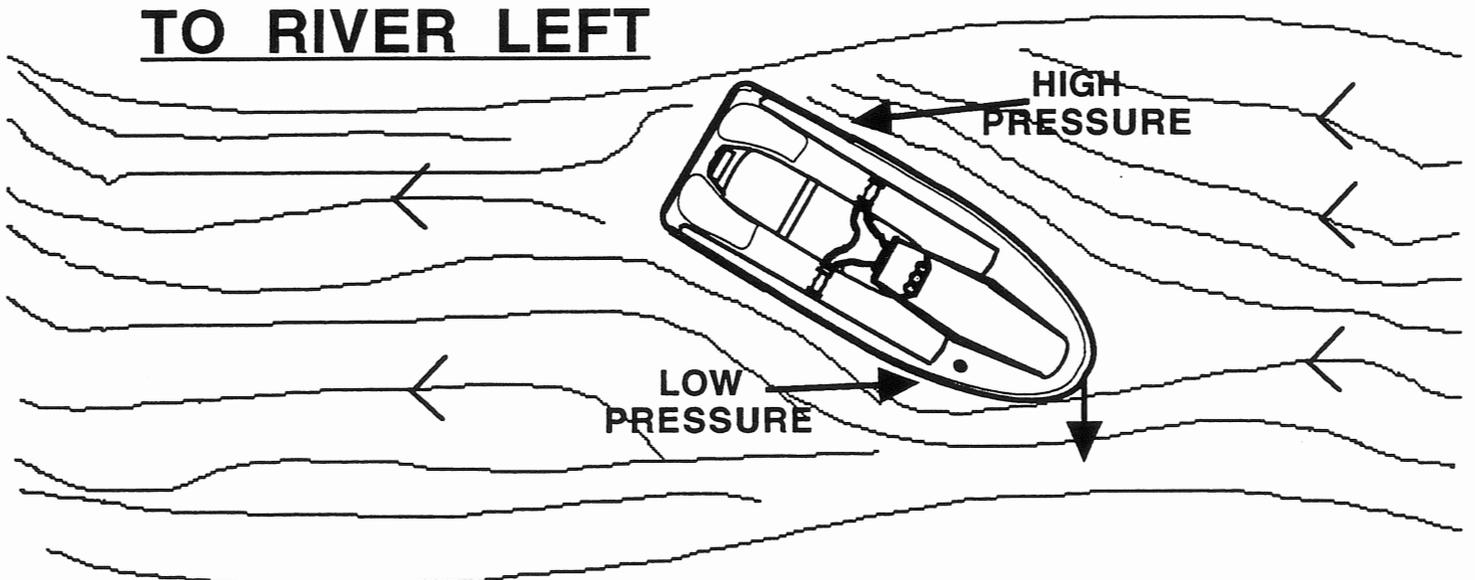
THIS MANEUVER ALLOWS YOU TO CROSS A DYNAMIC FLOW WHILE MAINTAINING A POSITION BETWEEN TWO POINTS ON EITHER SIDE OF THE FLOW.

THIS WILL ALSO BE USED IN OPERATIONS WHILE ON YOUR PERSONAL WATERCRAFT

### TO RIVER RIGHT



### TO RIVER LEFT



**TOPIC:** Servicing A Flooded Personal Watercraft

**TIME FRAME:** 0:30

**LEVEL OF INSTRUCTION:** II

**BEHAVIORAL OBJECTIVE:**

Condition: Personal Watercraft On Trailer

Behavior: The student will

- recognize a flooded personal watercraft
- service a simulated flooded personal watercraft

Standard: Completion of all operations shall be performed with in twenty minutes in accordance to job breakdown

**MATERIALS NEEDED:**

- Tool kit
- WD-40 Lube
- Two dry towels per cylinder
- New spark plugs
- Personal watercraft
- Information Sheet 12-1 Page 1

**REFERENCES:**

- Personal watercraft owners manual

**PREPARATION:**

Servicing a flooded personal watercraft is an operation you hopefully will never have to perform. If for any reason the personal watercraft has become flooded, you will have other problems that caused the flooding. Your main objective is to get the personal watercraft out of the water and figure out why water has flooded your engine compartment. Your training or rescue operation will be a complete failure because it will take some time to place the personal watercraft back in service. Never operate your personal watercraft during any training or rescue operation in such a manner as to subject it to flooding.

# INSTRUCTOR GUIDE

SERVICING A FLOODED PERSONAL WATERCRAFT

| OPERATIONS                                | PRESENTATION | KEY POINTS                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                                   |
|-------------------------------------------|--------------|--------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 1. Determine personal watercraft flooding |              | 1a. Remove seat<br>b. Is the water in the engine compartment higher than the carburetor air intake element<br>c. Bring personal watercraft immediately to shore<br>d. Trailer personal watercraft if applicable. If not personal watercraft must be brought onto shore far enough for allowance to drain water through drain plugs<br>e. Remove drain plug at aft of personal watercraft and allow to drain                                                                                                                                                                                                  |
| 2. Remove spark plugs                     |              | 2a. Remove spark plug wires from spark plugs and insert them onto the grounding plug if so equipped<br>b. Remove spark plugs using tools from the tool kit<br>c. Completely clean and dry spark plug                                                                                                                                                                                                                                                                                                                                                                                                         |
| 3. Pump out water                         |              | 3a. Place a dry towel over each of the spark plug holes, hold firmly<br>b. If personal watercraft is on shore place plugs back in at aft and return stern of personal watercraft into two feet of water<br>c. Crank engine over allowing pistons to pump out water that has accumulated in the cylinders. Air which is forced out of the spark plug hole comes out with extreme force. Due to the extreme force of air, attempt to place the heel of your hands over the cylinder holes to prevent any finger injury.<br>d. Do not exceed fifteen seconds while cranking over engine due to battery drainage |

# INSTRUCTOR GUIDE

SERVICING A FLOODED PERSONAL WATERCRAFT

| OPERATIONS                               | PRESENTATION | KEY POINTS                                                                                                                                                                                                                                                        |
|------------------------------------------|--------------|-------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------------|
| 4. Spray WD 40 Lube                      |              | e. Continue to pump out water till most of it has been removed<br>4a. Spray a shot of WD 40 lube into each of the spark plug holes<br>b. Shoot WD 40 lube into the grommet hole of the flame arrestor/silencer while cranking engine a maximum of fifteen seconds |
| 5. Replace sprak plugs                   |              | 5a. Replace the spark plugs only if you were able to get them completely dry<br>b. If spare spark plugs are available use them instead of the old spark plugs                                                                                                     |
| 6. Attempt to start personal watercraft  |              | 6a. Do not crank engine over for more than fifteen seconds at a time with one minute rest in between attempts<br>b. Continue to attempt starting the personal watercraft until started or battery starts to indicate drainage                                     |
| 7. If personal watercraft does not start |              | 7a. Secure personal watercraft to trailer if applicable. Or, arrange for personal watercraft to be trailered<br>b. Make an appointment with a personal watercraft mechanic immediately                                                                            |

## SUMMARY:

It is not always easy to recognize a water flooded engine compartment. However if you have one, somehow water is entering into your sealed engine compartment. Your ability to quickly perform this operation is extremely important to the care of your personal watercraft. This, hopefully, is a rare occurrence which is why proficient training is required. Your successful completion of this operation will mean the difference between extensive damage and a low cost repair.

## EVALUATION:

Each student will service a flooded personal watercraft completing the task within twenty minutes in accordance to the job breakdown

The student will service a flooded personal watercraft without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

## ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, review the procedure of servicing of a flooded personal watercraft skill until confident for certification skill sign off

## SERVICING A FLOODED PERSONAL WATERCRAFT

### CHECK LIST

~~~~ EXAMPLE ~~~~

- REMOVE SEAT
- DRAIN WATER FROM INSIDE HULL
- REMOVE SPARK PLUG WIRES FROM PLUGS
- PLACE SPARK PLUG WIRES ON GROUNDING PLUGS
- REMOVE SPARK PLUGS AND DRY THOROUGHLY
- PLACE TOWEL OVER CYLINDER HOLES AND PUSH START
- BEWARE OF FORCE OF AIR FROM CYLINDER HOLES
- PUSH START UNTIL WATER IS OUT, 15 SECOND INTERVALS, WITH 1 MINUTE REST
- SPRAY LUBE INTO CYLINDERS AND SPARK ARRESTOR
- PUSH START AGAIN FOR 15 SECONDS
- REPLACE SPARK PLUGS
- ATTEMPT TO START IN 15 SECOND INTERVALS, WITH 1 MINUTE REST
- TRANSPORT TO MECHANIC IF NEEDED

INSTRUCTOR GUIDE

TOPIC: Performing A Victim Pick-Up

TIME FRAME: 1:30

LEVEL OF INSTRUCTION: II

BEHAVIORAL OBJECTIVE:

Condition: Personal watercraft, Dynamic Water Source

Behavior: The students will

- recognize the role this maneuver will play in water rescue operations
- have the ability to locate a victim in the water
- identify the best maneuvers to approach a victim in the water
- perform a victim pick-up using personal watercraft with a rescue device in dynamic water

Standard: Completion of all operations shall be performed with in one minute in accordance to job breakdown

MATERIALS NEEDED:

- Thermal protection
- Personal flotation device
- Swift water helmet
- Rescue device
- This job breakdown
- Personal watercraft
- Information Sheets 13-1 Page 1

REFERENCES:

- Information Sheets 13-1 Page 1

PREPARATION:

The victim pick-up maneuver may be the single most important life saving maneuver you may learn when dealing with personal watercraft rescue. The actual removing of a victim from a state of drowning to a state of controlled rescue will be your overall objective. You must feel extremely confident with your ability to perform this maneuver. When a person observes the personal

watercraft rescue team coming at them, they have the right to assume that you are highly trained and proficient in this maneuver, and that they can rely on you to save their lives.

INSTRUCTOR GUIDE

PERFORMING A VICTIM PICK-UP

| OPERATIONS | PRESENTATION | KEY POINTS |
|--|--------------|---|
| 1. Locate victim | | <ul style="list-style-type: none">1a. Look for head bobbing up and down in waterb. Look for arms being waved back and forthc. Look for a person bent over with water running over them as in an extremity entrapmentd. Inspect snags and strainers in case victim may be caught up in one |
| 2. Rescuer to move from personal watercraft to stokes basket | | <ul style="list-style-type: none">2a. Pilot to obtain a hover position down river of victimb. Pilot to communicate to rescuer when to dismount personal watercraft and mount stokes basketc. Rescuer will dismount from personal watercraft and mount between the center and stern positions of the stokes basket |
| 3. Approach the victim | | <ul style="list-style-type: none">3a. Pilot shall communicate to rescuer before accelerating to full planeb. Pilot shall approach with victim on port sidec. Pilot shall communicate to rescuer that they are coming upon the victimd. When within twenty five feet of victim, pilot shall decelerate personal watercraft to just enough power to overcome current, before immediate approach to victime. Pilot shall maintain the personal watercraft at a horizontal position as contact is made with victim. |
| 4. Rescue victim | | <ul style="list-style-type: none">4a. Pilot shall grasp the victim with the left hand while maintaining control of the personal watercraft at a positive attitude |

INSTRUCTOR GUIDE

PERFORMING A VICTIM PICK-UP

OPERATIONS

PRESENTATION

KEY POINTS

5. Remove victim

- b. Pilot shall pull victim towards the aft of the personal watercraft and release only when rescuer has made contact with victim. (Pilot may need to use neutral or reverse to maintain position)
 - c. Rescuer shall dismount stokes and ready themselves at the aft of the personal watercraft to receive victim
 - d. Rescuer shall securely hold contact of the victim with their left hand while dipping the stokes basket under the victim with their right hand
 - e. Rescuer shall place victim into stokes basket and assure a secure placement
 - f. Rescuer shall then pull themselves onto the victim and pull them self down tight on to the victim in anticipation of personal watercraft acceleration
 - g. Rescuer shall assure airway is clear and maintain an open airway during transport off the water
 - h. Rescuer shall communicate with pilot when victim is secured and ready to proceed to shore
- 5a. Pilot shall shore the personal watercraft
- b. Pilot shall communicate with rescuer when in shallow water (two feet)
 - c. Rescuer shall dismount from on top of victim and pull stokes basket into shore line
 - d. Rescuer and pilot shall remove stokes basket with victim from the water

SUMMARY:

You will come to realize that this task will be used more than any other task when performing water rescues. Being proficient at this task will be imperative to your rescue operation. The ability to locate a victim in the water, perform past training of hovering and ferrying to reach that victim and then pick-up the victim as quickly as possible with no errors will prove to your agency and community the worthiness of personal watercraft for water rescue application.

EVALUATION

Each student will perform a victim pick-up as pilot and rescuer completing the task within one minute in accordance to the job breakdown

The student will perform a victim pick-up without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, perform the pilot, rescuer and victim positions of the victim pick-up maneuver until confident for certification skills sign off.

INFORMATION SHEET

DESCRIPTION:

A VICTIM PICK-UP IS A PROCEDURE USED TO RESCUE PERSONS WHO ARE IN WATER DEEPER THAN THEIR HEIGHT.

THE PERSON IS EITHER FLOATING DOWN THE DYNAMIC SOURCE OF WATER CONSCIOUS, OR UNCONSCIOUS. FACE UP OR FACE DOWN.

PERHAPS THE PERSON IS HANGING ONTO, OR HOOKED ONTO, A SNAG IN THE DYNAMIC SOURCE OF WATER. CONSCIOUS OR UNCONSCIOUS. FACE UP OR FACE DOWN.

ONCE THE PERSON IS LOCATED THE RESCUE TEAM OF TWO PEOPLE ON ONE WATERCRAFT WITH A RESCUE DEVICE ATTACHED TO THE BACK APPROACHES THE PERSON.

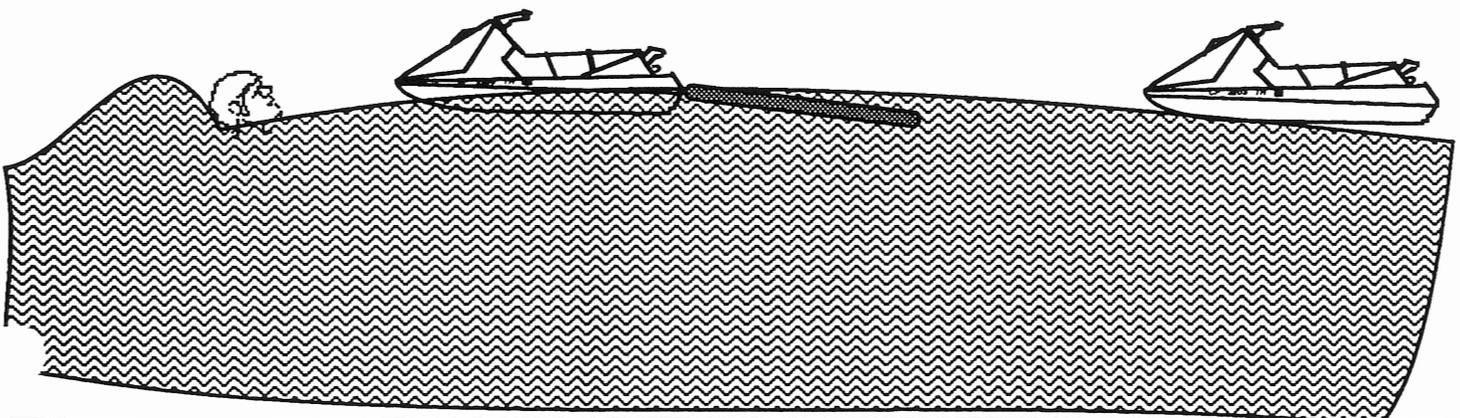
IF THE PERSON IS CONSCIOUS IT IS REALITIVELY EASY TO PLACE THE PERSON ONTO THE RESCUE DEVICE AND TRAVEL TO A SHORE LINE.

IF THE PERSON IS UNCONSCIOUS IT TAKES MORE TIME AND EFFORT.

IF THE PERSON IS HANGING ONTO A SNAG, RELEASE YOUR RESCUER TO FIRST REMOVE THE PERSON FROM THE SNAG. AS THEY A DRIFTING DOWN STREAM APPROACH THEM BOTH AND THEN ALLOW THE RESCUER TO PLACE THE PERSON INTO THE RESCUE DEVICE AND TRAVEL TO SHORE.

ONCE AT THE SHORE LINE THE VICTIM IS REMOVED FROM THE RESCUE DEVICE AND CARRIED TO A MEDIC OR OTHER MEANS OF TRANSPORTATION.

THE RESCUE OR BODY RESCOVERY IS COMPLETED



INSTRUCTOR GUIDE

PERFORMING A VICTIM PICK-OFF

TOPIC: Performing A Victim Pick-Off

TIME FRAME: 1:30

LEVEL OF INSTRUCTION: II

BEHAVIORAL OBJECTIVE:

Condition: Personal Watercraft, Static or Dynamic Water Source

Behavior: The students will

- recognize the role this maneuver will play in water rescue operations
- identify the best maneuvers to approach a victim in stranded on an obstacle
- perform a victim pick-off using personal watercraft

Standard: Completion of all operations shall be performed with in one minute in accordance to job breakdown

MATERIALS NEEDED:

- Thermal protection
- Personal flotation device
- Swift water helmet
- This job breakdown
- Personal watercraft
- Information Sheets 14-1 Page 1

REFERENCES:

- Information Sheets 14-1 Page 1

PREPARATION:

The victim pick-off maneuver is another important life saving maneuver. Many victims will fall out of their watercraft and be poor swimmers. All they want is something under their feet so they can keep their head out of the water. They will end up on a shallow rock in the middle of the river, grasping a bridge pillar even hanging on to small trees, barely able to support their weight. You must feel extremely confident with your ability to perform this maneuver. Persons will attempt to jump onto you or your personal watercraft.

Eddy's will attempt to suck you into what ever the victim is hanging on to. Learn and be extremely confident with this maneuver. A successful rescue will depend upon your ability.

INSTRUCTOR GUIDE

PERFORMING A VICTIM PICK-OFF

| OPERATIONS | PRESENTATION | KEY POINTS |
|---------------------------|--------------|---|
| 1. Locate victim | | 1a. Listen to where witnesses say they last saw the victim
b. Look completely around bridge pillars or dense tree areas
c. Get off personal watercraft and thoroughly inspect islands if needed
d. Inspect snags and strainers in case victim may be caught up in one |
| 2. If victim is conscious | | 2a. Attempt victim pick-off with pilot on personal watercraft only.
b. Pilot to obtain a hover position down river of victim
c. Pilot to communicate to victim that he/she will attempt to come up along side of victim
d. Firmly inform the victim not to leap towards the personal watercraft or you will have to accelerate away
e. Second personal watercraft with rescuer and rescue device shall maintain a position down river from attempted rescue if needed to perform a victim pick-up |
| 3. Approach the victim | | 3a. Pilot shall communicate to victim that he/she will hover and attempt to pull victim onto personal watercraft
b. Pilot shall communicate that victim must be able to pull her/him self onto personal watercraft
c. Pilot shall slowly, using hover and ferry angles approach victim |
| 4. Rescue victim | | 4a. Pilot shall maintain a positive attitude while assisting victim onto personal watercraft |

INSTRUCTOR GUIDE

PERFORMING A VICTIM PICK-OFF

| OPERATIONS | PRESENTATION | KEY POINTS |
|-----------------------------|---------------------------------|---|
| 5. If victim is unconscious | | <ul style="list-style-type: none">b. Pilot shall hand victim a P.F.D. for victim's safetyc. When victim is secured, pilot shall communicate to victim that they are going to accelerate to a planed. Pilot shall transport victim to designated area for disembarking |
| | 5a. Use victim pick-up maneuver | |

SUMMARY:

As with the victim pick-up, this maneuver will be used often to aid victims trapped or injured on an obstacle located within a body of water. This maneuver is much more complicated because you are trying to line a moving object up with a stationary object while the water continues to move and the turbulence around the stationary object pushes and pulls the personal watercraft. You must practice this maneuver extensively before attempting the rescue of a victim on an obstacle.

EVALUATION:

Each student will perform a victim pick-off completing the task within one minute in accordance to the job breakdown

The student will perform a victim pick-off without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, perform the victim pick-off maneuver as both pilot and victim until confident for certification skills sign off

INFORMATION SHEET

PERFORMING A VICTIM PICK-OFF

DESCRIPTION:

A VICTIM PICK-OFF IS A PROCEDURE WHICH IS USED WHEN A PERSON IS IN A DYNAMIC SOURCE OF WATER AND CANNOT LEAVE A CERTAIN LOCATION DUE TO FEAR, SPEED OF WATER, DEBRIS IN WATER, LACK OF SWIMMING ABILITY, ETC...

THE PERSON IS CONSCIOUS AND WILL MOST LIKELY BE SCARED, TIRED AND WEAK.

THEIR MAIN CONCERN IN LIFE IS TO GET ON THE WATERCRAFT THAT YOU SHOW UP WITH AND OUT OF THE DANGER THAT THEY ARE IN.

THIS IS WHERE THE VICTIM PICK-OFF MANUEVER BECOMES EXTREMELY SENSITIVE AND DANGEROUS.

THE MANUEVER IS PERFORMED WITH ONE PERSON ON ONE WATERCRAFT.

THE OTHER WATERCRAFT, WITH TWO PERSONS, SHOULD HOVER DOWN STREAM OF THE RESCUE LOCATION. IF ANYTHING HAPPENS DURING THE RESCUE THE SECOND WATERCRAFT CAN PERFORM VICTIM PICK-UPS OF BOTH THE VICTIM AND THE OTHER PILOT IF NEEDED.

THE SINGLE PILOT RESPONDS TO THE VICTIMS LOCATION AND HOVERS APPROXIMATELY 25 FEET DOWN STREAM OF THE VICTI M. THE PILOT MUST USE A CALM PROFESSIONAL SPEAKING VOICE TO ASSURE THE VICTIM IN A VERY SHORT PERIOD OF TIME EVERYTHING WILL BE FINE.

THE PILOT WILL THEN SLOWLY APPROACH THE VICTIM AND HAND HIM/HER A PFD. AFTER THE VICTIM HAS SECURED THE PFD, THE PILOT WILL INSTRUCT HIM/HER TO STEP ONTO THE WATERCRAFT AND TAKE HOLD OF EITHER THE SEAT STRAP OR THE PILOT.

THE PILOT WILL SLOWLY MOVE AWAY FROM THE RESCUE LOCATION ASSURING THE VICTIM IS SECURLEY ON THE WATERCRAFT AND THEN PROCEED TO THE SHORE.

ONCE THE PILOT AND VICTIM REACH THE SHORE THAN THE OTHER WATERCRAFT MAY COME IN TO COMPLETE A SUCCESSFUL RESCUE.



TOPIC: Performing A Rope Crossing

TIME FRAME: 1:30

LEVEL OF INSTRUCTION: II

BEHAVIORAL OBJECTIVE:

Condition: Personal Watercraft, Rescue Rope, Dynamic Water Source, Shore Crew At River Right And River Left

Behavior: The students will

- recognize the exigency for tension diagonals
- identify a location appropriate for a tension diagonal
- recognize the importance for good communication between pilot and rescuer
- perform a rope crossing on a personal watercraft in dynamic water

Standard: Completion of all operations shall be performed with in thirty seconds in accordance to job breakdown

MATERIALS NEEDED:

- Thermal protection
- Personal flotation device
- Swift water helmet
- This job breakdown
- Personal watercraft
- Required amount of rope for crossing
- Information Sheets 15-1 Page 1

REFERENCES:

- Information Sheets 15-1 Page 1
- California Fire Training, Rescue Systems 1

PREPARATION:

Performing this maneuver is just as important to your safety as it is to the life saving efforts of the victim. Establishing a tension diagonal down river can be essentially important to your over all rescue operation. Your ability to master the rope crossing could be crucial to either a successful, professional rescue or the failure of one and the loss of

more lives. This maneuver will be used downstream of a rescue operation whenever rescue team members are placed in a dynamic water flow

INSTRUCTOR GUIDE

PERFORMING A ROPE CROSSING

| OPERATIONS | PRESENTATION | KEY POINTS |
|---|--------------|--|
| <p>1. Establish a point and crew on the opposite shore line</p> <p>2. Personal watercraft crew to obtain rope</p> | | <p>1a. Assure area is free of debris, rocks and marine vegetation</p> <p>b. Communicate with shore crew on receiving shore</p> <p>2a. Have rescue shore crew obtain desired amount of rope needed for rope crossing location</p> <p>b. Personal watercraft to obtain hover position in front of rescue shore crew in two feet of water (minimum)</p> <p>c. One member of the rescue shore crew should coil up twenty five feet of rope</p> <p>d. Shore crew member shall wade out to rescuer on personal watercraft and hand the coils to the rescuer being careful to keep the rope out of the water</p> <p>e. Rescue shore crew shall have rope bag wide open to play out rope and maintain one crew member in water to assist keeping rope out of water</p> |
| <p>3. Travel across river</p> | | <p>3a. Pilot shall communicate to rescuer as to performing a up river turn or a down river turn in front of receiving shore crew</p> <p>b. Pilot shall communicate to rescuer before accelerating to full plane</p> <p>c. Rescuer shall place coils of rope in which ever hand will be away from the receiving shore crew when turn is completed</p> <p>d. Pilot shall travel to receiving shore crew at full plane and communicate the execution of turn with the rescuer</p> <p>e. Rescuer shall attempt to keep rope out of water by holding rope up as high as</p> |

INSTRUCTOR GUIDE

PERFORMING A ROPE CROSSING

| OPERATIONS | PRESENTATION | KEY POINTS |
|---------------------|--------------|--|
| 4. Delivery of rope | | <p>possible while maintaining a secure seated position</p> <ul style="list-style-type: none">4a. Receiving shore crew shall space themselves about three feet apart, parallel to the shore and into the water at least two feet if conditions allowb. Upon completion of pilot making the turn, rescuer shall throw the coils of rope to the receiving shore crew attempting to place rope in receiving crews thoracic regionc. Shore crew shall receive the coils of rope and immediately pull up tension to keep rope out of the dynamic flowd. Receiving crew shall complete the tension diagonale. Pilot and rescuer shall obtain a positive up river attitude, up river of the tension diagonal |

SUMMARY:

As you have experienced, performing a rope crossing in dynamic water can be a bit complicated. The ability to communicate across a dynamic water flow to perform a delicate maneuver can be perplexing. With continued training you must become proficient at this operation. This will be one of those tasks which will be needed immediately when requested. You must recognize and understand the exigency for tension diagonals while working in dynamic water flows. The continuance of a tension diagonal should be trained to complete this operation.

EVALUATION:

Each student will perform a rope crossing as pilot and rescuer completing the task within thirty seconds in accordance to the job breakdown

The student will perform a rope crossing without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, perform all positions of the rope crossing skill until confident for certification skill sign off.

INFORMATION SHEET

DESCRIPTION:

A ROPE CROSSING IS USED DOWN STREAM OF AN INCIDENT AS DOWN STREAM PROTECTION.

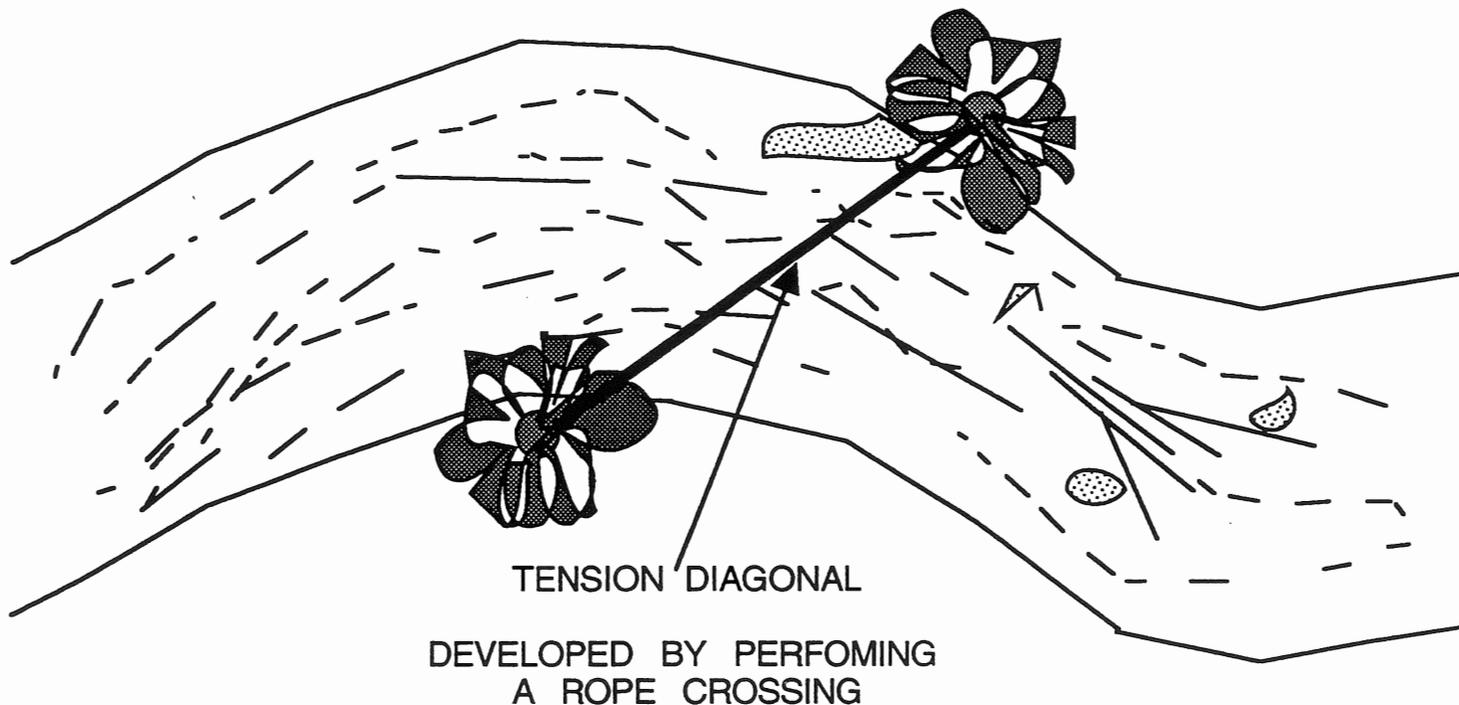
THE ROPE CROSSING SHOULD BE SET UP AS SOON AS POSSIBLE AFTER A SEARCH OR RESCUE LOCATION HAS BEEN DETERMINED.

THE ROPE CROSSING SHOULD REACH COMPLETELY ACROSS THE SOURCE OF DYNAMIC WATER WITH ENOUGH ROPE TO SECURE IT ON BOTH SIDES WITH RIGGINGS.

THE ROPE SHOULD BE SET UP AS A TENSION DIAGONAL WITH A MINIMUM OF A FORTY FIVE DEGREE ANGLE TO THE DYNAMIC SOURCE OF WATER.

THE TASK WILL TAKE AT LEAST TWO COMPANIES (ONE ON EACH SIDE OF THE DYNAMIC SOURCE) AND ONE WATERCRAFT WITH TWO PERSONAL TO SET UP.

THE TASK CAN BE COMPLETED QUICKLY HOWEVER IT COULD BE TIME CONSUMING IF THE COMPANIES ARE NOT PROPERLY TRAINED ON RIGGING.



TOPIC: How To Trailer A Personal Watercraft

TIME FRAME: 0:30

LEVEL OF INSTRUCTION: II

BEHAVIORAL OBJECTIVE:

Condition: Personal watercraft on trailer in static or dynamic water source

Behavior: The students will

- identify an appropriate location to back the personal watercraft trailer into the water
- trailer personal watercraft
- secure personal watercraft to trailer

Standard: Completion of all operations shall be performed with in three minutes in accordance to job breakdown

MATERIALS NEEDED:

- Thermal protection
- Personal flotation device
- Swift water helmet
- This job breakdown
- Personal watercraft
- Personal watercraft trailer

REFERENCES:

- Personal watercraft owners manual
- Tow vehicle owners manual

PREPARATION:

Once a successful training or rescue operation as been completed all equipment must be placed back in service. The first step to placing the personal watercrafts back in service is to trailer them. The maneuver is relatively simple however, it requires communication and coordination. You may be trailering the personal watercrafts because your training is complete, or you may be trailering the personal

watercrafts because a drowning victim needs your abilities in another part of the river or another body of water. Your precise ability of this maneuver is important. Become proficient at it.

INSTRUCTOR GUIDE

OPERATIONS

PRESENTATION

KEY POINTS

1. Select a point to trailer the personal watercraft

- 1a. River right or river left
- b. Free of grass or snags
- c. Cove or long shore eddy
- d. Sandy or small rocks
- e. Obtainable by towing vehicle

2. Back trailer to water line

- 2a. Make sure lights are still unplugged from towing vehicle
- b. Using a spotter, back trailer in with rear of trailer pointing down river if in dynamic water
- c. Back into water until hull rails are three quarters submerged

3. Trailer personal watercraft

- 3a. Maintain personal watercraft in a positive attitude if in dynamic water
- b. Rescuer of personal watercraft team shall be positioned at bow restraints on trailer ready to accept personal watercraft
- c. Ferry angle to trailer rails if in dynamic water, then straighten out personal watercraft to enter trailer rails straight
- d. Carefully accelerate personal watercraft onto rails with assistance of rescuer
- e. Pilot shall remain on personal watercraft
- f. Rescuer shall attach bow restraint

4. Remove trailer from water

- 4a. Rescuer to drive tow vehicle out of water after getting go ahead from pilot
- b. Remove trailer from water until stern of personal watercraft is approximately ten feet from water line

INSTRUCTOR GUIDE

OPERATIONS

PRESENTATION

KEY POINTS

5. Secure personal watercraft to trailer

- c. Rescuer to plug trailer lights back into tow vehicle after assuring both end connectors are dry
- d. Pilot shall shut off fuel, start personal watercraft and run five to ten seconds to remove water from pump.
- d. Pilot shall remove dead man tether and place directional control in reverse position to protect jet drive system
- 5a. Rescuer shall attach stern restraints to personal watercraft in "X" formation
- b. Pilot shall store dead man tether and dismount personal watercraft
- c. Place personal watercraft back in service

SUMMARY:

Placing the personal watercraft back on the trailer is usually the indication that the training session or rescue operation has been completed. However, the entire operation isn't complete until the loaded trailer has been removed from the water and the personal watercraft are secured. Identifying a proper location to back the trailer into will determine the ease of trailering the personal watercraft onto the trailer. Like all the other maneuvers this task could be watched by many bystanders, or media personalities. You should strive to become proficient at trailering your personal watercraft.

EVALUATION:

Each student will trailer a personal watercraft completing the task within three minutes in accordance to the job breakdown

The student will trailer a personal watercraft without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, trailer a personal watercraft as a pilot and a rescuer until confident for certification skills sign off

TOPIC: Placing A Personal Watercraft Back In Service

TIME FRAME: 0:15

LEVEL OF INSTRUCTION: II

BEHAVIORAL OBJECTIVE:

Condition: Personal watercraft on trailer

Behavior: The students will

- recognize the importance of quickly placing a personal watercraft back in service
- recognize the need for continued maintenance and up keep
- recognize that constant documentation is required to maintain efficient repair of the personal watercraft

Standard: Completion of all operations shall be performed with in fifteen minutes in accordance to job breakdown

MATERIALS NEEDED:

- Personal watercraft log book
- Dry towels
- Sponge
- Two-stroke oil
- Unleaded gasoline
- This job breakdown
- Personal watercraft on trailer

REFERENCES:

- Personal watercraft owners manual
- Personal watercraft maintenance records

PREPARATION:

Properly placing a personal watercraft back in service will ensure it's readiness for your next training session or that next rescue call. The task is both simple and extremely important. It is a feeling of confidence to arrive at a body of water and perform a simple pre-operational check because you have completed a thorough job of placing your personal watercraft back in service after the last training

session or rescue. This task, when properly done, will maintain an admirable alliance with your other rescue team members on other shifts when they need the personal watercraft for training or a rescue.

INSTRUCTOR GUIDE

PERSONAL WATERCRAFT BACK IN SERVICE

| OPERATIONS | PRESENTATION | KEY POINTS |
|--------------------------------|--------------|--|
| 1. Remove water from exterior | | 1a. Obtain dry towels from a storage cache on either the trailer or the towing vehicle
b. Wipe down complete exterior of personal watercraft
c. Place towels back into storage cache |
| 2. Perform exterior inspection | | 2a. Check water intake grate and bolts for tightness
b. Check for damage to impeller
c. Check steering nozzle for operation and debris
d. Check all fiberglass and gel-coat for any scratches, dings, gouges, etc....
e. Remove fuel cap, fill fuel tank and replace fuel cap
f. Remove injector oil cap, fill oil tank, replace oil cap
g. Check bow and stern restraint for security and tightness |
| 3. Perform interior inspection | | 3a. Remove seat and place in inside foot trough
b. Use sponge to remove any remaining water in engine compartment
c. Visually check for any loose parts, leaking parts, or damaged parts
d. Visually check all hoses and clamps for damage and tightness
e. Visually check all wiring for damage and tightness |
| 4. Remove front storage basket | | 4a. Open front storage compartment cover and remove storage basket |

INSTRUCTOR GUIDE

PERSONAL WATERCRAFT BACK IN SERVICE

| OPERATIONS | PRESENTATION | KEY POINTS |
|--|--------------|--|
| 5. Document use of personal watercraft | | <ul style="list-style-type: none">b. Place storage basket in outside foot trough5a. Develop a personal watercraft log book for documentation of useb. Document approximate number of hours usedc. Document any damage found during inspection of exterior or interior and report damaged. Replace log book to place of storage |

SUMMARY:

Placing the personal watercraft back in service should be done as soon as is possible once the personal watercraft has been removed from the water. While this task can lead to boredom after an exciting rescue operation, it is crucial that the task be performed and performed well. By starting and maintaining good records on your personal watercraft, you will be assured a complete and serviced personal watercraft ready for that next response rather it be in a minute or a week. Take pride in keeping your personal watercraft in exemplary condition.

EVALUATION:

Each student will place the personal watercraft back in service completing the task within fifteen minutes in accordance to the job breakdown

The student will place the personal watercraft back in service without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, place the personal watercraft back in service until confident for certification skills sign off.

INFORMATION SHEET

POST OPERATIONS CHECK

POST - OPERATION CHECK

CHECK LIST

^^^ EXAMPLE ^^^

EXTERIOR

- REMOVE BILGE PLUG AND DRAIN
- TURN OFF FUEL
- START AND RUN WATER OUT OF PUMP
- REPLACE LANYARD IN COMPARTMENT
- CHECK HULL FOR DAMAGE
- CHECK INTAKE GRATE
- CHECK IMPELLER
- ASSURE BILGE PLUG IS IN AND TIGHT
- CHECK STEERING
- WIPE DOWN ENTIRE EXTERIOR

INTERIOR

- REFILL FUEL
- REFILL TWO STROKE OIL
- CHECK ALL HOSES AND CLAMPS
- CHECK CABLES AND SLIDE RODS
- REMOVE FRONT BASKET
- USE SPONGE TO REMOVE ANY WATER
- LEAVE SEAT OFF UNTIL DRY

RECORD KEEPING

- DOCUMENT HOURS ON PWC
- DOCUMENT ANY DAMAGE

TOPIC: Performing Daily And Weekly Checks

TIME FRAME: 0:15

LEVEL OF INSTRUCTION: II

BEHAVIORAL OBJECTIVE:

Condition: Personal watercraft on trailer

Behavior: The students will

- perform a daily check on a personal watercraft
- perform a weekly check of a personal watercraft
- recognize the significance of these checks

Standard: Completion of all operations shall be performed with in twenty minutes in accordance to job breakdown

MATERIALS NEEDED:

- Personal watercraft log book
- Two-stroke oil
- Unleaded gasoline
- Flashlight
- Pressure gauge
- This job breakdown
- Information Sheets 18-1 Page 1

REFERENCES:

- Personal watercraft owner's manual
- Your agencies maintenance policy

PREPARATION:

Performing the daily and weekly personal watercraft checks are what assure your water rescue team is ready to perform. Maintaining complete service of the personal watercraft will mean a successful water rescue operation. The task doesn't take long and isn't difficult to perform. Certain points of your personal watercraft receive more use and that relates to more wear. It is these points that must be checked daily to assure they are in top operational working condition. It is during this task that items can be repaired or replaced. Your daily compliance is extremely important to that victim who will be needing your assistance at a moments notice.

INSTRUCTOR GUIDE

DAILY AND WEEKLY CHECK

| OPERATIONS | PRESENTATION | KEY POINTS |
|-----------------|--------------|---|
| 1. Daily check | | <ul style="list-style-type: none">1a. Check fuel and oil tanks for fullnessb. Check steering for smoothness by moving handle bars back and forth. Lubricate with WD-40 Lube if neededc. Check throttle for smooth operation and quick return. Lubricate with WD-40 Lube if neededd. Check neutral and reverse lever for smoothness of operation. Lubricate with WD-40 Lube if needede. Check bow and stern restraints for tightness and securityf. Make sure bilge plug has been replaced and is in tightlyg. Fill out personal watercraft Log Book |
| 2. Weekly check | | <ul style="list-style-type: none">2a. Check fuel and oil tanks for fullnessb. Check steering for smoothness by moving handle bars back and forth. Lubricate with WD-40 Lube if neededc. Check throttle for smooth operation and quick return. Lubricate with WD-40 Lube if neededd. Check neutral and reverse lever for smoothness of operation. Lubricate with WD-40 Lube if needede. Check bow and stern restraints for tightness and securityf. Make sure bilge plug has been replaced and is in tightlyg. Turn over engine and run throttle up and down for five seconds, then shut off |

INSTRUCTOR GUIDE

DAILY AND WEEKLY CHECK

OPERATIONS

PRESENTATION

KEY POINTS

3. Weekly Trailer Service

- h. Perform inventory of all assigned equipment
- i. Check all hose connections and look for damage or leaks
- j. Check all electrical connections
- k. Check fire extinguisher, tool kit, and other items kept in storage
- l. Inspect entire hull and area above gunnel for any damage.
- m. Inspect jet drive for loose bolts or debris still in the intake
- n. Refer to owners manual for routine maintenance
- 3a. Check all bolts for tightness and all welds for cracks or rusting
- b. Check all the functions of the trailer lights
- c. Check for any damage to hitch receiver and to any tie down ring
- d. Check tire pressure and condition
- e. Insert grease into buddy bearings during the first check of every month to assure smooth operation
- f. Wipe down entire trailer

SUMMARY:

You will come to see that the dedicated commitment to daily and weekly checks of your personal watercraft will provide you many hours of reliable service. Recognize the importance of these checks. As with any mechanical device the personal watercraft will need repair and replacement of certain parts which receive a great deal of use. It is during these checks that discovery of defective parts be repaired or replaced. The community that you serve assumes that you have kept your personal watercraft in top operational condition. Keep it serviced to save a life.

EVALUATION:

Each student will perform a daily and weekly check completing the task within twenty minutes in accordance to the job breakdown

The student will perform a daily and weekly check without the job breakdown

Instructor will not answer questions during the evaluation of each student

Instructor will evaluate each student individually using the job breakdown checklist and timer and sign off student if successfully completed

ASSIGNMENT:

Review your notes and appropriate Information Sheets in order to prepare yourself for the upcoming quiz.

Under the supervision of your instructor, perform a daily and weekly check until confident for certification skills sign off

INFORMATION SHEET

DAILY AND WEEKLY CHECK

ANY FIRE DEPARTMENT

PERSONAL WATERCRAFT DAILY AND WEEKLY CHECK SHEET

OPERATOR _____

WEEK ____ / ____ / ____

| W | T | F | S | S | M |
|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|--------------------------|
| <input type="checkbox"/> |
| <input type="checkbox"/> |
| <input type="checkbox"/> |
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| <input type="checkbox"/> |
| <input type="checkbox"/> |
| <input type="checkbox"/> |

- | T | |
|--------------------------|---|
| <input type="checkbox"/> | FUEL LEVEL |
| <input type="checkbox"/> | TWO STROKE OIL LEVEL |
| <input type="checkbox"/> | STEERING CHECK |
| <input type="checkbox"/> | THROTTLE CHECK |
| <input type="checkbox"/> | REVERSE AND NETURAL LEVER CHECK |
| <input type="checkbox"/> | BOW AND STERN TIE DOWNS |
| <input type="checkbox"/> | BILGE PLUG SECURED |
| <input type="checkbox"/> | START ENGINE AND OPERATE THROTTLE FOR FIVE TO SEVEN SECONDS |
| <input type="checkbox"/> | PERFORM COMPLETE INVENTORY OF EQUIPMENT |
| <input type="checkbox"/> | CHECK ALL HOSES FOR DAMAGE OR LEAKS |
| <input type="checkbox"/> | CHECK ALL ELECTRICAL CONNECTIONS ARE SECURE |
| <input type="checkbox"/> | CHECK SERVICEABILITY OF FIRE EXTINGUISHER |
| <input type="checkbox"/> | CHECK FOR COMPLETE TOOL KIT |
| <input type="checkbox"/> | THOROUGHLY CHECK ENTIRE HULL FOR DAMAGE |
| <input type="checkbox"/> | INSPECT ENTIRE JET DRIVE FOR DAMAGE OR DEBRIS |
| <input type="checkbox"/> | CHECK OWNERS MANUAL FOR ROUTINE MAINTENANCE |
| <input type="checkbox"/> | WIPE DOWN AS NEEDED |

TRAILER

- | | |
|--------------------------|---------------------------------|
| <input type="checkbox"/> | CHECK ALL BOLTS FOR TIGHTNESS |
| <input type="checkbox"/> | CHECK ALL WELDS FOR CRACKS |
| <input type="checkbox"/> | CHECK FUNCTION OF LIGHTS |
| <input type="checkbox"/> | CHECK HITCH AND RECEIVER |
| <input type="checkbox"/> | CHECK ALL TIE DOWN LOCATIONS |
| <input type="checkbox"/> | CHECK TIRE PRESSURE |
| <input type="checkbox"/> | ASSURE GREASE FITTINGS ARE FULL |
| <input type="checkbox"/> | WIPE DOWN AS NEEDED |

INFORMATION SHEET

CERTIFICATION SKILLS LIST

CALIFORNIA FIRE MARSHAL PERSONAL WATERCRAFT PILOT/RESCUER CERTIFICATION SKILLS LIST

STUDENTS NAME: _____ DATE STARTED: _____

INSTRUCTORS NAME: TONY HARGETT DATE CERTIFIED: Sept. 3, 1993

COMPLIANCE AND COMPLETION OF THE FOLLOWING SKILLS

| | |
|--|------------------------------|
| 4-1 Performing a pre-operation inspection | Completion Date: ___/___/___ |
| 5-1 Launching of a personal watercraft | Completion Date: ___/___/___ |
| 6-1 Rescuer mounts personal watercraft, shallow & deep water | Completion Date: ___/___/___ |
| 12-1 Shoring of a personal watercraft | Completion Date: ___/___/___ |

| | |
|--|----------------------|
| Single pilot run through basic maneuver course | Course Time: ___:___ |
| Pilot with rescuer run through basic maneuver course | Course Time: ___:___ |
| Pilot with rescuer in basket through basic maneuver course | Course Time: ___:___ |

| | |
|--|------------------------------|
| 8-1 Traveling in dynamic water | Completion Date: ___/___/___ |
| 9-1 Hover and ferrying a personal watercraft | Completion Date: ___/___/___ |
| 10-1 Righting a tipped personal watercraft | Completion Date: ___/___/___ |
| 13-1 Performing a rope crossing | Completion Date: ___/___/___ |
| 14-1 Performing a victim pick-up | Completion Date: ___/___/___ |
| 15-1 Performing a victim pick-off | Completion Date: ___/___/___ |

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| 16-1 Trailering a personal watercraft | Completion Date: ___/___/___ |
| 17-1 Placing a personal watercraft back in service | Completion Date: ___/___/___ |
| 18-1 Performing a daily and weekly check | Completion Date: ___/___/___ |

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|-----------------------------|---------------------------------|
| Instructors Signature _____ | Certification Date: ___/___/___ |
|-----------------------------|---------------------------------|