WATERSKI WORKS

SUMMER CAMP

SAFETY TRAINING MANUAL

5TH EDITION

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CONTENT

WE BUILD

EXPERIENCES

1 PREFACE

WaterskiWorks has been a part of the summer camp setting for over 15 years and believes that safety outlook should be inherent in all activities of counselors and campers.

The manual ensures a safe and effective water-sports program and is formatted for the summer camp setting.

We strive for KNOWLEDGE

The safety manual teaches the basics of a water-sports program and gives summer camp coaches the knowledge they need to build a safe, successful program.

We stand for SAFETY

The parties associated with WaterskiWorks continue to identify safety solutions and scenarios. All concerns are reviewed and implemented into this manual and all associated training.

We provide CERTIFICATIONS

The parties associated with WaterskiWorks continue to identify safety solutions and scenarios. All concerns are reviewed and implemented into this manual and all associated training.

We encompass years of WISDOM

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TOWBOAT

2 OVERVIEW

SUMMER CAMPS OPERATE WITH A VARIETY OF TOWBOATS

This section overviews the different styles, engine types, and the various characteristics differentiating each towboat. Every watersport counselor should have knowledge of the four basic styles of towboats found in the summer camp setting: Inboard, Outboard, V-Drive and Stern Drive.

DIRECT DRIVE TOWBOAT

An inboard towboat is a very common towboat in competitive water skiing. The engine is located in the center of the towboat between the front and rear seats.

OUTBOARD TOWBOAT

The outboard engine is commonly found on runabout, speed, and fishing boats. The outboard motor is mounted to the transom of the vessel.

V-DRIVE TOWBOAT

A V-Drive towboat is designed typically for the wakeboard/wake surf water-sport. The engine is located at the stern of the vessel, facing aft which places the transmission toward the bow.

STERN DRIVE TOWBOAT

The stern drive is commonly found in runabout styles of towboats. The engine is located at the stern of the vessel.

INBOARD/DIRECT DRIVE
OVERVIEW

These towboats are often named Competition Waterski Boats, with a sole purpose to tow water sports.

LAYOUT

The drive shaft extends through the hull directly behind the engine.

The propeller is attached to the shaft with a nut and cotter pin and is located beneath the towboat approximately in line with the backseats.

The steering mechanism is a rudder located behind the propeller.

CALL FOR REVERSING

A driver will notice that inboards pull the stern to the starboard or port, depending on the rotation of the motor.

This is important to remember when docking or when in situations that call for reversing.

Before adding lubricants or fuel refer to the owner's manual for the Inboard to verify the manufacturer's recommendations and capacities.

V-DRIVE
TOWBOATS

Imagine a car engine being placed in the trunk rotated 180°.

SIMILAR TO INBOARD

The drive shaft makes a "V" through a gear box and extends through the hull toward the stern of the towboat, similar to an inboard. The propeller and rudder are located in approximately the same area as the inboard.

STEERING MECHANISM

The steering mechanism is a rudder, and the prop angle is similar to the inboard, so the same principals of reversing also apply to V-Drive towboats.

SLOWER RESPONSE

Remember that V-Drive towboats are heavier and larger than an inboard; therefore, they are less responsive when maneuvering.

Before adding lubricants or fuel refer to the owner's manual for the V-Drive to verify the manufacturer's recommendations and capacities.

OUTBOARD
TOWBOATS

There typically is a trim or tilt button, located on or near the throttle level to raise or lower the lower unit when the towboat is entering shallow water or being loaded on a trailer.

DESCRIPTION OF SINGLE UNIT

The motor, drive shaft and propeller are all considered a single unit that mounts to the transom. The vessel is steered by turning the complete assembly. This is important because it allows for directional reversing. The driver must keep in mind the propeller is exposed behind the vessel and will be the first point of contact with objects when reversing.

TWO OR FOUR STROKE ENGINE

Outboard motors can be two-stroke or four-stroke. A two-stroke engine may require oil to be mixed with gasoline prior to filling. Certain two-stroke engines have separate reservoirs designed for regulated oil injection. Two-strokes require two-stroke oil that should not be confused with other types of engine oil. Four-stroke engines require a more common type of motor oil and unleaded gasoline.

Before adding lubricants or fuel refer to the owner's manual for the Outboard to verify the manufacturer's recommendations and capacities.

INBOARD/OUTBOARD OR STERN DRIVE
TOWBOATS

An outdrive, similar to the lower unit on an outboard, attaches to the engine through the lower part of the transom or rear hull of the towboat.

CAREFUL!

Due to the extension of the outdrive, the propeller will be the first point of contact to any object when reversing. There will also be a tilt or trim button located on or near the throttle for raising or lowering the outdrive.

Before adding lubricants or fuel refer to the owner's manual for the Inboard/Outboard or Stern Drive to verify the manufacturer's recommendations and capacities.

TOWBOAT REVIEW
DIFFERENCES AMONG TOWBOATS

DIFFERENT STEERING TECHNIQUES

Some towboats have exposed propellers that pivot for steering; some have propellers that reside underneath the towboat. These towboats usually are steered by a rudder and have limited reverse control. Certain towboat rises and then lowers closer to the water once a certain speed is reached. This rising and lowering of the bow makes seeing difficult for the driver. this also changes the throttle control for the driver.

DIFFERENT DRIVING TECHNIQUES

Certain vessels are equipped with foot control acceleration, also called a 'hot foot pedal.' Most camps in the U.S. have hand throttles.

DIFFERENT WATER ENTRY FEATURES

Some towboats have swim platforms mounted to the stern for persons to enter the towboat with ease. Other towboats will have ladders for entry.

DIFFERENT SAFETY CONCERNS

Each style of towboat presents different safety concerns and require different driving techniques.

EACH TOWBOAT WILL HANDLE DIFFERENTLY, BUT ALL PERSONS INVOLVED WITH THE WATERSKI PROGRAM SHOULD RESPECT THE TOWBOAT AND LEARN HOW TO CONTTROL IT.

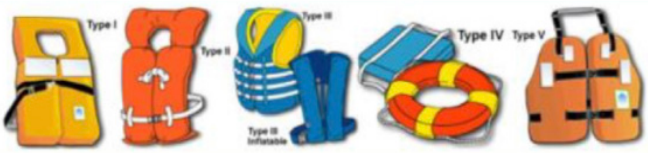
SAFETY & RECOMMENDED EQUIPMENT FOR TOWBOATS

FIRE EXTINGUISHER

All towboats less than 26 feet are required to have a fully charged Type BI fire extinguisher on board. The inspection must be up to date. The style and type are indicated on the fire extinguisher itself (see photo). If there are any questions regarding a fire extinguisher, contact the local fire department or water patrol.

PERSONAL FLOTATION DEVICE

Each towboat is required to have a minimum of one United States Coast Guard (USCG) approved life vest, Type I, II, III, or V per person. All life vests are required to be applicable to the size of the persons using them. All children under the age of 13 must be wearing USCG approved vests at all times. Vessels over 16 feet in length must carry one throwable USCG approved flotation, also referred to as a Type IV throwable device.



SOUND PRODUCING DEVICES

Horns, whistles, or bells are required during periods of reduced visibility and while at anchor. Also, they can be used to get the attention of others or sometimes in overtaking situations.

REGISTRATION

Each towboat must be registered with the state and sometimes local agencies. Each state is different; refer to the regulations in the state of operation and to the camp director for registration information.

MIRROR

The driver must be able to see behind him/her. It is recommended to clean the mirror before each operation. A mirror is never a good alternative to requiring an observer in the towboat.

SUN BLOCK

Keep fresh UV protection in the vessel and apply it often. If applying sunblock in the vessel, remember the vinyl seats, steering wheel, and throttle can be slippery. To avoid an injury, move around the towboat slowly and controlled.

SAFETY & RECOMMENDED EQUIPMENT FOR TOWBOATS CONTINUED

FIRST AID KIT

In the camp setting, the first aid kit is used often for such intrusions as splinters and blisters. Each day the operator of a towboat should check to make sure the first aid kit is up to date and stocked with the required supplies. Check with the infirmary or medical staff for assistance with the first aid kits. First aid kits should be housed in a plastic container to avoid contamination due to storage conditions. Store the first aid kit in a dry, shaded area on the towboat, like the glove box.

VISUAL DISTRESS SIGNALS

This equipment is used for signaling if stranded or if there is an emergency. Red flares, pyrotechnic orange smoke, red meteors, orange distress flag, and electric distress lights are examples. Refer to state and local laws if not on federally regulated waterways.

WATER

Keep fresh drinking water in the towboat as drivers and observers can become dehydrated easily.

TOW ROPE

Towing is recommended only when a vessel is stranded. A tow rope is necessary for towing by another towboat. When towing another vessel, take extreme caution and use proper tow ropes. Verify the tow rope is made specifically for towing and is rated to withstand the weights and pressure of the vessel being towed. Always tow at an idle speed and remember the vessel in tow will drift when the towing vessel stops. Always tow from the designated towing points on each vessel and not from anchor points, such as the ski pylon. Do not try and hold onto the rope while towing.

ROWING PADDLE

An oar can be used for manual navigation if the towboat becomes stranded and needs to maneuver to safety. It can also be used to check depths in shallow water or to determine the consistency of the waterway bottom.

TWO-WAY RADI0

This equipment is important for the summer camp setting. The two-way radio allows for communication with the waterfront and the camp's medical staff in case of emergency. Be sure you receive a verbal commitment from the safety party on land that he/she will keep in radio contact until all towboats are safely docked.

TOWBOAT MECHANICAL

Equipment & Maintenance

Summer camp maintenance staff should be able to answer any questions regarding procedure or oil types, so do not hesitate to ask!

OIL

Locate and check the oil indicator (also known as dip or oil stick) before every use. WaterskiWorks recommends checking the oil daily, prior to program use. Refer to the owner's manual for official checking and filling procedures. The following is a general reference and should be used in addition to the manufacturer's recommendations.

- Verify the vessel is level (will be level if in the water) and the engine is not running
- Locate dipstick
- With rag around tube, remove dipstick, wiping oil on the rag
- Re-insert dipstick and remove, holding vertically Note level on the dipstick
- Add oil if necessary

DIPSTICK

OIL FILL

FUEL

The fuel should be checked before every use. Never rely on the fuel gauge unless you know it is correct. The tank can be checked in some towboats by removing a backseat or cover and visually examining the tank. The Waterski Director will decide if this technique can be utilized.

Most fuel caps have a chain connected from the cap to the towboat. This chain can easily be broken, take caution when loosening the fuel cap. Visually inspect the tank to verify all fuel lines are connected and do not have cracks or holes.

TOWBOAT MECHANICAL

Equipment & Maintenance

REMEMBER: When fueling the towboat, always obey all environmental laws and procedures.

- Do not smoke or light a match when fueling and fuel from a dock or outside the vessel if possible
- Shut off the engine, all electronics and devices that could cause a spark
- Do not overfill. Filling until fuel runs out of the vent is not recommended
- Do not touch any electrical connections when fueling
- Once fueling has been completed, visually inspect the bilge and motor area for fuel leaks
- Before starting the towboat make sure to run the blower for at least five minutes during and after fueling. If a blower does not exist, lift the engine compartment for five minutes to let gasoline fumes escape. Gasoline fumes are heavier than air and collect in the bottom or bilge area. Verify the bilge area is ventilated before starting the vessel once fueling is completed.

BATTERY

A loose battery cable can cause the towboat not to start, operate correctly and can cause hazardous fires. Check the battery and the cable connections daily. **DO NOT** check any electrical connections during fueling!

BLOWER

The blower is designed to remove gasoline vapors from inside the engine compartment. If gasoline vapors build up in a confined space and a spark occurs, then there is an increased risk of an explosion. The blower is an electrical fan mounted inside the engine compartment or near the fuel tank. Verify the duct hosing is not torn or damaged between the engine compartment and the external vents.

TOWBOAT MECHANICAL
Equipment & Maintenance

PLUG

The plug is typically located at the bottom of the stern or in the center of the hull in front of an inboard engine. Clearly, when any plug is removed a hole remains. This hole is designed to drain water from the hull of a towboat when on land. As common as it sounds, each year many people forget to check and verify the plug is correctly installed and find themselves sinking and stranded. DO NOT remove the plug when the towboat is in the water, especially if it is underway. Remember, there can be multiple plugs depending on the vessel.

BILGE PUMP

When an excess amount of water enters the hull of a towboat, a bilge pump can be switched on to remove the water from the towboat. Referred to as “the bilge”, it is located at the lowest part of the hull near the stern, but it could be near the center in some inboards. There will be a water hose attached to the pump that connects to an external port.

CAPACITY PLATE

The capacity plate is generally located by the transom or to the right of the dashboard near the throttle. The capacity plate should be checked on each towboat in operation prior to occupants boarding. The capacity plate informs a driver the maximum number of occupants, the maximum horsepower of the engine, and the maximum weight the towboat can carry safely (see photo).

GUAGES

Most gauges are located on the dash of the vessel and monitor processes or levels similar to those in an automobile. In some towboats however, there could be gauges close to the throttle or under the dash, such as ballast tank levels. Before operating the towboat, read the owner’s manual to become familiar with each gauge, its purpose, and what it is monitoring. Digital screens are installed in newer models. The display screen will have multiple sub- menus and an understanding of what must be monitored is required. Remember, every towboat is different!

LIGHTS

The navigational lights will seldom be used in the summer camp setting. However, these lights need to be checked verified operational in case of an emergency. There should be a red and green light located near the bow of the towboat and a white light located at the stern or on top of a tower. The white light should be seen from 360 degrees, so it may be on a pole that is to be inserted into a light port. Refer to the USCG manual on navigating waterways for more information.

STRAINER

Most vessels have a raw water strainer located between the water intake and the pump. This strainer sometimes becomes clogged with debris from the water. Check and make sure the filter within the strainer is free from debris.

EMERGENCY SHUTOFF SWITCH

In many vessels there is a lanyard connected to a switch near the throttle. This is a very important safety device that kills the engine if the switch is pulled. The driver should connect this lanyard to a secure location on his/her body, PFD, or clothing. The engine will shut off if the lanyard connector is removed from the switch in the event the driver is thrown from the seat. This must be worn while the vessel is in operation.

TOWBOAT

3 OPERATION

SAFE AND CONSISTENT OPERATION TAKES DEDICATION AND FOCUS LEADING TO A SUCCESSFUL SUMMER CAMP PROGRAM

WaterskiWorks feels that understanding and respecting the towboat is essential for all parties involved in the waterskiing activity.

An overall understanding will assist drivers, observers, and skiers with making decisions when participating in camp waterski programs.

PRE-START PROCEDURE
And Recommendations

It is important for watersport counselors to perform a pre-start check before operating a towboat. Developing the habit of checking the towboat prior to each use will prevent accidents and, most importantly, will prevent injuries and costly repairs.

FOLLOW THIS PROCEDURE WHEN PRE-STARTING A TOWBOAT:

√ Lift the motor cover and spot check the bilge area, linkage, fuel lines, and wiring to verify none of the items are loose, leaking, or hanging down. Familiarize yourself with the towboats at the beginning of the season so that you will recognize any equipment that appears out of place.

√ Turn on blower (if applicable) for five minutes.

√ Verify all safety equipment is in working order and stored in the proper place inside towboat (Sec. 1.3).

√ Check the oil.

√ Check the operation of the bilge pump and drain any water accumulated in the hull.

√ Locate the battery and verify connections are tight.

√ Turn the key on and verify gauges are reading correctly.

√ Close the motor cover. **NEVER start a towboat with the motor cover open.** This could cause serious injury from moving belts and pulleys.

√ Check the fuel level and begin fueling towboat if necessary. Never check or touch any electrical connections or any other spark producing devices when fueling a towboat (cell phones, matches, mp3 players, or lighters).

STARTING PROCEDURE

And Recommendations

A summer camp waterski program can be stressful at times and counselors can feel rushed. Properly starting and warming a towboat can reduce downtime once the program is underway. Always refer to the owner's manual if there are any questions that arise when you are starting and operating a towboat.

FOLLOW THIS PROCEDURE WHEN STARTING A TOWBOAT:

1. Start the engine (wait 3-5 minutes for warm up).
2. Check all gauges (temp, battery, voltmeter, and fuel).
3. Check the surroundings; remove all mooring ropes or cables, and stow in the proper location. Verify there are no swimmers or campers in the area.
4. Manually push the towboat away from dock or mooring structure.
5. Identify the desired direction and engage the throttle (not above idle speed) either in forward or reverse, depending on the orientation of the towboat. You must look behind the vessel prior to engaging reverse!
6. Navigate into open water safely at an idle speed.
7. Engage the throttle in the opposite direction briefly to verify that both forward and reverse are working correctly.
8. In safe, open water underway at an idle speed, turn the steering wheel fully to the right and then back to the left to verify steering control.
9. Check all gauges again to ensure the towboat is functioning correctly (temp, oil pressure, battery indication).
10. Identify a safe direction for a throttle check and increase the throttle until a speed of approximately 15-22 mph is reached.
11. Check all gauges; navigate the towboat back to the waterski dock area and stop the towboat near the dock.
12. Turn off the engine.
13. Open the motor cover and verify that no excessive water is in the bottom of the towboat and that the motor is not excessively hot. Check for any leaking fluids.
14. Dock vessel in manner directed by Waterski Director for program safety and efficiency.

TOWBOAT MECHANICAL
Equipment & Maintenance

The driver and observer must understand safe operation and all USCG, state and local laws. These laws are designed for safety and must be followed when a towboat is underway. Certain camps operate on private bodies of water and other restrictions may apply. However, the waterfront director and camp director must be aware of all necessary laws and restrictions that are applicable to the camp's waterskiing body of water.

USCG RECOMMENDATIONS

The United States Coast Guard (USCG) is a federal agency of the United States Government. One of its missions is to reduce the loss of life, personal injury, property damage and environmental impact associated with recreational boating. It is imperative that each camp follow the USCG rules and regulations.

STATE AND LOCAL LAWS

Refer to guidelines set forth by the specific state of the water ski camp program. The waterfront or camp director can advise of any local ordinances or regulations. Examples include boater education certifications, ski rope lengths, rear view mirror requirements, visual distress signals, hours of operation, multiple skier regulations, etc.

USCG RECOMMENDATIONS

If comparing to an automobile, the throttle acts as the gas pedal and gear shift in a towboat. For discussion purposes, summer camp vessels contain a hand throttle only. Most throttles have a locking mechanism on the underneath side of the hand extension. This lever must be lifted or depressed before the throttle can be positioned in forward or reverse. If working properly, most throttles will lock each time the throttle is placed in neutral. The term "bumping" means putting the throttle briefly in forward/reverse then back to neutral.

This technique is used to remove all the slack from the rope before accelerating, approaching another vessel, or docking the towboat. A technique for increased throttle control is anchoring the hand, arm, or elbow in a comfortable location behind or beside the throttle. Instead of grasping the throttle with the whole hand, the driver can use his/her thumb and forefinger to make fine adjustments. Some drivers have a tendency to keep the throttle fully depressed until a certain speed is reached and then "back off."

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During operation and towing, the driver must keep his/her hand on the throttle for minor adjustments or emergency responses.

There is absolutely no hurry to reach a predetermined speed. A driver can "back off" the throttle before the desired speed is reached and then increase speed by making small throttle adjustments to reach the desired speed.

SAFE TOWBOAT
Operation

Docking a vessel can be stressful much like parallel parking an automobile. With the proper procedure it can be accomplished stress-free. Unlike an automobile, towboats are not equipped with brakes, which allow the inertia of forward propulsion to carry the towboat forward even when the throttle has been returned to neutral. To counteract this, the throttle is engaged in reverse to slow or stop the vessel. The same theory applies to reverse propulsion. The difficult portion of docking is managing side drift, wind, motor, etc.

DOCKING A VESSEL

When docking a vessel, there are three common types of approach techniques: (a) straight-forward, (b) backing-in and (c) angled. Straight-forward and backing-in are more difficult than the angled approach because of view obstructions. The angled approach is one of the most common types of docking in the summer camp setting.

When preparing to dock, always be aware of the vessel's bow direction and what is behind the towboat. If the throttle is engaged accidentally, too aggressively or sticks; the towboat will lurch forward or backwards potentially causing an accident or injury. When docking at an angle, follow these steps to help prevent an accident or injury:

Stop the towboat 75 feet (approx 3 boat lengths) away from the dock. This allows adequate space to prepare the docking buoys and lines (buoys where the dock will contact the vessel, lines at bow and stern). Identify where to dock the towboat and verify there are no persons in the water or sitting around the desired area.Approach the dock at a 15 to 20 degree angle at idle speed or the slowest speed possible. If the idle speed is still too fast, disengage the throttle to neutral then back into forward, and repeat as needed.

When the towboat is approximately 25 feet from the dock, or about one boat length, turn the steering wheel away from the dock and bring the throttle to neutral. Once the stern of the vessel has drifted toward the dock and is within 5 degrees of parallel, turn the wheel back toward the dock and briefly engage the throttle into reverse until the towboat stops all forward motion. Some towboats have limited reverse steering and pull in the starboard or port direction (inboards and v-drives). This should be determined before docking as it could pull the stern of the vessel away from or into the dock with too much reverse.

Hand or toss the bow and stern lines to assistants on the dock or pull the towboat toward the dock until a passenger can tie the lines to the dock. NEVER place body parts or objects between the vessel and dock and do NOT reach for the dock until movement has ceased and motor is off.

Wind and water currents affect the ease of the docking procedure, especially when using the straight-forward or backing-in technique. Depending on the direction and speed of the wind or current, a faster drift to the dock and more aggressive reversing might be necessary to help control the towboat. It is important to recognize the vessel's momentum.

If problems exist at any point during the docking process, there are two options available. The first option is to navigate away from the dock in a safe manner and repeat the procedure. The second option is to turn the engine off and drift to the nearest structure controlling the towboat by hand (walk it in) or use of an oar.

EMERGENCY NAVIGATIONAL PROCEDURES COMMONLY ASSOCIATED WITH WATER SPORT TOWING

Drivers can occasionally lose the ability to steer the vessel. Often, this is due to a steering cable breaking or sticking, or gears in the steering mechanisms stripping. The throttle controls the direction and RPM's of the vessel. Drivers can experience the vessel engaging in an undesired direction (i.e. driver pushes throttle forward but the vessel propels backward), the vessel stick at a certain RPM (i.e. driver pulls back on the throttle to stop with no effect), or the sudden loss of power. All of these situations can relate back to the throttle. Rarely, a driver will experience steering and throttle problems simultaneously. For instance, the steering can fail and the throttle may stick at the same time.

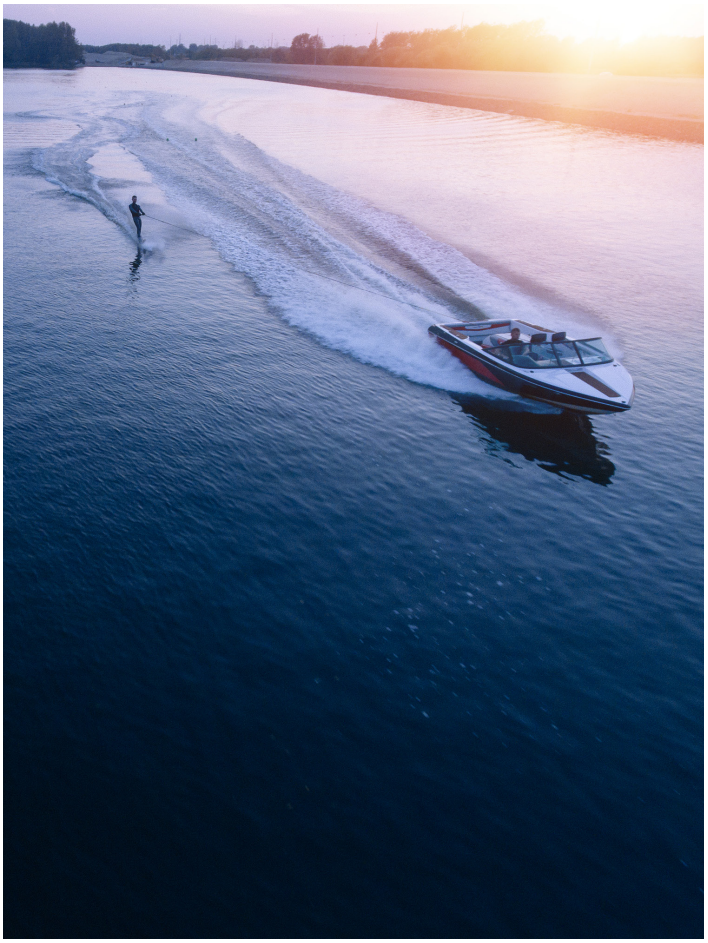
FOLLOW THESE STEPS FOR EACH FAILURE AND PRACTICE EACH SCENARIO PRIOR TO CAMPER ARRIVAL:

STEERING FAILURE	THROTTLE FAILURE	SIMULTANEOUS FAILURE
1. Verbalize the concern 2. Throttle to idle & verbalize 3. Throttle in neutral & verbalize 4. Reverse stop momentum of the vessel & verbalize 5. Check for safety of all passengers 6. Follow camp Emergency Action Plan (EAP)	1. Verbalize the concern 2. Steer vessel to safe location & verbalize* 3. Turn off ignition or pull emergency shut-off/ lanyard & verbalize 4. Check for safety of all passengers 5. Follow camp Emergency Action Plan (EAP)	1. Verbalize the concern 2. Turn off ignition or pull emergency shut-off/ lanyard & verbalize 3. Check for safety of all passengers 4. Follow camp Emergency Action Plan (EAP)

***If docking, do not be concerned with steering to a safe location before turning off ignition or pulling lanyard**

SAFE TOWBOAT
Operation

TAKEOFF WHEN TOWING



A controlled takeoff is adequate to pull a skier of any weight out of the water. Smaller children and teens are usually being towed in the summer camp setting. There are times when a fast approach may be necessary, but the key to the takeoff is control in acceleration. Remember that a controlled takeoff will minimize skier instability when the skier is learning. Identify a safe direction to tow the skier and bump the throttle in forward until the slack is eliminated. Once the ski rope is tight and the skier is ready, slowly de-press the throttle forward. Then adjust the throttle to fine tune the desired speed.

TURNING

A driver is responsible for the safety of the skier, other parties in the towboat, and persons on the body of water. This key point is crucial when a driver is turning or changing direction while towing a skier. Many variables are present when one is approaching a turn: land could be near; other vessels could be approaching or passing; the skier could be far outside the wake; a mirror is unavailable; or unforeseen situations may be present. Drivers must always be cognizant of when a turn is necessary to secure adequate preparation time before initiating the turn.

Listed below are steps designed to increase the safety of a turn.

1. Have the observer instruct the skier to stay directly behind the towboat, preferably inside the wake.
2. Verify with the observer there are not any vessels approaching from behind.
3. Have the observer relay the direction of the turn to the skier.
4. Verify there are not any towboats approaching in the direction of the turn.
5. Verify there are not any fixed obstacles or shoreline in the direction of the turn.
6. Initiate the turn in the desired direction. Throttle adjustments may be necessary.
7. Reset the desired skier speed after the turn is complete and a safe direction is set.

A turn is supposed to be smooth and steady. If a skier is outside the wake, opposite of the turning direction, he/she can be “whipped” outside at unstable speeds. The possibility of injuring a skier increases when drivers allow skiers to get out of control. WaterskiWorks does not recommend “whipping” due to a high risk of injury. If a skier tries this maneuver, pull back on the throttle reducing speed until they return to the wake.

RETRIEVING A FALLEN SKIER

The most important aspect of a downed skier is to verify the skier is okay. Refer to section 5.3 for the proper "skier okay" signal. Once the observer confirms to the driver that the skier is okay, the driver can determine how to approach the skier. It is recommended that a skier be approached and brought down the driver's side of the towboat for visibility.

There are two recommended ways to retrieve a skier for another tow:

1. The first option is to continue towing in the previous direction. The driver must stay at least 25 feet away from the skier while bringing the handle back to him/her. The driver will stay at an idle speed to navigate the towboat in a semicircle around the skier. The towboat should be at an idle speed when approaching the skier. Move the throttle to neutral when the skier is halfway between the towboat and the handle with the objective to make the handle stop directly behind the skier. This may require the throttle to be bumped in reverse briefly. Once the skier has the handle and signals that he/she is ready for takeoff, take the slack out of the rope and proceed with the takeoff.

2. Another option is to retrieve the skier and takeoff in the opposite direction of the previous tow. This method requires the driver to idle 25 feet around the skier but turn in the opposite direction of the previous tow when the skier is in line with the stern of the towboat. Similarly, the throttle must be in neutral when the skier is halfway between the towboat and the handle. The throttle may need to be bumped in reverse to make the handle stop directly behind the skier. When the skier signals to the observer he/she is ready, the driver may proceed with takeoff.

PICKING UP A SKIER

If a skier signals that he/she is okay and it is determined the skier is finished with the activity, the driver will navigate the towboat in a manner to pick up the skier. The throttle must be returned to an idle position when the towboat is approaching the skier. Return the throttle to neutral at a distance of 25 feet between the skier and the towboat. Once the skier reaches the bow of the towboat, gently bump the throttle in reverse until the towboat stops moving. Then return the throttle to neutral and turn the ignition switch to off. The skier can swim to the stern of the towboat and board the vessel.

TIP: NEVER ENGAGE THE THROTTLE INTO REVERSE WHEN THE SKIER IS BESIDE OR BEHIND THE TOWBOAT.

If the skier does not signal he/she is okay, approach the skier at an idle speed stopping before the towboat reaches the skier. Refer to the specific camp's water evacuation and safety protocol for further instructions.

Certain adjustments could be necessary depending on the wind or other vessels on the water. When making these decisions, consider the effects of the towboat as they relate to the skier. Navigate the vessel in a manner that keeps the towboat from being blown into the skier or waves from pushing the vessel into a skier. The recommended distance will need to be increased in these cases.

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SAFE TOWBOAT
Operation

The driver can slow to approximately 5-10 mph to make it impossible to cut outside the designated area for the skier. When the skier reaches the drop area, the driver should be at an idle speed. This is important because often there will be a skier pick-up area adjacent to the drop-off area. Once the skier has been safely dropped in the designated area, the driver can proceed with picking up the next skier and proceeding with the takeoff.

DROPPING THE SKIER AT A DOCK

The driver can slow to approximately 5-10 mph to make it impossible to cut outside the designated area for the skier. When the skier reaches the drop area, the driver should be at an idle speed. This is important because often there will be a skier pick-up area adjacent to the drop-off area. Once the skier has been safely dropped in the designated area, the driver can proceed with picking up the next skier and proceeding with the takeoff.

Campers have a tendency to “whip” outside the wake and ski as close to the dock or land as possible. The observer and driver must work together to eliminate this action due to an uncontrolled skier running into a fixed object resulting in an injury. The observer can communicate to the skier to stay directly behind the towboat or on one side until the signal is given to release the handle and drop off.

WATERSKIWORKS RECOMMENDS ONSITE CONSULTING BEFORE THE ADDITION OF THIS MANEUVER TO THE CAMP WATERSKI PROGRAM.

CAMPER TOWING

4 RESPONSIBILITIES

SAFELY TOWING CAMPERS IS AN IMPORTANT ASPECT OF A SUMMER CAMP PROGRAM

This section overviews the importance of following safety recommendations for observers and drivers in the vessel.

CAMPER TOWING
Responsibilities

The observer is considered the first mate of the towboat, and therefore, he/she has many responsibilities. This position is not intended for a leisurely boat ride. The observer observes and the driver drives!

DRIVER RESPONSIBILITIES

The primary responsibility of the observer is effective communication with the driver. The observer must notify the driver of everything happening in, around, and behind the towboat. Remember, the responsibility of the driver is safe operation of the towboat and that the driver cannot see where he/she is not looking.

The observer is the coaching voice of the towboat. Other than the driver, the observer has full control of what happens in the towboat. This means the observer is responsible for all skiers in and behind the towboat. The observer must verify the skier is wearing all safety equipment, the water- ski equipment is properly sized and the skier is aware of all non-verbal communication signals (Sec. 2.4.1). All observers should be familiar with all of the coaching techniques. A key element is to find new and exciting ways to relay these coaching messages to skiing campers when they have fallen or are trying to learn how to “get up.” (Sec. 6.0).

The observer is responsible for all ski equipment on the vessel. This includes the storing of ski’s, boards, and ropes. Rope control is important in a waterski program because ropes cause numerous injuries in waterskiing annually.

AN OBSERVER MUST VERIFY THE ROPE IS CLEAR OF ALL OBJECTS IN THE TOWBOAT INCLUDING PASSENGERS AND BE AWARE OF THE ROPE WHEN THE DRIVER NEEDS TO REVERSE THE TOWBOAT.

Each time a skier is finished or there is a break, it is the observer’s duty to coil the rope and place it neatly in the towboat. This task is performed only when the towboat is not moving and communication with the driver is established. This is crucial to avoid injury.

CAMPER TOWING
Responsibilities

The driver is the captain of the vessel and the overall responsibility rests on his/her shoulders. The driver must verify all safety concerns are mitigated and should be in constant communication with the observer about potential concerns.

DRIVER RESPONSIBILITIES

The primary responsibility of the driver is to safely maintain complete control of the towboat. The driver is obligated to know and understand the type of towboat he/she is operating. It is essential for the driver to safely navigate the towboat with an instructor before he/she can consider towing a skier.

In a public setting, a driver must be aware of other vessels unassociated with the summer camp. Refer to all state or local laws before operating the towboat in an open water setting. It is recommended to take a state boating safety course.

A safer setting is a private body of water; however, these are typically smaller and shallower lakes. The driver on a private body of water may not have to be as concerned with unknown vessels on the lake, but many times, there are designated areas for other camp activities that must be recognized. Before a summer camp driver begins to tow a skier, he/she must know the depths of the water and the designated waterski area. The driver must always be searching for obstacles in the water and changes in the waterski area, such as depth changes, persons in unauthorized areas, and floating tubes.

After a full understanding of the towboat and the body of water, the counselor can begin the waterski activity. The driver must verify the skier is clear of the towboat or other structures. If the program calls for takeoffs from the towboat, the driver should keep the engine off until the skier is clear. Other programs call for the skier to enter the water from a stationary dock or platform. If this is the case, confirm the skier is clear of the structure before takeoff. Always start at a slower speed because speed is the primary concern for the skiing camper.

ALL WATERSKI PROGRAMS SHOULD OPERATE WITH A DRIVER AND AN OBSERVER.

CAMPER TOWING
Responsibilities

REMEMBER: WaterskiWorks recommends all waterski programs operate with a driver and an observer.

The driver must be in constant communication with the observer while controlling the speed and direction of the towboat. The waterski setting is dynamic and constantly changing. Drivers must always be aware of their surroundings, while keeping the skier in control. If something does not feel, sound, or look correct stop the towboat and assess the situation.

- Never allow skiers to put their arms through the handles to “rest”, behind their knees, or around their head. These types of acts are best caught when an ob server and driver are working together.
- Releases are recommended for all ski boats.
- Doubles or tandem skiing is not recommended unless the drivers have been properlytrained.
- Speeds vary depending on the sport discipline, ability of the skier and weight of the skier.
    - Skis or board sinking could indicate a speed that is too slow.
    - Skis or board skimming could indicate a speed that is too fast.
    - Wakeboard and kneeboard speeds are generally slower than 2 ski speeds.
    - Slalom skiing generally requires a speed faster than 2 ski.

5 WATER-SPORT EQUIPMENT

IF YOU ARE EVER UNSURE IF THE EQUIPMENT IS SAFE, REFER TO THE MANUFACTURERS' RECOMMENDATIONS OR ASSUME IT IS UNSAFE AND REPLACE IT.

This section overviews the different types of equipment used in typical vessels.

All water-sport equipment should be checked thoroughly at the beginning of each season and at the beginning of each lesson to ensure the equipment is in safe working order. WaterskiWorks supplies camps with all necessary equipment and accessories.

CAMPER TOWING
Responsibilities

PERSONAL FLOTATION DEVICE
(PFD, commonly called life vest): PFD's should fit snug and not be able to lift over the camper's head. The straps should be tightened and zipper zipped.] Refer to Coast Guard sizing chart for more information. Always double check life vests as campers tend to unzip and unbuckle them for comfort!

BINDINGS
Bindings are made of rubber and rip very easily. Make sure all of the bindings have been checked for rips, wear and tear, and defects. Prior to the season's beginning order, replace, and test bindings. Verify there are no screws or sharp pieces penetrating the binding. Verify the bindings are tightly secured to the ski or board.

ROPES
Ropes should be replaced each season because of wear and tear, and knots. Replacing the ropes is an inexpensive way to prevent major injury. Ropes should be inspected on a daily basis for any knots or excessive wear. If any of these defects are visible, the rope should be discarded and a new one should replace it. If a rope breaks it should not be reused. Once skiing is completed for the day, properly roll and store the ropes in a dry area.

HANDLES
Handles should be stored in a safe dry place and should be checked daily for knots, fraying, and general wear and tear. If any excessive wear and tear is visible or knots are in the rope, do not use the damaged equipment to prevent injury. Verify tubing is not damaged or missing from handle as this loss presents possibility of finger loss and cut hands.

GLOVES
Gloves are a good way to get better grip and avoid calluses. Gloves should be a little tight when dry because they will expand when they get wet.

HELMET
Helmets should fit properly and be suited for waterskiing. They can be soft sided or hard sided and can have ear protection snap ins.

SKIS
Skis should be inspected daily for safety. Skis tend to be abused and can become ineffective and unsafe. Check all edges to make sure the mold is intact and no sharp edges are raised. Check all screws in the bindings to ensure they are tight and positioned correctly. The correct size ski should be fitted based on the skiers weight.

WAKEBOARD/KNEEBOARD
Wakeboards should be inspected prior to each use. Frequent use increases the chance of damage. Wear and tear can cause ineffective performance and discount safety. Check all edges to make sure the mold is intact and no sharp edges are raised. Check all screws in the bindings to assure they are tight and positioned correctly.

FINS
Abuse can easily affect fins. To prevent injury check the fins daily to verify proper position, the screws are tight, and no visible damage is present. When not in use place wakeboards and skis on the dock, ground, or boat in a manner that the fins are protected.

EFFECTIVE COACHING OF SUMMER CAMP

6 WATER-SPORTS

THE LEVEL OF COACHING YOUR CAMPERS RECEIVE WILL MAKE OR BREAK THEIR SUMMER. IT IS UP TO YOU, THE COACH, TO ENSURE THE CAMPERS' EXPERIENCE IS SUCCESSFUL.

WaterskiWorks recommends campers learn land lessons in basic two-ski, wakeboard and slalom ski before "hitting the water."

EFFECTIVE COACHING
Summer Camp Water-Sports

EVALUATING A COACH'S SKILLS

The first step in training and coaching is to know the skill personally. Although many coaches and staff are great wake boarders, slalom skiers or two skiers, they may not remember how it feels to perform the basics correctly.

It is time to get in the water and remember how it feels to control the skis, hold the rope, feel the pull of the towboat on takeoff, and actually use proper technique getting up. So take some time to go out and ski, wakeboard, and kneeboard to prepare for what the campers will experience.

STARTING THE CAMPER

Following a ski ride, the coach should educate each camper on the proper use and function of all the required equipment as described in the Watersport Equipment section (4.0).

Basic checkpoints are:

1. Life vests tight and snug
2. Helmets worn at all times
3. Bindings properly adjusted
4. Campers know how to put skis on both in the water and on the dock

An effective coach must also do an evaluation of each camper and his/her experience. A good rule of thumb is to assume everyone is a beginner and start with a quick land lesson prior to hitting the water. The coaches at WaterskiWorks have worked with thousands of campers over the years. Research has shown that campers tend to forget the basics from previous years' lessons. Therefore, it benefits all parties to start with a land lesson.

SKIER SIGNS

Nonverbal communication in the form of hand signals is the best way to communicate with a skier in tow. The skier, observer, and driver should know and understand the meaning of each signal. When a situation arises and there is not a complete understanding, stop the towboat and communicate verbally. The chart below shows the most common signals between a skier and an observer.

BASIC TWO-SKI LAND LESSON

Find a clean, flat, dry area to work with the camper. Have the camper take a seat and begin to show the proper in-water position, as pictured below. Campers are visual learners. The more a camper sees a coach demonstrating, the more he/ she will understand.

1. Knees bent and as close to the chest as possible:
An easy way to explain this position is to tell the campers to get in the same position as they do when doing a cannon ball into the pool. This will bring the knees close to the chest which make the campers more stable in the water and allow for an easier transition in getting up.

2. Arms straight:
Arms must stay straight. The tendency is for the campers to try and pull themselves up as the towboat begins to move. It is the coach's responsibility to reiterate that the arms must stay straight. A good tip is to tell the camper to push the handle toward the towboat to help keep the arms straight.

3. Elbows outside your knees:
The elbows outside the knees will help keep the knees,legs, and skis in line and not allow the skis to separate.

4. Eyes up at the horizon, top of trees, or top of the pylon:
Looking up helps maintain proper weight distribution.

5. Toes to the sky:
Pointing the toes to the sky will help the skis stay in proper position, and help the tips of the skis stay out of the water.

6. Chest up:
Campers sometimes sense that leaning forward provides more stability. Remind them to keep their chest up at all times.

Once a camper is in proper position, the coach can begin to pull on the handle slowly as appears in the photo below. This action will give the camper the feeling of the towboat starting to pull him/her.

It is the coach's responsibility to detect errors and correct them during this exercise. The camper must stick the land lesson to ensure the best success rate. If a camper is having problems, refer to the troubleshooting section at the end of the two-ski section (6.1). Each camper should know how to put on the bindings on if skis fall off. It is beneficial to spend some time in the pool or a safe swim area putting on and removing bindings.

EFFECTIVE COACHING

Summer Camp Water-Sports - Basic Two-Ski

HITTING THE WATER

The land lesson is complete and now it is time to hit the water. The observer must help the camper (skier) prepare all proper equipment prior to going outon the towboat. Once a skier is in the water, the observer must continue to remind him/her verbally of the proper position (arms straight, knees bent and to the chest, and eyes to the pylon or horizon). When the skier is in position, the observer can pull slightly on rope as appears in the photo below to give the skier the feeling of the towboat taking off.

Once the skier has successfully maintained position with the observer pulling on the rope, it is time to have the towboat pull the skier up. As described in the manual's "Take-off" section (2.4.3) the driver will begin a slow acceleration. The observer must use nonverbal gestures to help skier get in proper position during takeoff (see photo). If at any time the skier is in danger, the observer should instruct him/her to let go

TIP: IF THE CAMPER IS HAVING DIFFICULTIES GETTING UP, REFER TO THE TROUBLESHOOTING SECTION.

TURNING

Remember this is a new experience for the camper (skier). Prior to the towboat starting to turn, the observer should signal to the skier the towboat is about to begin a turn and give ample time for the skier to prepare. With a nonverbal gesture, instruct the skier to stay directly behind the towboat. It is the driver's responsibility to keep the skier behind the towboat and not "whip the skier." The skier will want to put pressure on the outside ski to help him/her to stay inside the wakes throughout the completion of the turn (see photo).

CROSSING THE WAKES

Once the camper (skier) is comfortable on two skis and is maintaining proper position, it is time to cross the wakes. The coach shouldfirst practice this with the skier on the dock to give him/her the feeling and assure proper position throughout the wake-crossing process. The skier will point his/her knees, turn hips, and look in the direction he/she wants to go, while keeping pressure on the ski opposite the desired direction. For example, if the skier wants to go to the left, he/ she will want to put pressure on the right ski.

- Once the skier demonstrates he/she can remain in proper position for crossing the wake, the coach should instruct him/her to move outside of one wake then back to the middle and stop momentarily.
- If this maneuver is successful, instruct the skier to continue outside the other wake. Stopping behind the towboat will help keep the skier in proper position and safely in control.
- Once the skier is comfortable crossing the wakes with a brief stop between them, the observer can coach towards a continuous crossing.
- The coach can accomplish this by instructing the skier to keep the skis on edge completely through both wakes. Along with this edge, the skier must keep his/ her knees bent and head up looking in the direction he/she wishes to go.
- The skier's back must be straight and the rope pushed down near the hips. If all of these positions are met, the skier should cross the wakes in perfect and safe form (see photo).

TWO-SKI TROUBLESHOOTING

- **Off balance while in water ready for towboat to take off:**

  The camper (skier) will be off balance in the water if not in the proper ball position: knees bent, arms straight and elbows outside the knees. This can also be caused from anxiety; therefore, the camper must relax.

- **Falling Backwards:**

  Caused from pulling on the arms. Keep the handle low and arms straight. Tell the skier to push the handle toward the towboat.

- **Falling Forward:**

  Due to upper body too far forward or looking down allowing a break at the waist. Make sure the skier is looking up and the hips stay centred under the shoulders, and the chest is up.

- **Popping Handle:**

  Caused from leaning back too much, and straightening the legs. Resist the towboat by pulling on the arms or tightening the shoulders.

- **Falling Sideways:**

  Unequal weight distribution or looking down. The skier's weight must be in the middle of the skis and equally distributed between both feet; the knees are properly bent while looking up. The skier's eyes should be focused at the pylon or horizon. Hold up a certain number of fingers and have the skier tell you how many fingers he/she sees. This technique will get the skier to continue looking at the coach for additional instructions.

- **Trouble crossing the wakes:**

  A common error when crossing the wakes is having one ski inside the wake and one outside wake. Instruct the skier to continue the proper position thorough the whole wake to keep him/her on edge for an increased crossing angle.

WAKEBOARD LAND LESSON

Wakeboarding has become one of the fastest growing water sports at camp. Wakeboarding lessons will be similar to a two-ski lesson.

To begin the lesson, find a safe, dry place where the student has enough room to sit comfortably. The camper (skier) should take a seat on the ground, and you, the coach, can instruct the skier of proper position for Wakeboarding.

1. Knees bent and close to skier's chest:
This position will allow the skier to be more stable in the water and make it easier for the board to come under him/her and slide on top of the water. The skier can begin to stand up once the towboat begins to accelerate.

2. Arms straight / Elbows inside or on top of knees:
The skier's arms should remain straight at all times and as low as possible. The feet are going to be stationary so the elbows may not be directly inside knees. It is important to instruct that the arms need to remain straight and the rope will rest on top of board between the feet. This position will help align the skier's upper body.

3. Eyes on the horizon:
Each skier should keep his/her eyes on the horizon, ski pylon, or on the coach for signals. "Look down, fall down."

4. Front foot slightly higher than back foot:
The front foot is higher than the back foot. This position will allow for an easy transition and help the board slide out of the water. This stance also helps prevent plowing and prevent the board from submerging.

Once the camper (skier) is in proper body position, it is time for the rope. The skier should hold the handle with palms down as he/she would in the water. The coach begins to pull gently on the opposite end of the rope, demonstrating the pull of the towboat. The skier must keep his/her arms straight, knees bent, and eyes to the horizon. Once the pull from the coach begins, the skier will allow the board to come underneath him/her slowly while slowly starting to stand up. Once the camper begins to stand, pivot to allow one foot to move forward, pointing the hips toward towboat. Refer to the troubleshooting chart at the end of the wakeboarding section (6.2.5) to help correct errors in positioning. Prior to hitting the water, it is important to spend time in a safe swim area, putting on and taking off bindings. This practice will help to maximize ski time.

HITTING THE WATER

The land lesson is complete, and we are ready to hit the water. The observer must help the camper (skier) get ready with the proper equipment and safely enter the water. Once the skier is in the proper pre-start position and has the handle, the observer can then slightly pull on the rope. Pulling on the rope will simulate the feeling of the towboat's acceleration. This technique is utilized so that the coach can determine if the skier has a tendency to pull on the handle or resist the towboat. The coach can feel this resistance, and the problem can be corrected before the towboat accelerates.

TIP: IF THE CAMPER IS HAVING DIFFICULTIES REFER TO THE TROUBLESHOOTING SECTION.

Once the skier has successfully maintained position with the observer pulling on the rope, it is time to have the towboat pull the skier up. As described in the "Take-off" section (2.4.3), the driver will begin a slow acceleration. The observer must use nonverbal gestures to help the skier get in proper position during takeoff. If at any time the skier is in danger, the observer should instruct the skier to let go of the rope, and driver to stop the towboat.

TURNING

A skier's lack of preparation could cause serious injury.

This is a new experience for the skier. Prior to towboat starting to turn, the observer should signal to the skier that he/she is going to turn and give ample time for the skier to prepare. Next, with a nonverbal gesture, the observer instructs the skier to stay directly behind the towboat. It is the driver's responsibility to keep the skier behind the towboat and not "whip the skier."

Turning on a wakeboard is much different than turning on two skis because of the stance and foot position. Maintaining proper body position, the skier will put a small amount of weight on the heels or toes, depending on direction. For example, a left-foot-forward skier turning left will want to put pressure on heels. A right-foot-forward skier turning left will put pressure on the toes. As the towboat begins to turn, the student will then stay directly behind the towboat inside the wakes.

CROSSING THE WAKES

Once the camper (skier) is comfortable and maintaining proper position, it is time to cross the wakes. The skier must first be shown on the dock the proper turning techniques. Heels and toes are the most important considerations for the student. The proper terms for direction in wakeboarding is “heel-side” and “toe-side.” Heel-side is the direction the skier’s heels are pointing, and toe-side is the direction his/her toes are pointing.

- The coach must “keep it simple” for the skier. Maintaining proper position inside the wake, the skier should put slight pressure on heels, or toes, depending on preferred direction.
- While applying slight pressure, the student will point his/ her hips in the desired direction.
- The skier must also look in the desired direction. The eyes will help the body pivot more easily.
- The hand position should be low and at the hip.
- The skier will feel the edge change, and the board will begin to turn. It is important that the skier feels the edge change and is comfortable transferring weight.
- Once the skier is comfortable doing an edge transfer inside the wake, he/she can then maintain the pressure through the wake and out to the flat water.

To cross back over the wake, the skier will simply do just the opposite. He/she must transfer the weight to either heels or toes, depending on direction, point hips, and look in the direction through the wake and stop in the middle directly behind towboat. The skier will then transfer his/her weight, point hips, and look outside the opposite wake and then continue out to the flat water. Once in the flat water, the skier can then transfer weight, point hips, and look back to the middle of the towboat, then safely and slowly return-- stopping directly behind the towboat. Once the skier demonstrates he/she can maintain the proper position inside the wake, you, the coach, should instruct him/her to proceed outside of the wake. When the student reaches the flats, instruct him/her to edge back to the middle and stop momentarily. Then, continue outside the other wake.

TIP: WHEN COACHING CROSSING THE WAKE ON A WAKEBOARD, MAKE SURE THE SKIER GOES OUTSIDE ONE WAKE BACK TO THE MIDDLE, PAUSES, THEN OUTSIDE THE OTHER WAKE. CONTINUING TO PULL OR CUT THROUGH THE WAKE AND DIRECTLY TO THE OTHER WAKE WILL CAUSE THE NEW SKIER TO GET AIR.

WAKEBOARD TROUBLESHOOTING

- **Camper falling forwards/backwards:**

  Due to pulling on arms. Arms should remain straight, low and near the boarder's hip at all times.

- **Board is sinking:**

The camper is standing up to early or leaning back not allowing board to come underneath him/her.

- **Face Plant:**

This error is common in wakeboarding and can be prevented with solid coaching during the land lesson. The face plant is a result of improper weight distribution and body position. The weight distributed to toes and heels on turns should be a minimum and gradual; water can catch toe-side edge when the camper is trying to turn board sideways.

- **Going outside wake unintentional:**

Generally when a camper gets up on a wakeboard and is in bad position trying to get the front foot forward with hips pointing toward the towboat, the boarder will drift outside the wake. This event can be scary and result in injury. However, it can be prevented with a proper land lesson.

- **Popping handle:**

Caused from the skier leaning back, straightening the legs, and pulling on the arms. Knees should be bent and momentum moving forward with towboat.

SLALOM SKIING

Slalom skiing can be taught once the camper is getting up on two-skis consistently, crossing the wake comfortably, and maintaining proper position throughout. Teaching slalom prior to the student's being ready can cause injury and bad position habits. Make sure the camper is fully prepared and perfecting two-skiing.

FOOT POSITION

The first step in learning slalom skiing is to determine which foot to put forward. This step can be mastered one of three ways:

1. Have the camper (skier) stand on the dock and put one foot in front of the other to determine which way feels the most comfortable.
2. Gently push the skier on the back to see which foot takes the step forward to regain balance. This test should indicate the dominate leg, but should be completed in a safe manor and should not become a game.
3. The skier can try what is called the "skiers salute." The skier's salute is done when the skier is on the water skiing on two-skis. The skier slowly lifts one ski slightly out of the water, pointing the toes to the sky and straight back down. The skier's salute should be accomplished in smooth water because waves from other towboats can cause loss of balance and possible falling, resulting in injury.

The skier's salute will let the skier know which foot feels the most comfortable. The one that is most stable when the other foot is lifted is the foot that should be forward.

SLALOM SKIING LAND LESSON

The slalom lesson should begin just like all other water sports lessons, with a demonstration on the dock or land. The coach should find a dry, safe place to demonstrate and teach.

1. **Patience:** The first thing the coach wants to explain to the student is that slalom is going to be different than two-skis. The camper needs to be patient. Slalom skiing usually takes much longer to accomplish than skiing on two skis.

2. **Balance:** Having one foot in front of the other and standing for a period of time is not a normal feeling for a person. The slalom stance will feel very off balance and awkward to the camper. The coach must explain to the camper this is normal and the camper will want to relax as much as possible.

3. **Knees bent:** The camper must get in a tight ball, with knees bent and as close to the chest as possible.

4. **Arms straight / low:** The arms should be straight, or with a slight bend, and as low as possible. The student should feel as if the wrists are resting on the bindings if possible. This position will help maintain balance in the water.

5. **Eyes on the horizon:** The eyes and chin should always be up looking at the horizon, trees or pylon. This position will allow the body to come up and forward.

6. **Feet close to body:** Keep the feet as close the buttocks as possible. The ski should maintain a slight angle to the side and towards the towboat. The tip should be approximately 10-12 inches out of the water (which can be reviewed in the water).

7. **Grip:** In slalom, the baseball grip is used versus the traditional palms-down grip.

8. **Rope position:** The rope generally will be placed on the opposite side of the foot the camper has forward. For example, left-foot-forward skiers will most likely feel more comfortable with the rope on the right side, and vice versa. Once the student is in proper position, the coach can then begin to pull on the handle slowly. The slight pull will give the camper the feeling of the towboat starting to accelerate. The coach will then instruct the camper to allow his/her knees to come to the chest while maintaining pressure on both feet slightly pushing against the water. It is the coach's responsibility to detect errors and correct them during this exercise. If the camper is having problems refer to the troubleshooting section 6.3.6 for coaching tips.

HITTING THE WATER

The land lesson is complete and we are ready to hit the water. The observer must help camper (skier) get ready with all the proper equipment prior to going out on the towboat. Each skier should know how to put on the bindings if the ski falls off. Putting on a slalom ski is much more difficult than putting on two-skis. The skier should put the front foot in first followed by the rear foot. Using a small drop of environmentally friendly lube can help the foot slide in easier and the lube will wash off once in the water. Skiers should practice putting on the ski in a safe-swim area prior to going out on the towboat.

- Once the skier is in the water, the observer should continue to remind the skier of thE proper position (arms straight, knees bent and to the chest, eyes to the pylon or horizon).
- With the skier in the proper position, the observer can slightly pull on the rope simulating acceleration of the towboat.
- The skier will feel off balance the first few times. It is the coach's responsibility to continue to explain to the skier to be relaxed and patient.
- The ski is going to have the tendency to fall to one side or the other. If the ski is slightly angled, it is okay. The angled ski sometimes helps the skier to maintain balance in the water.
- The ski will straighten up once towboat starts to pull the skier. A "Deep V" training handle can be used to assist correct "in water" form.

Once the skier has successfully maintained the correct position with the observer pulling on the rope, it is time to have the towboat pull the skier up. As described in the "Take-off" (Sec. 2.4.3), the driver will begin a slow acceleration. Slalom skiing usually requires a more aggressive acceleration than that of wakeboarding or two-skis. The throttle should stillbe rolled, but the driver may determine that he/she rolls to the full speed position during takeoff. As soon as the skier comes out of the water, slowly roll the throttle to the desired speed. During acceleration the observer can use hand nonverbal gestures to help skier get in proper position. If at any time you feel the skier is in danger, the observer should instruct the driver to stop the towboat.

TIP: IF THE CAMPER IS HAVING DIFFICULTIES REFER TO THE TROUBLESHOOTING SECTION.

TURNING

Remember this is a new experience for the skier. Prior to the towboat starting to turn, the observer should signal to the skier that he/she is going to turn. The observer is careful to give ample time for the skier prepare. With a nonverbal gesture, instruct the skier to stay directly behind the towboat. It is the driver's responsibility to keep the skier behind the towboat and not "whip the skier."

Turning on slalom is different than turning on two-ski because of the stance and foot position. The skier should maintain weight in the middle of the ski and stay directly behind towboat, slightly maintaining pressure on the inside edge, eyes on the towboat, and handle low.

CROSSING THE WAKES

Once the skier is comfortable on the slalom and is maintaining proper position, instruct the camper to steer with his/her knees and eyes. The easiest way to explain how to steer with the knees is to have the skier point them in the direction he/she wants to go, and also look in that direction. Once the camper demonstrates that he/she can maintain proper position for crossing the wake, instruct the skier to go outside of one wake. Once outside the wake, the skier can the transfer weight, point knees, look in the opposite direction, and return to the middle.

Stopping behind the towboat will help keep the camper in proper position and in control. The skier can then repeat this process to the opposite side. Once comfortable, the skier can continue side to side without stopping.

It is important to instruct skier to turn inside the wake to get the feel for the ski's going from edge to edge. Once the skier is ready to proceed out of the wake, it is important to explain the need to maintain edge through the whole wake.

In slalom, the skier is always on edge. When turning, this position will help reduce the impact of the wake. Drive through the wake, not over the wake.

SLALOM SKIING TROUBLESHOOTING

- **Off balance/hands are not on the handle:**

  It is common for the skier to feel off balance and try to maintain that balance with the hands. Instruct the skier to relax and let the ski go to the side and keep both hands on the handle.

- **Pulled out the front:**

  Generally the tip is too low. The slalom ski's tip should be approximately 10 inches out of the water at all times.

- **Falling backwards:**

  The skier is pulling in the arms and leaning back. Instruct the skier to allow the towboat to pull him/her forward while keeping the chest strong and chin and eyes up.

- **Falling over to the side:**

  Sometimes this error can mean that the wrong foot is forward. Slalom skiing is about feel, and not all cases are the same when determining the foot forward. Take a minute to switch feet and see how the skier reacts in the water. The skier could also be breaking at the core, dipping the shoulder, or lowering the head and looking down.

- **Falling at the wake:**

  The skier will have a tendency to try and stop at the wake which can cause the ski to go flat. Instruct skier to maintain the edge and drive through the wake not over the wake. The ski is like a knife, and the wake is like butter. It is hard to get through the butter with a flat knife; the knife has to be on edge.

- **Unstable or wobbly ski:**

  A common error when crossing the wakes is having one ski inside the wake and one outside wake. Instruct the skier to continue the proper position thorough the whole wake to keep him/her on edge for an increased crossing angle.

6 | CONCLUSION

WATERSKIWORKS THANKS YOU!

Thank you for taking time to review and learn this manual. The intent is to provide a reference for safety and tips for coaching and equipment. It is our hope that you keep this manual with accessible throughout the summer season and make notes when ideas or situations arise.

Feel free to share these ideas with us as we are always striving to improve the safety and efficiency of the summer camp water ski program.

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APPENDIX A: CONVERSION OF METRIC TO U.S. UNITS

METRIC MEASURE	FEET IN DECIMALS	FEET AND INCHES
50.0 m	164.0 ft	164’ ½ ”
20.0 m	65.6 ft	65’ 7½”
12.0 m	39.4 ft	39’ 4½”
10.0 m	32.8 ft	32’ 9¾”
8.0 m	26.3 ft	26’ 3”
7.0 m	23.0 ft	22’ 11½”
6.0 m	19.7 ft	19’ 8¼”
5.0 m	16.4 ft	16’ 4¾”
4.0 m	13.1 ft	13’ 1½”
2.5 m	8.2 ft	8’ 2½”
1.0 m	3.3 ft	3’ 3 1/3”

APPENDIX B: GAS TO OIL RATIO

PINTS WHEN APPLIED TO...

PINTS OF OIL PER GALLON	ACTUAL RATION	2 GALLON	3 GALLON	4 GALLON	5 GALLON	6 GALLON
1/12	96:1	1/6	1/4	1/3	5/12	1/2
1/6	48:1	1/3	1/2	2/3	5/6	1
1/5	40:1	2/5	3/5	4/5	1	1 1/5
1/3	24:1	2/3	1	1 1/3	1 2/3	2
3/8	21:1	3/4	1 1/8	1 1/2	1 7/8	2 1/4
1/2	16:1	1	1 1/2	2	2 1/2	3
3/4	11:1	1 1/2	2 1/4	3	3 3/4	4 1/2

APPENDIX C: PERSONAL FLOTATION DEVICES

BUOYANCY RATING: FOAM

SIZE	TYPE	INHERENT BUOYANCE
ADULT	I II & III V	22 lbs 15.5 lbs 15.5 to 22 lbs
YOUTH	II & III V	11 lbs 11 to 15.5 lbs
CHILD & INFANT	II	7 lbs
THROWABLE: CUSHION RING BUOY	IV	20 lbs 16.58 to 32 lbs

BUOYANCY RATING: INFLATABLE

SIZE	TYPE	INHERENT BUOYANCY
ADULT	I & II III V	34 lbs 22.5 lbs 22.5 to 34 lbs

BUOYANCY RATING: HYBRID

SIZE	TYPE	INHERENT BUOYANCY	INFLATED TOTAL BUOYANCY
ADULT	II & III V	10 lbs 7.5 lbs	22 lbs 22 lbs
YOUTH	II & III V	9 lbs 7.5 lbs	15 lbs 15 lbs
CHILD	II	7 lbs	12 lbs

APPENDIX D: DAILY MAINTENANCE CHECKLIST

Vessel name:

Date							
Record Level Daily							
Hours (record daily)							
Fuel (record level)							
Engine Oil (check level, color)							
Charging Voltage (record daily)							
Oil Pressure (record daily)							
Verifying Equipment Is In Boat							
PFDs							
Type IV Throwable PFD							
Fire Extinguisher							
Registration							
Lifeguard Float							
First Aid Kit							
Visual Distress Signals (if necessary)							
2way Radio/Cell Phone							
Oar							
Tow Rope							
Bottled Water							
Inspect Area & Note Below							
Blower Operation							
Water Strainer (clean daily)							
Bilge Pump Operation							
Bilge (free of oil, water, debris, etc.)							
Plug (tight)							
Horn (operational)							
Lights (operational)							
Battery Terminals (clean/tighten)							
Lanyard (tight, secure)							
Tower Bolts							
Ignition Assembly & Key							
Throttle (cable tension & body)							
Steering Assembly (lubed, snug)							
Hoses & Clamps							
Belts (check tension, wear)							
Gas Caps & line to tank							
Rear Platform (brackets, pins)							
Prop/Pin, Rudder/Skegs							
Service & Damage Notes							
Technician (Initial)							