

SAFETY EQUIPMENT

Contents....

Safety Equipment

Life Jackets

Float Plans

Fire Extinguishers

Visual Distress Signals

Safety Equipment

Equipment on board your boat is very important. Ensuring that you have all required equipment primary you should be familiar with the various parts and pieces of equipment that you can use to survive an emergency on the water. Here is a basic description of a few of those... Bilge pump or bailer: Although federal regulations do not require dewatering devices-a bucket or other bailer on un-powered boats or electric bilge pumps on boats with engines-they are required by some state laws. Required or not, these items are recommended for safe boating. In Canada, even the smallest boat must have at least a bailer on hand.

Compass: Desirable on almost any boat, for boat emergency and regular use, a compass and plotting instruments are recommended for piloting purposes.

Electronic equipment: VHF radio is the basic piece of electronic safety equipment used in receiving weather reports and Coast Guard warnings, as well as in transmitting requests for assistance. Other operational safety items include electronic depth sounders, fuel vapor detectors and navigational equipment such a loran, GPS and radar.

EPIRB (emergency position-indicating radio beacon): This automatic radio transmitter should be carried on any boat operating offshore. To Rent an EPIRB for very low weekly fees, check out the BOAT/U.S. Foundation's EPIRB Rental Program:
www.boatus.com/foundation.

First-aid kit: An essential item of safety equipment.

The kit should be accompanied by a first-aid manual and supplemented by one or more first-aid courses.

Backfire Flame ARRESTOR: With some minor and technical exceptions, every inboard gasoline engine must be equipped with an acceptable means of backfire flame control-or

"flame arrestor." This safety device prevents an exhaust backfire from causing an explosion. It operates by absorbing heat. Flame arrestors no longer require Coast Guard approval; the USCG now accepts flame arrestors complying with Underwriters Laboratories Standard 1111 or Society of Automotive Engineers J1928. When in use flame arrestors must be secured to the air intake of the carburetor with an airtight connection. Elements must be clean, and grids must be tight enough to prevent flames passing through. Cleaning with soap and water is the best way to maintain its effectiveness.

Flashlight or searchlight: A searchlight- installed on larger craft, hand-held on smaller boats-serves both as a night piloting aid and as an emergency signaling device. A multi-cell flashlight or electric lantern can serve these functions, although sometimes less effectively.

Life rafts: For everyone who cruises or fishes offshore, a rigid or inflatable life raft should be considered mandatory. Standards for life rafts-size, capacity ratings, seaworthiness conventions, and are adapted for the U.S. by the USCG.

Sound signaling devices: The Navigation Rules require sound signals to be made under certain circumstances, including the meeting, crossing and overtaking situations that are described in the Rules. All vessels, including recreational vessels, are required to sound fog signals during periods of reduced visibility; therefore, you must have some means of making an efficient sound signal. In an emergency for example you can use any loud noise to attract attention: If you have a loud hailer, use it, or make a megaphone from a rolled up chart, or bang on a metal pot. Vessels 12 meters or more in length are required to carry on board a whistle for marine use and a bell.

Spare parts and tools: The list of tools and spare parts to be carried aboard is best developed by skippers for their own boats. Depending on the type of boat, how it is normally used, and the capabilities of the crew, the list may include items such as simple tools, plugs, cloth screws, nails, wire, tape and other objects for making emergency repairs at sea; spare bulbs for the navigation lights and various mechanical and electrical spare parts.

Visual distress signals: Most boats- and all boats operating in open waters- must be equipped with visual distress signals, classified by the USCG for day use only, night use only or combined day-and night use. Each device must be in serviceable condition, readily accessible and certified by the manufacturer as complying with USCG requirements.

Safety Equipment: Required

1. One personal flotation device; in good condition for each person on board. You must have the PFDs out of the plastic and in an accessible location.
2. A throwable cushion or ring is required. The throwable should be close by the steering station.

3. Three current-dated, hand-held, approved flares are minimum equipment to serve for day and night distress signals, both inshore and offshore.
4. The correct number of approved fire extinguishers, readily available for use is based on the size of your vessel.
5. You must have a sound device and of course, working running lights.

Life Jackets

TYPES

There are five types of flotation devices. Each is designed for different boating activities and water conditions and has its own maximum buoyancy, performance level, and limitations. You should choose your life jacket based on your boating activities and conditions, as recommended below. Buy a life jacket that you will wear. And buy bright orange or yellow, so that you will be visible to rescuers. Take it out of the plastic, try it on, and learn how to adjust it for a snug fit. Then, test it in the water. Make sure it supports you and keeps your mouth and head clear of the water with no effort on your part. Then, try pulling it on once you're in the water... it's not as easy as it seems.

When should you wear your life jacket? In general, the best time to wear your lifejacket is when you are near the water. Accidents happen...both on the dock and on quiet, still waters. If you feel comfortable without a life jacket on during calm conditions, always keep your eye on weather and water conditions as they can deteriorate very rapidly. Boating at night, in congested waterways, or in unfamiliar waters are all times when you should strongly consider wearing your life jacket.

What is buoyancy and why is it important?

Buoyancy is the force, expressed in pounds, required to keep you afloat with your head and chin above the water. Since everyone's buoyancy requirements are different based on size, weight, sex, age, percent body fat, and general physical condition you should test your life jacket in the water to make sure it will offer you maximum performance when your life depends on it.

TYPE I - Inherently Buoyant:

Recommended uses: offshore cruising, racing and fishing Minimum buoyancy: 22 lbs. (11 lbs. for child size)

- Best for open, rough or remote water where rescue may be slow to arrive.
- Will turn most unconscious wearers face-up in water.
- Offers the best protection, but is somewhat bulky and uncomfortable.

Inflatable:

Minimum buoyancy: 34 lbs. Recommended uses: offshore cruising, racing, fishing Will turn unconscious wearer face-up Advantages: two inflation mechanisms, both manual and automatic; very comfortable to wear Disadvantages: requires periodic maintenance; not suitable for whitewater, for use with personal watercraft, or while skiing

TYPE II - Near-Shore Inherently Buoyant:

Recommended uses: inland cruising, dinghy sailing and dinghy racing. Minimum buoyancy: 15.5 lbs. Good for protected, inland water near shore, where chances of immediate rescue is good. Not suitable for extended survival in rough water. Will turn some unconscious wearers face-up in water. More comfortable but less buoyant than Type I

Inflatable:

Minimum buoyancy: 34 lbs. Recommended uses: inland cruising, dinghy sailing and racing Not guaranteed to turn unconscious wearer face-up Advantages: very comfortable, more buoyant than Type II Inherently Buoyant jackets Disadvantages: only one inflation mechanism, may be manual or automatic

TYPE III - Flotation Aid Inherently Buoyant:

Recommended uses: Supervised activities, such as sailing regattas, dinghy races, water skiing, canoeing, kayaking and during personal watercraft operation. Minimum buoyancy: 15.5 lbs. Good for protected, inland water near shore, where chance of immediate rescue is good. Not suitable for extended survival in rough water. Most comfortable to wear, but less buoyant than Type I.

Inflatable:

Minimum buoyancy: 22.5 lbs. Recommended uses: supervised activities such as sailing regattas, dinghy races, canoeing. Not guaranteed to turn unconscious wearer face-up Advantages: more comfortable than a Type III Inherently Buoyant jacket Disadvantages: one manual inflation mechanism only

TYPE IV - Throwable Device Inherently Buoyant:

Recommended uses: throw to overboard victim or to supplement the buoyancy of a person overboard. It is not to be worn. Minimum buoyancy: 16.5 lbs. for ring buoy or 18 lbs. for boat cushion. Can be a cushion, ring or horseshoe mounted on deck. For calm, inland water with heavy boat traffic, where help is always nearby. Not for unconscious persons, non-swimmers or children.

TYPE V - Special Use Device

Recommended uses: restricted to the special use for which each is designed, for example: sailboard harness, deck suit, commercial white water vest or float coats. Must be worn when underway to meet minimum US Coast Guard requirements. Minimum Buoyancy: 15.5 to 22 lbs.

Inflatable:

Minimum buoyancy: 22.5 to 34 lbs. depending on style Restricted to the one use for which it is designed, ex., sailboard harness, belt pack, deck suit, float coat. Must be worn to meet federal requirements Not guaranteed to turn unconscious wearer face-up Some models feature a combination of CO2 inflation and built-in foam and provide 15.5 to 22 lbs. of buoyancy

TYPE V - Hybrids

Recommended for boating activities where rescue is nearby and must be worn when underway. Minimum buoyancy: Have 7.5 lbs. of built-in foam buoyancy and can be inflated to 22 lbs. More comfortable to wear than Type I or Type II, but are inadequate for unconscious overboard victims. **ALL ABOUT INFLATABLES HISTORY:** Inflatable life jackets were approved by the Coast Guard in September, 1996 for use by recreational boaters. They offer significant advantages over inherently buoyant life jackets by providing greater buoyancy and turning unconscious wearers face up. Inflatable's are exceptionally comfortable and wearable, especially in hot weather.

INFLATION MECHANISM: When activated, a CO2 cartridge is pierced, releasing gas to inflate the device. Water-activated models inflate automatically when submerged in water. Manual units are activated by yanking a pull-tab. Both types of inflatable's feature blow-tubes to provide a back-up method of inflation. It is important to follow the manufacturer's instructions for checking and maintaining your inflation mechanism.

MAINTENANCE: Inflatable life jackets require more frequent maintenance than inherently buoyant life jackets.

Check the status of the inflator to be certain cartridge is properly installed. Check for leaks every two months; inflate life jacket orally and leave it overnight to check for leaks. Immediately replace any spent CO2 cartridges with new ones.

Frequent users of inflatable's should check them often, especially if used around sharp equipment like fishing gear.

Inflatable's are NOT recommended for individuals who cannot swim (unless worn inflated) and are not for use where water impact is expected, like water skiing or riding a jet ski.

LIFE JACKETS and KIDS

A life jacket is no substitute for adult supervision of children in and around the water. Children float differently than adults. Because their body weight is distributed differently, children are more likely to float face down in the water.

Follow these simple steps to safeguard your family:

CARE and STORAGE of YOUR LIFE JACKET

Stow life jackets in an accessible place. All kids should wear life jackets.

Families should mark each life jacket with the person's name and store them facing up.

Every child should wear a brightly colored life jacket.

Teach your children how to put on their life jackets.

Buoyancy REQUIREMENTS and FEDERAL LAW You must be in compliance with state and local life jacket ordinances; check regulations in your jurisdiction. At least 26 states require children in age groups ranging from 12 to 6-and-under to wear life jackets at all times. The amount of buoyancy (and life-saving value) your life jacket provides will decrease over time. Treat your life jacket as if your life depends on it.

HOW TO CARE FOR YOUR LIFE JACKETS...

DO'S:

1. Check your life jackets at the beginning of each boating season.
2. Check that all hardware and straps are in working order.
3. Check for leaks, mildew, lumpy or hardened buoyancy material, & oil saturation in the fabric.

DONT'S:

1. Don't use a life vest or throwable flotation cushion as a kneeling pad or boat fender.
2. Don't use harsh detergents or gasoline to clean it.

STORAGE:

1. Store in an area with good ventilation. If wet, allow it to dry thoroughly in open air before storing.
2. Drying it in a dryer, in front of a radiator, or other source of direct heat will destroy its buoyancy.

Use a Float Plan

Always tell someone where you are boating and when you will return; if you are over due they will know the general location of your whereabouts.

You can down load many Float Plan forms from the Internet; just make sure it contains basic vital information such as:

- **Car Info:**
 - Parking location
 - Color, make and model
 - License plate number
 - Trailer license plate number
- **Boat Description:**
 - Brand
 - Length
 - Make
 - Color
 - Boat Name
 - Boat registration number

- Home port
- Distinguishing features
- Engine type and number
- Radio type and frequencies

- **Crew list**
 - Competency of people aboard
 - Medical problem of any person aboard
 - Survival equipment aboard
(PFDs, flares, mirror, smoke signals, EPIRB, flashlights, life raft, dinghy, water, food, other)
 - Cell phone number

- **Voyage information:**
 - Departure point
 - Departure date and time
 - Final destination

- **Route Information:**
 - List all Waypoints
 - Date and time of arrival at each of the Waypoints
(remember to add at least a few hours to each leg of your trip to allow for inevitable delays)
 - Give a contact name and phone number if you do not arrive at your destination on time

Fire Extinguishers

Fire safety is critical to all boaters. While there is greater chance of fire on a boat than on land, most of these incidents are preventable. Fires require three things--Fuel, oxygen, and a combustion source. Fiberglass boats are highly susceptible to burning, as are gasoline fumes. Fire extinguishers are required on virtually every boat, and are classified by letter and roman numeral according to the type of fire it may be expected to extinguish, and by the size or weight of the extinguisher.

The letter indicates the type of fire the extinguisher can put out.

- A. Can extinguish fires of ordinary combustible materials such as wood, paper, etc. which could normally be doused with water.
- B. Can extinguish fires of petroleum and grease fires.
- C. Can extinguish electrical fires.

You will generally find fire extinguishers rated to put out type B and C fires. Extinguishers rated to put out all three types of fire, ABC, are preferred for marine use.

Procedure for using a fire extinguisher:

Pull out the lock pin and squeeze the two handle levers together. Aim at the base of the flame using a slight sweeping motion across the fire. Hold the stream steadily at the base of the flames until you are certain the fire is completely out.

Extinguishers approved for marine use are hand-portable and rated by weight class of either B-I or B-II.

On board a boat, fire extinguishers are required if any one or more of the following conditions exist:

1. Inboard engines
2. Closed compartments under thwarts and seats where portable fuel tanks may be stored
3. Double bottoms not sealed to the hull or which are not completely filled with flotation materials.
4. Closed living spaces
5. Permanently installed fuel tanks. A portable tank can be removed from the boat for refilling without the use of tools.

For marine use, all required hand-portable fire extinguishers, semi-portable and fixed fire extinguishing systems must be USCG approved. To find out more about USCG required equipment, [click here](#).

MARINE FIRE EXTINGUISHER CLASSIFICATION

Classes	Foam(Gals)	CO2(Lbs.)	Dry Chem.(Lbs.)	Halon
B-1	1.25	4	5	2.5
B-2	2.5	15	10	10

Visual Distress Signals

THE REGULATIONS

This information is directed primarily to recreational boaters, but the requirements discussed also apply to operators of vessels engaged in the carrying of six or fewer passengers. The Visual Distress Signal requirements for most commercial vessels are in Title 46 of the Code of Federal Regulations.

The requirement to carry visual distress signals became effective on January 1, 1981. This regulation requires all boats when used on coastal waters, which includes the Great Lakes, the territorial seas and those waters directly connected to the Great Lakes and the territorial seas, up to a point where the waters are less than two miles wide, and boats owned in the United States when operating on the high seas to be equipped with visual distress signals.

The only exceptions are during daytime (sunrise to sunset) for:

- Recreational boats less than 16 feet in length.
- Boats participating in organized events such as races, regattas or marine parades.
- Open sailboats not equipped with propulsion machinery and less than 26 feet in length.
- Manually propelled boats.

These boats only need to carry night signals when used on these waters at night.

PYROTECHNIC VISUAL DISTRESS SIGNALING DEVICES...

Must be Coast Guard approved, in serviceable condition and stowed to be readily accessible. If they are marked with a date showing the serviceable life, this date must not have passed. Launchers produced before Jan. 1, 1981, intended for use with approved signals are not required to be Coast Guard Approved.

USCG Approved Pyrotechnic Visual Distress Signals and Associated Devices include:

- Pyrotechnic red flares, hand held or aerial.
- Pyrotechnic orange smoke, hand held or floating.
- Launchers for aerial red meteors or parachute flares.

The purpose of the regulation is to assure that boaters have a way of attracting attention and securing assistance should the need arise. Properly used visual distress signals will also help reduce the time it takes to locate a boat in difficulty when a search is underway. This will reduce the possibility of a minor emergency becoming a tragedy.

NON - PYROTECHNIC VISUAL DISTRESS SIGNALING DEVICES...

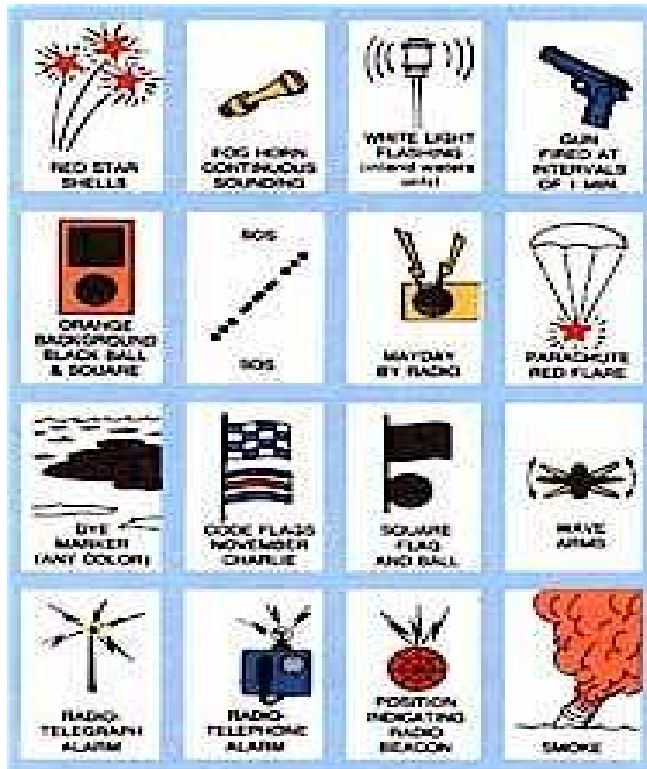
Must carry the manufacturer's certification that they meet Coast Guard requirements. They must be in serviceable condition and stowed to be readily accessible.

This group includes:

- Orange distress flag.
- Electric distress light.

No single signaling device is ideal under all conditions and for all purposes. Consideration should therefore be given to carrying several types. For example, an aerial flare can be seen over a long distance on a clear night, but for closer work, a hand-held flare may be more useful.

Visual Distress Signals: Types



A wide variety of signaling devices, both pyrotechnic and non-pyrotechnic, can be carried to meet the requirements of the regulation.

- Recreational boats less than 16' operating in coastal waters need only carry night signaling devices when operated at night. All other boats must carry both night and day signaling devices.
- Any combination can be carried as long as they add up to three signals for day use and three signals for night use. Three day/ night signaling devices meet both requirements.

Note: If pyrotechnic devices are selected, a minimum of three must be carried. Pyrotechnic devices come with an expiration date, which is 42 months from the date of manufacture. To meet carriage requirements, you must have at least three un-expired flares aboard. You may carry expired flares as back up, but they will not count towards the legal requirement.

The following details a combination of devices which can be carried in order to meet the requirements:

- Three hand-held red flares (day and night). Flares must be under 42 months of age.
- One electric distress light (night only).
- One hand-held red flare and two parachute flares (day and night). One hand-held orange smoke signal, two floating orange smoke signals (day) and one electric distress light (night only). **Flares must be under 42 months of age.**

DAY USE ONLY

Hand Held Orange Smoke Distress Signals.



Floating Orange Smoke Distress Signals. These come in two varieties, one lasting approximately 5 minutes, one lasting 15 minutes.



Orange Distress Signal Flag for Boats. The distress flag must be at least 3 x 3 feet with a black square and ball on an orange background. It is accepted as a day signal only and is especially effective in bright sunlight. The flag is most distinctive when waved on something such as a paddle or a boat hook or flown from a mast.



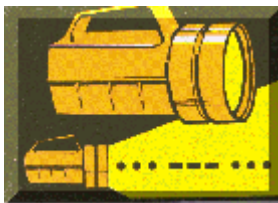
Sea-marker dye is useful when air search has been initiated. Comes in several colors, and should be used when chances of being spotted are high.



Although not recognized by USCG as a carriage requirement, a well-handled **signal mirror** can be very effective in calling attention to oneself. It is low in cost and has an unlimited shelf life.



NIGHT USE ONLY



Electric Distress Light for Boats: The electric distress light is accepted for night use only and must automatically flash the international SOS distress signal, which is three short flashes, three long flashes, and three short flashes. Flashed four to six times each minute, this is an unmistakable distress signal, well known to most boaters. The device can be checked any time for serviceability if shielded from view.

NOTE: An ordinary flashlight is not acceptable since it must be manually flashed and does not normally produce enough candle power. The Regulation States: "No person in-a boat shall display a visual distress signal on water to which this subpart applies under any circumstances except a situation where assistance is needed because of immediate or potential danger to the persons aboard."

DAY AND NIGHT USE

- **Hand Held Flare Distress Signal**
- **Parachute Red Flare Distress Signals** (25 mm or larger) These signals require use in combination with a suitable launching device.
- **Hand Held Rocket-Propelled Parachute Red Flare Distress Signals.**
- **Distress Signal for Boats, Red Aerial.**
- **Pyrotechnic Flare** (These devices may be either meteor or parachute assisted type.)
Some of these signals may require use in combination with a suitable launching device.

WARNING. . .



In some states the pistol launcher for meteors and parachute flares may be considered a firearm. Therefore, check with your state authorities before acquiring such launcher.

Visual Distress Signals: When and How to Use Them

Visual distress signals are part of your boat's safety equipment. Check them before you leave harbor. Their intended purpose is to summon help should the need arise. Visual distress signals can only be effective when someone is in a position to see them. Therefore, when employing pyrotechnic devices, do so only when you see or hear a boat or airplane or you are reasonably sure that someone on shore is in position to see your signal and take action. Good judgment is an essential part of successful use of visual distress signals.



All distress signaling devices have both advantages and disadvantages. The most popular, because of cost, are probably the smaller pyrotechnic devices. Pyrotechnics make excellent distress signals, universally recognized as such, but they have the drawback that they can be used only once. Additionally, there is a potential for both injury and property damage if not properly handled.

Pyrotechnics devices have a very hot flame, and the ash and slag can cause burns and ignite material that burns easily. Projected devices, such as pistol launched and hand-held parachute flares and meteors, have many of the same characteristics of a firearm and must be handled with the same caution and respect.

The hand-held and the floating orange smoke signaling devices are excellent (if not the best) day signals, especially on clear days. Both signals are most effective with light to moderate winds because higher winds tend to keep the smoke close to the water and disperse it which makes it hard to see.

Red hand-held flares can be used by day, but are most effective at night or in restricted visibility such as fog or haze. Only Coast Guard or SOLAS flares are acceptable for use on recreational boats. When selecting such flares look for the Coast Guard approval number and date of manufacture. Make sure that the device does not carry the marking: "Not approved for use on recreational boats," and that no more than 3 years have passed since manufacture.

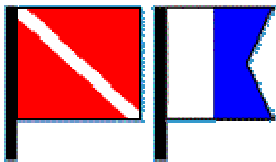
What if you see a Visual Distress Signal given off by another vessel?

The unwritten law of the sea requires that a mariner come to the aid of a mariner in distress. Therefore, should you see a distress signal, immediate and positive action should be taken. Notify the nearest Coast Guard station or State authority by radio. Channel 9 on CB and Channel 16 on VHF marine radio (156.8 MHz) are recognized distress channels. If you can assist the stricken vessel without endangering yourself, you should. The Federal Boat Safety Act of 1971 contains a "Good Samaritan" clause stating: "Any personwho gratuitously and in good faith renders assistance at the scene of a vessel collision, accident, or other casualty without objection of any person assisted, shall not be held liable for any act or omission in providing or arranging salvage, towage, medical treatment, or other assistance where the assisting person acts as an ordinary, reasonably prudent man or woman would have acted under the same or similar circumstances."

FLAGS

Flags serve a variety of purposes in the marine environment. There is no legislation governing the flying of any flag on numbered, undocumented or licensed vessels. However, there is a proper etiquette involved when displaying flags.

Recreational boaters may fly flags to display boating affiliations. For example, many yacht clubs provide triangular shaped burgees to members. And, members of the U.S. Power Squadrons and U.S. Coast Guard Auxiliary fly flags to identify themselves. Boaters also fly flags to identify their home state or nationality.



Flags are also used for specific boating activities and navigational purposes. For example, boats with scuba divers must fly a "diver down" flag when divers are in the water. There are two types of diver down flags and both are appropriate to display. They are a red flag with a white diagonal stripe and a rigid replica of an "alfa" flag.

Another example is the flags used by committee members and participants of events sponsored by the United States Yacht Racing Union.

Flags are also used to signal your need for help. When in distress, a boat should fly an orange flag with a black square and black ball. A man overboard flag, consisting of the letter "O", can be fixed to a staff which is in turn fixed to a life ring.

 <p>ALFA DIVER DOWN</p>	 <p>JULIETTE KEEP CLEAR</p>	 <p>SIERRA ENGINES GOING ASTERN</p>
 <p>BRAVO DANGEROUS CARGO</p>	 <p>KILO DESIRE TO COMMUNICATE</p>	 <p>TANGO KEEP CLEAR OF ME</p>
 <p>CHARLIE YEST</p>	 <p>LIMA STOP INSTANTLY</p>	 <p>UNIFORM</p>
 <p>DELTA KEEP CLEAR</p>	 <p>MIKE I AM STOPPED</p>	 <p>REQUIRE ASSISTANCE</p>
 <p>ECHO ALTERING TO STARBOARD</p>	 <p>NOVEMBER NO</p>	 <p>WHISKEY NEED MEDICAL ASSISTANCE</p>
 <p>FOXTROT DISABLED</p>	 <p>OSCAR MAN OVERBOARD</p>	 <p>XRAY</p>
 <p>GOLF WANT A PILOT</p>	 <p>PAPA ABOUT TO SAIL</p>	 <p>YANKEE DRAGGING ANCHOR</p>
 <p>HOTEL PILOT ON BOARD</p>	 <p>QUEBEC</p>	 <p>ZULU REQUIRE TUG</p>
 <p>INDIA ALTERING TO PORT</p>	 <p>ROMEO</p>	