

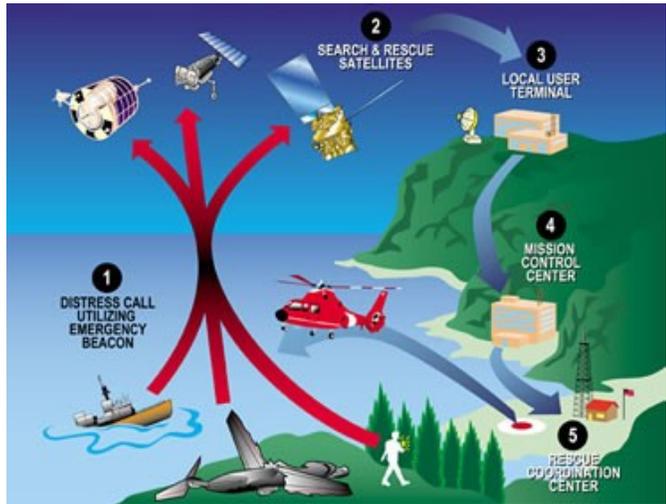
Transceivers Transceiver is a word made up of "transmitter" and "receiver." There are two types of transceivers, generally either fixed or portable. The portable variety are usually less powerful but has the benefit of portability, while the more powerful fixed type are permanently in place. A GPS transceiver is often used to either confirm or back up an existing satellite signal. So, in addition to the five or more satellites that your GPS unit may be picking up on, you may also be able to find a transceiver attached to a physical location on earth.

Transponders The word Transponder is a combination of "Transmitter" and "Responder," and as the name suggests a transponder is a device that reads and sends a signal. A transponder on a GPS system not only reads a position on earth from the satellites, but also transmits that signal back. Practically, a transponder could be used to track the location of an object or person, provided that person has the transponder either attached or carried on him/her.

Emergency Beacons There are three types of beacons used to transmit distress signals, **EPIRBs** (for maritime use), **ELTs** [Emergency Locator Transmitter](for aviation use), and **PLBs** (used for land-based applications). Both transceivers and transponders can be designed to have emergency beacon capability, have a strobe light, and some are a VHF Radio.

Emergency Position Indicating Radio Beacon (EPIRB) These units are for use in maritime applications. Category I EPIRBs are activated either manually or automatically. The

automatic activation is triggered when the EPIRB is released from its mounted outside the cabin special bracket equipped with hydrostatic release at a water depth of 3-10 feet and is designed to "float free". Category II EPIRBs are manual activation only units. As of December 31, 2005, EPIRBs that operate on 121.5 or 243.0 MHz have been phased out and now prohibited from use. All EPIRBs now must be 406.MHz units. A 406 MHz EPIRB signal can be instantly detected by geostationary satellites. This means that even a brief inadvertent signal can generate a false alert. It is paramount that the manufacturer's recommendations are followed carefully when setting up or testing the unit. There are portable marine transceivers/transponders with GPS positioning capable of transmitting and receiving Digital Selective Calling (DSC) distress messages and are an EPIRB unit. Distress signals from the VHF radio are sent to the U.S. Coast Guard and other vessels within range of the transmission. For these EPIRB units, a Maritime Mobile Service Identity (MMSI) nine digit number must be obtained by registering your portable marine transceiver/transponder with <http://www.boatus.com/mmsi>. BoatUS has been authorized by both the Federal Communications Commission (FCC) and the U.S. Coast Guard to assign MMSI numbers only to vessels that meet the following criteria: (1) used for recreation only, (2) not required by law to carry a radio, and (3) do not make international voyages or communications. A free MMSI number is assigned to the vessel, and not the radio; and that number can only be inputted into the EPIRB unit once. If you sell your boat you can't transfer your EPIRB unit to the new owner—you must log onto <http://www.boatus.com/mmsi> and cancel your account. If you want to use your portable marine transceiver/transponder as a EPIRB in another boat, the FCC requires you to return your unit to the manufacturer to be reprogrammed with a new identification. All radios, whether fixed installations or handheld, associated with the same vessel, should all use the same MMSI number. During the registration process questions asked include "where is your vessel registered or documented" and what is the vessel "documentation or State Registration number". The registration must include the specifics of which boat the VHF radio is being used on. Reason being, the USCG could be misled in a distress situation thinking a distress came from a boat other than the one actually involved and could end up dispatching the wrong type of rescue unit or calling the wrong emergency contact in any particular situation. Also, it would be inappropriate to register handheld VHF if the intention is for over land use such as hiking. The Coast Guard will not be the appropriate response for this type of distress. Use of Marine VHF Radios on land is prohibited.



Personal Locator Beacons (PLBs) These portable units are designed to be carried by an individual person on land instead of on a boat or aircraft. Unlike ELTs and some EPIRBs, they can only be activated manually and operate exclusively on 406 MHz; and like EPIRBs and ELTs all PLBs also have a built-in, low-power homing beacon that transmits on 121.5 MHz. This allows rescue forces to home in on a beacon once the 406 MHz satellite system has gotten them within 2-3 miles. Newer PLBs also allow GPS units to be integrated into the distress signal. This GPS-encoded position dramatically improves the location accuracy down to the 100-meter level. You must register your PLBs with the United States 406 MHz Beacon Registration Database System <http://www.beaconregistration.noaa.gov>.



ACR ResQLink, buoyant 406 MHz PLB for anglers & hikers, 6yr battery

Horizon HX870 Floating EPIRB VHF Radio



SPOT Gen 3 Satellite GPS Messenger GPS SOS/911 function, requires monthly subscription plan

ACR GlobalFix Pro EPIRB GPS with Strobe



McMordo Fast Find 220 waterproof PLB Register with NOAA, uses satellite network, auto deploy antenna

McMurdo Smartfind Plus EPIRB & Strobe



Delorme inReach Explorer SOS/911 function, GPS, requires monthly subscription