



Boating Safety Circular 86

BOATING AND CARBON MONOXIDE POISONING A DANGEROUS COMBINATION

Just because you're boating, doesn't mean you don't need to be vigilant about the dangers of carbon monoxide (CO) poisoning. Carbon monoxide is a toxic, odorless, colorless, tasteless gas produced by the burning of carbon-based fuels, such as gasoline, charcoal and propane. On boats, CO gas is emitted by engines, gas generators, cooking ranges and heaters. The build-up of CO inside boat cabins, partially enclosed cockpits, beneath swim platforms or other enclosed areas is potentially deadly. Carbon monoxide in high concentrations can be fatal in a matter of minutes. Unless the symptoms are severe, carbon monoxide poisoning is often misdiagnosed as seasickness; however, lower concentrations must not be ignored because the effects of exposure to carbon monoxide are cumulative and can be just as lethal.

Let's face it. Boating and carbon monoxide poisoning are a dangerous combination. Here are some typical accident scenarios to give you an idea as to the extent of the problem:

... about 9 a.m., water patrol officers were called to help a woman who was screaming for help. Officers found her husband unconscious on the boat. He apparently passed out because of a carbon monoxide leak aboard the boat. The boat's carbon monoxide detectors were not working.

Nowadays many boats are equipped with carbon monoxide (CO) detectors, but the CO detectors on many older boats are susceptible to false alarms and might have been disconnected; other CO detectors may appear to work when in fact they may not sound an alarm in the presence of medium to high levels of CO gases. The Coast Guard advises the owners of all inboard and sterndrive

powered boats built prior to 1998 to inspect their CO detectors. If the CO detector on your boat has been disconnected, or if the exterior cover of the device does not bear the word "marine," the Coast Guard urges immediate replacement with newer CO detection technology.

Improvements in technology and reliability of carbon monoxide gas detectors have reached the point that their installation in accommodation spaces should be considered by all safety conscious recreational boaters. American Boat and Yacht Council ABYC Standard A-24 recommends CO detectors on any boat with accommodation spaces and gasoline powered engines or generators.

Detectors are available as single and multi station systems, fully integrated systems and self-contained units with internal batteries. The major drawback to the units with internal batteries is, should the battery go dead, the detector is incapable of indicating the presence of carbon monoxide. The newer CO detectors have fault circuit checks and other features that were not available in the older models and are considered more reliable with fewer false alarms.

On older CO detector models, detector sensitivity (susceptibility to false alarms) increases with the unit's age; however, owners should learn to react to every alarm as a situation which

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requires immediate action. If your CO detector sounds an alarm, and neither your engine nor a generator are running, do not assume a false alarm. A boat next to you might be the source of the CO and the reason for the alarm. Boat owners should replace their CO detectors as recommended by the device manufacturer.

Follow this link to a list of marine type CO detectors at the Office of Boating Safety website: <http://www.uscgboating.org/articles/>

. . . three people who had been running a generator to power an air conditioner aboard a houseboat were sent to the hospital after complaining of carbon monoxide poisoning symptoms. The boat was in a canyon and the children were sleeping in the rear of the boat next to an open window, while a generator there was running to power the air conditioning. Their symptoms were headache, nausea and vomiting.

The common practice of running gasoline-powered generators to power air conditioning, entertainment centers and galley appliances while anchored or moored creates another situation in which carbon monoxide can accumulate in dangerous concentrations, particularly if an air conditioner is located near the exhaust port for a generator.

Gasoline powered **portable** generator sets also produce carbon monoxide. Some marine surveyors have reported seeing small generators on boats that have been mounted in the bilge to do nothing more than power high-wattage stereos. The generators were installed by the same businesses that sold the stereos. Currently, no portable generators meet the Coast Guard Electrical and Fuel System Standards. The fuel tank is usually on top of the generator directly above electrical components that are not ignition-protected. The exhaust system on a portable generator is usually constructed of nonmarine alloys that can rust through after brief exposure to a salt water environment. The hot exhaust is typically run to the transom by a dry (non water-cooled) rubber hose. Once the exhaust hose on a portable generator fails, it doesn't take long to fill the engine compartment and eventually the cabin with dangerous levels of carbon monoxide.

. . . a child who vomited and who appeared to be having a seizure were a family's first clue something was wrong. Before the ordeal ended, 21 people aboard the boat were treated for carbon monoxide poisoning in what one person called the largest case of carbon monoxide poisoning he had seen. It was the third such poisoning in the area in less than a week, and the cases have spurred authorities to again warn boaters about dangers posed by the colorless, odorless gas.

Some houseboat transom designs consist of a recessed area amidships forward of the swim platform creating a cavity for engine and generator exhaust ports. When the generator is running the carbon monoxide gas buildup in this cavity, on or near the swim platform, and near the rear deck space is so high, that there is an imminent danger of death for anyone in or near the cavity for even a very short period of time. For that reason, all owners and operators of boats equipped with swim platforms and gasoline-powered generators with exhaust ports on the transom are advised to turn off their generators when their boats are at anchor or moored and passengers are on or near the swim platform or swimmers are in the water. Keep passengers, particularly unsupervised children, off the back deck or a swim platform while gasoline engine(s) or a generator are running.

CO can accumulate anywhere in or around your boat, including on back decks, swim platforms, or on the water around generator exhausts. CO can remain in or around your boat at dangerous levels even if your engine or another boat's engine is no longer running! Don't run engine(s) or auxiliary generator(s) on boats with enclosed accommodation spaces unless the boat is equipped with a functioning marine carbon monoxide detector that complies with ABYC A-24 - Carbon Monoxide Detection Systems on Boats.

. . . authorities said one person died and three others are out of the hospital after suffering carbon monoxide poisoning while aboard a boat moored at a marina. . . . when medical officials arrived on the scene, they found all four victims unconscious. A survivor said one of the engines started to lose power, and the victim went below to open the hatch leading to the engineroom. The victim complained of not feeling well and

eventually collapsed. Authorities said they were looking at both engines and the generator as a possible cause of the carbon monoxide leak.

New propulsion engines and generator sets with catalytic converters produce reduced quantities of carbon monoxide; but what about the CO produced on the large numbers of used-boats?

What to Inspect on Your propulsion Engine or Generator Set:

* Inspect and confirm that the engine(s) and generator(s) are properly tuned, and well maintained.

* Inspect each water pump impeller and the water pump housing; consider replacement if worn.

* Inspect and confirm that cooling system(s) are in working condition.

* Inspect and confirm that all hose clamps are in good condition and securely tightened.

* Inspect and confirm that there are no leaks around the cylinder head gaskets, exhaust manifold gaskets, water inject exhaust elbows, pipe nipples between water injected elbows and exhaust manifolds, and exhaust pipes, hoses and fittings.

* Inspect and check the generator temperature sensor (if installed) to ensure that it has not been damaged by exposure to excessive exhaust temperature and that the sensor is still working properly.

* Inspect and confirm proper operation of the generator cooling water anti-siphon valve (if equipped).

What to look for includes:

- * Exhaust leaks
- * Cracks in hoses, pipes and components
- * Black streaking (this can mean loose parts are allowing exhaust to escape)
- * Corrosion in hoses, pipes and components
- * Corroded pipe nipple on exhaust elbow (move the elbow to check for looseness)
- * Change in exhaust sound
- * Change in exhaust smell in the engine room or boat interior (CO is odorless, but may be mixed with other exhaust gases)
- * Check for pitting, pinholes, and cracks or loose rust at the ends of pipe nipples and thread roots
- * Replace any component that is cracked, charred, or deteriorated.

. . . two women suffered carbon monoxide poisoning while swimming among a number of boats that were afloat in a cove at the far northern end of a lake. Boaters often gather there and leave engines and generators running, creating the potential for CO poisoning. The women were pulled from the water by off-duty firefighters. The women were breathing on their own but in an “altered stage of consciousness” because of the CO poisoning.

Large numbers of powerboaters often gather for manufacturer-sponsored regattas or as spectator boats at poker runs and other boat racing activities. Unfortunately, when large numbers of boats gather together they create significantly larger and more concentrated amounts of carbon monoxide. Individuals, particularly children, should avoid swimming near large numbers of boats adrift or at anchor with engines or generators running.

The National Institute for Occupational Safety and Health (NIOSH) conducted a series of studies of CO exposure on houseboats and express cruisers and found high levels of CO gas at or near the swim platform when the boats were either stationary or underway. When a boat is stationary and the engine(s) and/or generator set are running, the CO buildup at the transom of the boat, on the swim platform, and around the rear deck space may be so high that it creates an imminent danger for anyone who remains in these areas for even a short period of time.

The use of hand-held showers at or near the swim platform when gasoline fueled engine(s) and/or a generator set are running is hazardous to your health. As recently as a year ago, a website provided skiboat owners with instructions for installing an aftermarket hand-held hot water shower system at the swim platform. Unfortunately, instead of a hot water heater, the system required the engine to be running to heat the shower water. The Coast Guard informed the author about the lethally high levels of CO that may be found around the swim platform during engine operation, and the website promptly removed the article. The Coast Guard recommends that any owner of a gasoline powered boat who has installed a hand-held shower

connected to the engine's raw water open cooling system, to disconnect the shower immediately.

. . . officials say three people were found dead this afternoon on a cabin cruiser. Officials say they were apparently killed by carbon monoxide poisoning. Around 1:00 pm, authorities responded to reports of unconscious individuals and found two women and one man dead inside the 30-foot cabin cruiser. Carbon monoxide meters showed the level of the deadly gas at 30 parts per million; levels that high always require an evacuation of the area.

Treat symptoms of seasickness as possible CO poisoning, unless you can be sure it's not carbon monoxide.

Other CO Sources

Do not use any flame producing device in an unventilated area. Any heater, stove or lantern that produces an open flame uses oxygen. The argument that these devices do not produce carbon monoxide does not apply when they are used in enclosed spaces. Alcohol heaters and stoves, propane heaters and stoves, catalytic heaters, oil lamps, gasoline lanterns, even charcoal stoves consume oxygen. When the amount of oxygen in the air gets below a certain level, these devices produce carbon monoxide because of incomplete combustion of their fuel. Ventilation must be

provided whenever any device producing an open flame is used in a boat cabin.

Carbon Monoxide (CO) Checklist

The Coast Guard recommends that new owners be provided with a printed copy of the following carbon monoxide checklist to show them how to conduct appropriate system checks.

Each Time You Go On a Boat Trip

- * Educate all passengers about where exhaust outlets are located on your vessel, the symptoms of CO poisoning, and where CO may accumulate.
- * When docked, or rafted with another boat, be aware of exhaust emissions from the other boat.
- * Confirm that water flows from the exhaust outlet when the engines and generator are started.
- * Listen for any change in exhaust sound, which could indicate an exhaust component failure.
- * Test the operation of each CO alarm by pressing the test button.

Once a Month

- * Make sure all exhaust system clamps are in place and secure.
- * Look for potential sources of leakage from exhaust system components. Signs include rust and/or black streaking, water leaks, or corroded or cracked fittings.
- * Inspect rubber exhaust hoses for burned, cracked, or deteriorated sections. All rubber hoses should be pliable and free of kinks.

US Coast Guard Brochure - Carbon Monoxide Poisoning – What You Can't See...Can Harm You

A comprehensive and easy-to-understand brochure about the dangers of carbon monoxide, how it accumulates, and ways to prevent carbon monoxide poisoning can be downloaded and printed from the Office of Boating Safety website:

<http://www.uscgboating.org/command/co/tools.htm>

Copies of the brochure are available by calling (202) 372-1067 or from your local Guard Auxiliary Flotilla.

ABYC AND NMMA CARBON MONOXIDE WARNING DECALS

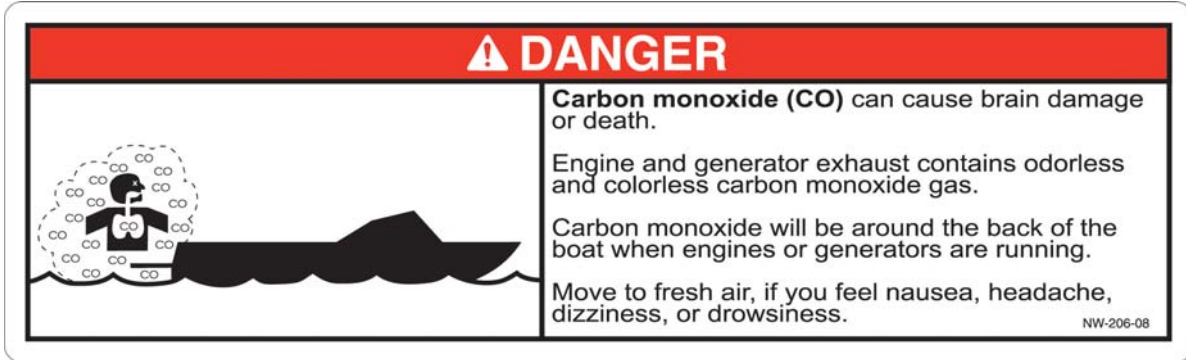
The American Boat & Yacht Council (ABYC) and the National Marine Manufacturers Association developed three standard CO decals for display on recreational boats. Order these CO decals directly from NMMA (see below) or download a printable version at the Office of Boating Safety website: www.uscgboating.org/command/co/tools.htm and print them onto paper with an adhesive backing to create your own CO decals. Since the decals are not displayed on most used boats, the Coast Guard urges all owners to obtain copies of the labels and to place them on their boats as indicated to inform others of the hazards of CO poisoning.

To order CO Decals from NMMA go to <http://www.nmma.org/certification/publications/decals.asp> or contact the NMMA Order Desk at 1-888-558-2272 or email: orderdesk@nmma.org.

CO TRANSOM LABEL

(NW 206-08) This label is required on all boats sold in the State of California in accordance with AB2222.

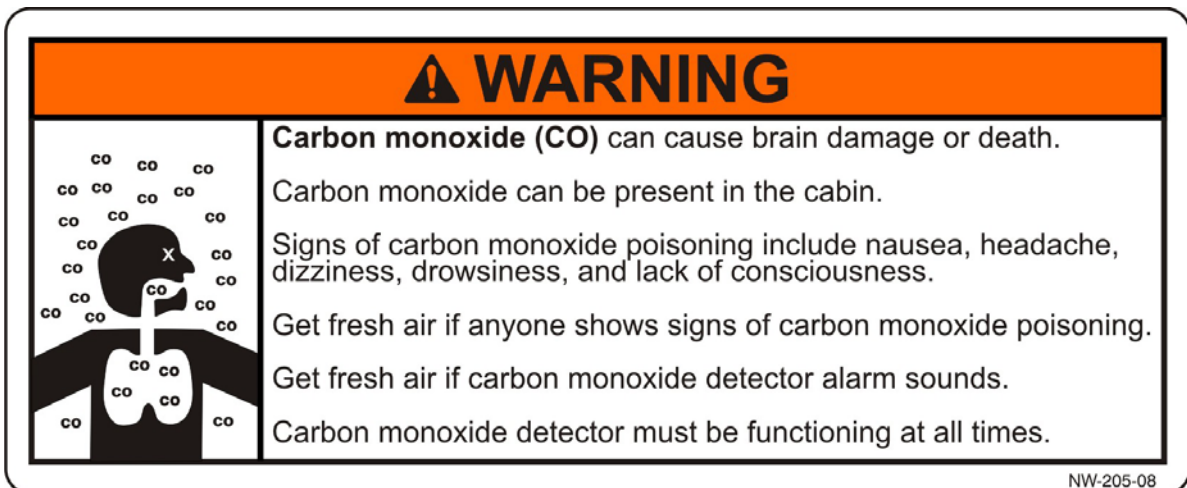
[Order from NMMA \$75.00/250 plus S&H]



CO CABIN LABEL

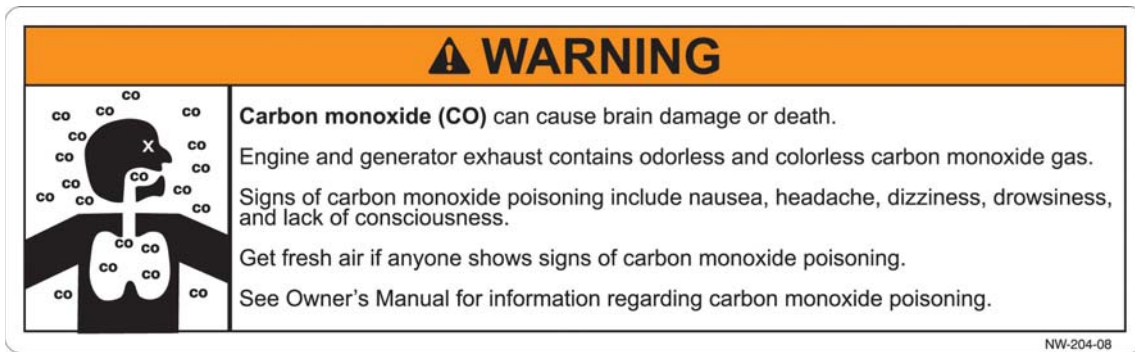
(NW 205-08)

[Order from NMMA \$62.50/250 plus S&H]



CO HELM LABEL

(NW 204-08) This label is required on all boats sold in the State of California in accordance with AB2222. [Order from NMMA \$75.00/250 plus S&H]



KNOW MORE ABOUT IT BROCHURES

The National Marine Manufacturers Association has published a series of “Know More About It” brochures. The brochures are a great addition to owners manuals and information packages for the boat owner. They have been developed by marine professionals and are widely used throughout the industry. Each of the brochures offers important contact information and where to go to get additional information about each of the topics:

Propeller Safety

This brochure explains the dangers of propeller strikes and lists safety checks and measures to ensure propeller safety while boating. \$15.00/100 plus S&H.

Carbon Monoxide Poisoning

This brochure outlines the dangers of carbon monoxide gases that are emitted from gasoline engines. It advises how to avoid CO poisoning and identifies measures a boat owner can take to avoid the effects of CO. \$15.00/100 plus S&H.

Electrical Shock

This brochure outlines problems associated with dockside power on a boat. It explains proper handling of electrical cable and practices in and around the dock electrical hookup. \$15.00/100 plus S&H.

Marine Fuel Systems Safety

This brochure offers information on the inspection and maintenance of gasoline fuel systems onboard boats. Also included are tips on hazard avoidance, a checklist for each time the boat is operated and annual inspection guidelines. \$15.00/100 plus S&H.

Water Skiing Safety

This brochure outlines proper water skiing etiquette, proper signals, and safe boat handling while towing water skiers. \$15.00/100 plus S&H.

To order any of the brochures, download an order form from <http://www.nmma.org/certification/publications/order.asp> or contact the NMMA order desk at 1-888-588-2272 or email orderdesk@nmma.org.

NEWS from CPSC

U.S. Consumer Product Safety Commission

Office of Information and Public Affairs

Washington, DC 20207

FOR IMMEDIATE RELEASE

November 2, 2007

Release #08-062

CPSC Hotline: (800) 638-2772

CPSC Media Contact: (301) 504-7908

When Changing Clocks Back to Standard Time, Check Batteries and Age of Alarms

CPSC Recommends Replacing Older Alarms

WASHINGTON, D.C.- Since 1992, the U.S. Consumer Product Safety Commission (CPSC) has reminded consumers to check smoke alarms and change batteries when they change their clocks, but in that time, many alarms have lost their effectiveness. This year, CPSC wants to remind consumers to replace smoke alarms every ten years and replace carbon monoxide (CO) alarms every five years.

In a national telephone survey of households conducted by the CPSC, 97 percent of homes had at least one smoke alarm. That's good news, but without fresh batteries, alarms will not work when needed. And the sensors in alarms will degrade and lose effectiveness over time because of environmental contamination and age.

According to National Fire Protection Association (NFPA) reports, there were more than 1.6 million fires reported in the United States in 2005. These fires caused about 3,700 civilian deaths and 18,000 injuries. Additionally, from 2002-2004, CPSC estimated a yearly average of 166 deaths from unintentional, non-fire related CO exposure.

"Millions of Americans are without adequate protection from fire and CO because the alarm's battery is dead or the alarm is too old," said CPSC Acting Chairman Nancy Nord. "Alarms don't last forever, and old ones need to be replaced."

Consumers need to remain vigilant against carbon monoxide poisoning and fires. CPSC recommends three simple tips to protect your life, your loved ones, and your home:

1. Make sure your home is protected with both smoke and CO alarms. Combination smoke/CO alarms are available in the marketplace.
2. Test alarms monthly to make sure they are working.
3. Once a year, change batteries when you change your clocks.

COAST GUARD MANUFACTURER IDENTIFICATION CODE DATABASE

The Coast Guard requests your help in keeping our Manufacturer Identification Code database current. Accordingly, we ask each recreational boat manufacturer to visit www.uscgboating.org/recalls/mic_database annually to confirm your company data.

Coast Guard regulations require that a manufacturer or importer who changes the business name and/or address must advise the Recreational Boating Product Assurance Branch of the change in writing. Print any changes to the database on a copy of your company's letterhead or stationery or enclose a business card and mail it to:

Commandant (CG-54223)
U.S. Coast Guard
2100 Second Street SW
Washington DC 20593-0001

U.S. COAST GUARD INFOLINE/HOTLINE 800-NUMBER — NO LONGER IN SERVICE

The U. S. Coast Guard Infoline (a toll-free phone number formerly referred to as the Boating Safety Hotline) was discontinued October 1, 2006 due to budget shortfalls. At that time, the Coast Guard requested our partner organizations to remove the 800 number from active websites and customer assistance phone services, and to discontinue the use of the number in all printed material.

It has recently come to the Coast Guard's attention that the CG Infoline 800 number (800-368-5647) has been privately reactivated and now leads to a secondary 800 number that is unrelated to boating safety when dialed. All Coast Guard field units have been directed to obliterate this number from all forms and publications where it appears. All replacement stock of these forms and publications will no longer carry the CG Infoline number.

RECALL CAMPAIGNS

ALUMACRAFT BOAT COMPANY

(St. Peter, MN)(060008T)

Year: 2001 – 2003

Models: Fisherman 145, Yukon, Lunker, Navigator and Magnum

Units: 2,129

Problem: Hinge pin on seats produced by Geldert's LLC may come loose causing seat back to separate from seat bottom

AMERICAN HONDA MOTOR CORP.

(Torrance, CA)(070050T)

Year: 2003 - 2007

Models: BF15D & BF20D outboard motors w/ serial nos:

BALJ1000001 - 1402293

BAMJ1000001 - 1403159

Units: 19,454

Problem: Possibility fuel chamber may crack and leak fuel; possible fire/explosion from starting and running engine

BAYLINER MARINE CORP.

MAXUM MARINE DIV.

(Everett, WA)(060050T)

Year: 2005 – 2006

Models: Maxum 1800SR with 4.3L Engine Option

Units: 48

Problem: Possible steering binding condition; possibility of loss of steering control

BAYLINER MARINE CORP.

(Everett, WA)(060045T)

Year: 2005 – 2006

Models: Bayliner 185 Bowrider with 4.3L Engine Option

Units: 1,971

Problem: Possible steering binding condition; possibility of loss of steering control

BAYLINER MARINE CORP.

(Everett, WA)(060088T)

Year: 2007

Models: 195 Discovery

Units: 97

Problem: Improper helm installation results in steering backwards; danger of collision

BENNINGTON MARINE CORP.

(Elkhart, IN)(07R2594S)

Year: 2007

Models: AZ240

Units: 55

Problem: Insufficiently sized openings in natural ventilation system

BENNINGTON MARINE CORP.

(Elkhart, IN)(050077T)

Year: 2004 – 2005

Models: Pontoons w/ serial nos. ending in 404, 405 & 505 with Mercruiser 4.3L, 5.0L, 5.7L, 350 MAG and 6.2L I/O engines

Units: 230

Problem: Failure in Mercruiser power steering pump hose may cause loss of steering control; possibility of collision

BOMBARDIER RECREATIONAL PRODUCTS

JOHNSON MOTORS DIV.

(Sturtevant, WI)(060034T)

Year: 2004 – 2006

Models: Johnson 200 & 255 outboard engines

Units: 746

Problem: Malfunctioning Electronic Control Module can cause hard starting leading to fuel accumulation in the intake port; this condition along with a misfire during starting can result in severe engine backfire which damages the engine's collector assembly (air intake); if the collector assembly breaks, the engine cover could come off unexpectedly

BOMBARDIER RECREATIONAL PRODUCTS

EVINRUDE MOTORS DIV.

(Sturtevant, WI)(060052T)

Year: 2004 – 2007

Models: Evinrude E-TEC 40, 50, 60, 75 and 90

horsepower outboard engines

Units: 24,767

Problem: Fuel system pressurization during assembly may have damaged fuel filter; possible fire/explosion if ignition source present

BOMBARDIER RECREATIONAL PRODUCTS

(Quebec, Canada)(080022T)

Year: 2008

Models: RXP-X 255

Units: 3,170

Problem: Abrasion of fuel vent hose by steering stem arm may cause fuel and/or vapor leakage; possible fire/explosion if ignition source present

BOMBARDIER RECREATIONAL PRODUCTS

(Benton, IL)(060093T)

Year: 2003 - 2007

Models: All Sea-Doo Sportster (2003 - 2006)
All Sea-Doo Speedster 200 (2004 - 2006)
All Islandia (2006)
All Utopia (2006)
2007 Speedster 200
2007 Speedster 150
2007 Islandia
2007 Utopia

Units: 4,702

Problem: On Sportboats equipped with Rotax naturally aspirated 155 horsepower 4-TEC engine internal airbox parts can detach and be drawn into throttle body; throttle plate may jam and prevent return of throttle to idle position; danger of collision

BOMBARDIER RECREATIONAL PRODUCTS

EVINRUDE OUTBOARDS DIV.

(Waukegan, IL)(050039T)

Year: 2001, 2004 & 2005

Models: All 2001 200 – 250 HP DI models
2004 200 – 250 HP DI models
w/ serial nos. 5050319 and later
2005 100 & 115 HP DI models
w/ serial nos. All up to 5111879
2005 135 – 175 HP DI models
w/ serial nos. All up to 5111879
2005 200 – 250 HP DI models
w/ serial nos. All up to 5088447

Units: 5,922

Problem: Under certain operating conditions a fuel injector fastener could loosen and/or break; possible fire/explosion if ignition source present

BOMBARDIER RECREATIONAL PRODUCTS

EVINRUDE MOTORS DIV.

(Sturtevant, WI)(060042S)

Year: 2006

Models: 40 horsepower outboards

Units: 204

Problem: Engine Management Module allows engine to be started in gear

BOMBARDIER RECREATIONAL PRODUCTS

JOHNSON OUTBOARDS DIV.

(Sturtevant, WI)(050042T)

Year: 2004

Models: 200 HP 4 Stroke outboards

Units: 237

Problem: Incorrect flywheel casting composition could cause flywheels to come apart; possibility of injury to boat occupants

CARAVELLE POWERBOATS, INC.

(Americus, GA)(06R1292S)

Year: 2006

Models: 237 LS Bow Rider

Units: 49

Problem: Insufficiently sized openings in natural ventilation system

CARVER BOAT CORP.

(Pulaski, WI)(070042T)

Year: 2000-2003

Models: 396, 410 & 444

Units: 396

Problem: Muffler bonding material may fail; danger of carbon monoxide poisoning

CARVER BOAT CORP.

(Pulaski, WI)(060049S)

Year: 1997 – 2007

Models: Mariner 350 and 360

Units: 914

Problem: Isolation bulkhead forward of engine compartment not completely sealed; possibility non-ignition-protected components could be exposed to fuel vapors

DORAL INTERNATIONAL

(Grand Mere, QC)(050072T)

Year: 2003 – 2005

Models: Elegante 330SE w/ HINs:
CA-QJAD3182D303 –
CA-QJAD5226C505
Boca Grande 360SE w/ HINs:
CA-QJAE3092K203 –
CA-QJAE5189B505
equipped with Volvo 8.1 or
MerCruiser 8.1 inboard engines

Units: 34

Problem: Missing “L” shaped support brackets could allow metal and semi-rigid rubber exhaust hoses to disconnect from each other sending raw cooling water and carbon monoxide into engine room

FOUNTAIN POWERBOATS

(Washington, NC)(06R1320S)

Year: 1993 – 2007

Models: 42 Lightning and 42 Executioner

Units: 361

Problem: Fuel lines from saddle tanks lack anti-siphon protection

FINELINE INDUSTRIES

(Merced, CA)(060058T)

Year: 2006 - 2007

Models: Centurion

Units: 293

Problem: Left and right tower Heim bolt on Evolution Towers may pull out causing tower to fall into cockpit; possible injury to operator and/or passengers

GODFREY MARINE

(Elkhart, IN)(07R2593S)

Year: 2007

Models: SD2400

Units: 43

Problem: Insufficiently sized openings in natural ventilation system

HARRIS KAYOT MARINE, LL

(Fort Wayne, IN)(08R2736S)

Year: 2007 - 2008

Models: V220

Units: 134

Problem: Insufficiently sized openings in natural ventilation system

HUNTER MARINE

(Alachua, FL)(060053T)

Models: H240 w/ HINs:

HUN24462F203 – HUN24516C404

H260 w/ HINs:

HUNF0027A202 – HUNF0140B404

H270 w/ HINs:

HUNK0162F102 – HUNK0173D304

H27 w/ HINs:

HUN27101G405 – HUN27105J405

H306 w/ HINs:

HUN30465F102 – HUN30568C404

H326 w/ HINs:

HUN32255F102 – HUN32362I304

H33 w/ HINs:

HUN33101I304 – HUN33258J405

H356 w/ HINs:

HUN35101F102 – HUN35421F304

H36 w/ HINs:

HUN36101F304 – HUN36231J405

H38 w/ HINs:

HUNTER MARINE

(Alachua, FL)(060053T)

Models: HUN38101C405 – HUN38145J405

H386 w/ HINs:

HUN38718E102 – HUN38836C405

H410 w/ HINs:

HUN41332K102 – HUN41357H203

H41 w/ HINs:

HUN41101J102 – HUN41218J405

P420 w/ HINs:

HUN42189J102 – HUN42230J304

H426/44 aft cockpit w/ HINs:

HUN4A101G203 – HUN4A155J405

H426/44 deck salon w/ HINs:

HUN40101D203 – HUN4D196J405

P450/456 w/ HINs:

HUN45272J102 – HUN45315I405

P460/466/46 w/ HINs:

HUN46270G203 – HUN46337J405

Units: 1,650

Problem: On ball valves manufactured by Marine Hardware (with blue handles), ball valve stem corrodes prematurely making it impossible to close the valve; possible water leakage

INDMAR PRODUCTS COMPANY, INC.

(Millington, TN)(060086T)

Year: 2005 - 2006

Models: GM 8.1L engine

Units: 998

Problem: Retainer clip for fuel rail damper not properly heat treated and may fracture; possibility of fuel leakage; possible fire/explosion if ignition source present

IMAR GROUP

(Fargo, ND)(06R1393S)

Year: 2006

Models: Gekko Revo 6.7

Units: 24

Problem: Display of capacity information; various electrical, fuel and ventilation system noncompliances

GEM PRODUCTS, INC.

(Orange Park, FL)

The plastic portion of vented fuel fills (99800, 99820, 99840, 99860 series) manufactured by Gem Products, Inc. may crack during fueling; possible fuel discharge into bilges; possible fire/explosion if ignition source present. The letters "PAT. PEND" are visible on the flange of recalled products. The following companies are involved:

CHAPARRAL BOATS, INC.

(Nashville, GA)(060065T)

Year: 2006 - 2007

Models: SSI: 190, 204, 210, 215, 220, 235, 236, 246, 255, 256, 260, 265, 275, 276, 280, 285

SSX: 236, 256, 276

Signature: 240, 270, 276, 280, 290, 310, 330, 350

Sunesta: 214, 216, 232, 234, 236, 252, 254, 274

Units: 2,869

CHRIS CRAFT BOATS

(Sarasota, FL)(060067T)

Year: 2006 - 2007

Models: Speedster; Launch 22, 25 & 28; Corsair 25 & 28

Units: 189

KENNER BOATS

(Knoxville, AR)(060081T)

Year: Boats built between 020306 - 090606

Models: Mako 2201CC, 2201CCT, 1801CC, 1901CCV2, M1901CCT, M1901CC, 2101CCV2, 2101CC;

Tahoe 195O, 196O, 215O & 215OCC;

Kenner V2102, V2102T, 2103, 2103T, 1800, 1800T, V1902 & V1902T

Units: 654

NAUTIC STAR BOATS

(Amory, MS)(060075T)

Year: 2007

Models: Nautic Bay 1800, 1900, 2110, 220; Offshore 2000; Sportdeck 205DC, 206 I/O, 210DC, 200SC, 210, 230; Tunnel 2110, 2000 OS DC; Sport 210 I/O, 210DC I/O, 230SL I/O

Units: 202

PARKS MANUFACTURING, INC.

(Seminole, OK)(060063T)

Year: 2007

Models: 2200 Pure Bay & 220 V-BAY LC

Units: 84

ROBALO BOATS LLC

(Nashville, GA)(060066T)

Year: 2006 - 2007

Models: R200, R220, R227, R240, R245, R260, R265, R295, R300, R305

Units: 225

TIDEWATER BOATS

(Irmo, SC)(060080T)

Year: 2006 - 2007

Models: 18, 19 & 21 Bay; 216 CC

Units: 153

KAWASAKI MOTORS CORP.

(Santa Ana, CA)(070053T)

Year: 2007-2008

Models: JT1500

Units: 9,763

Problem: Position of throttle lever housing can change during operation allowing handlebar to prevent full closure of throttle

KAWASAKI MOTORS CORP.

(Santa Ana, CA)(070038T)

Year: 2007

Models: Ultra 250X (JT1500B7F) w/ HINS:
KAW30002K607-KAW30734A707,
KAW30736A707-KAW30845A707,
KAW30847A707-KAW35244D707,
KAW35246D707-KAW35314D707,
KAW35316D707-KAW35320D707,
KAW35322D707-KAW43165E707,
Ultra LX (JT1500C7F) w/ HINS:
KAW40001K607-KAW41950B707,
KAW41952B707-KAW42802D707,
KAW42804D707-KAW43037E707,
KAW43039E707-KAW43040E707,
KAW43044E707-KAW43075E707,
KAW43077E707-KAW43142E707,
KAW43144E707-KAW43158E707,
KAW43160E707-KAW43162E707,
KAW43164E707-KAW43165E707

Units: 8,919

Problem: Fuel hose may not be properly connected to fuel injection system fuel rail causing fuel leakage; possible fire/explosion if ignition source present

KEVCON CORP.

(Fort Dodge, IA)(050023S)

Year: 1996 – 2004

Models: Stealth 145C, 1237 Jon & 1437 Jon sold under brand name Misty Harbor

Units: Stealth 145C – 147 boats w/ HINs:
KEIS0118C000 – KEIS0575F405
1237 Jon – 124 boats w/HINs:
KEIE0124K203 – KEIE0628K203
1437 Jon — 141 boats w/HINs:
KEIE0109E697 – KEIE0672G405

Units: 412

Problem: Level Flotation

KODIAK MARINE

(Tualatin, OR)(060085T)

Year: 2005 - 2006

Models: GM 8.1L engine

Units: 57

Problem: Retainer clip for fuel rail damper not properly heat treated and may fracture; possibility of fuel leakage; possible fire/explosion

LARSON BOATS

(Little Falls, MN)(060111T)

Year: 2007

Models: SEi-180 I/O & Escape 204

Units: 115

Problem: Dash fuse panel supply wire is undersized allowing for greater than three percent minimum voltage drop to critical components; possible tripping of the engine circuit breaker leaving ignition system with no power

MALIBU BOATS, INC.

(Merced, CA)(060087T)

Year: 2007

Models: Wakesetter 21.5 XTi
Wakesetter 21.5 VLX
Wakesetter 23 LSV
Wakesetter 247 LSV
Wakesetter VTX
Anniversary Response
Anniversary Wakesetter
Sunscape 21.5 LSV
Sunscape 23 LSV
Sunscape 247 LSV
vRide
Response LXi

Units: 353

Problem: Possible fuel leak around mounting area of in-tank fuel pump; possible fire/explosion if ignition source present

MALLARD MARINE

(Portland, OR)(07V163S)

Year: 2006 - 2007

Models: Marsh Rat

Units: 178

Problem: Maximum persons and maximum weight capacities overrated; insufficient flotation

MASTERCRAFT BOAT COMPANY

(Vonore, TN)(080001T)

Year: 2005 - 2007

Models: Maristar 245 & X-45

Units: 410

Problem: Possible hydraulic steering system failure; danger of collision

MERCURY MARINE

(Fond du Lac, WI)(080007T)

Year: 2006

Models: 25/30 HP EFI Four Stroke outboards

Units: 22,167

Problem: Possibility upper motor mount retaining nuts can come loose; loose nuts will not cause loss of motor or loss of control

MERCURY MARINE

(Fond du Lac, WI)(060090T)

Year: 2005 – 2006

Models: GM 8.1L engine

Units: 11,183

Problem: Retainer clip for fuel rail damper not properly heat treated and may fracture; possibility of fuel leakage; possible fire/explosion if ignition source present

MERCURY MARINE

(Fond du Lac, WI)(050014T)

Models: Bravo X I/II/III Drives w/ serial nos. 0W250000 thru 0W266345
Bravo XR I/III Drives w/ serial nos. 0W240000 thru 0W240652

Units: 2,655

Problem: Shift link bar may become disengaged from shift lever resulting in loss of shift control; possibility of collision

MERCURY MARINE

(Fond du Lac, WI)(060097T)

Year: 2006

Models: 25/30 EFI 4-Stroke outboards
w/ serial nos.: 0R125005-0R145228

Units: 2,430

Problem: Throttle may not return to neutral after running at elevated rpms resulting in loss of shift control; possibility of collision

MERIDIAN YACHTS

(Everett, WA)(050024T)

Year: 2005

Models: 341, 368, 381, 408, 411, 459, 490

Units: 53

Problem: Stainless rudder bearings seize on rudder shaft; possibility of collision

MINN KOTA MOTORS

(Racine, WI) (070030T)

Year: 2006

Models: Maxxum 101 (36V)

Units: 1,233

Problem: 48 circuit boards in the 1,233 36-volt Maxxum 101 motors produced between 7/11/06 and 11/9/06 have failed. Of these, 48 resulted in the non-primary propulsion electric trolling motor ceasing to operate. In two isolated instances the circuit board failure resulted in the trolling motor overheating to the point of combustion

PANTHER AIRBOAT CORP.

(Cocoa, FL)(060095T)

Models: Airboats equipped with GM 8.1L engine

Units: 50

Problem: Retainer clip for fuel rail damper not properly heat treated and may fracture; possibility of fuel leakage; possible fire/explosion if ignition source present

RANGER BOATS

(Flippin, AR)(080014T)

Year: 2006 - 2007

Models: Z19, Z20, Z21, Z21I, Z22, Z520,
198VX, 519VX, 520VX

Units: 1,216

Problem: Possible fuel leakage at fuel selector
valve fitting; possible fire/explosion if ignition
source present

RANGER BOATS

(Flippin, AR)(060102T)

Year: 2006 - 2007

Models: 175VS, 178VS, 180 RE, 185 VSI,
188 IN, 188VS, 190 RE , 195'V,
1750R, 1760', 1850 R, 1860VS,
2000', 618VS, 619VS, 519VX,
Z19'0

Units: 273

Problem: Main battery cable routed incorrectly
and could interfere with outboard engine
flywheel on boats rigged with Bombardier 115,
150, 175 or 200 HP engines; possible short
circuit; possible fire/explosion if fuel or vapor
source present

REGAL MARINE INDUSTRIES

(Orlando, FL)(06R1557S)

Year: 2007

Models: Regal 2700

Units: 60

Problem: Continuously energized ungrounded
terminals on battery switch not protected from
accidental short circuiting; all-round navigation
light obstructed by bimini top

SEA BOSS BOATS

(Newberry, SC)(050029T)

Year: 2003 – 2004

Models: 180CC w/ HINs:
GHQCW001A303-GHQCW298E404
190CC w/ HINs:
GHQJR001A303-GHQJR210E404
210CC w/ HINs:
GHQTT001L202-GHQTT174E404
210WA w/ HINs:
GHQKL001L203-GHQKL121E404

SEA BOSS BOATS

(Newberry, SC)(050029T)

Year: 2003 – 2004

Models: 235CCF w/ HINs:
GHQJR001G304-GHQJD024C404
235WAF w/ HINs:
GHQLF001G304-GHQLF017C404
19 BAY w/ HINs:
GHQ FC001A304-GHQFC060H304
19 BAY w/ HINs:
GHQFN001G304-GHQFN054E404
21 BAY w/ HINs:
GHQKB001G304-GHQKB085E404

Units: 1,054

Problem: ABS thru-hull fitting manufactured
by T-H Marine Supplies reacts with PVC hose
causing fitting to fail; possibility of sinking

SEA PRO BOATS

(Newberry, SC)(050067S)

Year: 1999 – 2006

Models: S195FS w/ HINs:
PIOFS101K899 – PIOFS713F506
S195FS w/ HINs:
PIOFS001G506 – PIOFS022J506

Units: 620

Problem: Level Flotation

SEA RAY BOATS

(Knoxville, TN)(060110T)

Year: 2007

Models: 2150 & 270 SLX

Units: 313

Problem: AC & DC Electrical Systems do not
have common ground as required by ABYC
E-11. If a short occurs in the shore power
system, possibility of stray current into the water
around the boat

STARCRAFT MARINE

(Topeka, IN)(07R2031S)

Year: 2007

Models: Starstep 200

Units: 34

Problem: Insufficiently sized openings in
natural ventilation system

SUNSATON PERFORMANCE BOATS

(Algonac, MI)(06R1738S)

Year: 2007

Models: 32-foot inboard

Units: 102

Problem: Missing manually reset, trip-free circuit breaker or fuse on some ungrounded current carrying conductors

TOHATSU AMERICA CORP.

(Farmers Branch, TX)(080023T)

Year: 2002 - 2007

Models: 70HP & 90HP TLDI

Units: 1,644

Problem: Possible abrasion of high pressure fuel filter may result in fuel leakage; possible fire/explosion if ignition source present

TRACKER MARINE GROUP

(Springfield, MO)(080002S)

Year: 2007 - 2008

Models: Tahoe 215I w/ HINs:
BUJ40307A707 - BUJ41378D707
BUJ41898D708 - BUJ43563I708
Tahoe 216I w/ HINs:
BUJ40308A707 - BUJ41381D707
BUJ41901D708 - BUJ43534I708

Units 726

Problem: Adapter harness failure; possibility of engine start without input from key switch

TRACKER MARINE GROUP

(Springfield, MO)(080002S)

Year: 2007 - 2008

Models: Tundra 18 & Tundra 20

Units 81

Problem: Insufficient flotation

U.S. MARINE

(Everett, WA)(070033T)

Year: 2004 – 2008

Models: 185BR w/HINs:
BBBC19CSJ304 – BBB91CSG708

Units: 2,270

Problem: Seat base pedestal improperly installed

VOLVO PENTA OF THE AMERICAS INC.

(Chesapeake, VA)(070027T)

Year: 2004 – 2007

Models: 12 volt CT600 & CT900 bow thrusters
12 volt SP600 & SP900 stern thrusters

Units: 233

Problem: 12 V CT600/CT900 bow thrusters & 12 V SP600 & SP900 stern thrusters (QL label) overheat during operation due to deviations from installation instructions; one incident resulted in an electrical fire

VOLVO PENTA OF THE AMERICAS, INC.

(Chesapeake, VA)(070045T)

Year: 2005 - 2006

Models: 3.0L, 4.3L & 5.0L gasoline engines

Units: 7,630

Problem: Holley carburetor corrosion may result in fuel leakage; possible fire/explosion if ignition source present

VOLVO PENTA OF THE AMERICAS, INC.

(Chesapeake, VA)(060084T)

Year: 2005 - 2006

Models: GM 8.1L engine

Units: 1,749

Problem: Retainer clip for fuel rail damper not properly heat treated and may fracture; possibility of fuel leakage; possible fire/explosion if ignition source present

WEBER AUTOMOTIVE

(Markdorf, Germany)(070052S)

Year: 2006 - 2008

Models: Williams Performance Tenders
Turbojets sold by Novurania (101)
and Sugar Sand Sting (25)

Units: 126

Problem: Fuel system quick connect fitting

does not comply with 33 CFR 183.590

WESTERBEKE CORPORATION

(Taunton, MA)(050026S)

Year: 2003 - 2005

Models: Generators – 5.0 BCG, 5.0 BCGA, 7.0 BCGC, 7.0 BCGD, 8.0 BEG, 10.0 BEG, 12.5 BEG, 15.0 BEG, 20.0 BEG, 20.0 BEGA, 25.0 BEG, & 25.0 BEGA

Units: 2,166

Problem: “On” toggle switch fails ignition protection test; possible fire/explosion if fuel or vapor source present

YAMAHA MOTOR CORPORATION

(Cypress, CA)(080019T)

Year: 2007 - 2008

Models: AR210, SR210, & SX210 (FRT1100) AR230 HO, SR230 HO & SX230 HO (SXT1100) Sport Boats

Units: 3,954

Problem: Fuel tank filler hose may not be installed correctly; possible fuel leakage and possible fire/explosion if ignition source present

YAMAHA MOTOR CORPORATION

(Cypress, CA)(080020T)

Year: 2007 - 2008

Models: AR230 HO, SR230 HO & SX230 HO (SXT1100) Sport Boats

Units: 2,716

Problem: One or more bolts may have fallen into air box near throttle body; possible interference with throttle linkage

YAMAHA MOTOR CORPORATION

(Cypress, CA)(080017T)

Models: 2005 - 2008 XV1100 WaveRunner
2003 - 2008 GP1300 WaveRunner

Units: 64,634

Problem: Outer throttle cable could corrode and become cracked or kinked; possibility throttle movement impairment or failure to return to idle position; danger of collision

YAMAHA MOTOR CORPORATION

(Cypress, CA)(070002T)

Year: 2005

Models: 90TLR Outboard motors

Units: 300

Problem: Possibility of oil pump mounting bolts to be loose; throttle link rod might catch on loose bolts causing throttle valve to stick in open position; possible loss of control and danger of collision

BFA MARINE DIV.

ZODIAC INTERNATIONAL

(Issy Les Moulineaux France)(070031T)

Year: 1997 – 2006

Models: Atlantic w/ five digit serial nos. 10001 – 50180 (1997 – 2006)
Pacific w/ five digit serial nos. 10001 – 50180 (1997 – 2006)
Baltic w/ five digit serial nos. 10001 – 50180 (1997 – 2002)
XM Offshore w/ five digit serial nos. 10001 – 50180 (1997 – 2001)
Any 2002 – 2006 leisure life raft w/12-character HIN beginning with XDC

Units: 7,500 worldwide (500 USA)

Problem: Dysfunctional overpressure valve; in the event both overpressurization valves of the two independent compartments happen to fail, the life raft will not function as a lifesaving device, but will sink. See <http://www.bfa-marine.com/work/us/>



This is the last time the **Boating Safety Circular** will be printed in hard copy and mailed to subscribers. All future issues will be web-based and posted to the Coast Guard Office of Boating Safety website (see above).

DISTRIBUTION -SDL No. 147

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The **Boating Safety Circular** is published by the U.S. Coast Guard Office of Boating Safety. Questions or comments concerning the material found in this circular may be addressed to: Commandant (CG-54223), U.S. Coast Guard, 2100 Second Street SW, Washington, DC 20593-0001.



PARACHUTE COMPANY

Established 1920



Sub: **SAFETY ALERT** and RECALL
Ref: Service Information Bulletin No. SIB-08144

**IF YOU ARE THE OWNER OF A MARINE LIFE RAFT MANUFACTURED BY
SWITLIK PARACHUTE COMPANY,
IT MAY HAVE A POTENTIAL PROBLEM WITH THE INFLATION SYSTEM.

THIS IS NOT OBVIOUS AND COULD CAUSE FALSE RELIANCE ON A LIFE RAFT
THAT, IF NEEDED, MAY NOT INFLATE AND FUNCTION AS A LIFE SAVING DEVICE.**

We have had reports recently from two Life Raft Service Stations of Switlik Life Raft inflation valves failing to operate properly and discharge the gas from the CO₂ cylinder into the life raft. These malfunctions occurred during performance of annual service and standard 5-year operational and inflation testing.

Inspection of these valves indicated clear signs of changes in the consistency of the lubricant and a degradation of the piston O-ring material. This resulted in the O-rings adhering to the pistons and valve bodies, causing the inflation valves to malfunction.

We are implementing a corrective action that mandates replacement of the inflation valve with a valve that does not utilize this O-ring material and lubricant combination. While the instances and percentages of improper inflation system operation are relatively small, this issue directly affects whether or not a life raft will properly inflate in case of an emergency. **We feel that this valve replacement should occur at your earliest practical opportunity.**

To facilitate the inflation valve Service Bulletin in the safest and most expeditious manner for you, we will be replacing, at no charge to you, the existing S-2630 inflation valve/s on your life raft. (You are responsible for complying with any normal recommended service procedures and transportation of the Life Raft to and from the service facility.)

YOUR SAFETY is of the utmost importance to us! Please contact Switlik Parachute Company at (609) 587-3300 or go to our web site, (www.switlik.com), for a listing of our Service Stations to schedule the servicing of your life raft and replacement of the inflation valve. We regret this occurrence and the inconvenience it causes you. Although the probability that your life raft will not work as designed is small, we are addressing this issue by erring on the side of safety.

We thank you for your patience while we work to make your time on the water safer.

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