DEPARTMENT OF TRANSPORTATION

Coast Guard

46 CFR Part 160

[CGD 94–110]

RIN 2115–AE96

Recreational Inflatable Personal Flotation Device Standards

AGENCY: Coast Guard, DOT.

ACTION: Interim rule with request for comments.

SUMMARY: The Coast Guard is establishing regulations for approval of inflatable personal flotation devices (PFDs) for recreational boaters. These regulations establish structural and performance standards for inflatable PFDs, as well as the procedures for Coast Guard approval of inflatable PFDs. These standards are intended to allow for approval of inflatable PFDs which should be more amenable to continuous wear by recreational boaters than currently approved PFDs, thereby increasing use of PFDs by the boating public and saving lives.

DATES: This rule is effective on July 24, 1995. The Director of the Federal Register approves as of July 24, 1995 the incorporation by reference of certain publications listed in the regulations. Comments must be received on or before October 23, 1995.

ADDRESSES: Comments may be mailed to the Executive Secretary, Marine Safety Council (G-LRA/3406) (CGD 94–110), U.S. Coast Guard Headquarters, 2100 Second Street SW., Washington, DC 20593–0001, or may be delivered to room 3406 at the same address between 8 a.m. and 3 p.m., Monday through Friday, except Federal holidays. The telephone number is (202) 267–1477. Comments on collection-of-information requirements must be mailed also to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725 17th Street NW., Washington, DC 20503, ATTN: Desk Officer, U.S. Coast Guard.

The Executive Secretary maintains the public docket for this rulemaking. Comments will become part of this docket and will be available for inspection or copying at room 3406, U.S. Coast Guard Headquarters, between 8 a.m. and 3 p.m., Monday through Friday, except Federal holidays.

A copy of the material listed in ''Incorporation by Reference'' of this preamble is available for inspection at room 1404, U.S. Coast Guard Headquarters.

FOR FURTHER INFORMATION CONTACT: Mr. Samuel E. Wehr, U.S. Coast Guard, Survival Systems Branch (G–MVI–3), telephone (202) 267–1444, facsimile (202) 267–1069, or electronic mail ''mvi-3/G-M18@cgsmtp.comdt.uscg.mil''. A copy of this interim final rule may be obtained by calling the Coast Guard's toll-free Customer Infoline, 1–800–368–5647. In Washington, DC, call 267–0780.

SUPPLEMENTARY INFORMATION:

Request for Comments

The Coast Guard encourages interested persons to participate in this rulemaking by submitting written data, views, or arguments. Persons submitting comments should include their names and addresses, identify this rulemaking (CGD 94–110) and the specific section of this rule to which each comment applies, and give the reason for each comment. Please submit two copies of all comments and attachments in an unbound format, no larger than 8½ by 11 inches, suitable for copying and electronic filing. Persons wanting acknowledgment of receipt of comments should enclose stamped, self-addressed postcards or envelopes.

The Coast Guard will consider all comments received during the comment period. It may change this rule in view of the comments.

The Coast Guard plans no public hearing. Persons may request a public hearing by writing to the Marine Safety Council at the address under **ADDRESSES.** The request should include the reasons why a hearing would be beneficial. If it determines that the opportunity for oral presentations will aid this rulemaking, the Coast Guard will hold a public hearing at a time and place announced by a later notice in the **Federal Register**.

Drafting Information

The principal persons involved in drafting this document are Mr. Samuel E. Wehr, Project Manager, U.S. Coast Guard, Office of Marine Safety, Security, and Environmental Protection, Survival Systems Branch (G–MVI–3) and Ms. Helen Boutrous, Project Counsel, Office of Chief Counsel.

Regulatory History

On November 9, 1993, the Coast Guard published an Advance Notice of Proposed Rulemaking (ANPRM) entitled ''Inflatable Personal Flotation Devices'' in the **Federal Register** (58 FR 59428). The Coast Guard received nine letters commenting on the ANPRM. One of the comments requested a public hearing, however, after consideration, the Coast Guard determined that no new issues would have been raised which would have materially assisted the Coast Guard in developing this rule. Therefore, no public hearing was held.

Regulatory Information

This rule is being published as an interim rule and is being made effective 30 days after the date of publication. The standards established by this IFR will give manufacturers the opportunity to make a significant number of Coast Guard-approved inflatable PFDs available to the boating public in 1996. Manufacturers require sufficient lead time to develop the PFDs in accordance with safety standards before they can actually offer products to boaters. It is the Coast Guard's position that boaters will be more likely to wear the less bulky inflatable PFDs than the more bulky designs currently available. Therefore, availability inflatable PFDs will save boaters lives.

Most of the standards adopted by this rulemaking are Underwriters Laboratories (UL) standards for inflatable PFDs and PFD components (UL 1180 and 1191) which were developed in accordance with the American National Standards Institute (ANSI) procedure for voluntary industry standards. In accordance with the ANSI procedures, interested parties were provided with an opportunity to participate in the development of the standards. The public was also given an opportunity to comment on the adoption of approval standards for inflatable PFDs in the ANPRM published on November 9, 1993 (58 FR 59428). All of the comments were generally in favor of the development of structural and performance standards for inflatable personal flotation devices (PFDs) and procedures for Coast Guard approval of inflatable PFDs. The ANPRM advised of the intention to use an industry consensus standard and encouraged interested, knowledgeable persons to participate in the ANSI standards making process. On February 24, 1994, notice was published in the Federal Register (59 FR 9015) of the Coast Guard's participation in the first consensus standards meeting with UL. This notice again invited interested technical experts knowledgeable in the field to participate in the meeting and process.

This IFR affords the opportunity for the public to comment on, and the Coast Guard to revise, the standards before they are finalized. Comments are invited on all aspects of this rule, and the Coast Guard specifically requests comments on particular issues throughout this preamble. Furthermore, carriage of inflatable PFDs will not be mandatory for boat owners, rather they are an

allowable alternative to existing Coast Guard-approved PFDs. Coast Guard approval of inflatable PFDs represents a business opportunity for manufacturers, distributors, and retailers. For these reasons, the Coast Guard for good cause finds, under 5 U.S.C. 553(b)(B), that notice, and public procedure on the notice, before the effective date of this rule are unnecessary.

Background and Purpose

The November 9, 1993, ANPRM discussed the Coast Guard's intention to adopt structural and performance standards for inflatable personal flotation devices (PFD) used on recreational boats, as well as the procedures for approval, and carriage requirements. The ANPRM discussed the Coast Guard's intention to participate in the development of an Underwriters Laboratories (UL) standard for inflatable PFDs, which would be the basis for Coast Guard approval of these devices. The UL standard (UL 1180) is complete. A Notice of Proposed Rulemaking (NPRM) which proposes complementary rules governing the carriage, use, registration, and recall of inflatable PFDs for recreational boats, is published elsewhere in today's edition of the **Federal Register**. More comprehensive procedures for approval of inflatable devices, and other PFDs as well, are included in the NPRM.

These regulations are intended to allow approval of PFDs which may be more appealing to recreational boaters than currently approved PFDs, thereby increasing use of PFDs by the boating public and saving lives. However, the Coast Guard notes that the currently approved inherently buoyant PFDs have an excellent lifesaving record. The Coast Guard boating statistics show that the fatality rate has dropped from about 20 to 4 (per 100,000 boats) over the past 25 years, and this decrease is in part due to use of these inherently buoyant PFDs. The Coast Guard also notes that inherently buoyant PFDs are more appropriate for non-swimmers than inflatable PFDs. Moreover, there are a number of boating applications where inflatable PFDs are not suitable, as listed in the PFD information pamphlet. Therefore, inherently buoyant PFDs will continue to play a vital role in boating safety programs for the public.

Advisory Committee and Other Consultations

In developing these regulations the Coast Guard consulted with the National Boating Safety Advisory Council (NBSAC) and the National Association of State Boating Law Administrators (NASBLA). In May 1994, NBSAC passed a resolution recommending approval for Type I, II, III, IV, and V inflatable PFDs. In 1988, 1993 and 1994, NASBLA also passed resolutions urging that such approvals be granted as soon as possible. Additionally, the National Transportation Safety Board has recommended that the Coast Guard approve inflatable PFDs.

NBSAC formed a subcommittee to study the implementation of the various types of approvals that might be granted by the Coast Guard and developed an ''inflatable PFD objectives statement'' and ''performance goals''. Copies of these documents are included in the docket file for this rulemaking. The documents identified a number of goals that NBSAC determined to be appropriate in the effort to set standards for the manufacture and approval of inflatable PFDs. In November 1994, the full council passed a resolution supporting the objectives statement and goals. The regulations adopted by this IFR are fully consistent with the final resolution adopted by NBSAC.

Inflatable PFD Studies

The Coast Guard has sponsored two studies on the suitability of inflatable PFDs in the recreational boating environment—a 1981 Inflatable PFD Field Test, Report No. CG–M–84–1 and a 1993 study conducted by the BOAT/U.S. Foundation for Boating Safety. Each study involved the use of about 500 inflatable PFDs in a recreational boating environment. Copies of these studies are included in the docket file for this rulemaking. Initial review of these studies indicated that inflatable PFDs could not be approved without extensive servicing requirements or conditions on approval. However, as discussed below, developments in inflatable PFDs have allowed the Coast Guard to establish the approval standards for inflatable PFDs adopted in this IFR.

1981 Inflatable PFD Field Test

The 1981 Inflatable PFD Field Test revealed that the PFDs used by the participants lacked an armed inflation mechanism nearly 20 percent of the time. Based on this information, the Coast Guard determined that it was not appropriate to approve inflatable PFDs without a mandatory structured servicing program. In 1981, no satisfactory servicing program was available, nor could one be developed at a reasonable cost for recreational boaters. Therefore, totally inflatable recreational PFD's were not approved.

BOAT/U.S. Study

The 1993 BOAT/U.S. Foundation for Boating Safety, Inflatable PFD Study showed approximately the same result as the 1981 study discussed above. Boat/U.S. distributed inflatable PFDs to recreational boaters and asked them to use the PFDs during their boating activities. BOAT/U.S. then recalled the PFDs in ''as is'' condition. After an initial visual examination, about 45 percent of the PFDs were judged to be improperly armed. Upon further evaluation, it was concluded that one-third of the improperly armed PFDs may have appeared to the average boater as having been armed correctly, a potentially serious condition (p.8 of study). In addition, 11 percent of the PFDs which technicians judged to be properly armed, actually had spent inflation cartridges, a potentially very serious situation.

Of the 458 inflatable PFDs tested by the BOAT/U.S. Foundation, technicians determined that:

(a) 383 (84%) could be made operational when they were returned.

(b) 40 (8.7%) were found to have operational deficiencies which could result in diminished performance of the PFD. Of these 40 inflatable PFDs, 17 required a greater than average force to actuate the inflation assembly. Some of the PFDs were found to have air retention losses of over 20 percent after 24 hours and others had slow inflation times. The slow inflation and air loss were caused by secondary closures which failed to open or possible leaks in the inflation assembly. In particular, one manufacturer used snap closures that did not always open when the device was inflated.

(c) 35 (7.6%) had various operational deficiencies which actually diminished their performance. Of these 35 inflatable PFDs, 19 were inoperable when returned for testing after use by the participants.

New Developments in Inflatable PFDs and UL Standards

New developments in the manufacture of inflatable PFDs, along with work done in the area by UL since the testing was conducted in the above studies, have greatly improved the chances that inflatable PFDs will work when used and maintained by the average boater. The problems revealed by the two studies discussed above have been addressed in the UL standard. It is the Coast Guard's position that PFDs meeting the requirements of the new UL standard, along with certain additional requirements included in this IFR, do not have the problems that prevented

Coast Guard from approving recreational inflatable PFDs in the past.

The Coast Guard is proceeding with approval at this time based on the development of much more ''user serviceable'' inflatable PFDs. With these user serviceable PFDs there is a good chance that the user of the PFD will (1) recognize when the PFD needs servicing; and (2) be able to perform the servicing correctly. These improved PFDs are equipped with inflation mechanisms (inflators) that are user-friendly. User-friendly features are often referred to as mechanisms that are designed with ''good human factors.'' Better human factors relates to the ease with which boaters can determine when their inflatable PFD needs rearming and the ease with which they can correctly rearm their PFD. Good human factors design will decrease the incidence of unarmed inflatable PFDs that were evident in the studies discussed above. This IFR requires inflatable PFDs to have inflators that a high proportion of the user population can quickly and correctly rearm with little or no reference to instructions or training.

In order to increase the likelihood that spent (or unarmed) inflators are readily distinguishable in actual use, the UL standards incorporated by this IFR require a status indicator that a high percentage of test subjects must correctly identify in the approval testing. Additionally, a high percentage of a pool of test subjects must be able to correctly rearm the device with no additional training, other than use of the owner's manual provided and toll-free calls to a manufacturer's help line, if one is available. The UL standard has two different levels for inflators, and the Coast Guard is allowing manufacturers to utilize different use restrictions and Type designations to alert boaters to the simplicity or complexity of the device that should be considered before purchase. The Coast Guard's goal is for PFDs to have inflators with such good human factors that boaters can tell if their PFD is armed as easily and quickly as they can tell the difference between a nickel and dime. This should then enable them to correctly rearm their inflatable PFDs almost every time.

As discussed below, other problems revealed in the study have also been addressed.

UL Standard 1180 includes a requirement for testing inflator assemblies after salt water spray tests to ensure that the inflators are capable of being easily actuated if left in a corrosive environment.

Many of the problems associated with partial deflation over 24 hours were attributed to sand or grit in the oral inflation tube, which allowed the valve in the tube to remain partially open and leak. The UL standard permits, but does not require, a dust cap on oral inflation tubes. Dust caps should prevent the entrance of some sand and grit into the inflator tube, and thus reduce the incidences of this minor problem. Other reasons for leaks included improper installation of the inflation assembly and holes in the bladder assembly itself. These problems will need to be dealt with by the boaters themselves as instructed by the owner's manual.

UL standards 1180 and 1191 also include a number of tests to ensure the durability of the bladder. The label will include a warning to perform a service test at least once each year.

Industry Standards Development

Underwriters Laboratories Inc. developed and revised UL standards 1180 and 1191, respectively, which are incorporated by reference in this rule, over the past year. The Coast Guard participated in this standards development process, which included two UL meetings and two UL comment periods. At the first meeting, which was announced in the **Federal Register** (February 24, 1994; 59 FR 9015), participants discussed concepts for the various kinds of PFDs that should be included in the standards, their minimum performance, and the performance of critical components such as the inflation mechanisms. UL then formulated complete draft proposals for the inflatable PFDs and their components and requested comments. An ad hoc advisory committee meeting was then held to discuss the comments received in detail. The Coast Guard outlined the most important characteristics of inflatable PFDs that it would examine when considering the devices for USCG approval. UL's minutes of this meeting are included in the docket for this rulemaking. Subsequent to the ad hoc advisory committee meeting, UL proposed revised standards for inflatable PFDs and their components and invited comments. The Coast Guard commented on this revised proposal, and UL, after considering the industry and Coast Guard comments, adopted the standards incorporated by reference in this interim final rule.

Discussion of Comments

The comments received in response to the ANPRM published November 9, 1993, that pertain to the approval procedures and other issues regarding inflatable PFD use are discussed in the NPRM (CGD 93–055) published elsewhere in today's edition of the **Federal Register**. The comments that pertain to the standards for inflatable PFDs and this IFR are discussed below.

The Coast Guard received eight letters commenting on the ANPRM before the close of the comment period. One supplemental letter that was received after the close of the comment period was also considered. The comments were received from a boat manufacturer, a cruise ship line, five PFD manufacturers and a boat owners association. All of the comments were generally in favor of the development of structural and performance standards for inflatable personal flotation devices (PFDs) and procedures for Coast Guard approval of inflatable PFDs.

Each of the comment letters received addressed a variety of issues regarding the approval of inflatable PFDs. Most of these issues were raised in a series of questions posed in the ANPRM. The issues addressed by these comments are discussed below.

General Comments

Most of the comments stated that because inflatable PFDs are lightweight and compact, and therefore cooler, they are more likely to be worn than most of the bulky inherently buoyant PFDs currently in use. These comments also stated, however, that increasing consumer interest is dependent upon lowering the relatively high cost of the inflatable models currently marketed. They acknowledged that Coast Guard approval of, and recommendations concerning, inflatable PFDs will also increase sales and help development of lower cost inflatable PFDs by increasing competition.

The Coast Guard agrees with these comments, but notes that increased wearing of PFDs also requires changing boaters' attitudes about the need for and value of PFD use. The Coast Guard emphasizes that, as with all PFDs, for inflatable PFDs to save lives, they must be worn. But also, inflatable PFDs must be cared for to a greater extent than other PFDs. The Coast Guard encourages boaters, manufacturers, State boating officials and boating safety organizations to promote the proper care of inflatable PFDs and increased wearing of PFDs in general. One of the significant advantages of inflatable PFDs, and the reason the Coast Guard has determined that inflatable PFD standards should be established as soon as possible, is that inflatable PFDs are comfortable enough to wear at all times while on the water. While two studies have indicated that improved comfort alone may not significantly increase the wear rate for PFDs, the Coast Guard's position is that the combination of

increased comfort and boater awareness of the crucial importance of wearing a PFD will increase the numbers of boaters wearing PFDs and save lives. That is why the Coast Guard is requiring that educational pamphlets and manuals, highlighting the importance of wearing a PFD which is appropriate for the user and the activity, be supplied with all Coast Guard-approved PFDs. Through this IFR and several PFD awareness initiatives such as the annual National Safe Boating Week Campaign, the Coast Guard is seeking to increase boater awareness of the importance of wearing PFD.

One PFD manufacturer stated that unfortunately the public perceives non-Coast Guard-approved safety equipment as inferior equipment. The comment pointed out the fact that the Coast Guard has not tried to prohibit, and has even strongly recommended that crew members working on deck on commercial vessels wear some type of PFD, including inflatable lifejackets which are not approved. To remedy this problem, the comment asked the Coast Guard to consider changing the PFD regulatory language from U.S. Coast Guard ''Approved'' to U.S. Coast Guard ''Required.''

The Coast Guard agrees that generally, unapproved equipment is better than no equipment. However, unapproved equipment does not satisfy inspection or equipment requirements. The Coast Guard acknowledges the public's misperception regarding products that are not ''Coast Guard-approved''. However, the Coast Guard is not adopting the recommendation to change ''Approved'' to ''Required.'' Such a change in terminology would be misleading because it would imply that many items of equipment which are available options for meeting the carriage requirements would be ''required'' on vessels. Moreover the change is not likely to correct the misperception.

The comment also recommended that inflatable PFDs be considered as substitutes for inherently buoyant PFDs only in situations in which the vessel has space limitations which do not allow for the carriage of traditional Coast Guard-approved PFDs. The comment stated that all vessel operators should be allowed to petition the Coast Guard for an exemption from PFD carriage requirements which would allow the vessel to substitute inflatable lifejackets for traditional Coast Guard-approved PFDs. The comment further suggested that granting such an exemption be conditioned on the vessel operator's completion of an educational course in the use and maintenance of inflatable lifejackets.

The Coast Guard is not adopting these recommendations because the administrative burdens associated with granting individual exemptions and determining ''space limitations'' for all boat types would be unmanageable. Inflatable PFDs will be allowed to be carried in place of inherently buoyant devices based on their approval type (I, II, III, or V), with only Type Vs having some condition on their carriage. PFD types are discussed later in this preamble under ''PFD *Approval Type vs. performance type*''. Also, approval is limited to persons at least 16 years of age and weighing more than 80 pounds. This limitation to adults is deemed necessary to restrict the use of these devices to those who are capable of using them in an emergency situation. As discussed above, the need for education will be addressed by pamphlets and manuals provided with the PFDs.

Another PFD manufacturer cautioned against drafting fully inflatable PFD standards that would result in only unaffordable, ''high-tech'' Coast Guard-approved inflatable PFDs.

The Coast Guard agrees and is adopting standards for a range of devices with the minimum safety requirements necessary to meet the various needs of most recreational boaters.

The boat manufacturer stated that inflatable PFDs are far easier to adjust than the approved PFDs now available, noting that this feature, among others, contributes to the convenience of inflatable PFDs and would increase their potential for use.

The Coast Guard agrees with this comment. This IFR adopts standards intended to ensure that inflatable PFDs continue to have body straps and closures which are easy to adjust.

The comment received from the cruise ship line noted that it operates two coastal cruise ships which carry 106 and 138 passengers respectively. According to the cruise line, ''expedition'' type cruises involve ferrying passengers in tenders to visit remote areas. All passengers are required to don PFDs before boarding the tenders. The comment stated that the ability to use less bulky inflatable PFDs would greatly enhance the process and improve passenger comfort.

It must be noted that vessels operating as cruise ships are covered by PFD carriage requirements for commercial passenger carrying vessels, which are not the subject of this rulemaking project. The inflatable PFDs for such types of service may be approved under existing regulations in 46 CFR 160.176.

Specific Comments on Issues Raised in the ANPRM Self Inspection by Means of Indicating Devices

The ANPRM stated that because recreational boaters do not always maintain inflatable PFDs in an overall serviceable condition, the inflation system should include an ''indicating device'' which would allow the boater to be reasonably sure that the PFD is ready to function and perform when used, or to identify whether the inflatable PFD requires servicing or rearming.

One PFD manufacturer asserted that although a self-inspecting inflation system will indicate if the unit needs to be rearmed, the boater still has to be relied upon to look at the indicator each time the PFD is donned. Further, no self-inspection system will prevent a boater from donning a disarmed PFD.

The Coast Guard acknowledges that self-inspection systems do not guarantee that boaters will not don a disarmed PFD. However, because of the ease of inspection, it is the Coast Guard's position that these systems will greatly assist boaters in determining whether their inflatable PFD is properly armed and will promote more frequent checks on the status of inflation systems. Making the task of checking the status of the inflation system easy, and maximizing the chances of making a correct determination, are two key elements in improving the readiness and safe use of inflatable PFDs. Accordingly, the standards adopted by this IFR require one of two levels of performance for self-inspection systems that are designed with features to promote ease of use.

The comment also stated that the new specifications should not prohibit the use of disposable, one-time inflation systems that can be replaced after each use, when the indicator shows that the inflation system has been used.

The Coast Guard notes that disposable inflation mechanisms are currently the only available inflation systems that can provide complete arming status indication and the standards adopted in this IFR allow for the use of disposable inflation systems.

A comment from another PFD manufacturer agreed with the desirability of self-inspection, but stated that any such requirements would be beyond the ''state-of-the-art,'' because there is no known reliable method to indicate the state of the CO_2 cylinder charge without removing the cylinder and inspecting the piercing face for evidence of a puncture. Therefore, the

comment considers the ability to determine cylinder charge status as part of the self-inspection criteria to be an unreasonable requirement.

The Coast Guard disagrees. As stated above, affordable, disposable inflators have been made that accomplish this task, making such a requirement reasonable. Additionally, reusable inflators have been demonstrated which should be available in the near future.

Another issue raised by this PFD manufacturer was that the inflatable PFD standard should not attempt to anticipate unlikely misuse, such as reinstallation of a spent cylinder, in the self-inspection requirements.

The Coast Guard notes that according to the PFD studies cited previously, users may have frequently reinstalled spent cylinders. The Coast Guard agrees that because of the limited number of systems available at this time which are capable of indicating the reinstallation of a spent cylinder, the standards should not require that all systems have such a capability. Only unconditionally approved PFDs (Type I, II, and III) must be capable of indicating this common misuse whether intentional or unintentional. Therefore, on these PFDs which do not have conditional approval, boaters will get the extra assurance of inflators that minimize possible misuse.

Three comments from PFD manufacturers suggested that available inflation mechanisms which indicate the activation of automatic or manual inflation systems by the presence or absence of a pin or clip, or a port window subject to a change in color are sufficient to indicate that the cylinder has been spent.

The two independent inflatable PFD studies mentioned above have shown the need for better human factors design in these systems. Under this IFR, the Coast Guard is adopting standards for systems that utilize user-installed pins or clips as a lower performing indicating system. The Coast Guard will continue to review new systems as they become available and, when appropriate, adopt upgraded standards as more designs become available that improve the chances of correct status determination of inflation system readiness.

These same PFD manufacturers stated that self-inspection issues are best addressed in user manuals or labels on the inflatable PFD rather than through standards on PFD designs. The Coast Guard disagrees. While instructions and labels can help, they are a poor substitute for designs of emergency equipment that take human nature into account. Systems designed with good human factors have indicators that most users understand instinctively and aid in proper rearming and operation of PFD inflation systems, thereby enhancing the PFD's lifesaving potential.

PFDs Approved Only When Worn.

In a discussion of the public's expected acceptance of inflatable PFDS, the November 9, 1993 ANPRM discussed industry's experience in marketing hybrid PFDs. The ANPRM stated that the hybrid PFD's lack of wide usage by the public may be due to the fact that hybrid PFDs do not count toward the satisfaction of carriage requirements unless they are worn. PFDs with such ''conditional approval'' are labelled ''approved only when worn''. This requirement was intended to ensure that these PFDs are properly maintained. The ANPRM suggested that if the inflation systems of inflatable PFDs were required to have indicating devices to show if the inflation system requires servicing or re-arming, the Coast Guard would consider not requiring inflatable PFDs to be worn. The ANPRM further suggested that an inflatable PFD which lacks an indicating device could be labelled as a Type V PFD and be approved only when worn, to increase the likelihood that such inflatable PFDs are maintained in a serviceable condition.

Nearly all of the PFD manufacturers and the boat owners association were opposed to an ''approved only when worn'' requirement for inflatable PFDs, because requiring constant wear would be a deterrent to buyers. Another comment from a PFD manufacturer stated that an ''approved only when worn'' criterion does not ensure that boaters will inspect their PFDs as was implied in the discussion of this issue in the ANPRM.

The Coast Guard agrees that boaters were discouraged from buying those hybrid PFDs which are ''required to be worn,'' and that such a requirement only indirectly helps to encourage boaters to inspect their PFDs. Further, fewer sales of highly wearable inflatable PFDs will frustrate the Coast Guard's goal of increasing the total number of people wearing PFDs. Moreover, as discussed above, there have been many improvements to inflatable PFD designs. Therefore, the standards adopted by this IFR provide for approval of inflatable Type I, II, and III PFDs without conditions on their approval.

However, the Coast Guard notes that several factors contributed to the negative reaction to conditional approval of hybrid PFDs. For instance, the hybrid PFD designs were hot, bulky, and expensive. It is the Coast Guard's position that conditional approval can play a valuable role in the approval of unique and novel inflatable PFD designs which are much more cool, comfortable and less expensive than the hybrid designs. This role is discussed below under ''*PFD lifesaving potential evaluation*'' in the discussion of rules section.

A comment from the boat manufacturer stated that regulations need to be adopted requiring PFDs to be worn whenever an engine is in use, rather than the current requirement for PFDs to be on board.

The Coast Guard, in a future rulemaking, may consider a requirement for boaters to wear a PFD whenever the engine is running for specific PFD designs on a case-by-case basis during approval, and will consider the desirability of wider application of such a restriction in the future.

Another comment from a PFD manufacturer argued in favor of rules requiring individuals to wear a PFD, and allowing for the use of non-approved devices, including inflatables.

The Coast Guard is not adopting this suggestion. While Coast Guard regulations do not prohibit the carriage and use of non-approved PFDs, carrying such devices does not count toward meeting the carriage requirements. The quality and performance of PFDs that do not meet any specified standards is uncertain. The Coast Guard's position continues to be that in order to achieve the minimum acceptable level of safety and meet operational needs, only Coast Guard-approved devices, which must meet specified safety criteria, should be counted toward carriage requirements. A poorly manufactured device could fail to provide needed assistance, or a poorly designed device could actually perform such that the user is worse off than having no PFD.

Inflatable PFD Types

The ANPRM also stated that approval of Type I and II, as well as Type V inflatable PFDs with conditions on their use or that are intended for use in specific activities, will provide more choices suitable for a variety of different boating activities.

One comment from a PFD manufacturer stated that the Coast Guard should allow for approval of several inflatable PFD types rated at different levels of performance. The comment suggested that the highest performance inflatable PFD provide 35 pounds (150 N) of buoyancy, have dual chambers, an automatic, self-inspecting inflation system, and a high strength harness and lifting becket. The lowest performance inflatable PFD, according

to the comment, should provide 17 pounds (75 N) of buoyancy, have a single chamber, manual inflation with no requirements for a self-inspecting inflation system, a lower strength plastic buckle, and its use would be restricted to inland, protected waters.

The Coast Guard generally agrees with this comment and the concept of approving several types of PFDs (as discussed elsewhere), and standards for several types of devices are adopted in this IFR. However, the Coast Guard does not plan to approve PFDs with levels of performance which are as low as the manufacturer suggested.

In addition, while allowing lower performing PFDs and restricting their use to certain waters appears desirable, there is presently no workable scheme for implementing such a concept. Therefore, the Coast Guard seeks comments on the desirability of future development of standards for such lower performing devices and appropriate restrictions to place on their use, such as the types of waters on which such devices should be allowed.

Another PFD manufacturer stated that inflatable PFDs should be required to provide in-the-water survival characteristics which are at least equivalent to those currently required for approval of a Type I PFD. According to the comment, the difference in bulk between an inflatable PFD which provides 16 pounds (70 N) of buoyancy and one which provides 35 pounds (150 N) is not significant enough to affect wearability and therefore the Coast Guard should consider requiring 35 pounds of buoyancy for inflatable PFDs to enhance safety. The comment also suggested that type classifications for inflatable PFDs should be based upon characteristics, other than buoyancy and associated in-the-water performance, such as strength and intended use.

In the standards adopted by the Coast Guard in this IFR, Type II PFDs are required to have an automatic inflation system and the same buoyancy as Type I inflatables (150 N). Therefore, Type II PFDs have in-water survival characteristics equivalent to current Type I PFDs, but, unlike Type I PFDs, have only one inflation chamber. Type III PFDs have the same buoyancy as Type I inherently buoyant PFDs (100 N, 22 lb), but have less ability to turn the wearer face-up, and some designs may require the user to actuate the inflation system in order to float. Provision of a high strength harness and lifting becket is optional for all Types of inflatable devices. A range of Type V devices provide lower inflation system serviceability and indicator requirements than Types I, II and III inflatables. Belt-pack style designs which may require the user to complete the donning process after inflation, even after falling in the water, may also be approved under the alternate ''Life-Saving Index'' (LSI) procedures and might be either Type III or Type V devices with conditions on their approvals such as approved only when worn. (LSI procedures are discussed below under ''*PFD lifesaving potential evaluation*'' in the ''*Discussion of Rules*'' section.)

Another comment from a PFD manufacturer suggested that for a Type V inflatable PFD, manufacturers should be allowed to claim Type II performance when fully inflated, even if an automatic inflation system is not provided.

The Coast Guard agrees. Under this IFR the label on a Type V PFD described by the comment may explain that the device provides Type II in-water performance only after being inflated by the user.

Two Inflation Chambers

The ANPRM asked whether the standards should exempt all but the highest performing inflatable PFDs (Type I) from the requirement for two chambers, thereby reducing the cost of inflatable PFDs intended for most recreational boaters.

Four of the PFD manufacturers and the boat owners association agreed that the requirement for two inflation chambers should apply to Type I devices only. The Coast Guard agrees, and this IFR the Coast Guard adopts standards which limit the requirement for two chambers to Type I inflatable PFDs.

A PFD manufacturer asserted that dual chamber inflatable PFDs should have 100 percent redundant systems. The comment suggested that allowing dual chamber inflatables with a common membrane, rather than completely independent systems, seems to conflict with the purported reason for having dual chambers: to ensure that if any aspect of one system within a chamber fails, the other chamber will not be affected.

While the Coast Guard agrees that completely independent chambers would provide an additional small increment of redundancy and thereby safety, such a requirement would present design problems and increase cost. For independent chambers to add significantly to the safety of the device, they would need to be separated by a cut- and puncture-resistant layer, which could significantly reduce the wearability of inflatable PFDs. Therefore, it is the Coast Guard's position that the benefits of a requirement for a 100 percent redundant system are outweighed by the negative impacts on design and costs. However, manufacturers may provide such a system.

Restrictions for Non-Swimmers and Children

The ANPRM solicited comments regarding appropriate restrictions to be placed on the use of inflatable PFDs by non-swimmers and children; whether an automatic inflation mechanism should be required on PFDs designed for non-swimmers and children; or whether there should be no approval of inflatable PFDs for people in these categories.

One PFD manufacturer and the boat owners association stated that no restrictions should be placed on the use of inflatable PFDs by non-swimmers or children. However, another PFD manufacturer noted that in attempting to design inflatable PFDs suitable for children, unique design problems would arise, such as a need for tamper-proofing. This comment concluded that at present, inflatable PFDs are not suitable for children. Another PFD manufacturer suggested allowing for orally inflatable PFDs for children. According to this comment, an adult would partially inflate the PFD prior to the child boarding the boat, providing the child with ''inherent buoyancy''. Two other PFD manufacturers suggested postponing development of approved inflatable PFD types for children. One of those comments stated that the desirability of an inflatable PFD standard for children should be considered only after a review of acceptance and reliability data gathered on adult users.

The Coast Guard agrees with those comments that suggested that approval of inflatable PFDs for children is not appropriate at this time. The Coast Guard does not share the view that a partially inflated PFD provides inherent buoyancy. The issue of inflatable PFDs for children can be revisited after more experience is gained with the approval of inflatable PFDs for adults. Accordingly, this IFR adopts standards that address inflatable PFDs for adults only.

One of the PFD manufacturers also suggested that a ''child'' be classified as a person under 12 years of age. The Coast Guard's position is that, because of the importance of understanding how to properly use PFDs, only persons over 16 years of age are considered adults.

Regarding non-swimmers, one PFD manufacturer was opposed to a requirement for an automatic inflation

mechanism for non-swimmers and asserted that even the best automatic systems are prone to misfires or failures to fire. Several PFD manufacturers' comments seemed to favor requiring PFDs with automatic inflation mechanisms. One of those manufacturers favoring a requirement for an automatic inflation mechanism for non-swimmers suggested that alternatively, a non-swimmer should be required to wear the inflatable PFD fully inflated. Inflatable PFDs for non-swimmers, according to one of the manufacturers should provide a minimum of Type I performance. Two of these manufacturers pointed out, however, that law enforcement agencies will not be able to make a determination concerning a person's swimming abilities.

The Coast Guard acknowledges that there is no practical way that law enforcement officials can conduct a field assessment of swimming abilities. This would make a restriction against use by non-swimmers unenforceable. Therefore the Coast Guard is not placing any restrictions on the use of inflatable PFDs by non-swimmers.

One PFD manufacturer favored revising the PFD pamphlet to make boaters aware of the PFD's limitations by suggesting that they select an automatically inflatable PFD. Similarly, the boat owners association stated that non-swimmers should be made aware of the limitations of an inflatable PFD on the package at the point of purchase.

In this interim final rule, the labeling and PFD information pamphlet for these PFDs are required to explicitly state that the devices are not recommended for use by non-swimmers.

The Coast Guard considers the marking required to be on the PFDs and the required owner's manual and information pamphlet sufficient to inform adult non-swimmers of the pertinent facts regarding PFDs to enable them to make an informed choice when purchasing a PFD. The Coast Guard will review PFD information pamphlets to ensure that they include a clear statement regarding the risks a non-swimmer faces in using a particular type of inflatable PFD.

Self-Inspecting Inflation Systems

The ANPRM also asked about the average boater's ability to determine whether an inflatable PFD is in a serviceable condition if it has a ''self-inspecting'' inflation system.

Three PFD manufacturers and the boat owners association indicated that most recreational boaters have the ability to perform simple checks and tests to determine if a PFD is in a serviceable condition, even if it has only the simplest of indicators.

The Coast Guard disagrees that most boaters can determine the condition of older style inflation systems (those inflators not meeting the higher standards adopted by this IFR). In an informal survey at the National Association of State Boating Law Administrators (NASBLA) annual meeting, only two out of 18 participants were able to correctly identify the serviceability of four older style inflation mechanisms. Therefore, in this IFR, the Coast Guard adopts new requirements and a new test for status indicator recognition which have been added to the UL standard adopted for inflation systems (UL 1191).

Inflatable PFD Complexity

The ANPRM also asked whether inflatable PFDs are too complicated for some people to operate in an emergency situation.

Comments received on this issue from three PFD manufacturers and the boat owners association acknowledged that there will always be some individuals who do not understand mechanisms, and indicated that foolproof-PFDs cannot be designed. However, these comments contended that most boaters would be able to operate an inflatable PFD in an emergency situation. One of the comments stated that people who have difficulty responding in an emergency are the ones who will refrain from choosing an inflatable PFD. Another PFD manufacturer felt that there is a greater likelihood that an inflatable PFD will be worn in anticipation of an emergency which removes the complication of donning it under the extreme conditions of an emergency.

It is the Coast Guard's position that a strong Federal, State, and industry education effort is important in order to minimize unintended outcomes associated with people panicking upon sudden immersion or upon the malfunction of a manual or an auto-inflation mechanism. The marking, pamphlet, and manual instructions required to be provided with the PFDs will contribute significantly to this needed education. The Coast Guard will review the warning statements to ensure that the public is given sufficient information to enable them to determine whether use of an inflatable PFD is appropriate.

Inflatable PFD Costs

The ANPRM also asked for comments on what price the average boater will pay to purchase an inflatable PFD.

One PFD manufacturer stated that wide use of approved inflatable PFDs will occur only if they are priced much lower than the current non-approved inflatable PFDs. With their obvious advantages, according to the comment, inflatable PFDs are significantly more expensive than inherently buoyant PFDs that are sold at discount stores for less than 15 dollars. Based on the company's market research, the manufacturer feels that the lowest performance inflatable PFD providing 17 pounds (75 N) of buoyancy, a single chamber, a plastic buckle harness (with approximately 150 pound (670 N) breaking strength), and a manual inflation system, must be priced at less than $40 in order for the industry to see growth in the market. A single cell inflatable PFD providing 35 pounds (150 N) of buoyancy with an automatic inflation mechanism and plastic buckles must be priced at less than $95.

Two other comments from PFD manufacturers stated that it is unlikely that inflatable PFDs can be sold at a price which compares favorably with the price of existing inherently buoyant PFD types, but that sales of automatics with many features are more than double the sales of basic, manually inflated models. According to one of the comments, consumers tend to measure value according to obvious features of the inflatable PFD, rather than basic characteristics. Also, according to the comment, consumers may tend to consider all inflatable PFDs as equivalent, regardless of PFD type classification.

Another comment from the boat owners association stated that the price for an approved inflatable PFD should be comparable to currently available Type I and II PFDs. Another PFD manufacturer stated that while some boaters will spend $150 or more for an inflatable PFD, the average boater will probably only pay $25 to $50 depending on features.

The challenge, according to one of the other PFD manufacturers will be to avoid driving up costs by placing burdensome approval requirements on devices, such as increased numbers of chambers and high levels of destructive testing per lot manufactured. The comment also suggested that the higher cost of an inflatable PFD may encourage purchasers to properly care for their PFDs.

The Coast Guard generally agrees with most of the comments but notes that there is no evidence which indicates that the high cost of an inflatable PFD will encourage proper care. The Coast Guard appreciates the cost and pricing information supplied by the comments. Such information is useful in

developing standards that are cost efficient and in conducting regulatory evaluations. However, it should be understood that the Coast Guard has no authority to implement, nor will it engage in, regulation or other control of the price of inflatable PFDs, beyond avoiding the imposition of costly requirements for these PFDs that do not further the goal of achieving an appropriate level of safety.

Service Life for Inflatable PFDs

The ANPRM asked about the useful Service life that should be expected of inflatable PFDs.

A PFD manufacturer stated that based on the company's experience with inflatable aviation life vests, the average, well-maintained inflatable PFD has a useful service life of just under 10 years. According to this comment, generally, within 10 years, an inflatable PFD will be rendered non-serviceable due to fabric seal failure or fabric deterioration. This comment further explained that inflatable PFDs that are not well-maintained will fail due to holes or punctures within an average of five years. Another PFD manufacturer estimated a service life of at least eight years. A third PFD manufacturer stated that an inflatable PFD should have a service life of three years or more if properly maintained. Another comment from the boat owners association indicated that service life will be determined by the quality of care provided to the PFDs.

The Coast Guard is not prescribing a useful service life for inflatable PFDs. Instead, each manufacturer is given the flexibility to determine the service life appropriate to each inflatable PFD model and the manufacturer is required to state that service life in the owner's manual. The manufacturer must also provide information concerning appropriate care and storage of an inflatable PFD which will minimize damage or deterioration in the boating environment. The service life specified by the manufacturer is not an ''expiration date'' after which the PFD is no longer considered approved or serviceable. Rather, it is a guide for consumers making decisions about which PFD to buy, and how long they can expect it to be serviceable under the conditions described by the manufacturer.

Professional Servicing

The ANPRM asked whether a requirement for professional servicing of inflatable PFDs at ''approved'' servicing facilities would be appropriate.

Three inflatable PFD manufacturers supported professional PFD servicing; however, they suggested that professional servicing should not be mandatory and that the Federal government should not set up inspection facilities at taxpayer expense. Instead, the comments suggested that professional servicing be recommended rather than required and that the services be offered by the manufacturers or through licensed agents or both. One of these comments stated that the required owner's manual should provide instructions for owner inspection and identify where the owner can obtain help if needed. This comment further suggested that a fee schedule for common servicing procedures be provided if a manufacturer's toll free boater ''help line'' is not provided. Another of these comments stated that the Coast Guard should recommend annual user inspection for air leaks and that the manufacturer should offer servicing biannually at an affordable fee. The comment also stated that after 10 years the chamber should no longer be serviced and replacement should be recommended.

Another comment from the boat owners association stated that professional servicing would be unnecessary if quality is held to a high standard, and that requiring professional servicing would greatly increase the cost of owning an inflatable PFD.

The Coast Guard is not requiring professional servicing at this time. The PFD owner's manual is required to address both user servicing and provide information on how to obtain professional servicing. The Coast Guard strongly encourages manufacturers to offer professional servicing and to recommend it, in the owner's manual, no later than four years from the date of manufacture.

Discussion of Rules

The requirements for inflatable PFDs for use by recreational boaters adopted by this IFR are based primarily on the UL industry consensus standard discussed earlier and existing regulations for hybrid and inflatable PFDs. In several areas the regulations depart from these requirements as discussed below.

Approval Procedures

Many subparts of part 160 covering recreational PFDs require the use of recognized laboratories in conducting the tests and inspections required during the approval process. This rule requires that recognized laboratories enter into a memorandum of understanding (MOU) with the Coast Guard before conducting any approval activities with respect to an inflatable PFD. The NPRM (CGD 93–055) published elsewhere in today's edition of the **Federal Register** proposes the same requirement for other recreational PFDs. That NPRM contains a detailed discussion of the MOU requirements. The Coast Guard may modify the approval procedures for inflatable PFDs after consideration of the comments on the NPRM (CGD 93–055).

PFD Lifesaving Potential Evaluation

As an alternative to meeting the minimum performance requirements in UL 1180 as modified by this IFR, the Coast Guard, is allowing for the approval of PFD designs that have been evaluated according to the design's overall lifesaving potential. Each design would be evaluated against the ''Life-Saving Index'' (LSI). Under this method, specified characteristics are evaluated using a formula that would result in a number between zero and one. This number represents the design's lifesaving potential. For example, a device with an LSI of 0.43 would provide the user with a 43 percent chance of surviving an accident in which there is a potential for drowning. The Coast Guard has developed an initial set of LSIs for a number of currently approved PFD's and several broad categories of inflatable PFDs. A report of this work is included in the docket file for this rulemaking. To ensure that the characteristics of the PFD designs approved actually increase the probability that the PFDs reduce drownings in recreational boating, only designs that are found to have an LSI that is at least equal to the LSI of a Type III inherently buoyant device would be approved.

Using the formula in § 160.076–27, the Coast Guard has calculated the LSI for a Type III inherently buoyant PFD after assigning values for the terms in the LSI equation. The Coast Guard has established 0.375 as the LSI for this type of PFD. The assigned values are based on the characteristics of that PFD design and are included in the regulatory evaluation on file for this rulemaking. As provided by § 160.076–27, the Coast Guard will review the values used to calculate the Type III inherently buoyant PFD LSI annually, and publish any change of the LSI based on new boating statistics or other updated information.

A manufacturer seeking approval using the LSI evaluation will assign values to the various terms of the LSI equation which represent the various characteristics of the intended users and the PFD design, such as whether the likely users are swimmers or non-

swimmers; the chances that the PFD will be worn; and the probability that the inflation system will be properly activated. The values assigned for the characteristics of the manufacturer's proposed design would be reviewed by the recognized laboratory. The LSI equation would then be solved for the design. If the LSI of the manufacturer's design equals or exceeds the Coast Guard's assigned LSI value for a Type III inherently buoyant PFD, the manufacturer would submit to the Commandant the calculations, the values assigned to each term, statements justifying those values, and an explanation of any assumptions used in performing the calculation. The Commandant would review the material submitted by the manufacturer. The Commandant may then approve designs determined to validly demonstrate an LSI that is at least equal to the Coast Guard's assigned LSI of a Type III inherently buoyant design. The designs approved under the LSI evaluation method would not be required to meet certain provisions of the construction and performance requirements of § 160.076–23 and approval testing requirements of § 160.076–25.

One way to increase the LSI of a design is to require that the PFD be worn, and, accordingly, obtain approval for the device as a Type V PFD. For instance, preliminary calculations show that a belt-pack style PFD without conditional approval may have an LSI of 0.35. However, when the same PFD is approved only when worn, the belt-pack style PFD might have an LSI of 0.67. Therefore, manufacturers may designate conditions concerning use to achieve the LSI of a Type III inherently buoyant PFD. Manufacturers are free to fashion other methods that will enable their designs to achieve the required minimum LSI and submit the information for Commandant review.

The Coast Guard anticipates that examples of designs that would be readily approved under the UL requirements as modified by this IFR are: Type I with automatic inflation and indicator (of cylinder seal); Type II with automatic inflation and indicator. Examples of designs that would probably not meet the UL requirements as modified by this IFR but that may be able to be approved under the LSI evaluation are: Type III PFDs with type II performance, but with manual inflation and indicator; Type III yoke style PFDs with automatic inflation and indicator; Type V PFD with type II performance and automatic or manual inflation but without indicator (of cylinder seal); Type V yoke style PFD with type III performance and automatic inflation but without indicator; Type V yoke style PFD with performance type III and with manual inflation, with or without indicator; and Type V belt-pack style PFD with performance type III.

With the LSI evaluation, the Coast Guard will be able to approve unique and novel designs that offer lifesaving potential equal to or greater than that of approved devices, but that otherwise would not be made available to the boating public. These designs may prove to be very comfortable, affordable and popular with the boating public, and thereby increase the number of recreational boaters who wear PFDs. This will result in an increase in lives saved.

Because the designs approved under the LSI evaluation will be new and perhaps novel, the Coast Guard, manufacturers, and the public will not have the same level of experience and knowledge with the designs that they have with devices approved under the UL requirements as modified by this IFR. Therefore, to ensure that only designs that provide a sufficient level of safety to the boating public continue to hold Coast Guard approval, the Commandant will annually review the designs approved under the LSI evaluation. At that time, the devices will be compared to other approved devices and the Coast Guard will evaluate the relative weight and values of the various characteristics that were initially used in the LSI calculation. Recognized laboratories will maintain a ranking of the PFDs approved under this method and submit the information to the Commandant to assist in the annual reviews. If after the review the Coast Guard determines that the device does not provide a minimum level of lifesaving potential as required by § 160.076–27, the approval on that design may be terminated or suspended. To retain Coast Guard approval, the PFD design would have to be modified to meet the requirements of § 160.076–27. However, if an approval is terminated or suspended, the manufacturer's inventory of completed PFDs could continue to be sold unless the Coast Guard determines that the design presents a significant hazard to users of those PFDs.

User Awareness

The biggest problem in reducing the approximately 670 recreational boating drownings annually is that of getting the individual boater to take the preventive measure of wearing a PFD and, in the case of an inflatable PFD, keeping it in a serviceable condition. The approval of inflatables is not intended to make it easier for boaters to satisfy PFD carriage requirements, but rather to encourage boaters to change their current behavior patterns and provide them with a more convenient means to protect themselves from the tragedy of a serious boating accident. In establishing the LSI evaluation and conditional approvals, the Coast Guard hopes to approve new and unique designs that will encourage the wearing of PFDs by a greater number of boaters. This wide range of options should encourage boaters to make informed decisions that could save their lives.

The Coast Guard seeks to develop an incentive system to get both boaters and manufacturers more involved in preventing drowning. As mentioned above, manufacturers will be able to obtain conditional approvals for PFDs which might otherwise fail to meet some of the more stringent requirements. The practical effect for boaters purchasing PFDs with conditional approvals which, for example, are approved only when worn, is that boaters will be given the option of buying a less expensive PFD. The manufacturer will be responsible for clearly communicating the boater's responsibility for compliance with the approval conditions or, if the boater fails to comply with the conditions, the need to provide an additional PFD, without conditional approval, to meet the carriage requirements.

Since boaters appear to prefer unconditionally approved PFDs, this system will encourage manufacturers to develop innovative ways to increase the lifesaving potential of PFDs without relying on conditional approval.

Also, conditional approval used in this way will raise the awareness of boaters as to what they can do to contribute to improving boating safety, and will give them more freedom of choice.

PFD Information Pamphlet

Title 33 CFR 181, subpart G requires that an information pamphlet be provided with each PFD sold or offered for sale for use on recreational boats. UL standard 1180 does not yet contain pamphlet requirements for inflatable PFDs. However, UL has reserved a section and plans to add the pamphlet requirements at a later date. When an industry standard is available for such pamphlets the Coast Guard will review it and, if appropriate, propose it for incorporation in the Coast Guard rules. Section 160.076–35 established by this IFR requires inflatable PFD manufacturers to provide information pamphlets that have been submitted to and approved by the Commandant. The purpose of the information pamphlet is

to ensure that prospective PFD purchasers receive information at the point of purchase necessary to select PFDs that are appropriate for them and their boating activities. Factors for boaters to consider include their body type, ability to swim, and the types of activities in which they will participate. The manufacturer is required to include an explanation in the pamphlet of the necessity to maintain an inflatable PFD in operational condition, and that if the user fails to appropriately maintain an inflatable PFD, it will not provide adequate safety.

Information in the pamphlets must be accessible to the prospective buyer at the point of sale. Once a pamphlet's contents are approved, each pamphlet provided by the manufacturer for the same PFD design must be printed exactly as approved by the Commandant or recognized laboratory. A sample layout with text is provided in appendix I to this IFR and copies may be obtained by contacting the Commandant as directed under **FOR FURTHER INFORMATION CONTACT.**

Owner's Manual

The owner's manual required by UL 1180 and § 160.076–37 must be submitted to the Coast Guard or recognized laboratory for review and approval. The Coast Guard will review the manual to ensure that it meets the requirements of § 160.076–37 and UL 1180. The owner's manual must warn against hazardous misuse, such as wearing the PFD under restrictive clothing. This IFR allows the pamphlet and owner's manual to be combined if selection and warning information are included on the PFD packaging.

PFD Approval Type vs. Performance Type

As written, UL 1180, which covers only wearable PFDs, designates PFDs in terms of their ''performance type''. The current Coast Guard PFD approval system designates PFDs in terms of a combination of the PFD's in-water performance and other characteristics. The Coast Guard approval types are: Types I, II, and III which are all wearable PFDs that have different in-water performance characteristics; Type IVs, which are all throwable PFDs; and Type Vs, which all have conditions on their approvals. Both the UL standard and this IFR introduce an additional classification factor forinflatable PFDs, i.e., their level of maintainability and serviceability.

This IFR departs from the UL standard in two important ways, as discussed below.

In the UL standard, PFDs with inflation system indicators with 2F and 3F use codes may be classified as performance Type II or III PFDs. However, the Coast Guard is requiring inflation system indicators with a 1F use code on all PFDs unless other features and methods are used to achieve the minimum LSI required by § 160.076–27. It is the position of the Coast Guard that a design with an inflation system indicator with 2F or 3F use code needs additional features to achieve adequate overall lifesaving potential, as discussed in the regulatory analysis on file in the rulemaking docket.

The other important departure from the UL standard in this IFR is that UL 1180 would allow belt-pack style PFDs that require secondary donning to be approved as performance type III PFDs. The Coast Guard's position, however, is that the difficulty in accomplishing second stage donning lowers the overall lifesaving potential of these PFDs. Therefore, additional features or methods are necessary to ensure that such a device provides adequate safety to the user. For example, a requirement that such PFDs be worn would elevate the LSI of the device such that it could be approved in accordance with the LSI requirements of § 160.076–27.

Meeting Uninspected Commercial Vessel Carriage Requirements

The Coast Guard is evaluating the desirability of allowing uninspected commercial vessels to use inflatable PFDs meeting the requirements of subpart 160.076 to meet the applicable PFD carriage requirements. Under the current regulations, these inflatable PFDs may only be carried and used on these vessels as additional equipment. Comments are therefore requested on two specific issues.

For uninspected vessels not carrying passengers for hire, the Coast Guard encourages crew members working in exposed locations to wear a PFD. PFDs meeting the requirements of subpart 160.076 could be worn while working. However, it is the Coast Guard's position that these PFDs should not be the only type of PFD carried and used unless they have been shown to have adequate durability for the intended service. Commercial hybrid PFDs are more suitable as the only required PFD. The Coast Guard requests comments on this matter.

Another matter on which the Coast Guard seeks comment pertains to uninspected vessels carrying passengers for hire. The Coast Guard is considering, as the subject of a future rulemaking, requiring the master to identify, by position, the person responsible for keeping the inflatable PFD devices serviceable and properly armed. Also, the Coast Guard seeks comments on whether the frequency of required inspections and checks should be established in the regulations. The Coast Guard seeks comments regarding these issues as well as the desirability of approving inflatable PFDs meeting the requirements of subpart 160.076 as the sole PFD for each person on board.

Number of Lives To Be Saved

In both 1992 and 1993, approximately 670 recreational boating fatalities due to drowning occurred each year. The Coast Guard estimates that if two-thirds of boaters wore the inflatable PFDs to be approved under this rule, there would be 210 fewer recreational boating fatalities due to drowning each year. Unfortunately, even if inflatable PFDs are accepted by boaters, it will take time for boaters to change their behavior and for inflatable PFDs to replace their current PFDs. There is also no guarantee that inflatable PFDs will be worn or that two-thirds of boaters will buy them. However, it is believed that by the end of 2007 approximately 210 lives per year can be saved if an average wear rate of 66 percent is achieved.

Other Additions and Exceptions to UL Standards

In this IFR, the Coast Guard has supplemented the UL standards for inflatable PFDs and their components in several areas.

In § 160.076–3, the Coast Guard states that PFDs approved under subpart 160.076 may be used on recreational submersible vessels. Such PFDs would most likely be approved under the unique and novel provisions of the subpart as Type V PFDs.

Under § 160.076–21, inflation chamber materials must be of the same general quality as those used to pass the approval tests. Also, adhesives must be suitable for the intended application, and inflation mechanisms must be marked with a unique model number to prevent substitutions of less reliable devices (§ 160.076–31(f)).

In § 160.076–23, the design must not cause significant discomfort to the wearer during or after inflation; and fabrics must be treated to minimize unraveling.

Donning time for unconditionally approved PFDs must be more carefully controlled than conditionally approved PFDs which are approved only when worn. In § 160.076–25, donning time is relaxed for such conditionally approved PFDs because emergency donning should not be an issue. The PFD must

be able to be repacked by the test subjects used in the approval testing. Also, in this section the PFD must allow for good visibility by the wearer in the water, and survivor locating aids must be above the water. Finally, Type II PFDs must have an average freeboard of 110 mm (4.25 inches), which is consistent with Type I and III PFD requirements.

In § 160.076–39, required markings are specified for Type V conditionally approved PFDs. All inflatable PFDs must be marked with ''not approved for use on commercial vessels'' and with the inflation system model number. Inflation systems must be marked with their unique model number to minimize the possibility of the user installing an inappropriate inflation system. Finally, in order to standardize a vital instruction, the manual inflation handle must be clearly marked ''Jerk to inflate'' unless a universal symbol is used.

Production Quality Control and Laboratory Oversight

Section 160.076–19 establishes production quality assurance and laboratory oversight requirements for inflatable PFDs that are essentially the same as the recently modified procedures for approval of hybrid PFDs in subpart 160.077 (59 FR 2482; January 9, 1995) with minor revisions to waterproof marking requirements.

Incorporation by Reference

The following material is incorporated by reference in § 160.076–11: Fully Inflatable Recreational Personal Flotation Devices (UL 1180), first edition, May 15, 1995; Components for Personal Flotation Devices (UL 1191), May 16, 1995; Marine Buoyant Devices (UL 1123), February 17, 1995; American Society for Testing and Materials, ASTM D 751–79, Standard Methods of Testing Coated Fabrics, 1979; ASTM D 1434–75, Gas Transmission Rate of Plastic Film and Sheeting, 1975; ASTM F 1166–88 Human Engineering Design of Marine Systems Equipment and Facilities, 1988; and Federal Standards, Federal Test Method Standard No. 191A, July 20, 1978. Copies of the material are available for inspection where indicated under **ADDRESSES.** Copies of the material are available from the sources listed in § 160.076–11.

The Director of the Federal Register has approved the material in § 160.076–11 for incorporation by reference under 5 U.S.C. 552 and 1 CFR part 51. The material is available as indicated in that section.

Regulatory Evaluation

This rule is not a significant regulatory action under section 3(f) of Executive Order 12866 and does not require an assessment of potential costs and benefits under section 6(a)(3) of that order. It has not been reviewed by the Office of Management and Budget under that order. It is not significant under the regulatory policies and procedures of the Department of Transportation (DOT) (44 FR 11040; February 26, 1979).

A Regulatory Evaluation under paragraph 10e of the DOT regulatory policies and procedures has been prepared and is available in the docket for inspection or copying where indicated under **ADDRESSES.** The Evaluation is summarized as follows.

The requirements of this IFR open up a new marketing opportunity for inflatable PFD manufacturers by allowing them to obtain Coast Guard approval of recreational inflatable PFDs, if they so choose. The IFR will also allow boaters to purchase and use inflatable PFDs on their boats, if they wish to do so. Manufacturers may still make and sell unapproved inflatable PFDs, and boaters may continue to use such PFDs as additional equipment. Manufacturers who wish to obtain approval will have to pay for the approval testing at the recognized laboratory, pay the cost of the required quality control and oversight, and provide the information pamphlet and manuals required by this rule.

The estimated total initial approval cost per inflatable PFD design is expected to be approximately $18,500, excluding the cost of inflation system acceptance which could be amortized over several designs of PFDs. Costs to approve other types of PFDs are approximately $6,000, excluding component acceptance costs. The additional cost to approve inflatable PFDs could easily be absorbed in the cost of the units produced. The cost increase per device would be small considering the number of devices which could be produced under authorization of each approval certificate. The Coast Guard anticipates that it will approve five to ten inflatable PFD designs within the first year after issuing this rule.

Production inspection costs imposed by these regulations will be approximately $1,000 for the largest size lot of inflatable PFDs permitted. This cost is similar to that incurred for other types of approved PFDs.

The retail cost, per device, is expected to be $50–$200 for inflatable PFDs. Currently approved PFDs range in price from $7–$200. Type I devices that could be replaced by inflatable PFDs have an average cost of about $40.

If total costs for these requirements including overhead is $2.00 per device, the total cost to the industry would be only $100,000 annually if 50,000 units per year are produced. Comments are invited on this analysis.

Small Entities

Under the Regulatory Flexibility Act (5 U.S.C. 601 et seq.), the Coast Guard must consider the economic impact on small entities of a rule for which a general notice of proposed rulemaking is required. ''Small entities'' may include (1) small businesses and not-for-profit organizations that are independently owned and operated and are not dominant in their fields and (2) governmental jurisdictions with populations of less than 50,000. This rule does not require a general notice of proposed rulemaking and, therefore, is exempt from the requirements of the Act. Although this rule is exempt, the Coast Guard has reviewed it for potential impact on small entities.

The requirements of this IFR open up a new marketing opportunity for inflatable PFD manufacturers by allowing them to obtain Coast Guard approval of recreational inflatable PFDs. The IFR will also allow boaters to purchase and use inflatable PFDs on their boats. As discussed above, the economic impact of the new requirements are expected to be minimal.

Therefore, the Coast Guard's position is that this rule will not have a significant economic impact on a substantial number of small entities. If, however, you think that your business or organization qualifies as a small entity and that this rule will have a significant economic impact on your business or organization, please submit a comment (see **ADDRESSES**) explaining why you think it qualifies and in what way and to what degree this rule will economically affect it.

Collection of Information

Under the Paperwork Reduction Act (44 U.S. C. 3501 *et seq.*), the Office of Management and Budget (OMB) reviews each rule that contains a collection-of-information requirement to determine whether the practical value of the information is worth the burden imposed by its collection. Collection-of-information requirements include reporting, recordkeeping, notification, labelling, and other, similar requirements.

This rule contains collection-of-information requirements in the

sections listed below. The following particulars apply:

DOT No: 2115.

OMB Control No.: 2115–0141, 2115–0576, and 2115–0577.

Paperwork requirements	OMB control No.
a. § 160.076–13	2115–0619
b. § 160.076–21	2115–0619
c. § 160.076–29	2115–0619
d. § 160.076–31	2115–0619
e. § 160.076–33	2115–0619
f. § 160.076–35	2115–0619
g. § 160.076–37	2115–0619
h. § 160.076–39	2115–0619

Administration: U.S. Coast Guard.

Title: Reporting and Recordkeeping Requirements for Fire Fighting Equipment, Structural Fire Protection Materials, Lifesaving Equipment, and Marine Sanitation Devices; Instructional Material for Lifesaving, Fire Protection, and Emergency Equipment; Identification of Lifesaving, Fire Protection, and Emergency Equipment.

Need for Information: Production records are needed to verify compliance with the materials and quality control requirements in the production of this lifesaving equipment. Because PFDs are estimated to last up to 10 years, the Coast Guard is requiring manufacturers to retain production records for 120 months. Records that are also available from recognized laboratories are required to be retained for only 60 months (§ 160.076–33). Instructional materials are needed so that boaters can make an informed decision on the type of PFD best suited to their boating safety needs, and understand how to properly service their PFD or know when to get professional servicing or remove their inflatable PFD from service. Equipment identification (labelling) is needed to indicate that a PFD is Coast Guard approved, so that boaters know it is Coast Guard approved before buying it and to show boarding officers that the equipment meets the Coast Guard carriage requirements, any conditions on meeting those requirements, and so that boaters will be warned of possible dangerous conditions in using the PFDs. A Memorandum of Understanding (MOU) is needed to document the responsibilities of the laboratory and the Coast Guard in relation to equipment testing, inspection, and approval.

Proposed Use of Information: Production records will be used to verify that suitable materials are used and that quality control is exercised in production of this lifesaving equipment. Instructional materials are used to inform boaters of the types of PFD best suited to their boating safety needs, and how to properly service or know when to get professional service or remove their inflatable PFD from service. Equipment identification will be used to indicate to boaters which inflatable PFDs are approved, allow boaters to show that the PFDs meet the Coast Guard carriage requirements, convey any conditions on meeting those requirements and warn of possible dangerous conditions in using the PFDs. An MOU formally documents the responsibilities of the laboratory and the responsibilities of the Coast Guard in relation to equipment testing, inspection, and approval.

Frequency of Response: Production records are maintained by the manufacturers. No regular reporting is required. Instructional materials are provided with each PFD produced, but only reported to the recognized laboratory or the Coast Guard when approval is sought or when revised. Equipment identification is required on each PFD produced, but the initial label layout is the only response reported to the recognized laboratory or the Coast Guard when approval is sought or when revised.

An MOU is required only once, when a laboratory seeks to become a recognized laboratory for a particular classification of equipment.

Burden Estimate: The annual burden for the production of 50,000 inflatable PFDs by five manufacturers is estimated at approximately 100 hours for production records; 320 hours for instructional materials; and 83 hours for equipment identification industry-wide. The total annual burden for production of PFDs is estimated as 503 hours industry-wide.

The Coast Guard estimates that no more than one MOU per year would be developed. Drafting of the MOU should not require more than two weeks of effort for one person, for an annual burden of 80 hours. Copies of existing MOUs may be obtained from the Coast Guard and modified to meet the needs of the inividual laboratory and the Coast Guard.

Respondents: PFD production record respondents are the estimated five manufacturers that will produce Coast Guard approved inflatable PFDs for recreational boats.

MOU respondents are laboratories that seek to become recognized independent laboratories.

Form(s): No Federal forms are required.

Average Burden Hours per Respondent: 101 hours annually for each of the five manufacturers producing PFDs.

If the average recognized laboratory enters into a new or revised MOU once every five years, the average annual burden would be 16 hours.

The Coast Guard has submitted the requirements to OMB for review under section 3504(h) of the Paperwork Reduction Act. Persons submitting comments on the requirements should submit their comments both to OMB and to the Coast Guard where indicated under **ADDRESSES.**

Federalism

The Coast Guard has analyzed this rule under the principles and criteria contained in Executive Order 12612 and has determined that this rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment. This rulemaking establishes procedures for Coast Guard approval of inflatable PFDs. The authority to establish these requirements are committed to the Coast Guard by Federal statutes. Furthermore, since PFDs are manufactured and used in the national marketplace, safety standards for PFDs should be national in scope to avoid burdensome variances. Therefore, the Coast Guard intends this rule to preempt State action on the same subject matter.

Environment

The Coast Guard considered the environmental impact of this rule and concluded that under paragraph 2.B.2 of Commandant Instruction M16475.lB, this rule is categorically excluded from further environmental documentation. This rule has no environmental impact other than the beneficial impact of reducing the volume of unicellular plastic foam going into landfills as inherently buoyant devices are discarded when no longer serviceable. A ''Categorical Exclusion Determination'' is available in the docket for inspection or copying where indicated under **ADDRESSES.**

List of Subjects in 46 CFR Part 160

Marine safety, Reporting and recordkeeping requirements, Incorporation by reference.

For the reasons set out in the preamble, the Coast Guard amends 46 CFR part 160 as follows:

PART 160—LIFESAVING EQUIPMENT

1. The authority citation for Part 160 is revised to read as follows:

Authority: 46 U.S.C. 2103, 3306, 3703 and 4302; E.O. 12234, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

2. Subpart 160.076, consisting of §§ 160.076–1 through 160.076–39, is added to read as follows:

Subpart 160.076—Inflatable Recreational Personal Flotation Devices

Sec.

Subpart 160.076—Inflatable Recreational Personal Flotation Devices

§ 160.076–1 Scope.

(a) This subpart contains structural and performance standards for approval of inflatable recreational personal flotation devices (PFDs), as well as requirements for production follow-up inspections, associated manuals, information pamphlets, and markings.

(b) Inflatable PFDs approved under this subpart—

(1) Rely entirely upon inflation for buoyancy; and

(2) Are approved for use by adults only.

§ 160.076–3 Applicability.

Inflatable PFDs approved under this subpart may be used to meet the carriage requirements of 33 CFR 175.15 and 175.17 on the following types of vessels only:

(a) Recreational vessels.

(b) Uninspected recreational submersible vessels.

§ 160.076–5 Definitions.

As used in this part:

Commandant means the Chief of the Survival Systems Branch, U.S. Coast Guard Office of Marine Safety, Security, and Environmental Protection. Address: Commandant (G–MVI–3/14), U.S. Coast Guard Headquarters, 2100 Second St. SW., Washington, DC 20593–0001; phone: 202–267–1444; facsimile: 202–267–1069; electronic mail: ''mvi–3/G–M18@cgsmtp.comdt.uscg.mil''.

Conditional approval means a category of PFD which has condition(s) on its approval with which the user must comply in order for the PFD to be counted toward meeting the carriage requirements of the vessel being used. All conditionally approved PFDs are designated Approval Type V.

First quality workmanship means construction which is free from any defect materially affecting appearance or serviceability.

Inflation medium means any solid, liquid, or gas that, when activated, provides inflation for buoyancy.

Inspector means a recognized laboratory representative assigned to perform, supervise or oversee the duties described in §§ 160.076–29 and 160.076–31 of this subpart or any Coast Guard representative performing duties related to the approval.

LSI means the ''Life-Saving Index'', a number between zero and one, as determined in accordance with § 160.076–27, that represents the overall lifesaving potential of a particular PFD design.

MOU means memorandum of understanding which describes the approval functions a recognized independent laboratory performs for the Coast Guard, and the recognized independent laboratory's working arrangements with the Coast Guard.

Performance type means the in-water performance classification of the PFD (I, II, or III).

PFD means personal flotation device as defined in 33 CFR 175.13.

PFD Approval Type means the Type designation assigned by the Commandant, as documented in the approval certificate for the PFD, based primarily on the in-water performance and serviceability of the PFD.

Plans and specifications means the drawings, product description, construction specifications, and bill of materials submitted in accordance with § 160.076–13 for approval of a PFD design.

§ 160.076–7 PFD approval Type.

(a) An inflatable PFD may be approved without conditions as a Type I, II, or III PFD for persons over 36 kg (80 lb) if it—

(1) Meets the requirements of this subpart other than the requirements of § 160.076–27; or

(2) Meets the requirements of § 160.076–27 based on its Lifesaving Index (LSI).

(b) Each inflatable PFD that can be demonstrated to meet the in-water performance requirements of a type I, II or III PFD in UL 1180 during approval testing and the applicable requirements of this subpart provided that certain conditions are placed on its use, may be approved as a Type V PFD. Each such PFD has conditional approval.

§ 160.076–9 Conditional approval.

(a) A conditionally approved inflatable PFD is categorized as a Type V PFD and may be used to meet the Coast Guard PFD carriage requirements of 33 CFR part 175 only if the PFD is used in accordance with any requirements on the approval label. PFDs marked ''Approved only when worn'' must be worn whenever the vessel is underway and the intended wearer is not within an enclosed space if the PFD is intended to be used to satisfy the requirements of 33 CFR part 175. Note: Additional approved PFDs may be needed to satisfy the requirements of 33 CFR part 175 if ''Approved only when worn'' PFDs are not worn.

(b) Unless approved under the alternate LSI procedures in § 160.076–27 without conditions, PFDs meeting the performance specifications for type I, II, or III PFDs in UL 1180 may be classified as Type V, conditionally approved PFDs when—

(1) Indicator and serviceability use codes of less than 1F in accordance with UL 1191 are provided;

(2) The device requires secondary donning; or

(3) The Commandant determines that other performance or design characteristics of the PFD make such classification appropriate.

§ 160.076–11 Incorporation by reference.

(a) Certain materials are incorporated by reference into this subpart with the approval of the Director of the Federal Register in accordance with 5 U.S.C. 552(a) and 1 CFR part 51. To enforce any edition other than the one listed in paragraph (b) of this section, the Coast Guard must publish notice of the change in the **Federal Register**, and the material must be available to the public. All approved material is available for inspection at the Office of the Federal Register, 800 North Capitol Street NW., suite 700, Washington, DC and at the U.S. Coast Guard, Survival Systems Branch (G–MVI–3), 2100 Second Street, SW., Washington, DC 20593–0001, and is available from the sources indicated in paragraph (b) of this section.

(b) The materials approved for incorporation by reference in this subpart, and the sections affected are:

American Society for Testing and Materials (ASTM)

1916 Race St., Philadelphia, PA 19103

ASTM D 751–79 Standard Methods of Testing Coated Fabrics, 1979	160.076–25;
ASTM D 1434–75 Gas Transmission Rate of Plastic Film and Sheeting, 1975	160.076–25;
ASTM F 1166–88 Human Engineering Design for Marine Systems, Equipment and Facilities, 1988.	160.076–37.

Federal Standards

Naval Publications and Forms Center, Customer Service, Code 1052, 5801 Tabor Ave., Philadelphia, PA 19120

In Federal Test Method Standard No. 191A (dated July 20, 1978) the following methods:

(1) Method 5100, Strength and Elongation, Breaking of Woven Cloth; Grab Method	160.076–25;
(2) Method 5132, Strength of Cloth, Tearing; Falling-Pendulum Method	160.076–25;
(3) Method 5134, Strength of Cloth, Tearing; Tongue Method	160.076–25.

Underwriters Laboratories (UL)

Underwriters Laboratories, Inc., P.O. Box 13995, Research Triangle Park, NC 27709–3995 (Phone (919) 549–1400; Facsimile: (919) 549–1842)

UL 1123, ''Marine Buoyant Devices'', February 17, 1995	160.076–35;
UL 1180, ''Fully Inflatable Recreational Personal Flotation Devices'', May 15, 1995	160.076–7; 160.076–21; 160.076–23; 160.076–25; 160.076–27; 160.076–29; 160.076–31; 160.076–37; 160.076–39;
UL 1191, ''Components for Personal Flotation Devices'', May 16, 1995	160.076–21; 160.076–25; 160.076–39.

§ 160.076–13 Approval procedures for inflatable PFDs.

(a) Manufacturers seeking approval of an inflatable PFD design shall follow the procedures of this section and subpart 159.005 of this chapter.

(b) Each application for approval of an inflatable PFD must contain the information specified in § 159.005–5 of this chapter. The application must be submitted to a recognized laboratory. One copy of the application and, except as provided in paragraph (c)(2) of this section, a prototype PFD must be submitted to the Commandant for preapproval review. If a similar design has already been approved, the Commandant may authorize the recognized laboratory to waive the preapproval review under §§ 159.005–5 and 159.005–7 of this chapter.

(c) The application must include the following:

(1) Plans and specifications containing the information required by § 159.005–12 of this chapter, including drawings, product description, construction specifications, and bill of materials.

(2) The information specified in § 159.005–5(a)(2) (i) through (iii) of this chapter must be included in the application, except that, if preapproval review has been waived, the manufacturer is not required to send a prototype PFD sample to the Commandant.

(3) The type of performance (Type I, II, or III) that the PFD is designed to provide along with the Approval Type sought (Type I, II, III, or V).

(4) Any special purpose(s) for which the PFD is designed and the vessel(s) or vessel type(s) on which its use is intended.

(5) Buoyancy, torque, and other relevant tolerances to be met during production.

(6) The text of any optional marking to be included on the PFD in addition to the markings required by § 160.076–39.

(7) A draft of the information pamphlet required by § 160.076–35.

(8) A draft of the owner's manual required by § 160.076–37.

(9) For any conditionally approved PFD, the intended approval condition(s).

(10) Whether approval is sought under the LSI provisions of § 160.076–27.

(d) The description required by § 159.005–9 of this chapter of quality control procedures may be omitted if the manufacturer's planned quality control procedures meet the requirements of §§ 160.076–29 and 160.076–31.

(e) *Manual and pamphlet.* Before granting approval of a PFD design, the Commandant may require changes to the manual and information pamphlet submitted for review to ensure compliance with the requirements of §§ 160.076–35 and 160.076–37.

(f) *Waiver of tests.* A manufacturer may request that the Commandant waive any test prescribed for approval under this subpart. To request a waiver, the manufacturer must submit to the Commandant and the recognized laboratory, one of the following:

(1) Satisfactory test results on a PFD of sufficiently similar design as determined by the Commandant.

(2) Engineering analysis demonstrating that the test for which a waiver is requested is not appropriate for the particular design submitted for approval or that, because of its design or construction, it is not possible for the PFD to fail that test.

(g) *Alternative requirements.* A PFD that does not meet the requirements of this subpart may be approved by the Commandant if the device—

(1) Meets other requirements prescribed by the Commandant in place of or in addition to the requirements of this subpart; and

(2) As determined by the Commandant, provides at least the same degree of safety provided by other PFDs that meet the requirements of this subpart.

§ 160.076–15 Suspension or termination of approval.

As provided in § 159.005–15 of this chapter, the Commandant may suspend or terminate the approval of an inflatable PFD design if the manufacturer fails to comply with this subpart or the recognized laboratory's accepted procedures or requirements.

§ 160.076–17 Approval of design or material changes.

(a) The manufacturer must submit any proposed changes in design, material, or construction to the recognized laboratory and the Commandant for approval before changing PFD production methods.

(b) Determinations of equivalence of design, construction, and materials may be made only by the Commandant or a designated representative.

§ 160.076–19 Recognized laboratories.

(a) *PFDs.* The following laboratories are recognized under § 159.010–9 of this chapter to perform the approval and production oversight functions required by this subpart:

Underwriters Laboratories, Inc., 12 Laboratory Drive, P.O. Box 13995,

Research Triangle Park, NC 27709–3995, (919) 549–1400.

(b) Components. The following laboratories are recognized under subpart 159.010 of this chapter and may perform the component material acceptance, production oversight, and certification functions required by § 160.076–21(a)(1):

Underwriters Laboratories, Inc., 12 Laboratory Drive, P.O. Box 13995, Research Triangle Park, NC 27709–3995, (919) 549–1400.

§ 160.076–21 Component materials.

(a) Each component material used in the manufacturer of an inflatable PFD must—

(1) Meet the applicable requirements of subpart 164.019 of this chapter, UL 1191, UL 1180, and this section; and

(2) Be of good quality and suitable for the purpose intended.

(b) The average permeability of inflation chamber material, determined in accordance with the procedures specified in § 160.076–25(d)(2)(iii) must not be more than 110% of the permeability of the materials determined in approval testing required by § 160.076–25(d)(2)(iii).

(c) The average grab breaking strength and tear strength of the inflation chamber material, determined in accordance with the procedures specified in §§ 160.076–25(d)(2)(i) and 160.076–25(d)(2)(ii), must be at least 90% of the grab breaking strength and tear strength determined from testing required by §§ 160.076–25(d)(2)(i) and 160.076–25(d)(2)(ii). No individual sample result for breaking strength or tear strength may be more than 20% below the results obtained in approval testing.

(d) Each adhesive must be waterproof, appropriate for use with the materials being bonded, durable over the expected range of temperatures and humidity in which the PFD may be used, and resistant to chemicals commonly encountered in recreational boating.

(e) Unless approved under the provisions of § 160.076–27, each manual, automatic, and manual-auto inflation mechanism on each unconditionally approved PFD must have an indicator and a serviceability rating consistent with use code 1F in accordance with UL 1191.

(f) Each manual, automatic, or manual-auto inflation mechanism must be marked in accordance with § 160.076–39(e).

§ 160.076–23 Construction and performance requirements.

(a) Each inflatable PFD design must—

(1) Meet the requirements in UL 1180 applicable to the PFD performance type for which approval is sought, or the LSI requirements of § 160.076–27;

(2) Not cause significant discomfort to the wearer during and after inflation; and

(3) Meet any additional requirements that the Commandant may prescribe to approve unique or novel designs.

(b) All cut edges of textile materials must be permanently treated or sewn to minimize ravelling.

§ 160.076–25 Approval testing.

(a) To obtain approval of an inflatable PFD design, approval tests specified in UL 1180 and this section must be conducted or supervised by a recognized laboratory using PFDs that have been constructed in accordance with the plans and specifications submitted with the application for approval.

(b) Each PFD design must pass the tests required by UL 1180 and this section that are applicable to the PFD performance type for which approval is sought.

(c) In addition to the testing requirements of UL 1180, each design tested must meet the following requirements during the test specified:

(1) *Donning test.* (i) For unconditionally approved PFDs, the average time for donning on the first attempt, when tested in accordance with UL 1180 section 6.2, must not exceed 45 seconds. At least two-thirds of the subjects must successfully don the PFD on the first attempt.

(ii) PFDs not intended for a special purpose for which conditional approval is sought, except belt-pack style PFDs, need not comply with the donning times specified in UL 1180 and paragraph (c)(1)(i) of this section, but must be able to be donned within an average of 1.5 minutes.

(iii) PFDs intended for a special purpose for which conditional approval is sought need not comply with the donning times specified in UL 1180 and paragraph (c)(1)(i) of this section, but must be able to be donned within an average of 2.0 minutes.

(iv) Under UL 1180 section 6.2, the Commandant must be notified if more than one-fourth of any initial group of test subjects is disqualified based on tests with the reference vest.

(2) *Repack evaluation.* Each test subject participating in the tests in UL 1180, section 6 shall demonstrate that he or she can repack the PFD such that it can be used in the manual activation tests, and donning tests in sections 6.2.3, 6.4.1, and 6.4.2.

(3) *Flotation stability static measurements.* At the end of each test conducted in accordance with in UL 1180, section 6.9, for each subject—

(i) The freeboard must be measured and reported;

(ii) The subject when looking to the side, must be able to see the water's surface at a point within 3 m (10 ft.) from the subject's position and beyond; and

(iii) If provided, the PFD light and at least 75% of the retroreflective material on the outside of the PFD must be above the water.

(4) *Average requirements.* When conducting tests specified in UL 1180, section 6.9—

(i) The average freeboard for performance type II PFDs for all subjects must be 110 mm (4.25 in).

(ii) For all subjects, the average of the lowest mark on a vertical scale, which is placed 6 m (20 ft.) from and in front of the subject such that the subject can see it without moving his or her head, must be no higher than 0.3 m (12 in.) from the water level.

(d) Each PFD design must pass the following tests and evaluations:

(1) *Visual examination.* The complete PFD must be visually examined for compliance with the construction and performance requirements of §§ 160.076–21 and 160.076–23 and UL 1180 and 1191.

(2) *Inflation chamber properties.* The following tests must be conducted after successful completion of all other approval tests. The test samples used in the following tests must come from one or more PFDs that were each used in all the Use Characteristics Tests required by UL 1180 section 6.

(i) *Grab breaking strength.* The grab breaking strength of chamber materials must be determined in accordance with Method No. 5100 of Federal Test Method Standard 191 or ASTM D 751.

(ii) *Tear strength.* The tear strength of chamber materials must be determined in accordance with Method No. 5132 or 5134 of Federal Test Method Standard 191 or ASTM D 751.

(iii) *Permeability.* The permeability of chamber materials must be determined in accordance with ASTM D 1434 using CO2 as the test gas.

(iv) *Seam strength.* The seam strength of the seams in each inflation chamber of at least one PFD must be determined in accordance with ASTM D 751 except that 25 by 200 mm (1 by 8 in.) samples may be used where insufficient length of straight seam is available.

(e) *Additional tests.* The Commandant may prescribe additional tests for approval of novel or unique designs.

§ 160.076–27 LSI evaluation.

(a) Each manufacturer seeking approval of a PFD design using the

Lifesaving Index (LSI) must demonstrate, to the satisfaction of the Commandant, a minimum overall lifesaving potential, and a minimum effectiveness and reliability of the PFD design in accordance with this section.

(b) The manufacturer shall submit to the Commandant an analysis, accepted by a recognized laboratory, demonstrating the LSI of the design that includes—

(1) The LSI calculations using the formula provided in paragraph (d) of this section, and the value assigned to each term of the calculation;

(2) Statements justifying the value assigned to each term of the formula provided in paragraph (d) of this section; and

(3) Explanation of any assumptions used in performing the required calculation.

(c) *Minimum LSI.* Each PFD design approved under this section must be demonstrated to have an LSI that is not less than that of a Type III inherently buoyant PFD. The Commandant will determine the LSI of a Type III inherently buoyant PFD using the equation in paragraph (d) of this section and will publish the LSI value annually.

(d) *Equation and terms.* (1) The LSI must be determined by the following equation:

$$LSI = \sum_{i=1}^{8} P_i + P_k$$

Where:

P_i = Probability associated with the ith ou0tcome, where each outcome is a sequence of events where the PFD will aid in the user's survival. Each sequence of events must be mutually exclusive.

And P_i is defined by the following equations:

$P_1 = (S1)(W_{S1})(I1_{S1})(E)(R)$
$P_2 = (S1)(W_{S1})(I2_{S1})(SA1_{S1})(SDS1)(E)(R)$
$P_3 = (S1)(W_{S1})(I3_{S1})(SA1_{S1})(E)(R)$
$P_4 = (S1)(W_{S1})(I3_{S1})(SA2_{S1})(E_{S1,I3})(R)$
$P_5 = (S2)(W_{S2})(I1_{S2})(E)(R)$
$P_6 = (S2)(W_{S2})(I2_{S2})(SA1_{S2})(SD_{S2})(E)(R)$
$P_7 = (S2)(W_{S2})(I3_{S2})(SA1_{S2})(E)(R)$
$P_8 = (S2)(W_{S2})(I3_{S2})(SA2_{S2})(E_{S2,I3})(R)$
P_k = The probability of other sequences of events that significantly enhance the lifesaving potential of the PFD under consideration.

The terms used in the P_i equations are defined as follows:

S1 = Probability PFD user can swim.
S2 = Probability PFD user cannot swim.
W = Probability PFD is worn prior to an accident. (W_{S1} for swimmer; W_{S2} for non-swimmer)
I1 = Probability PFD is used in a fully inflated condition prior to accident.
I2 = Probability PFD is used in an uninflated condition prior to accident.
I3 = Probability PFD is used in a partially inflated condition prior to accident.
SA1 = Probability of PFD inflating, including the probabilities of correct inflator rearming; inflator status check; and inflator its activated automatically, manually, or orally, as applicable.
SA2 = Probability of PFD not inflating.
SD = Probability of completing the donning process after inflation, if required, when the PFD is worn. (SD = 1 when no additional donning required.)
E = Probability PFD is effective in the water when inflated. ($E_{S1,I3}$, $E_{S2,I3}$ for partially inflated PFD and swimmer, non-swimmer, respectively)
R = Probability PFD is reliable.

(2) *Application of equation.* To determine the LSI for a PFD using the equation in paragraph (d)(1) of this section, the calculations must be performed in accordance with the following:

(i) For inherently buoyant PFDs, use only equations P_1 and P_5, with I1 equal to 1.

(ii) For non-belt-style inflatable PFDs, all P_i equations apply.

(iii) For belt-pack style PFDs, use only equations P_1, P_2, P_5, and P_6, with I1 meaning that the PFD is fully donned and inflated.

(e) *Minimum effectiveness and reliability.* In addition to meeting the requirements of paragraph (c) of this section, each PFD design approved under this section must be demonstrated to possess the following characteristics:

(1) Inflated in-water effectiveness (E), that is not less than that of—

(i) A performance type I PFD in accordance with UL 1180 for Type I approval or equivalent;

(ii) A performance type II PFD in accordance with UL 1180 for Type II approval or equivalent; or

(iii) A performance type III PFD in accordance with UL 1180 for Type III approval or equivalent; and

(2) Reliability (R) that is not less than that of—

(i) A performance type I PFD in accordance with UL 1180 for Type I approval or equivalent; or

(ii) A performance type II PFD in accordance with UL 1180 for Type II and III approval or equivalent.

(f) *Ranking.* The recognized laboratory shall compile a ranking, according to the calculated LSI, of PFDs for which approval is sought under this section and submit to the Commandant the characteristics affecting wearability, effectiveness, and reliability of the PFDs ranked immediately above and immediately below the PFD for which approval is sought.

(g) *Review.* The Commandant may annually review each analysis and design approved under this section to determine whether the design continues to provide the minimum LSI and level of effectiveness and reliability required by paragraphs (c) and (e) of this section. The Commandant will compare the values assigned to the characteristics of the device to the values assigned to other approved devices in determining whether the values were appropriately assigned and whether the LSI should be recalculated. Where recalculated LSIs of approved designs fall below the minimum required LSI established by the Commandant in accordance with paragraph (c) of this section, the approval will be terminated or suspended in accordance with § 159.005–15 of this chapter.

§ 160.076–29 Production oversight.

(a) Production tests and inspections must be conducted in accordance with this section and subpart 159.007 of this chapter unless the Commandant authorizes alternative tests and inspections. The Commandant may prescribe additional production tests and inspections necessary to maintain quality control and to monitor compliance with the requirements of this subpart.

(b) Production oversight must be performed by the same laboratory that performs the approval tests unless the Commandant determines that the employees of an alternative laboratory have received training and have access to the same information as the inspectors of the laboratory that conducted the approval testing.

(c) In addition to responsibilities set out in part 159 of this chapter and the accepted Laboratory Follow-up Procedures, each manufacturer of an inflatable PFD and each recognized laboratory inspector shall comply with the following, as applicable:

(1) *Manufacturer.* Each manufacturer must—

(i) Except as provided in paragraph (e)(2) of this section, perform all required tests and examinations on each PFD lot before any required inspector's tests and inspection of the lot;

(ii) Follow established procedures for maintaining quality control of the materials used, manufacturing operations, and the finished product;

(iii) Implement a continuing program of employee training and a program for maintaining production and test equipment;

(iv) Admit the inspector to any place in the factory where work is done on PFDs or component materials, and where parts or completed PFDs are stored;

(v) Have an inspector observe the production methods used in producing the first PFD lot and observe any revisions in production methods made thereafter; and

(vi) Allow the inspector to take samples of completed PFDs or of component materials for tests required by this subpart and for tests relating to the safety of the design.

(2) *Recognized laboratory oversight.* An inspector from a recognized laboratory shall oversee production in accordance with the MOU. During production oversight, the inspector shall not perform or supervise any production test or inspection unless—

(i) The manufacturer has a valid approval certificate; and

(ii) The inspector has first observed the manufacturer's production methods and any revisions to those methods.

(3) The inspector must perform or supervise testing and inspection of at least one in each five lots of PFDs produced.

(4) During each inspection, the inspector must check for compliance with the manufacturer's quality control procedures.

(5) Except as provided in paragraph (c)(6) of this section, at least once each calendar quarter, the inspector must examine the manufacturer's records required by § 160.076–33 and observe the manufacturer perform each of the tests required by § 160.076–31(c).

(6) If less than six lots are produced during a calendar year, only one lot inspection and one records' examination and test performance observation are required during that year. Each lot tested and inspected under paragraph (c)(3) of this section must be within seven lots of the previous lot inspected.

(d) *PFD lots.* A lot number must be assigned in accordance with UL 1180 to each group of PFDs produced. Lots must be numbered serially. A new lot must be started whenever any change in materials or a revision to a production method is made, and whenever any substantial discontinuity in the production process occurs. Changes in lots of component materials must be treated as changes in materials. The lot number assigned, along with the approval number, must enable the PFD manufacturer, by referring to the records required by this subpart, to determine the supplier of the components used in the PFD and the component supplier's identifying information for the component lot.

(e) *Samples.* For the tests, examinations, and inspections required by § 160.076–31, inspectors and manufacturers shall select samples as provided in this paragraph.

(1) Samples shall be selected at random from a lot in which all PFDs or materials in the lot are available for selection. Except as provided in § 160.076–31(c), samples must be selected from completed PFDs.

(2) Different samples must be selected for the manufacturer's and inspector's tests, except, if the total production for any five consecutive lots does not exceed 250 PFDs, the manufacturer's and inspector's tests may be run on the same sample(s) at the same time.

(3) The number of samples selected per lot must be at least equal to the applicable number required by Table 160.076–29A for manufacturers or Table 160.076–29B for inspectors.

(4) The following additional requirements apply as indicated in Table 160.076–29A to individual sample selections by manufacturers:

(i) Samples must be selected from each lot of incoming material. The tests required under paragraphs 160.076–25(d)(2)(i) through 160.076–25(d)(2)(iv) prescribe the number of samples to select.

(ii) Samples selected for the indicated tests may not be used for more than one test.

(iii) If a sample fails the over-pressure test, the number of samples to be tested in the next lot produced must be at least two percent of the total number of PFDs in the lot or 10 PFDs, whichever is greater.

(iv) The indicated test must be conducted at least once each calendar quarter or whenever a new lot of material is used or a production process is revised.

(5) The following additional requirements apply as indicated in Table 160.076–29B to individual sample selections by inspectors:

(i) Samples selected for the indicated tests may not be used for more than one test.

(ii) The indicated test may be omitted if it was conducted by the manufacturer on the materials used and by the inspector on a previous lot within the past 12 months.

(iii) One sample of each means of marking on each type of fabric or finish used in PFD construction must be tested at least every six months or whenever a new lot of materials is used.

TABLE 160.076–29A—MANUFACTURER'S SAMPLING PLAN

	Number of samples per lot—lot size:					
	1–100	101–200	201–300	301–500	501–750	751–1000
Tests:						
Inflation Chamber Materials	See Note [a]					
Seam Strength	1	1	2	2	3	4
Over-pressure [a c]	1	2	3	4	6	8
Air Retention	Every Device in the Lot					
Buoyancy & Inflation, Medium Retention	1	2	3	4	6	8
Tensile Strength	See Note [d]					
Detailed Product Examination	2	2	3	4	6	8
Retest Sample Size [b]	.....	.....	13	13	20	20

TABLE 160.076–29A—MANUFACTURER'S SAMPLING PLAN—Continued

	Number of samples per lot—lot size:					
	1–100	101–200	201–300	301–500	501–750	751–1000
Final Lot Inspection	Every Device in the Lot					

Notes to Table:
[a] See \@ 160.076–29(e)(4)(i).
[b] See \@ 160.076–29(e)(4)(ii)
[c] See \@ 160.076–29(e)(4)(iii).
[d] See \@ 160.076–29(e)(4)(iv).

TABLE 160.076–29B—INSPECTOR'S SAMPLING PLAN

	Number of samples per lot—lot size:					
	1–100	101–200	201–300	301–500	501–750	751–1000
Tests:						
Over-pressure [a]	1	1	2	2	3	4
Air Retention	1	1	2	2	3	4
Buoyancy & Inflation, Medium Retention	1	1	2	2	3	4
Tensile Strength	See Note [b]					
Waterpoof marking	See Note [c]					
Detailed Product Examinaton	1	1	1	2	2	3
Retest Sample Size [a]	10	10	13	13	20	20
Final Lot Inspection	10	15	20	25	27	30

Notes to Table:
[a] See/@160.076–29(e)(5)(i).
[b] See/@160.076–29(e)(5)(ii).
[c] See/@160.076–29(e)(5)(iii).

(f) *Accept/reject criteria: manufacturer testing.* (1) A PFD lot passes production testing if each sample passes each test.

(2) In lots of 200 or less PFDs, the lot must be rejected if any sample fails one or more tests.

(3) In lots of more than 200 PFDs, the lot must be rejected if—

(i) One sample fails more than one test;

(ii) More than one sample fails any test or combination of tests; or

(iii) One sample fails one test and in redoing that test with the number of samples specified for retesting in Table 160.076–29A, one or more samples fail the retest.

(4) A rejected PFD lot may be retested only if allowed under § 160.076–31(e).

(g) *Accept/reject criteria: independent laboratory testing.* (1) A lot passes production testing if each sample passes each test.

(2) A lot must be rejected if—

(i) A sample fails more than one test;

(ii) More than one sample fails any test or combination of tests; or

(iii) One sample fails one test and in redoing that test with the number of samples specified for retesting in Table 160.076–29B, one or more samples fail the test.

(3) A rejected lot may be retested only if allowed under § 160.076–31(e).

(h) *Facilities and equipment.* (1) *General.* The manufacturer must provide the test equipment and facilities necessary for performing production tests, examinations, and inspections, unless Commandant has accepted testing at a location other than the manufacturer's facility.

(2) *Calibration.* The manufacturer must have the calibration of all test equipment checked at least every six months by a weights and measures agency or the equipment manufacturer, distributor, or dealer.

(3) *Facilities.* The manufacturer must provide a suitable place and the necessary equipment for the inspector to use in conducting or supervising tests. For the final lot inspection, the manufacturer must provide a suitable working environment and a smooth-top table for the inspector's use.

§ 160.076–31 Production tests and examinations.

(a) Samples used in testing must be selected in accordance with § 160.076–29(e).

(b) On each sample selected—

(1) The manufacturer must conduct the tests in paragraphs (c)(2) through (c)(8) of this section;

(2) The recognized laboratory inspector must conduct or supervise the tests in paragraphs (c)(4) through (c)(8) of this section; and

(3) In addition to meeting the requirements of this section, each test result must meet the requirements, if any, contained in the approved plans and specifications.

(c) When conducting the tests specified by this paragraph, the following conditions must be met:

(1) *Inflation chamber materials.* The average and individual results of testing the minimum number of samples prescribed by § 160.076–25(d)(2) must comply with the requirements in § 160.076–21 (b) and (c) for permeability, grab strength, and tear strength. Lots not meeting this requirement must be rejected and, unless authorized by the Commandant, may not be subdivided and retested.

(2) *Seam strength.* The seams in each inflation chamber of each sample must be tested in accordance with § 160.076–25(d)(2)(iv). The results for each inflation chamber must be at least 90% of the results obtained in approval testing.

(3) *Over-pressure.* Each sample must be tested in accordance with and meet UL 1180 section 7.15. Prior to initiating the test at the specified values, samples may be prestressed by inflating them to a greater pressure than the required test pressure.

(4) *Air retention.* Each sample must be tested in accordance with and meet UL 1180 section 7.16. Prior to initiating the

test at the specified values, test samples may be prestressed by inflating to a pressure greater than the design pressure, but not exceeding 50 percent of the required pressure for the tests in paragraph (c)(3) of this section. No alternate test method may be used that decreases the length of the test unless authorized by the Commandant. Such alternative test must require a proportionately lower allowable pressure loss and the same percentage sensitivity and accuracy as the standard allowable loss measured with the standard instrumentation.

(5) *Buoyancy and inflation medium retention.* Each sample must be tested in accordance with and meet UL 1180 section 7.2.2–7.2.10, except 7.2.5. Each buoyancy value must fall within the tolerances specified in the approved plans and specifications.

(6) *Tensile strength.* Each sample primary closure system must be tested in accordance with and meet UL 1180 section 7.4.1 and .2.

(7) *Detailed product examination.* Each sample PFD must be disassembled to the extent necessary to determine compliance with the following:

(i) All dimensions and seam allowances must be within tolerances prescribed in the approved plans and specifications.

(ii) The torque of each screw type mechanical fastener must be within its tolerance as prescribed in the approved plans and specifications.

(iii) The arrangement, markings, and workmanship must be as specified in the approved plans and specifications and this subpart.

(iv) The PFD must not contain any apparent defects.

(8) *Waterproof marking test.* Each sample must be completely submerged in 45–C (110–F) water with mild detergent for a minimum of 30 minutes, and then removed and immediately placed on a hard surface. The markings must be vigorously rubbed with the fingers for 15 seconds, and then placed on a soft surface and rubbed again in the same manner. If the printing becomes illegible, the sample must be rejected.

(d) *Final lot examination and inspection*—(1) *General.* On each PFD lot that passes production testing, the manufacturer shall perform a final lot examination and, on every fifth lot, a laboratory inspector shall perform a final lot inspection. Samples must be selected in accordance with paragraph § 160.076–29(e). Each final lot must demonstrate—

(i) First quality workmanship;

(ii) That the general arrangement and attachment of all components, such as body straps, closures, inflation mechanisms, tie tapes, and drawstrings, are as specified in the approved plans and specifications;

(iii) Compliance with the marking requirements in § 160.076–39; and

(iv) That the information pamphlet and owner's manual required by § 160.076–35 and 160.076–37, respectively, are securely attached to the device, with the pamphlet selection information visible and accessible prior to purchase.

(2) *Accept/reject criteria.* Each nonconforming PFD must be rejected. If three or more nonconforming PFDs are rejected for the same kind of defect, lot examination or inspection must be discontinued and the lot rejected.

(3) *Manufacturer examination.* This examination must be conducted by a manufacturer's representative who is familiar with the approved plans and specifications, the functioning of the PFD and its components, and the production testing procedures. This person must not be responsible for meeting production schedules or be supervised by someone who is. This person must prepare and sign the record required by 159.007–13(a) of this chapter and 160.076–33(b).

(4) *Independent laboratory inspection.* (i) The inspector must discontinue lot inspection and reject the lot if examination of individual PFDs or the records for the lot shows noncompliance with either this section or the laboratory's or the manufacturer's quality control procedures.

(ii) If the inspector rejects a lot, the inspector must advise the Commandant or the recognized laboratory within 15 days.

(iii) The inspector must prepare and sign the inspection record required by 159.007–13(a) of this chapter and 160.076–33(b). If the lot passes, the record must include the inspector's certification that the lot passed inspection and that no evidence of noncompliance with this section was observed.

(e) *Disposition of rejected PFD lot or PFD.* (1) A rejected PFD lot may be resubmitted for testing, examination or inspection if the manufacturer first removes and destroys each defective PFD or, if authorized by the Commandant, reworks the lot to correct the defect.

(2) Any PFD rejected in a final lot examination or inspection may be resubmitted for examination or inspection if all defects have been corrected and reexamination or reinspection is authorized by the Commandant.

(3) A rejected lot or rejected PFD may not be sold or offered for sale under the representation that it meets this subpart or that it is Coast Guard-approved.

§ 160.076–33 Manufacturer records.

(a) Each manufacturer of inflatable PFDs shall keep the records of production inspections and tests as required by § 159.007–13 of this chapter, except that they must be retained for at least 120 months after the month in which the inspection or test was conducted.

(b) In addition to the information required by § 159.007–13 of this chapter, the manufacturer's records must also include the following information:

(1) For each test, the serial number of the test instrument used if more than one test instrument was available.

(2) For each test and inspection, the identification of the samples used, the lot number, the approval number, and the number of PFDs in the lot.

(3) For each lot rejected, the cause for rejection, any corrective action taken, and the final disposition of the lot.

(4) For all materials used in production the—

(i) Name and address of the supplier;

(ii) Date of purchase and receipt;

(iii) Lot number; and

(iv) Where required by § 164.019–5 of this chapter, the certification received with standard components.

(5) A copy of this subpart.

(6) Each document incorporated by reference in § 160.076–11.

(7) A copy of the approved plans and specifications.

(8) The approval certificate obtained in accordance with § 2.75–1 and 2.75–5 of this chapter.

(9) Certificates evidencing calibration of test equipment, including the identity of the agency performing the calibration, date of calibration, and results.

(c) A description or photographs of procedures and equipment used in testing required by § 159.007–13(a)(4) of this chapter, is not required if the manufacturer's procedures and equipment meet the requirements of this subpart.

(d) The records required by paragraph (b)(4) of this section must be kept for at least 120 months after preparation. All other records required by paragraph (b) of this section must be kept for at least 60 months after the PFD approval expires or is terminated.

§ 160.076–35 Information pamphlet.

A pamphlet that is consistent in format to that specified in UL 1123 must be attached to each inflatable PFD sold or offered for sale in such a way that a prospective purchaser can read the pamphlet prior to purchase. The

pamphlet text and layout must be submitted to the Commandant for approval. The text must be printed in each pamphlet exactly as approved by the Commandant. Additional information, instructions, or illustrations must not be included within the approved text and layout. Sample pamphlet text and layout may be obtained by contacting the Commandant. This pamphlet may be combined with the manual required by § 160.076–37 if PFD selection and warning information is provided on the PFD packaging in such a way that it remains visible until purchase.

§ 160.076–37 Owner's manual.

(a) *General.* The manufacturer must provide an owner's manual with each inflatable PFD sold or offered for sale. A draft of the manual for each model must be submitted for approval in accordance with § 160.076–13.

(b) *Manual contents.* Each owner's manual must contain the information specified in UL 1180 section 11 and—

(1) In addition to the information specified in UL 1180 section 11.2, instructions that a user may need to partially deflate the PFD to climb out of the water unaided;

(2) The manufacturer's expected service life of the device under normal use with a description of normal and abnormal use as well as conditions that are particularly deleterious;

(3) Warnings about possible misuse which could be hazardous, such as a warning against wearing a PFD that has automatic inflation under restrictive clothing. Warnings must be presented in a format consistent with ASTM F 1166, section 29;

(4) If the PFD is approved under the LSI provisions of § 160.076–27, an estimate of the user's chances of survival if the user complies with the conditions and assumptions upon which approval of the PFD was based, and an estimate of the chances of survival if the user does not comply; and

(5) If the PFD is conditionally approved, an explanation of the meaning of, and reasons for, the approval conditions.

§ 160.076–39 Marking.

(a) *General.* Each inflatable PFD must be marked as specified in UL 1180 section 10 and this section.

(b) PFD Type. Based on its approval certificate, each PFD must be marked as follows—

(l) ''Type I PFD'';

(2) ''Type II PFD'';

(3) ''Type III PFD''; or

(4) ''Type V [*insert exact text of description noted on the approval certificate, if any*] PFD—[*insert text required by paragraph (c) of this section*]. This PFD provides in-water performance equivalent to a Type [*insert performance type criteria noted on the approval certificate*] PFD.''

(c) Unless otherwise specified on its approval certificate, a Type V, conditionally approved inflatable PFD must be marked ''approved only when worn''.

(d) *Additional markings.* (1) Unless otherwise noted on the approval certificate, each inflatable PFD must be marked with the following:

(i) ''NOT APPROVED FOR USE ON COMMERCIAL VESSELS.''

(ii) The unique model, style, or part number of the inflation mechanism approved for use on the PFD.

(2) Additionally, where appropriate, each inflatable PFD must be marked with a permanent and prominent warning against any foreseeable misuse of the PFD that will result in a particularly hazardous condition, such as wearing an automatically activated belt-pack style PFD on the back.

(e) *Inflation mechanisms.* Each manual, automatic, or manual-auto inflation mechanism must be permanently marked with its unique model number.

(f) Unless marked with a universal symbol accepted by the Commandant, the inflation handle of a manual inflation mechanism must be marked ''Jerk to inflate''. The marking must be waterproof, permanent, and quickly readable from a distance of 1.5 m (5 feet).

Dated: June 1, 1995.

J.C. Card,

Rear Admiral U.S. Coast Guard, Chief, Office of Marine Safety, Security and Environmental Protection.

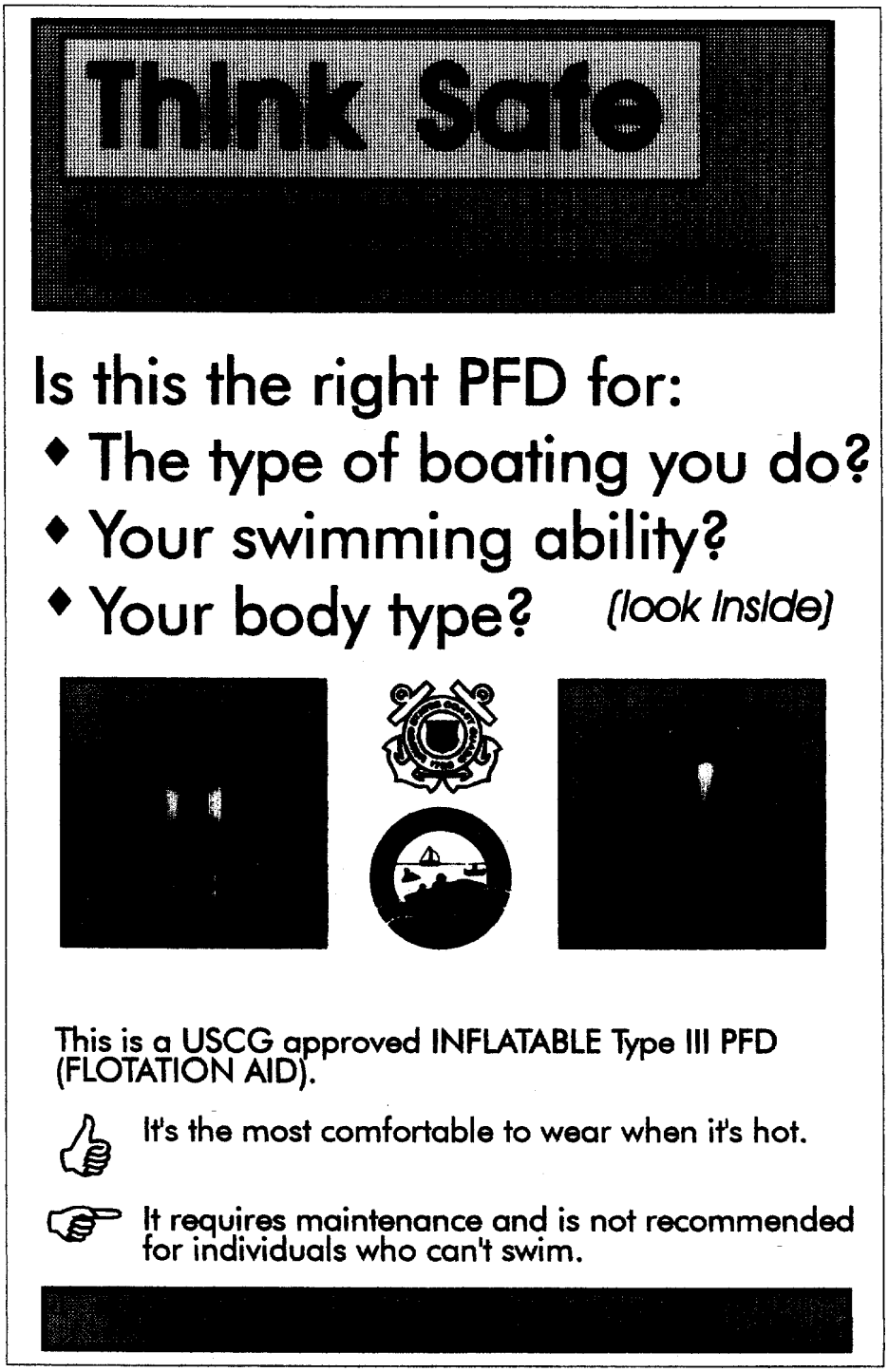
BILLING CODE 4910–14–P

Appendix I -- Example inflatable PFD pamphlet

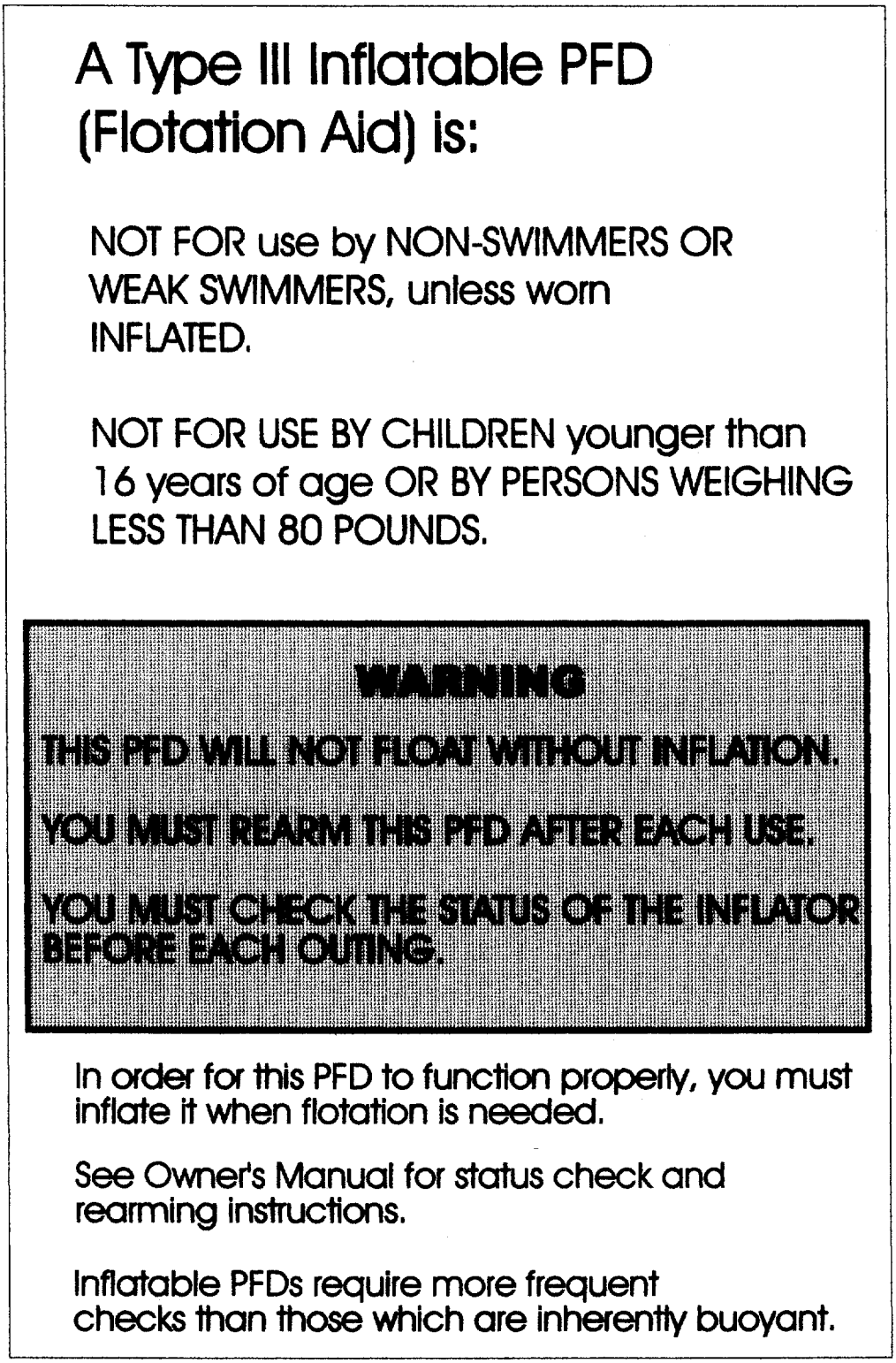
Note -- The following appendix will not appear in the Code of Federal Regulations.

Summary: The information contained in this appendix is for informational purposes only. The PFD pamphlet page layouts that follow are examples of the type of information that would be acceptable for meeting the requirements of § 160.076–35 for an inflatable, yoke style, manually activated Type III PFD. Section § 160.076–35 requires that the information be provided in a format and colors consistent with the requirements of UL 1123.

The following is an example of the front cover:



The following is an example of the inside front cover:



The following is an example of page 1:

Advantages:	Disadvantages:
Comfortable for continuous wear.	Needs proper rearming and maintenance in order to provide flotation.
Least bulky of all designs.	Some users may need assistance to property rearm inflator.
Good flotation when inflated.	Will not provide flotation without inflation.
Most comfortable for use in hot weather.	
After inflation, this PFD will support most wearers in a face-up position in the water.	
Available in one universal adult size.	

Intended Uses:

General boating activities by adults.

Inland waters, or where there is a good chance of a fast rescue.

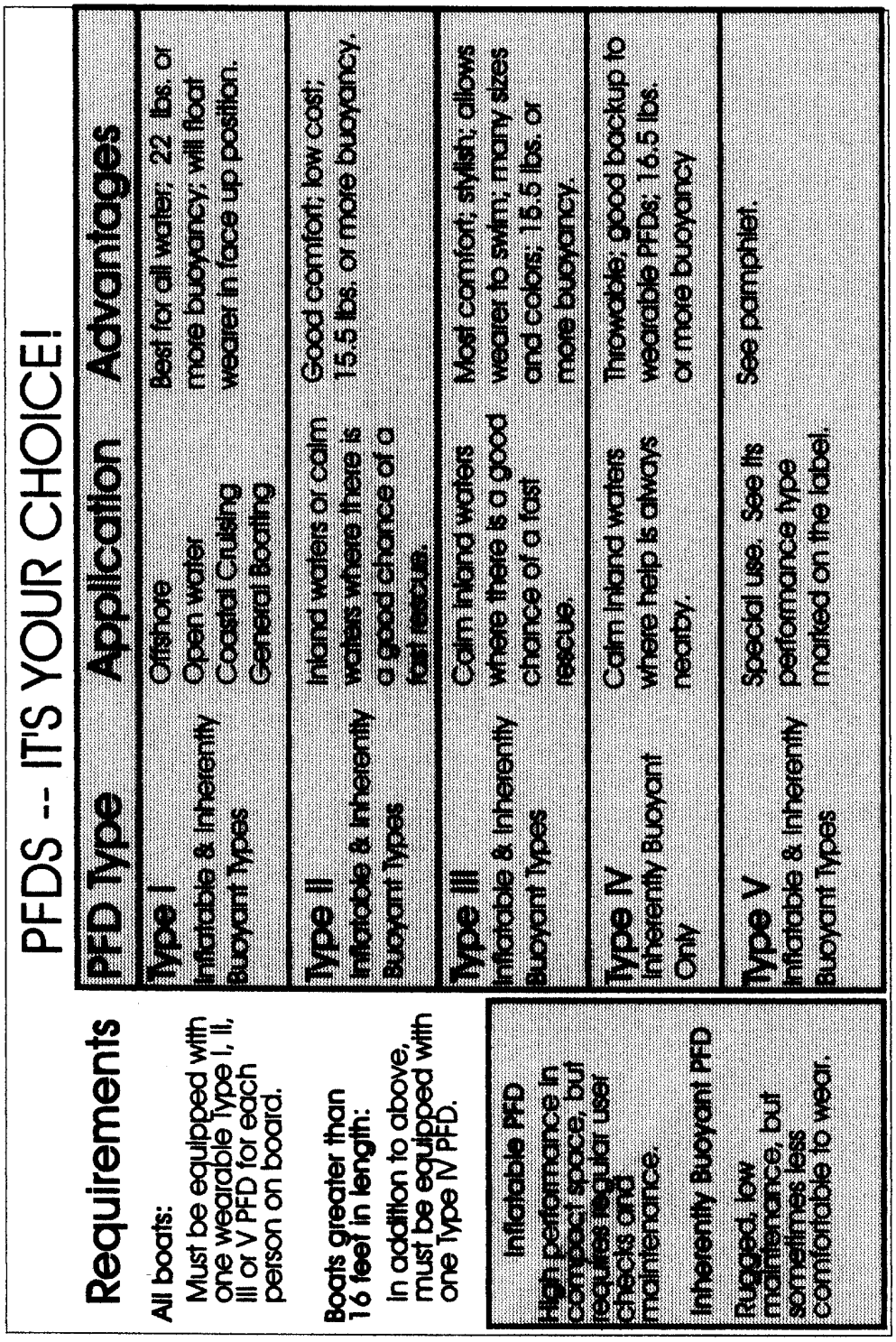
Continuous wear so it's available in an emergency.

Do not wear an inflatable PFD under restrictive clothing, because automatic or accidental manual inflation could restrict breathing or injure you.

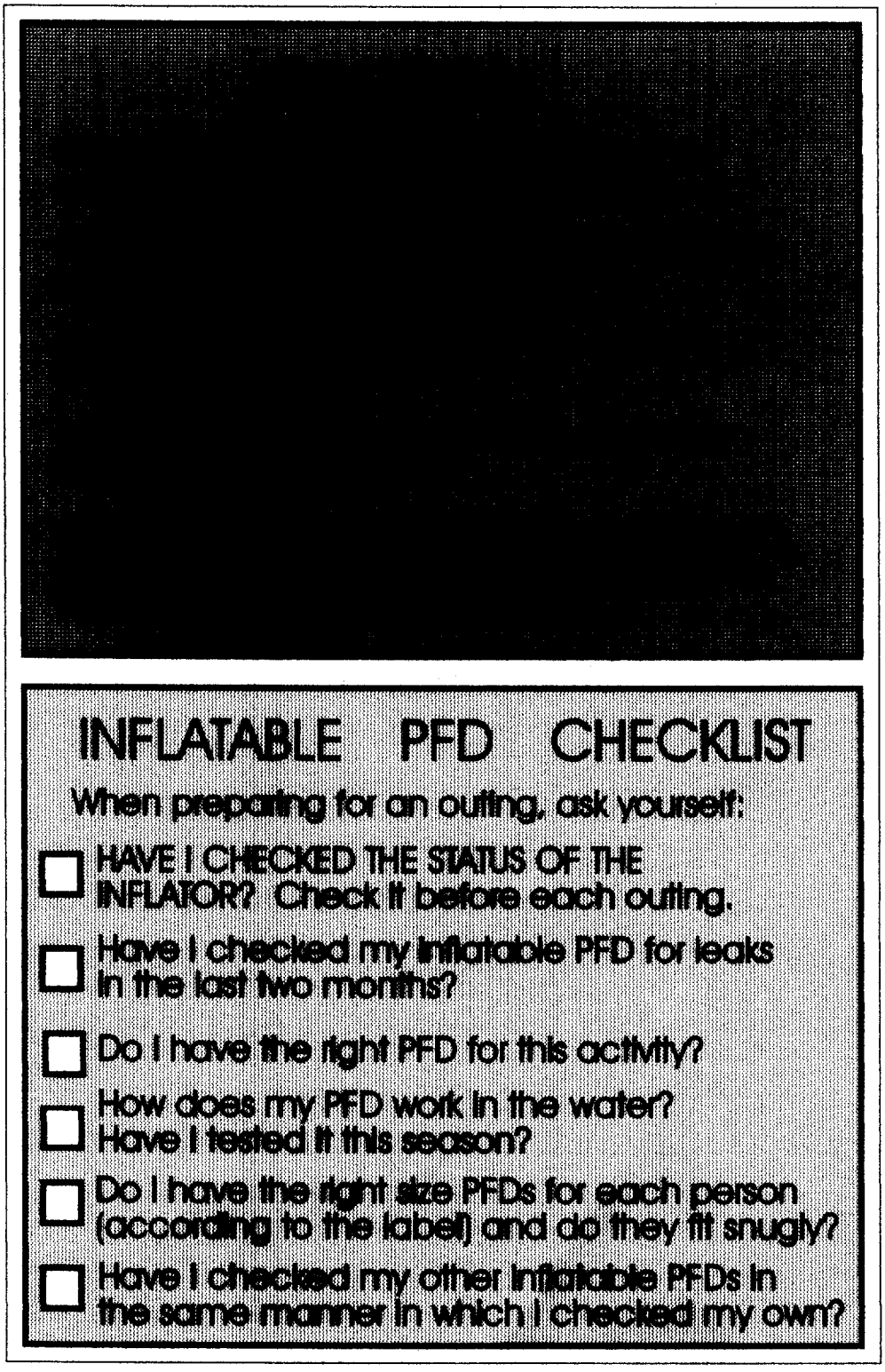
[redacted]

Insert pages similar to pages 1–8, and 13 of UL 1123 Appendix B and renumber accordingly.

The following is an example of the inside back cover:



The following is an example of the back cover:



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