

## DEPARTMENT OF TRANSPORTATION

## Coast Guard

## 46 CFR Parts 25 and 160

[CGD 78-174]

RIN 2116-AA29

**Hybrid PFDs; Establishment of Approval Requirements**

AGENCY: Coast Guard, DOT.

ACTION: Final rule.

**SUMMARY:** This final rule amends the structural and performance standards and procedures for approval of hybrid inflatable personal flotation devices (hybrid PFDs). Hybrid PFDs are designed to have a minimum amount of inherent flotation to ensure that a wearer will surface after falling in the water and to have a mechanism to inflate the PFD to provide additional buoyancy, and thereby greater clearance from the water, while a wearer awaits rescue. This rule also allows for approval of hybrid PFDs for youths and small children. The changes are intended to make hybrid PFDs more affordable and attractive to recreational boaters by lowering production costs and reducing required production testing. It is the Coast Guard's position that increased use of hybrid PFDs may save lives.

**EFFECTIVE DATE:** February 8, 1995.

**ADDRESSES:** Unless otherwise indicated, documents referred to in this preamble are available for inspection or copying at the office of the Executive Secretary, Marine Safety Council (G-LRA/3406), U.S. Coast Guard Headquarters, 2100 Second Street SW., room 3406, Washington, DC 20593-0001 between 8 a.m. and 3 p.m., Monday through Friday, except Federal holidays. The telephone number is (202) 267-1477.

**FOR FURTHER INFORMATION CONTACT:** Mr. Samuel E. Wehr, Office of Marine Safety, Security, and Environmental Protection, (G-MVI-3/14), 2100 Second St. SW., Washington, DC 20593-0001, (202) 267-1444.

**SUPPLEMENTARY INFORMATION:****Drafting Information**

The principal persons involved in drafting this document are Lieutenant Junior Grade Roger A. Smith and Mr. Samuel E. Wehr, Office of Marine Safety, Security, and Environmental Protection and Ms. Helen G. Boutrous, Project Counsel, Office of Chief Counsel.

**Regulatory History**

On January 18, 1994, the Coast Guard published a supplemental notice of

proposed rulemaking (SNPRM) entitled Hybrid PFDs; Establishment of Approval Requirements in the **Federal Register** (59 FR 2578). On February 16, 1994, the Coast Guard published a correction to the supplemental notice of proposed rulemaking in the **Federal Register** (59 FR 7668). The Coast Guard received three letters commenting on the SNPRM. No public hearing was requested, and none was held.

**Background and Purpose**

On August 22, 1985 the Coast Guard published an interim final rule (IFR) in the **Federal Register** (50 FR 33923) which established structural and performance standards and procedures for approval of hybrid inflatable personal flotation devices (PFD). That IFR allowed for the approval of several hybrid PFDs but not enough devices were made and sold to make a significant difference in the number of lives saved by this superior performing and more comfortable PFD. On January 18, 1994, the Coast Guard published a supplemental notice of proposed rulemaking (SNPRM) in the **Federal Register** (59 FR 2575) proposing changes to make hybrid PFDs more affordable and a procedure for the approval of hybrid PFDs for youths and small children. This final rule adopts those proposed changes. The provisions adopted by this rule will: Lower production costs by reducing the amount of repetitive testing required; reduce manufacturing costs for commercial devices by providing for single chamber construction; and increase buoyancy of hybrid PFDs. With these revisions, the Coast Guard intends to increase use of hybrid PFDs to potentially save more lives.

**Discussion of Comments and Changes**

The three letters commenting on the SNPRM were received from an interested individual, a PFD manufacturer, and Underwriters Laboratories, Inc. (UL). The individual that commented encouraged approval of hybrid PFDs for use by adults and children. The letter stated that a more comfortable and attractive flotation device will be worn more often than the current bulky, but effective, PFD Types and that this increase in use can only be beneficial to the boating public in creating a safer boating environment. The Coast Guard agrees with this comment. The other two comments raised many issues regarding the approval of hybrid PFDs. These issues are discussed below.

**Manufacturer's Comments**

1. The PFD manufacturer confirmed that sales of hybrid PFDs have been limited due to their relatively high cost and the requirement that they be worn to fulfill carriage requirements. The PFD manufacturer asserted that the value of hybrids will be further eroded by the anticipated approval of fully inflatable PFDs, particularly if inflatable products are not required to be worn to fulfill carriage requirements.

The Coast Guard agrees in part. The use of hybrid PFDs has been limited due to high prices as a result of high production costs, and the requirement that they be worn to fulfill carriage requirements. The intent of the revisions adopted by this final rule is to make hybrid PFDs a more viable option by reducing production costs and removing the requirement that hybrid PFDs be worn and marked "REQUIRED TO BE WORN" to satisfy carriage requirements. However, the Coast Guard does not agree that future approval of inflatable PFDs would necessarily erode the value and use of hybrid PFDs. Inflatable PFDs are not proposed to be approved for children in the near future and a totally inflatable device may cost much more than an equivalent type of hybrid PFD. Therefore, it is the Coast Guard's position that there will be a market for hybrid PFDs despite any possible future action to approve inflatable PFDs.

2. The PFD manufacturer asserted that the proposal to increase the inherent buoyancy minimum from 33 N to 40 N (7.5 lb to 9.0 lb), for an adult recreational hybrid device would be counter to the purpose for which these devices are purchased, which is to have PFDs that are less bulky than inherently buoyant products. However, the minimum inherent buoyancy for an adult recreational Type II hybrid PFD, as proposed in the SNPRM and adopted without change by this final rule, is 45 N (10 lb), rather than 40 N (9 lb) as stated by the comment. The lowest buoyancy of a non-hybrid, adult device is 70 N (15.5 lb).

This final rule allows for the carriage of Type I, II, and III hybrid PFDs without restriction. The increased buoyancies for adult and youth Type I PFDs and adult, youth, and small child Type II and III recreational hybrid PFDs are based on the minimum level of safety required when boaters are not alerted to special precautions to compensate for reduced inherent flotation. This issue is discussed further in paragraph number 4.

While the increase from 33 N to 45 N may not be desirable to some boaters the

Coast Guard is not increasing the amount of buoyancy for adult recreational hybrid Type V PFDs. Thus the presently approved recreational hybrid PFDs with a minimum buoyancy of 33 N (7.5 lb) will still be an available option. Under this rulemaking, these devices can maintain their 33 N minimum inherent buoyancy and remain approved as Type V—“REQUIRED TO BE WORN.”

3. The PFD manufacturer also asserted that one of the currently approved hybrid devices has proven to be a reliable lifesaving device, and that therefore, the currently approved device should be acceptable as a Type II hybrid. In addition, the device should no longer be “REQUIRED TO BE WORN.”

The Coast Guard does not object to reclassifying an approved device's Type. However, limited retesting must be conducted to demonstrate that all of the necessary criteria have been met. To qualify for limited testing, the minimum deflated and inflated buoyancies must meet those given in Table § 160.077–15(b)(13) and buoyancy distribution must remain the same as when the device was originally tested.

#### UL's Comments

4. UL asserted that the Coast Guard NPRM justified its proposal to increase the buoyancy standards by stating that the proposed standard would be closer to the buoyancy requirements of the International Standards Organization (ISO). UL then stated that the proposed Coast Guard standard is nearly twice as stringent as the ISO standards which UL cited as 50 N (11.1 lb) of buoyancy for inherently buoyant, fully inflatable, and inflated hybrid PFDs.

Although there are no ISO standards at present, the European Committee for Standardization (CEN) standards have been proposed for ISO discussion. The Coast Guard assumes the comment refers to the CEN standards. The CEN standards are for voluntary carriage and use, and are intended for selective use according to local conditions. The CEN standards assume that an inflatable PFD and the inflatable portion of a hybrid PFD will work. However, a study by Boat/U.S. Foundation for Boating Safety, a non-profit organization for boating safety, education and research, demonstrates that there is a nearly 20% failure rate on inflatable PFDs due to boaters not rearming the inflation mechanisms or the malfunctioning of the inflation mechanisms. A copy of this study is available in the rulemaking docket. Under this final rule, Type I, II, and III hybrid PFDs may be carried to meet PFD carriage requirements without

restriction. To ensure a sufficient level of safety without including a carriage restriction, the required level of inherent buoyancy is based on the performance provided by the PFD if the inflatable portion of the PFD were to fail or if the user is not able to inflate the PFD. The Coast Guard selected the minimum buoyancy that would provide the safety necessary for authorizing unrestricted use of hybrid PFDs, while maintaining the attractiveness of hybrid PFDs that the Coast Guard hopes will lead to wider PFD use.

5. UL stated that it would be impossible to make the insert pad covers for the reference vests to meet the requirements of § 160.077–2(j) without adversely affecting the performance or comfort of the devices and that the revisions do not allow for changes in the collar buoyant inserts or fabric patterns.

The Coast Guard agrees that changes are needed regarding the collar buoyant inserts and back/collar fabric envelope. Accordingly, the final rule is revised to allow the collar inserts and fabric envelopes to be enlarged to accommodate the required youth and child-size device buoyancies. In § 160.077–2(j), the SNPRM proposed to require higher kapok weights and displacements than prescribed by existing § 160.047–1(b) for both front and back inserts. It also proposed to allow the front pad insert coverings to be larger than the dimensions prescribed by existing § 160.047–1(b). Allowances for outer fabric envelope changes to make the fronts larger also were addressed in the SNPRM. Although it proposed to require higher back volume displacements, the SNPRM neglected to allow a commensurately larger back outer fabric envelope specification to allow for an increased back insert pad size. Accordingly, this final rule adopts changes to both the front and back fabric envelope requirements to correct this error.

The Coast Guard has in fact constructed vests meeting the requirements in this rule using inserts meeting the kapok weight and volume displacement values given in § 160.077–2(j). During performance tests conducted at UL, using these prototype reference vests made with envelopes modified as allowed in § 160.077–2(j) of this rule, superior results were obtained compared to existing standard designs. In these tests, foam inserts of the same general shape were tested with similar results, and therefore this final rule adopts a modification to § 160.077–2(j) from that proposed in the SNPRM to permit foam inserts as an option to kapok inserts.

6. UL also indicates that there are some inconsistencies between the buoyancies of the new small child reference vests compared to the existing standard child life preserver design.

The Coast Guard acknowledges the difference between the required buoyancy of the small child reference vest and the standard child life preserver and has determined that these differences are unavoidable. Of the four new reference vests adopted, three have equal or greater buoyancy than those presently required. Only the new small child, Type I reference vest has less buoyancy. The Coast Guard has recognized that the smaller size and disproportionate anatomy of the intended users results in marginal performance of the existing subpart 160.002 vest on small children. Even though its overall buoyancy is less, tests have demonstrated that, as a result of its distribution, the new reference vest is far superior to the subpart 160.002 vest.

To obtain buoyancy distributions similar to the requirements of § 160.47–4(c)(2) for youths, and the reference vests for the small child-size PFDs, this final rule adopts modifications to the displacements (buoyancies) proposed in Table 160.077–2(j) by the SNPRM. The changes in the front and back insert displacements result in a total displacement decrease for the small child Type II reference vest of 1 N (.25 lb) and an increase for both youth-size devices of 4.5 N (1 lb) total.

7. UL also suggested that existing reference vests constructed directly in accordance with published Coast Guard regulations should be used rather than inventing new, unproven designs as proposed in the SNPRM. UL supports its suggestion by noting that the proposed new reference vests have not been manufactured and consequently have not been subjected to preliminary tests to determine if they provide the level of performance warranted for hybrid PFDs.

The Coast Guard's objective in approving hybrid PFDs with increased buoyancy is to provide boaters with the option of choosing PFDs that perform at an enhanced level. While the performance provided by existing child-size vests described in subparts 160.002 and 160.047–4(c)(2) is adequate, they do not perform to the enhanced level of inflated hybrid PFDs described by this final rule.

As discussed above in paragraph 5, using these prototype reference vests, made with envelopes modified as allowed in § 160.077–2(j) of this rule, superior results were obtained during performance tests conducted at UL.

8. In addition, UL suggested that the Coast Guard abandon the use of reference vests and establish performance based requirements for all the Types and sizes of PFDs.

Except for the very highest performing PFDs (Type I PFDs) this suggestion would require that the characteristics of the test subjects be more precisely controlled, so that one design is not subjected to a less rigorous test than another because of an "easier" subject pool. When the necessary subject specifications are developed or a suitable manikin and analytical methods available, the Coast Guard will consider revising the regulations to either allow direct performance testing as an alternative or as the sole means of approval testing for these devices.

However, as a result of this comment, the Coast Guard is eliminating the new adult Type I reference vest. Compared to lower performing devices, testing for Type I PFD performance is not as dependent on the characteristics of the subject pool. Where all subjects are required to be turned face up, as with Type I PFDs, test subject differences from one test to another have made little difference in performance. Therefore, the Coast Guard has determined that it is appropriate to eliminate the new adult Type I reference vest. This issue is discussed further in paragraph 12.

9. Alternatively, UL suggested selecting a single reference vest (for each size), such as the Type I specified by subpart 160.002 and establishing a reduced level of requirements in comparison to it for Type II, III or V performance. It was suggested that adoption of this recommendation would make it easier to approve candidate devices which fell short of the criteria for one type but met the criteria of the next lower type. For example, if a candidate device fails the Type I criteria during testing, but meets the Type II criteria, it could be rated a Type II device without further testing.

The Coast Guard disagrees with this recommendation based on the lack of a suitable, existing reference vest for either the youth or child small sizes as demonstrated by the test results discussed above in paragraph 5.

10. UL also suggested eliminating Youth Type I Hybrids, asserting that manufacturers would not go through the expense of producing a hybrid that is required to have the same amount of inherent buoyancy as a child size Type I currently approved under subpart 160.055.

The Coast Guard does not adopt this suggestion. Although there may not be a demand for hybrids at this time, it is foreseeable that future markets may

demand such performance for youth devices when adult inflatable devices, with equivalent performance, come into wide use. These regulations will provide specifications for future markets.

11. UL asserted that details of the testing procedures for youth and small child size devices were missing from the regulations.

In this final rule, the Coast Guard incorporates UL standard 1517, which provides testing procedures for adult devices, by reference, and adds provisions in § 160.077-21(c) which allow for the testing procedures of UL standard 1517 to be used for youth and small child size devices. The procedures require that each candidate device and the appropriate size reference vest be tested using the same procedures as an adult candidate device and reference vest to ensure that the candidate provides as good or better performance than the reference. As a result of the possible confusion noted by the comment, § 160.077-21(c)(1), (2), (4)(i), and (4)(ii) are revised and § 160.077-21(c)(5) is added to clarify that the test procedure of UL 1517 is to be performed using the reference vests specified by this rule.

12. UL recommended the elimination of the recreational Type I category, noting that the only difference between the proposed recreational and commercial Type I Hybrid PFDs is body strength.

The Coast Guard agrees with this comment. In the SNPRM, the required body strength for recreational Type I Hybrid PFDs was 2,000 N (450 lb) as opposed to 3,200 N (720 lb) for commercial Type I hybrid PFDs. The final rule eliminates the recreational Type I category and allows for the use of one body strap of 3,200 N or two body straps of 2,000 N on a commercial Type I hybrid PFD whether the PFD is used for recreational or commercial purposes.

With the elimination of the recreational Type I category and the Type I reference vest as discussed in paragraph 8, the Coast Guard had to determine appropriate performance requirements for Type I hybrid PFDs. The Coast Guard determined that application of the more stringent requirements in § 160.176-13(d) (2) through (5) for Type I in-water performance is appropriate for adult Type I devices. This final rule does not change the in-water performance requirements from those proposed in the SNPRM for youth and small child-size devices. However, as discussed in paragraph 11, revisions were made to clarify the testing procedures.

In order to implement these changes, conforming revisions have been made as discussed below. As a result of eliminating the Recreational Type I hybrid PFD, the proposed regulatory text at § 160.077-15(b)(13) is deleted and proposed § 160.077-15(b)(14) and (15) are renumbered accordingly. A new § 160.077-17(b)(9) is added to ensure that the body strap(s) on Type I hybrid PFDs meet minimum strength requirements. Proposed § 160.077-17(b)(9) and (10) are renumbered accordingly. Section 160.077-21(c)(4) is revised to specify the test procedures for adult-size Type I and V hybrid PFDs and § 160.077-21(c)(5) is added to specify test procedures for the youth and child-size hybrid PFDs, using the reference vests adopted in this rule. Sections § 160.077-29(b) and (f)(2) are revised to require that Type I PFDs intended for recreational use meet the requirements of § 160.077-29(c). The statement "A pamphlet and owner's manual must be provided with this PFD" is added to the text of § 160.077-31(d). Section 160.077-31(j)(1) is revised to show that a commercial hybrid Type I PFD can be used on all recreational boats, as well as uninspected commercial vessels to meet carriage requirements. The following sections are revised to remove references to Type I recreational PFDs: Tables 160.077-2(j) and redesignated Table 160.077-15(b)(13), Section 160.077-15(a)(2)(ii), § 160.077-27(e), § 160.077-29(b), (c), (e) and (f)(2), and § 160.077-31(c). Section 160.077-21(d)(3)(i) is changed to indicate that all Type I adult hybrid PFDs must provide 100 mm (4 inches) of freeboard. Section 160.077-13, § 160.077-17, Table 160.077-17(b)(10), § 160.077-21, and § 160.077-31(d) and (k) are modified to include Type I PFDs intended for recreational use.

In making these revisions, the Coast Guard noted that the SNPRM inadvertently applied the Inflated Flotation Stability Tests in UL 1517, section S8 to Type I devices. This final rule clarifies that the tests apply to commercial Type V devices only.

13. UL stated that the final rule should not be adopted because the Flotation Stability Tests from UL 1517 have not yet been proposed.

The SNPRM proposed adopting changes made by UL to UL 1517 if those changes were made in a timely manner. These changes have not yet been made. The Coast Guard has elected to go forward with the final rule. As discussed in paragraph 11, the Coast Guard has adopted a provision which utilizes the Type II and III Flotation Stability Tests in UL 1517, section 15

with procedures to be followed when conducting the test with children. As discussed in paragraph number 12 above, for commercial Type I Hybrid PFDs, the Inflated Flotation Stability Tests in UL 1517, section S8, are no longer required.

14. Finally, UL suggested that § 160.077-31 be revised to reflect the requirements proposed in UL's bulletin dated October 7, 1994, regarding standardized PFD labels. The Coast Guard agrees with this suggestion and has revised the label text to more closely resemble the label criteria proposed by UL.

**Editorial and Clarifying Changes**

Sections 160.077-19(b)(6)(i), 160.077-27(e)(3) and (f)(2) under the text describing a Type V hybrid, 160.077-27(f)(3), and 160.077-29(c)(10) are revised to reflect the redesignation of Table 160.077-15(b)(13). Other sections were revised to add detail or clarification. The terminology in the required pamphlet text of § 160.077-27 is simplified. Also, § 160.077-27 is shortened by combining paragraphs (e) and (f) which contained the same pamphlet text.

**Regulatory Evaluation**

This final rule is not a significant regulatory action under section 3(f) of Executive Order 12866 and does not require an assessment of 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 was originally placed in the rulemaking docket in 1985, reviewed in May 1991 with regard to inflatable lifejackets, and reconsidered in April 1993, concerning hybrid PFDs in association with the SNPRM for this rule. The regulatory evaluation, despite the lapse of time, is still accurate.

The total approval costs per design are expected to be approximately \$12,000 for hybrid inflatable PFDs. Costs to approve other types of PFDs are approximately \$6,000. The additional cost to approve hybrid 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 produced under authorization of each approval certificate. The Coast Guard anticipates that, within the first year after issuing this final rule, one or two designs will be approved.

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 \$80-\$200 for hybrid PFDs. Currently approved PFDs range in price from \$7-\$200. Type I devices that could be replaced by hybrid PFDs have an average cost of about \$40.

**Small Entities**

There were no comments on this section. Hybrid PFDs are approved as an option to existing approved devices. This final rule will result in no increased costs. Therefore, the Coast Guard certifies under section 605(b) of the Regulatory Flexibility Act (5 U.S.C. 601 *et seq.*) that this rule will not have a significant economic impact on a substantial number of small entities.

**Collection of Information**

This rule contains collection-of-information requirements. The Coast Guard has submitted the requirements to the Office of Management and Budget (OMB) for review under section 3504(h) of the Paperwork Reduction Act (44 U.S.C. 3501 *et seq.*), and OMB has approved them. The section numbers and the corresponding OMB approval numbers are:

Paperwork requirements	OMB control No.
a. § 160.077-6 .....	2115-0141
b. § 160.077-7 .....	2115-0141
c. § 160.077-11 .....	2115-0141
d. § 160.077-25 .....	2115-0141
f. § 160.077-29 .....	2115-0576
g. § 160.077-31 .....	2115-0577

**Federalism**

The Coast Guard has analyzed this final rule in accordance with the principles and criteria contained in Executive Order 12612 and has determined that this final rule does not have sufficient federalism implications to warrant the preparation of a Federalism Assessment. This rulemaking revises established safety standards for hybrid inflatable personal flotation devices (PFDs). The authority to establish regulations for PFDs is committed to the Coast Guard by statute. Furthermore, since PFDs are manufactured and used in the national marketplace, safety standards for PFDs should be of national scope to avoid unreasonably burdensome variances. Therefore, the Coast Guard intends this final rule to preempt State action addressing the same subject matter.

There were no comments on this section.

**Environment**

The Coast Guard considered the environmental impact of this final rule and concluded that under section 2.B.2. of Commandant Instruction M16475.1B, this final rule is categorically excluded from further environmental documentation. This final rule is expected to have no significant effect on the environment. A Categorical Exclusion Determination statement has been prepared and has been placed in the rulemaking docket. There were no comments on this section.

**List of Subjects**

46 CFR Part 25

Fire prevention, Marine safety, Reporting and recordkeeping requirements.

46 CFR Part 160

Marine safety, Reporting and recordkeeping requirements.

For the reasons set out in the preamble, the Coast Guard amends 46 CFR parts 25 and 160 as follows:

**PART 25—REQUIREMENTS**

1. The authority citation for part 25 is revised to read as follows:

**Authority:** 33 U.S.C. 1903(b), 46 U.S.C. 3306, and 4302; 49 CFR 1.46.

**Subpart 25.25—Life Preservers and Other Lifesaving Equipment**

2. In § 25.25-5, paragraph (f) is revised to read as follows:

**§ 25.25-5 Life preservers and other lifesaving equipment required.**

\* \* \* \* \*

(f) On each vessel, regardless of length and regardless of whether carrying passengers for hire, an approved commercial hybrid PFD may be substituted for a life preserver, buoyant vest, or marine buoyant device required under paragraphs (b) or (c) of this section if it is—

- (1) Used in accordance with the conditions marked on the PFD and in the owner's manual;
- (2) Labeled for use on commercial vessels; and
- (3) In the case of a Type V commercial hybrid PFD, worn when the vessel is underway and the intended wearer is not within an enclosed space.

**PART 160—LIFESAVING EQUIPMENT**

3. The authority citation for part 160 is revised to read as follows:

**Authority:** 46 U.S.C. 3306, 3703, and 4302; E.O. 12234, 45 FR 58801, 3 CFR, 1980 Comp., p. 277; 49 CFR 1.46.

**Subpart 160.077—Hybrid Inflatable Personal Flotation Devices**

4. In § 160.077-1, paragraphs (b), (c) introductory text, and (d) are revised to read as follows:

**§ 160.077-1 Scope.**

\* \* \* \* \*

(b) Under this chapter and 33 CFR part 175, certain commercial vessels and recreational boats may carry Type I, II, or III hybrid PFDs to meet carriage requirements. Type V hybrid PFDs may be substituted for other required PFDs if they are worn under conditions prescribed in their manual as required by § 160.077-29 and on their marking as prescribed in § 160.077-31. For recreational boats or boaters involved in a special activity, hybrid PFD approval may also be limited to that activity.

(c) Unless approved as a Type I SOLAS Lifejacket, a hybrid PFD on an

inspected commercial vessel will be approved only—

\* \* \* \* \*

(d) A hybrid PFD may be approved for adults, weighing over 40 kg (90 lb); youths, weighing 23-40 kg (50-90 lb); small children, weighing 14-23 kg (30-50 lb); or for the size range of persons for which the design has been tested, as indicated on the PFD's label.

\* \* \* \* \*

5. Section 160.077-3 is redesignated as § 160.077-2, and in newly redesignated § 160.077-2, paragraphs (a), (h), and (j) are revised, and paragraph (l) is added to read as follows.

**§ 160.077-2 Definitions**

\* \* \* \* \*

(a) *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 Street SW., Washington, DC 20593-0001.

\* \* \* \* \*

(h) *Recreational hybrid PFD* means a hybrid PFD approved for use on a

recreational boat as defined in 33 CFR 175.3.

\* \* \* \* \*

(j) *Reference vest* means a model AK-1, adult PFD; model CKM-1, child medium PFD; or model CKS-2, child small PFD, meeting the requirements of subpart 160.047 of this chapter, except that, in lieu of the weight and displacement values prescribed in Tables 160.047-4(c)(2) and 160.047-4(c)(4), each insert must have the minimum weight of kapok and displacement as shown in Table 160.077-2(j). To achieve the specified volume displacement, front and back insert pad coverings may be larger than the dimensions prescribed by § 160.047-1(b) and the width of the front fabric envelope and height of the back fabric envelope may be increased to accommodate a circumference no greater than 1/4" larger than the filled insert circumference. As an alternative, unicellular plastic foam inserts of the specified displacement and of an equivalent shape, as accepted by the Commandant, may be substituted for kapok inserts.

TABLE 160.077-2(j).—REFERENCE VEST MINIMUM KAPOK WEIGHT AND VOLUME DISPLACEMENT

Reference PFD type	Front insert (2 each)		Back insert	
	Minimum kapok weight g (oz)	Volume displacement N (lb)	Minimum kapok weight g (oz)	Volume displacement N (lb)
Devices for adults, weight over 40 kg (90 lb): Type II, III, and V Recreational .....	234 (8.25) .....	40±1 (9.0±0.25)	156 (5.5) .....	27±1 (6.0±0.25)
Devices for youths, weighing 23-40 kg (50-90 lb): Type I .....	184 (6.5) .....	31±1 (7.0±0.25)	170 (6.0) .....	30±1 (6.5±0.25)
Type II, III, and V <sup>1</sup> .....	156 (5.5) .....	26±1 (5.75±0.25)	149 (5.25) .....	24±1 (5.5±0.125)
Devices for small children, weighing 14-23 kg (30-50 lb): Type I .....	128 (4.5) .....	21±1 (4.75±0.25)	156 (5.5) .....	30±1 (6.5±0.25)
Type II .....	100 (3.5) .....	17±1 (3.75±0.25)	135 (4.75) .....	22±1 (5.0±0.25)

<sup>1</sup> Both Recreational and Commercial.

\* \* \* \* \*

(l) *SOLAS lifejacket*, in the case of a hybrid inflatable PFD, means a PFD approved as meeting the requirements for lifejackets in the 1983 Amendments to the International Convention for the Safety of Life at Sea, 1974 (SOLAS 74/83), in addition to the requirements of this subpart.

6. Section 160.077-5 is redesignated as § 160.077-3 and in newly redesignated § 160.077-3 paragraphs (a), (c)(1), and (c)(2) are revised to read as follows:

**§ 160.077-3 Required to be worn.**

(a) A Type V hybrid PFD may be used to meet the Coast Guard PFD carriage requirements of subpart 25.25 of this chapter, and 33 CFR part 175, only if the PFD is used in accordance with any requirements on the approval label.

PFDs marked "REQUIRED TO BE WORN" must be worn whenever the vessel is underway and the intended wearer is not within an enclosed space.

\* \* \* \* \*

(c) \* \* \*

(1) Each Type V recreational hybrid PFD.

(2) Each Type V commercial hybrid PFD.

7. Section 160.077-7 is redesignated as § 160.077-4 and is revised to read as follows:

**§ 160.077-4 Type.**

(a) A hybrid PFD that successfully passes all applicable tests may be approved as a Type I, II, III, or V for various size ranges of persons weighing over 23 kg (50 lb), as Type I or II for persons weighing 14-23 kg (30-50 lb) or

as Type I or II for other sizes. A Type V PFD has limitations on its approval.

(b) The approval tests in this subpart require each Type V hybrid PFD to have at least the same performance as a Type I, II, or III PFD for adult and youth sizes or Type I or II PFD for child sizes.

(c) A hybrid PFD may be approved for use on recreational boats, commercial vessels or both if the applicable requirements are met.

**§ 160.077-9 [Redesignated]**

8. Section 160.077-9 is redesignated as § 160.077-5.

9. Section 160.077-11 is amended by revising paragraph (b)(1)(iii) and the heading of paragraph (j) to read as follows:

**§ 160.077-11 Materials—Recreational Hybrid PFD.**

\* \* \* \* \*

(b) \* \* \*

(1) \* \* \*

(iii) UL 1191 and having a V factor of 89 except that foam with a lower V factor may be used if it provides buoyancy which, after a normal service life, is at least equal to that of a PFD made with material having a V factor of 89 and the required minimum inherent buoyancy when new; or

\* \* \* \* \*

(j) *Kapok pad covering.* \* \* \*

\* \* \* \* \*

10. In § 160.077-13, the heading is revised, and paragraph (d) is removed to read as follows:

**§ 160.077-13 Materials—Type I and Commercial Hybrid PFD.**

\* \* \* \* \*

11. In § 160.077-15, the heading is revised, paragraphs (a)(2)(ii), (b)(3), (c)(2)(ii), and (d)(3) are revised; (b) (13) is redesignated as (b)(14) and revised; and a new paragraph (b)(13) and Table 160.077-15(b)(13) are added to read as follows:

**§ 160.077-15 Construction and Performance—Recreational Hybrid PFD.**

\* \* \* \* \*

(a) \* \* \*

(2) \* \* \*

(ii) If it is to be marked as Type II or Type V providing Type I or II performance, not require second stage donning to achieve that performance;

\* \* \* \* \*

(b) \* \* \*

(3) Have at least one automatic inflation mechanism that inflates at least one chamber, if marked as providing Type I or II performance;

\* \* \* \* \*

(13) Provide the minimum buoyancies specified in Table 160.077-15(b)(13).

TABLE 160.077-15(b)(13).—BUOYANCY FOR RECREATIONAL HYBRID PFDs

	Adult	Youth	Small child
Inherent buoyancy (deflated condition):			
Type II .....	45 N (10 lb) .....	40 N (9 lb) .....	30 N (7 lb)
Type III .....	45 N (10 lb) .....	40 N (9 lb) .....	N/A
Type V .....	33 N (7.5 lb) .....	34 N (7.5 lb) .....	N/A
Total buoyancy (inflated condition):			
Type II .....	100 N (22 lb) .....	67 N (15 lb) .....	53 N (12 lb)
Type III .....	100 N (22 lb) .....	67 N (15 lb) .....	N/A
Type V .....	100 N (22 lb) .....	67 N (15 lb) .....	N/A

(14) Meet any additional requirements that the Commandant may prescribe, if necessary, to approve unique or novel designs.

(c) \* \* \*

(2) \* \* \*

(ii) Not be capable of locking in the open or closed position except that, a friction-fit dust cap that only locks in the closed position may be used; and

\* \* \* \* \*

(d) \* \* \*

(3) The deflation mechanism may be the oral inflation mechanism.

\* \* \* \* \*

12. In § 160.077-17, the heading and paragraph (b)(4) are revised, and

paragraphs (b)(8), (b)(9), (b)(10), (b)(11), and Table 160.077-17(b)(11) are added to read as follows:

**§ 160.077-17 Construction and Performance—Type I and Commercial Hybrid PFD.**

\* \* \* \* \*

(b) \* \* \*

(4) Have at least one inflation chamber, except that a hybrid PFD approved as a SOLAS lifejacket must have at least two inflation chambers;

\* \* \* \* \*

(8) If approved for adults, be universally sized as specified in § 160.077-15(b)(7).

(9) Commercial hybrid PFDs employing closures with less than 1600 N (360 lb) strength, must have at least two closures that meet UL 1517, Section 22.1.

(10) Each commercial hybrid PFD must have an attachment for a PFD light securely fastened to the front shoulder area. The location should be such that if the light is attached it will not damage or impair the performance of the PFD.

(11) In the deflated and the inflated condition, provide buoyancies of at least the values in Table 160.077-17(b)(11).

TABLE 160.077-17(b)(11).—MINIMUM BUOYANCY OF TYPE I AND COMMERCIAL HYBRID PFDs

	Adult	Youth	Small child
Inherent buoyancy (deflated condition):			
Type I .....	70 N (15.5 lb) .....	50 N (11 lb) .....	40 N (9 lb)
Type V .....	60 N (13 lb) .....	34 N (7.5 lb) .....	N/A
Total buoyancy (inflated condition):			
Type I .....	130 N (30 lb) .....	80 N (18 lb) .....	67 N (15 lb)
Type V .....	100 N (22 lb) .....	67 N (15 lb) .....	N/A

\* \* \* \* \*

13. In § 160.077-19, paragraphs (b)(3)(iii), (b)(6), and (e) are revised to read as follows:

**§ 160.077-19 Approval Testing—Recreational Hybrid PFD.**

\* \* \* \* \*

(b) \* \* \*

(3) \* \* \*

(iii) *Inflated flotation stability*, UL 1517, section 15, for Type II and Type III performance except comparisons are to be made to the appropriate size and

Type reference vest as defined in § 160.077-2(j).

\* \* \* \* \*

(6) *Buoyancy, buoyancy distribution, and inflation medium retention test*, UL 1517, sections 18 and 19, except:

(i) Recreational hybrid inflatables must provide minimum buoyancy as specified in Table 160.077-15(b)(13):

(ii) The buoyancy and volume displacement of kapok buoyant inserts must be tested in accordance with the procedures prescribed in § 160.047-4(c)(4) and § 160.047-5(e)(1) in lieu of the procedures in UL 1517, section 18 and 19.

(e) The Commandant may prescribe additional tests, if necessary, to approve unique or novel designs.

14. In § 160.077-21, the heading, paragraphs (c)(1), (c)(2), and (c)(3), (c)(4)(i) and (c)(4)(ii), and (g) are revised and paragraphs (c)(5) and (d)(3) are added to read as follows:

§ 160.077-21 Approval Testing—Type I and Commercial Hybrid PFD.

\* \* \* \* \*

(c) \* \* \*

(1) *Jump test*, UL 1517, section S6 for Adult size. Youth and Small Child sizes are exempt from this test.

(2) *In-water removal*, UL 1517, section S9 for Adult and Youth sizes. The Small Child size is exempt from this test.

(3) *Buoyancy and inflation medium retention test*, UL 1517, Section S10, except the minimum buoyancies must be as specified in the Table 160.077-17(b)(11):

(4) *Flotation stability—adults*.

(i) *Uninflated flotation stability*, UL 1517, section S7, except that for Type I devices the requirements of paragraph S7.1.A apply to all subjects regardless of their in-water weight. For Type V adult-size devices the requirements of paragraph S7.1.A apply to all adult subjects having an in-water weight of 13 lb or less, and the requirements of paragraph S.7.1.B apply to all other adult subjects.

(ii) *Righting action test*, 46 CFR 160.176-13(d)(2) through (d)(5) for Type I hybrid PFDs. UL 1517, Section S8, for Type V hybrid PFDs.

(5) *Flotation stability—youths and small children*.

(i) *Uninflated flotation stability*, UL 1517, section S7, except that the requirements of paragraph S7.1.A apply to all subjects regardless of their in-water weight.

\* \* \* \* \*

(ii) *Righting action test*, UL 1517, Section 15.3 through 15.13, for Youth and Small Child hybrid PFDs except comparisons are to be made to the appropriate size and type reference vest as defined in § 160.077-2(j).

(d) \* \* \*

(3) Each adult test subject must have a freeboard of at least:

(i) 100 mm (4 inches) if the PFD being tested is to be approved as a Type I hybrid PFD; or

(ii) 120 mm (4.75 inches) if the PFD being tested is to be approved as a SOLAS lifejacket.

\* \* \* \* \*

(g) The Commandant may prescribe additional tests, if necessary, to approve unique or novel designs.

\* \* \* \* \*

15. In § 160.077-23, paragraphs (a)(2), (b)(1)(i), (b)(2)(ii), (b)(2)(iv), (d)(4), (g)(2), (g)(3)(iii), (h)(4), (h)(5), (j)(4)(iii), (k)(1), (k)(2), and notes (2) and (3) to Table 160.077-23B are revised, and paragraphs (b)(2)(v), (d)(5), and (g)(3)(x) are added to read as follows:

§ 160.077-23 Production tests and inspections.

(a) \* \* \*

(2) The Commandant may prescribe additional production tests and inspections if needed to maintain quality control and check for compliance with the requirements of this subpart.

(b) \* \* \*

(1) \* \* \*

(i) Perform all required tests and examinations on each PFD lot before the independent laboratory inspector tests and inspects the lot, except as provided in § 160.077-23(d)(5);

\* \* \* \* \*

(2) \* \* \*

(ii) Except as specified in paragraph (b)(2)(v) of this section, an inspector must perform or supervise testing and inspection of at least one PFD lot in each five lots produced.

(iii) \* \* \*

(iv) Except as specified in paragraph (b)(2)(v) of this section, at least once each calendar quarter, the inspector must, as a check on the manufacturer's compliance with this section, examine the manufacturer's records required by § 160.077-25 and observe the manufacturer perform each of the tests required by paragraph (h) of this section.

(v) If less than six lots are produced during any calendar year, only one lot inspection in accordance with paragraph (b)(2)(ii) of this section, and one records examination and test performance observation in accordance with paragraph (b)(2)(iv) of this section is required during that year. Each lot tested and inspected must be within seven lots of the previous lot inspected.

\* \* \* \* \*

(d) \* \* \*

(4) The number of samples selected per lot must be at least the number listed in Table 160.077-23A or Table

160.077-23B, as applicable, except as allowed in paragraph (d)(5) of this section.

(5) If the total production for any five consecutive lots does not exceed 250 devices, the manufacturer's and inspector's tests can be run on the same sample(s) at the same time.

\* \* \* \* \*

Table 160.077-23B Inspector's Sampling

\* \* \* \* \*

Notes to Table:

\* \* \* \* \*

(2) This test may be omitted if the manufacturer has previously conducted it and the inspector has conducted the test on a previous lot within the past year.

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

\* \* \* \* \*

(g) \* \* \*

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

(3) \* \* \*

(iii) A *Scale* that has sufficient capacity to weigh a submerged sample basket. The scale must be sensitive to 14 g (0.5 oz) and must not have an error exceeding ±14 g (0.5 oz).

\* \* \* \* \*

(x) *Inflation chamber materials test equipment*. If the required tests in paragraph (h)(2) of this section are performed by the PFD manufacturer, test equipment suitable for conducting Grab Breaking Strength, Tear Strength, Permeability, and Seam Strength tests must be available at the PFD manufacturer's facility.

\* \* \* \* \*

(h) \* \* \*

(4) *Over-pressure*. Each sample must be tested according to and meet UL 1517, section 28. Test samples may be prestressed by inflating them to a greater pressure than the required test pressure prior to initiating the test at the specified values.

(5) *Air Retention*. Each sample must be tested according to and meet UL 1517, section 36. 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 (h)(4) of this section. Any alternate test method that decreases the length of the test must be accepted by the Commandant and 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.

\* \* \* \* \*

(j) \* \* \*

(4) \* \* \*

(iii) If the inspector rejects a lot, the inspector shall notify the Commandant immediately.

(k) \* \* \*

(1) A rejected PFD lot may be resubmitted for testing, examination, or inspection if the manufacturer first removes and destroys each PFD having the same type of defect or, if authorized by the Commandant or an authorized representative of 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 or an authorized representative of the Commandant.

\* \* \* \* \*

16. In § 160.077–27, paragraph (a) is revised and paragraphs (d) and (e) are added to read as follows:

**§ 160.077–27 Pamphlet.**

(a) Each recreational hybrid PFD sold or offered for sale must be provided with a pamphlet that a prospective purchaser can read prior to purchase. The required pamphlet text must be printed verbatim and in the sequence set out in paragraph (e) of this section. Additional information, instructions, or illustrations must not be included within the required text. The type size shall be no smaller than 8-point.

\* \* \* \* \*

(d) The text specified in paragraphs (e)(2) of this section must be accompanied by illustrations of the types of devices being described. The illustrations provided must be either photographs or drawings of the manufacturer's own products or illustrations of other Coast Guard-approved PFDs.

(e) For a Type I hybrid PFD intended for recreational use or a Type II, III, or V recreational hybrid PFD, the pamphlet contents must be as follows:

(1) The text in UL 1517, Section 39, item A;

(2) The following text and illustrations:

**There Are Five Types of Personal Flotation Devices**

This is a Type [insert approved Type] Hybrid Inflatable PFD.

**Note:** The following types of PFDs are designed to perform as described in calm water and when the wearer is not wearing any other flotation material (such as a wetsuit).

**Type I**—A Type I PFD has the greatest required inherent buoyancy and turns most unconscious persons in the water from a face down position to a vertical and slightly backward position, therefore greatly increasing one's chances of survival. The Type I PFD is suitable for all waters, especially for cruising on waters where rescue may be slow coming, such as large bodies of water where it is not likely that boats will be nearby. This type PFD is the most effective of all types in rough water. It is reversible and available in only two sizes—Adult (over 40 kg (90 lb)) and child (less than 40 kg (90 lb)) which are universal sizes (designed for all persons in the appropriate category).

[Insert illustration of Type I PFD]

**Type II**—A Type II PFD turns most wearers to a vertical and slightly backward position in the water. The turning action of a Type II PFD is less noticeable than the turning action of a Type I PFD and the Type II PFD will not turn as many persons under the same conditions as the Type I. The Type II PFD is usually more comfortable to wear than the Type I. This type of PFD is designed to fit a wide range of people for easy emergency use, and is available in the following sizes: Adult (over 40 kg (90 lb)), Medium Child (23–40 kg (50–90 lb)), and two categories of Small Child (less than 23 kg (50 lb) or less than 14 kg (30 lb)). Additionally, some models are sized by chest sizes. You may prefer to use the Type II where there is a good chance of fast rescue, such as areas where it is common for other persons to be engaged in boating, fishing and other water activities.

[Insert illustration of Type II PFD]

**Type III**—The Type III PFD allows the wearer to tilt backwards in the water, and the device will maintain the wearer in that position and will not turn the wearer face down. It is not designed to turn the wearer face up. A Type III is generally more comfortable than a Type II, comes in a variety of styles which should be matched to the individual use, and is often the best choice for water sports, such as skiing, hunting, fishing, canoeing, and kayaking. This type PFD normally comes in many chest sizes and weight ranges; however, some universal sizes are available. You may also prefer to use the Type III where there is a probability of quick rescue such as areas where it is common for other persons to be engaged in boating, fishing, and other water activities.

[Insert illustration of Type III PFD]

**Hybrid Inflatable Type I, II, or III**—A Type I, II, or III Hybrid PFD is an inflatable device which is the most comfortable PFD to wear and has a minimal amount of buoyancy when deflated and significantly increased buoyancy when inflated (See accompanying table for actual buoyancy for your Type of hybrid). When inflated it turns the wearer with the action of a Type I, II, or III PFD as

indicated on its label. Boaters taking advantage of the extra comfort of hybrid inflatable PFDs must take additional care in the use of these devices. Boaters should test their hybrid PFDs in the water, under safe, controlled conditions to know how well the devices float them with limited buoyancy. Approximately 90 percent of boaters will float while wearing a Type II or III hybrid inflatable PFD when it is not inflated. However, hybrid inflatable PFDs are not recommended for non-swimmers unless worn with enough additional inflation to float the wearer. Almost all boaters will float while wearing a Type I hybrid inflatable PFD that is not inflated. The PFD's 'performance type' indicates whether it should be used only where help is nearby, or if it also may be used where help may be slow coming. Type I hybrids are suitable where rescue may be slow coming, while Types II and III are good only when there is a chance of fast rescue. Type I hybrids are approved in three weight ranges, adult, for persons weighing over 40 kg (90 lb); youth, for persons weighing 23–40 kg (50–90 lb); and small child, for persons weighing 14–23 kg (30–50 lb). Type II hybrid PFDs are approved in the same size ranges as Type I hybrids but may be available in a number of chest sizes and in universal adult sizes. Type III hybrids are only approved in adult and youth sizes but may also be available in a number of chest sizes and in universal adult sizes.

[For a pamphlet provided with a Type I, II or III hybrid PFD, insert illustration of the Type Hybrid PFD being sold]

**Type IV**—A Type IV PFD is normally thrown or tossed to a person who has fallen overboard so that the person can grasp and hold the device until rescued. Until May 15, 1995 (or May 1, 1996 at commercial liveries), the Type IV is acceptable in place of a wearable device in certain instances. However, this type is suitable only where there is a good chance of quick rescue, such as areas where it is common for other persons to be nearby engaged in boating, fishing, and other water activities. It is not recommended for use by non-swimmers and children.

[Insert illustration of Type IV PFD]

**Type V (General)**—A Type V PFD is a PFD approved for restricted uses or activities such as boardsailing, or commercial white water rafting. These PFDs are not suitable for other boating activities. The label on the PFD indicates the kinds of activities for which the PFD may be used and whether there are limitations on how it may be used.

**Type V Hybrid**—A Type V Hybrid PFD is an inflatable device which can be the most comfortable and has very little buoyancy when it is not inflated, and considerably more buoyancy when it is inflated. In order for the device to count toward carriage requirements on recreational boats, it must be worn except when the boat is not underway or when the user is below deck. When inflated it turns the wearer similar to the action provided by a Type I, II, or III PFD (the type of performance is indicated on the label). This type of PFD is more comfortable because it is less bulky when it is not inflated. Boaters taking advantage of the extra comfort of hybrid inflatable PFDs must take



additional care in the use of these devices. Boaters should test their hybrid PFDs in the water, under safe, controlled conditions to know how well the devices float them with limited buoyancy. Approximately 70 percent of boaters will float while wearing a Type V hybrid PFD when the device is not inflated. Therefore, it is not recommended for non-swimmers unless worn with enough additional inflation to float the wearer. The PFD's "performance type" indicates whether it should be used only where help is nearby, or if it may also be used where help may be slow coming. This type of PFD is approved in two sizes, adult, for persons weighing over 40 kg (90 lb); and youth, for persons weighing 23–40 kg (50–90 lb), and may be available in a number of chest sizes and in universal adult sizes.

[For a pamphlet provided with a Type V hybrid PFD, insert illustration of TYPE V Hybrid PFD]

(3) A table with the applicable PFD Type, size, and buoyancy values from Table 160.077–15(b)(13) or 160.077–17(b)(11), as applicable; and

(4) The text in UL 1517, Section 39, items D, E, and F.

17. In § 160.077–29, paragraphs (b) and (c) are revised, and paragraphs (d) and (e) are added to read as follows:

#### § 160.077–29 PFD manuals.

\* \* \* \* \*

(b) *Required Manuals.* An owner's manual must be provided with each recreational and commercial hybrid PFD sold or offered for sale as follows:

(1) The manual text for a recreational hybrid PFD must be printed verbatim and in the sequence set out in paragraph (c) or (d) of this section, as applicable.

(2) The manual for a commercial hybrid PFD must meet the requirements of paragraph (f) of this section except that the manual for a commercial Type I PFD which is also labeled for recreational use must meet the requirements of paragraph (c) of this section.

(3) Additional information, instructions, or illustrations may be included within the specified text of the manuals required by this section if there is no contradiction to the required information.

(c) *Type I, II or III Hybrid PFD.* For a Type I, II and III hybrid PFD the manual contents must be as follows:

(1) The following text:

#### Hybrid Limitations

This PFD has limited inherent buoyancy which means YOU MAY HAVE TO INFLATE THIS PFD TO FLOAT, and its inflatable portion requires maintenance. While these PFDs are not required to be worn, if you have an accident or fall overboard, you are much more likely to survive if you are already wearing a PFD.

There is only one way to find out if you will float while wearing the PFD when it is

not inflated. That is to try this PFD in the water as explained in [insert reference to the section of the manual that discusses how to test the PFD]. If you have not tested this device in accordance with these guidelines, the Coast Guard does not recommend its use.

(2) Instructions on use including instructions on donning, inflation, replenishing inflation mechanisms, and recommended practice operation;

(3) Instructions on how to properly inspect and maintain the PFD, and recommendations concerning frequency of inspection;

(4) Instructions on how to get the PFD repaired;

(5) The text in UL 1517, Section 40, items B and D;

(6) The following text:

#### Why Do You Need a PFD?

A PFD provides buoyancy to help keep your head above water and to help you stay face up. The average in-water-weight of an adult is only about 5 to 10 pounds. The buoyancy provided by most PFDs will support that weight in water. However, the hybrid Type I, II, or III PFD may be an exception. The uninflated buoyancy provided by this PFD may only float 90 percent of the boating public. This is because the inherent buoyancy has been reduced to make it more comfortable to wear. So, you may not float adequately without inflating the device. Once the device is inflated you will have a minimum of 22 lb of buoyancy for adult sizes, which should be more than enough to float everyone. (See table above [below] for the actual minimum buoyancy for different Types of hybrids.) Your body weight alone does not determine your in-water-weight. Since there is no simple method of determining your weight in water, you should try the device in the water in both its deflated and inflated condition.

(7) The text in UL 1517, Section 40, item G;

(8) The following text:

#### Wear Your PFD

Your PFD won't help you if you don't have it on. It is well-known that most boating accidents occur on calm water during a clear sunny day. It is also true that in approximately 80 percent of all boating accident fatalities, the victim did not use a PFD. Don't wait until it's too late. Non-swimmers and children especially should wear their PFD at all times when on or near the water. Hybrid Type I, II, III or V PFDs are not recommended for non-swimmers unless inflated enough to float the wearer.

(9) The text in UL 1517, Section 40, items I, J, K, and L; and

(10) A table with the applicable PFD Type, size, and buoyancy values from Table 160.077–15(b)(13) or 160.077–17(b)(11), as applicable, or provide a reference to appropriate pamphlet table, if the pamphlet is combined with the manual.

(d) *Type V Recreational Hybrid PFD.* For a Type V recreational hybrid PFD the manual contents must be as follows:

(1) The text in UL 1517, Section 40, item A;

(2) Instructions on use including instructions on donning, inflation, replenishing inflation mechanisms, and recommended practice operation;

(3) Instructions on how to properly inspect and maintain the PFD, and recommendations concerning frequency of inspection;

(4) Instructions on how to get the PFD repaired; and

(5) The text in UL 1517, section 40, that is not included under paragraph (d)(1) of this section.

(e) *Commercial Hybrid PFD.* (1) For a commercial hybrid PFD that is "REQUIRED TO BE WORN" the manual must meet the requirements of paragraph (d) of this section.

(2) For a commercial hybrid PFD approved as a "Work Vest Only" or Type I PFD the manual must meet the requirements of either paragraphs (e)(3) and (4) or of paragraph (c) of this section. The manual for a commercial Type I hybrid PFD which is also labeled for use on recreational boats must meet the requirements of paragraph (c) of this section.

(3) Each commercial hybrid PFD approved with special purpose limitation must have a user's manual that—

(i) Explains in detail the proper care, maintenance, stowage, and use of the PFD; and

(ii) Includes any other safety information as prescribed by the approval certificate.

(4) If the manual required in paragraph (e)(3) of this section calls for inspection or service by vessel personnel, the manual must—

(i) Specify personnel training or qualifications needed;

(ii) Explain how to identify the PFDs that need to be inspected; and

(iii) Provide a log in which inspections and servicing may be recorded.

(5) If a PFD light approved under subpart 161.012 is not provided at time of sale, the manual must specify the recommended type of light to be used.

(6) Notwithstanding the requirements of paragraph (b) of this section, manufacturers that make shipments to purchasers that do not redistribute the PFDs, must provide at least one manual in each carton of PFDs shipped.

18. Section 160.077–30 is revised to read as follows:

**§ 160.077-30 Spare operating components and temporary marking.**

(a) *Spare operating components.* Each recreational and commercial hybrid PFD must—

(1) If it has a manual or automatic inflation mechanism and is packaged and sold with one inflation medium cartridge loaded into the inflation mechanism, have at least two additional spare inflation cartridges packaged with it. If it is sold without an inflation medium cartridge loaded into the inflation mechanism, it must be packaged and sold with at least three cartridges; and

(2) If it has an automatic inflation mechanism and is packaged and sold with one water sensitive element loaded into the inflation mechanism, have at least two additional spare water sensitive elements packaged with it. If it is sold without a water sensitive element loaded into the inflation mechanism, it must be packaged and sold with at least three water sensitive elements.

(b) *Temporary marking.* Each recreational and commercial hybrid PFD which is sold—

(1) In a ready-to-use condition but which has covers or restraints to inhibit tampering with the inflation mechanism prior to sale, must have any such covers or restraints conspicuously marked "REMOVE IMMEDIATELY AFTER PURCHASE."; or

(2) Without an inflation medium cartridge, a water sensitive element, or both pre-loaded into the inflation mechanism, must include the markings required in § 160.077-15(c)(3)(ii).

19. In § 160.077-31, paragraphs (c), (d), (g), (h), (j), introductory text, and (j)(1) are revised, paragraphs (j)(2) and (3) are redesignated as (j)(3) and (4) respectively and revised, new paragraphs (j)(2) and (l) are added, and paragraph (e)(5) is removed and paragraph (e)(6) is redesignated as paragraph (e)(5) to read as follows:

**§ 160.077-31 PFD Marking.**

\* \* \* \* \*

(c) *Recreational Hybrid PFD.* Each recreational hybrid PFD must be marked with the following text using capital letters where shown and be presented in the exact order shown:

Type [II, III, or V, as applicable] PFD  
[See paragraph (k) of this section for exact text to be used here]

Recreational hybrid inflatable—  
Approved for use only on recreational boats. [For Type V only] REQUIRED TO BE WORN to meet Coast Guard carriage requirements (except for persons in enclosed spaces as explained in owner's manual).

[For Type V only] When inflated this PFD provides performance equivalent to a [see paragraph (h) of this section for exact text to be used here].

A Pamphlet and Owner's Manual must be provided with this PFD.

**WARNING—TO REDUCE THE RISK OF DEATH BY DROWNING**

—YOU MAY HAVE TO INFLATE THIS PFD TO FLOAT.

—TRY THIS PFD IN THE WATER EACH SEASON TO SEE IF IT WILL FLOAT YOU WITHOUT INFLATION.

—CHOOSE THE RIGHT SIZE PFD AND WEAR IT—FASTEN ALL CLOSURES AND ADJUST FOR SNUG FIT.

—THIS PFD REQUIRES MAINTENANCE. FOLLOW MANUFACTURER'S USE AND CARE INSTRUCTIONS.

—REMOVE HEAVY OBJECTS FROM POCKETS IN AN EMERGENCY.

—[Unless impact tested at high speed as noted on the approval certificate] DO NOT USE IN HIGH-SPEED ACTIVITIES.

—DO NOT DRINK ALCOHOL WHILE BOATING.

(d) *Type I and Commercial Hybrid PFD.* Each Type I hybrid PFD intended for recreational use and each commercial hybrid PFD must be marked with the following text using capital letters where shown and be presented in the exact order shown:

Type ["I", "V", or "V Work Vest Only", as applicable] PFD

[See paragraph (k) of this section for exact text to be used here]

Commercial hybrid inflatable—  
Approved for use on [see paragraph (j) of this section for exact text to be used here].

[For Type V only] When inflated this PFD provides performance equivalent to a [see paragraph (h) of this section for exact text to be used here].

[For Type I devices intended for recreational use] A Pamphlet and Owner's Manual must be provided with this PFD.

**WARNING—TO REDUCE THE RISK OF DEATH BY DROWNING**

—YOU MAY HAVE TO INFLATE THIS PFD TO FLOAT.

—TRY THIS PFD IN THE WATER EACH SEASON TO SEE IF IT WILL FLOAT YOU WITHOUT INFLATION.

—[For Type I devices intended for recreational use] CHOOSE THE RIGHT SIZE PFD AND WEAR IT.

—FASTEN ALL CLOSURES AND ADJUST FOR SNUG FIT.

—THIS PFD MUST BE MAINTAINED, STOWED, AND USED ONLY IN

ACCORDANCE WITH THE OWNER'S MANUAL.

—REMOVE HEAVY OBJECTS FROM POCKETS IN AN EMERGENCY.

—[Unless impact tested at high speed as noted on the approval certificate For Type I devices intended for recreational use] DO NOT USE IN HIGH-SPEED ACTIVITIES.

—[For Type I devices intended for recreational use] DO NOT DRINK ALCOHOL WHILE BOATING.

\* \* \* \* \*

(g) *Flotation material buoyancy loss.*

When kapok flotation material is used, the statement "—REPLACE PFD IF PADS BECOME STIFF OR WATERLOGGED." must follow the warning "—TRY THIS PFD IN THE WATER EACH SEASON TO SEE IF IT WILL FLOAT YOU WITHOUT INFLATION." required by paragraph (c) or (d) of this section.

(h) *Type equivalence.* The exact text to be inserted for Type V hybrid PFDs will be one of the following type equivalents as noted on the Approval Certificate.

\* \* \* \* \*

(j) *Approved use.* Unless the Commandant has authorized omitting the display of approved use, the exact text to be inserted will be one or more of the following statements as noted on the approval certificate:

(1) "all recreational boats and on uninspected commercial vessels"

(2) "all recreational boats and on uninspected commercial vessels. REQUIRED TO BE WORN to meet Coast Guard carriage requirements (except for persons in enclosed spaces as explained in owner's manual)"

(3) "inspected commercial vessels as a WORK VEST only."

(4) "[Insert exact text of special purpose or limitation and vessel(s) or vessel type(s), noted on approval certificate]."

\* \* \* \* \*

(l) *Size Ranges.* The exact text to be inserted will be one of the following statements as noted on the approval certificate:

(1) ADULT—For persons weighing more than 40 kg (90 lb).

(2) YOUTH—For persons weighing 23-40 kg (50-90 lb).

(3) CHILD SMALL—For persons weighing 14-23 kg (30-50 lb).

(4) "[Other text noted on approval certificate]."

20. Section 160.077-33 is redesignated as § 160.077-6, and in newly redesignated § 160.077-6 paragraphs (b), introductory text, and (c)(1) are revised, and paragraph (a)(3)(vi) is added to read as follows:

**§ 160.077-6 Approval Procedures.**

(a) \* \* \*

(3) \* \* \*

(vi) The size range of wearers that the device is intended to fit.

\* \* \* \* \*

(b) *Waiver of tests.* If a manufacturer requests that any test in this subpart be waived, one of the following must be provided to the Commandant as justification for the waiver:

\* \* \* \* \*

(c) \* \* \*

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

\* \* \* \* \*

21. Section 160.077-35 is redesignated as § 160.077-7 and is revised to read as follows:

**§ 160.077-7 Procedure for approval of design or material revision.**

(a) Each change in design, material, or construction of an approved PFD must be approved by the Commandant before being used in any production of PFDs.

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

22. Section 160.077-37 is redesignated as § 160.077-9 and is revised to read as follows:

**§ 160.077-9 Independent laboratories.**

A list of independent laboratories which have been accepted by the Commandant for conducting or supervising the tests and inspections required by this subpart, and for making material certifications required by § 160.077-11, may be obtained from the Commandant.

Dated: December 27, 1994.

**J.C. Card,**

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

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