

***S-30 OUTBOARD ENGINE AND RELATED EQUIPMENT WEIGHTS*****Table of Contents**

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## **S-30 OUTBOARD ENGINE AND RELATED EQUIPMENT WEIGHTS**

*Based on ABYC's assessment of the state of existing technology, and the problems associated with meeting this standard, ABYC recommends compliance with this standard for all boats manufactured after July 31, 2006.*

### **30.1 PURPOSE**

**This industry conformity standard is a guide for outboard engine and related equipment weights for use in determining vessel capacity and flotation.**

### **30.2 SCOPE**

**This industry conformity standard applies to all outboard boats less than 26 ft. in length.**

#### **NOTES:**

*1. This document is intended to serve as a single source for engine and related equipment weights to be used where applicable in ABYC standards and when referenced by other sources. This document will facilitate the adjustment of the weights reflected in the table as engine technology changes.*

*2. The weights contained in this document are higher than those listed in Title 33 CFR Part 183 and have been determined as a result of a review of existing outboard engine and related equipment weights. The weights reflected in the CFR are based on weights of engines manufactured in the 1970's. As engine technology has evolved weights have increased for the same given horsepower. Title 33 CFR Part 183 may eventually reference this document as the required weight table for engine weights used in flotation testing.*

### **30.3 REFERENCED ORGANIZATIONS**

ABYC - American Boat & Yacht Council, Inc., 3069 Solomons Island Road, Edgewater, MD 21037-1416. Phone: (410) 956-1050. Fax: (410) 956-2737. Web site: [www.abycinc.org](http://www.abycinc.org).

CFR - Code of Federal Regulations. May be obtained from the U.S. Coast Guard, 2100 Second St. S.W., Washington, DC 20593. (202)593-0001. Also available from ABYC in *Rules and Regulations for Small Craft*.

USCG - United States Coast Guard, USCG Headquarters, Washington, DC, 25093-0001. Coast Guard Infoline: (800)-368-5647. Web site: [www.uscgboating.org](http://www.uscgboating.org).

### **30.4 ENGINE WEIGHT LIMITATION**

See [ABYC S-7, Boat Capacity Labels](#), for engine weight label requirements.

TABLE 1a - WEIGHTS (IN POUNDS) OF GASOLINE OUTBOARD ENGINES AND RELATED EQUIPMENT FOR VARIOUS HORSEPOWER RATINGS									
1	2	3	4	5	6	7	8	9	10
Engine Horsepower Categories	Dry Weight (catalog weight)	DryWeight + Fluids + Heaviest Propeller	Swamped Engine Weights Derived from Column 3 (see Note 1)	T/S Control + 2 Cables	Remote Oil Tank	Battery Weight Dry & Submerged (see Note 2)		Full Portable Fuel Tank (see Note 3)	Total Weight Includes Columns 3+5+6+7+9
						Dry	Submerged		
SINGLE ENGINE INSTALLATIONS									
0.1 to 2.0	22	30	26	0	0	0	0	0	30
2.1 to 3.9	36	40	34	0	0	0	0	0	40
4.0 to 7.0	86	90	77	0	0	0	0	25	115
7.1 to 15.0	127	132	112	0	0	20	11	50	202
15.1 to 25.0	221	230	196	0	0	45	25	50	325
25.1 to 45.0	252	263	224	10	0	45	25	100	418
45.1 to 60.0	335	346	294	10	0	45	25	100	501
60.1 to 75.0	386	405	344	10	0	45	25	100	560
75.1 to 100.0	427	447	380	10	0	45	25	100	602
100.1 to 145.0	527	560	476	10	25	45	25	100	740
145.1 to 220.0	547	564	479	10	25	45	25	100	744
220.1 & up	635	679	577	10	25	45	25	100	859
TWIN ENGINE INSTALLATIONS									
50.1 to 90.0	504	526	447	20	0	90	50	100	736
90.1 to 120.0	670	692	588	20	0	90	50	100	902
120.1 to 150.0	772	810	689	20	0	90	50	100	1020
150.1 to 200.0	854	894	760	20	0	90	50	100	1104
200.1 to 290.0	1054	1120	952	20	50	90	50	100	1480
290.1 to 440.0	1094	1128	959	20	50	90	50	100	1388
440.1 and up	1270	1358	1154	20	50	90	50	100	1718

**Notes:**

1. *The submerged weight of an engine can be estimated as 60% of the dry weight.*
2. *One battery per engine is to be used.*
3. *If the boat is equipped with a permanent fuel system and is not intended to use a portable tank, the portable tank weight can be omitted, provided that the weight used is not less than 33 CFR part 183, subpart h, Table 4 Column 6.*
4. *For monohull boats less than 20 ft. in length, Title 33 CFR Part 183.41 requires that the boat be tested with the weight of the full portable fuel tank as shown in column 9.*
4. *For diesel outboards, use the engine manufacturer's engine weight plus the weight of a full portable fuel tank.*

**TABLE 1b - WEIGHTS (IN KILOGRAMS) OF GASOLINE OUTBOARD ENGINES AND RELATED EQUIPMENT FOR VARIOUS KILOWATT RATINGS**

1	2	3	4	5	6	7	8	9	10
Engine Horsepower Categories	Dry Weight (catalog weight)	DryWeight + Fluids + Heaviest Propeller	Swamped Engine Weights Derived from Column 3 (see Note 1)	T/S Control + 2 Cables	Remote Oil Tank	Battery Weight Dry & Submerged (see Note 2)		Full Portable Fuel Tank (see Note 3)	Total Weight Includes Columns 3+5+6+7 +9
						Dry	Sub-merged		
<b>SINGLE ENGINE INSTALLATIONS</b>									
0 - 1.5	10.0	13.7	11.7	0.0	0.0	0.0	0.0	0.0	13.7
1.6 - 2.9	16.4	18.2	15.5	0.0	0.0	0.0	0.0	0.0	18.2
3.0 - 5.22	39.1	40.9	34.8	0.0	0.0	0.0	0.0	11.4	52.3
5.3 - 11.2	57.7	60.0	51.0	0.0	0.0	9.1	5.0	22.7	91.8
11.3 - 18.7	100.4	104.5	88.9	0.0	0.0	20.5	11.4	22.7	147.7
18.8 - 33.6	114.5	119.5	101.6	4.6	0.0	20.5	11.4	45.4	190.0
33.7 - 44.8	152.1	157.1	133.6	4.6	0.0	20.5	11.4	45.4	227.6
44.9 - 56.0	175.3	183.9	156.4	4.6	0.0	20.5	11.4	45.4	254.4
56.1 - 74.6	193.9	203.0	172.6	4.6	0.0	20.5	11.4	45.4	273.5
74.7 - 108.2	239.0	254.0	215.9	4.6	11.4	20.5	11.4	45.4	335.7
108.3 - 164.1	248.4	256.1	217.7	4.6	11.4	20.5	11.4	45.4	338.0
164.2 and up	288.0	307.9	261.7	4.6	11.4	20.5	11.4	45.4	389.6
<b>TWIN ENGINE INSTALLATIONS</b>									
37.6 - 67.2	228.9	238.8	203.1	9.1	0.0	40.9	22.7	45.4	334.3
67.3 - 89.6	304.2	314.2	267.1	9.1	0.0	40.9	22.7	45.4	409.6
89.7 - 112.0	350.5	367.7	312.7	9.1	0.0	40.9	22.7	45.4	463.2
112.1 - 149.2	387.8	405.9	345.1	9.1	0.0	40.9	22.7	45.4	501.3
149.3 - 216.4	478.0	508.0	431.8	9.1	22.7	40.9	22.7	45.4	671.3
216.5 - 328.2	496.7	512.1	435.4	9.1	22.7	40.9	22.7	45.4	630.3
328.3 and up	576.0	615.8	523.4	9.1	22.7	40.9	22.7	45.4	779.3

**Notes:**

1. The submerged weight of an engine can be estimated as 60% of the dry weight.
2. One battery per engine is to be used.
3. If the boat is equipped with a permanent fuel system and is not intended to use a portable tank, the portable tank weight can be omitted provided that the weight used is not less than 33 CFR part 183, subpart h, Table 4 Column 6. For monohull boats less than 20 ft. in length, Title 33 CFR Part 183.41 requires that the boat be tested with the weight of the full portable fuel tank as shown in column 9.
4. The values in columns 1, 2, 3, 5, 6, 7, 8 and 9 are derived from Table Ia; all weights have been rounded to the next higher tenth. The values in columns 4 and 10 are derived as noted above.
5. For diesel outboards, use the engine manufacturer's engine weight plus the weight of a full portable fuel tank.

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*Origins and Development of ABYC S-30, Outboard Engine and Related Equipment Weights*

ABYC S-30 was first published in 2002. The 2005 update is the work of the Hull Performance Project Technical Committee.

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