



# PHRF RATING INFORMATION

With over 200 Freedom 21's sold in 1983, there are increasing requests from owners about PHRF ratings. The nature of the PHRF system is such that in the first year - unless evidence is presented to the contrary, new boats are usually penalized with a low rating. This memo is an attempt to provide Freedom 21 owners with background information that will help guide PHRF rating committees.

First of all, here is some of the essential data needed for rating:

LOA: 21'8"	MAINSAIL: 190 SQ. FT.
LWL: 17'8"	STAYSAIL: 110 SQ. FT.
BEAM: 8'0"	SPINNAKER: 300 SQ. FT.

	FIN KEEL	SHOAL KEEL
DISPLACEMENT:	2000	2250
DRAFT:	3'9"	2'0"
BALLAST:	500	750
MATERIAL:	FIBERGLASS	
I:	19'4"	
J:	5'3"	
LP (MAX):	10'6"	
P:	24'5"	
E:	10'9"	
SPL:	6'0"	
G:	12'8"	
<del>SL</del> RIG:	23'3"	
	FRACTIONAL (if staysail is used)	
	CAT BOAT (if only mainsail is used to windward)	
RUDDER:	SPADE	
KEEL:	FIN	
	SHOAL	

In general terms the Freedom 21 can be considered a performance cruiser. That means it should be faster than straight cruising types like the Cape Dory 22 or O'Day 22, but slower than straight racing types like the J-22, Holder 20, or Sonar. A particular weakness of the cat rig is light wind to windward. So while the Freedom 21 should be quite fast offwind, it will not be very fast upwind. To improve windward performance, we offer the option of a staysail. This makes the boat more competitive upwind for those who want to take the extra trouble. *Therefore it will be important for PHRF committees to note whether the Freedom 21 will be raced as a cat boat - or a cat sloop - with the staysail.* In my estimation, the addition of a staysail would improve the boats performance by 15 to 20 seconds per mile and this obviously should be reflected in the rating. A further consideration is that the shoal draft keel is approximately 30 seconds per mile slower than the fin keel version -so this must be factored in as well.

As a guide to a fair base rating for the Freedom 21, we have assembled some comparative data from the 1983 USYRA PHRF book. The following is a list of 70 boats in the 21 to 23 foot range. The rating shown for each boat is the average of the various Regional PHRF ratings which are shown in the book.

CATALINA	22	SK FK	270B * 270B	LINDENBERG	22	M/T	208C
COLUMBIA	22		268B *	LUGER	21		282A
ALLMAND	23		270A *	MARSHALL	22		275B
AQUARIUS	23		275A	MONTGOMERY	23		234A
BRISTOL	22	Carvel	285A *	MORGAN	22		242C *
BUCCANEER	220		225A	MUSTANG	22		250B
CAL	21		255C *	NORTH AMERICAN	23		252B
CAPE DORY	22		265B *	NORTH STAR	22		282C
CAY	23		249A	NORTHWIND	23		232A
CHRYSLER	22		255 *	O'DAY	22		280B *
CLIPPER MARINE	21		275B	OLYMPIAN	23		240A
CORONADO	22		280B *	OLYMPIC	23		276C
CREEKMORE	22		200B	PEARSON	22		245B *
D & M	22		260C	PEARSON	23		234B *
ERICSON	23-1		255C *	PUMA	23		252C
FLAMINGO	21		267B	PY 23 Series			236A
GRAMPIAN	23		261B	RANGER	22		220C *
GULFCOAST	23-1		238B	S-2	23		267A *
HARMONY	22		192B	SAILMASTER	22		288B
HARPOON	6.2 (21)		245A *	SAN JUAN	21		252C *
HELSEN	22		276B	SAN JUAN	23		235B
HUNTER	22		255B *	SANTANA	21		265B *
HULLMASTER	22		273A	SANTANA	22		240B
IRWIN	23		252C	SHOCK	22		264C
ISLANDER	21		282C	SEA SPRITE	23		267B
JEANNEAU	23		186A	SEAFARER	22		275A
KELLS	23		276A	SIRIUS	21		258A
KITTIWAKE	23		270B	SONAR	23		180B
KIWI	22		210A	SONIC	23		228C

SOUTH COAST	21	260B	TMI	22	270B
SOUTHERN	21	240B	VENTURE	21	252C *
SPIRIT	23	245C	VICTORY	21	273B
STARWIND	22	273A *	WILDERNESS	21	222B
TANZER SERIES	22	240C *	WINDROSE	22	246A
TEMPEST	21	281C	WINDWARD	21	275B

\*refers to 22 popular classes.

The average PHRF rating of the 22 popular classes in the 21 - 23 foot range is 257. I believe that this would be a fair starting point for the fin keel cat rig Freedom 21. The fin keel cat sloop Freedom 21 rig should rate lower — around 240. The shoal draft cat rig should rate around 270, and the shoal draft cat sloop should rate around 250. Naturally all these ratings have to be confirmed by performance, but I believe that the above guidelines would be a fair starting point.

Note: It is easy for rating committees to be confused by the Gun Mount Spinnaker arrangement because it is different - and because it employs a *yard* rather than a pole. A yard is - by definition from the old square rigger days - a spar supported by its midpoint. The Gun Mount rig is designed for the yard to be supported at its midpoint by the metal sleeve on the pulpit. The class rules specify this, and common sense requires it, since any position other than the midpoint makes the rig unbalanced and runs the risk of breakage. I bring this up because the yard cannot logically be measured as a pole - since it can never be extended to windward by its full length - as a pole is. Rather the yard must be measured by its length from midpoint which is 6 feet in the case of the Freedom 21. Thus, while the length of the yard is 12 feet, its outboard projection from the centerline of the boat (SPL as seen in fig.) is 6 ft. It is useful for all owners to prominently mark the midpoint of the yard with bands, so that the committee and any other competitors can verify this fact at any time. We have employed this system for racing in the Caribbean for 3 years.

There are over 350 boats now sailing with the Gun Mount, so it is an established reality rather than a passing fancy. Given the spirit of the PHRF rule - which is to rate all seaworthy boats — there should be none of the restrictive problems which have penalized other rating systems.

