

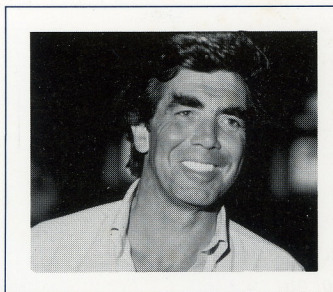
Frers 33

Carroll Marine Ltd.

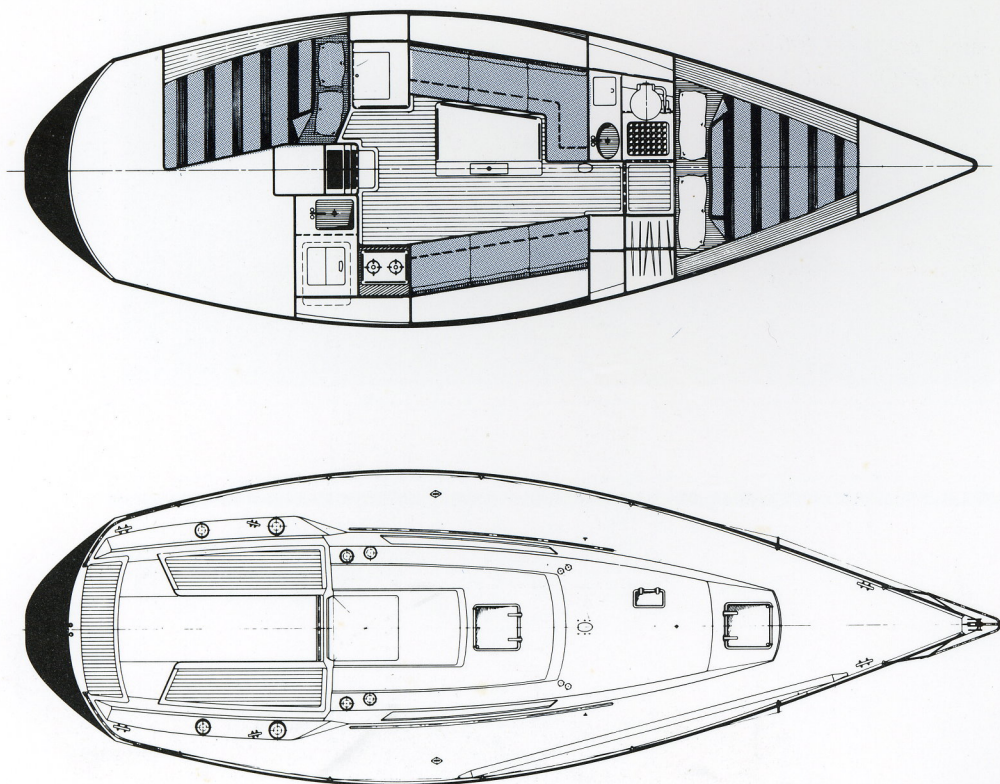
Designer's Comments

The Frers 33 represents our latest definition of the modern cruiser-racer. This yacht has been designed for Carroll Marine specifically to compete under the IMS Rule, and PHRF handicapping system. The parameters of the IMS Rule have allowed the creation of a fair and fast hull without the distortions typical of the IOR Rule. The design is meant to excel in the moderate conditions normally found in North America.

We have employed our latest thinking in elliptical keel and rudder shapes for maximum upwind performance with minimum wetted surface and drag. The rig is masthead for power and ease of handling. Built with the care and attention to detail for which her builder is noted, she should acquit herself well on the race courses of the world.



German Frers



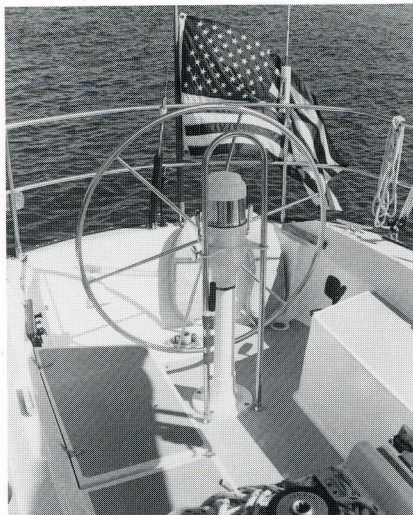
Construction Specifications

The hull is constructed of biaxial and unidirectional fiberglass with balsa core for the maximum stiffness to weight ratio. The exterior gelcoat is a premium quality NPG formulation chosen for resistance to blistering and ultra violet degradation. The outer hull laminate is vinylester resin to provide the best anti-blistering protection currently available. Extra laminations of unidirectional glass are carefully added in high stress areas. The elliptical keel is faired to a high degree by our exclusive FRP fairing process. A structural fiberglass grid system distributes keel and rig loads evenly and creates a very stiff hull structure.

The deck is constructed of unidirectional and biaxial fiberglass with balsa core. The deck to hull joint is bonded and bolted with stainless steel bolts. A low profile aluminum toe rail aft provides strength, hiking comfort, and a convenient lead for sail trim. An attractive teak toe rail forward improves footing in a seaway. The large cockpit is equally at home during a hectic mark rounding or a tranquil evening cocktail party. Hardware is from the finest suppliers, Harken, Lewmar, Merriman, Barient, Schaefer, and Sparcraft to name a few.

Mechanical

The engine is the proven Yanmar 2GMF with fresh water cooling, and a 45 amp alternator. The control panel contains a tachometer, warning lights and a buzzer. A 24 gallon fuel tank gives excellent range under power. A seawater strainer and blower are provided for safety. A two blade bronze propeller is standard: racing sailors may opt for a folding propeller. Thru-hulls are flush mounted, and have seacocks installed. A diaphragm bilge pump is installed in the cockpit. The fuel system meets all current ABYC standards.



Interior Accommodations

Don't let the Frers 33's reputation for race winning performance mislead you: she can win the post-race party as well. Her 11'-3" beam allows for a spacious main cabin with 6'-2" headroom. The table conveniently stows away against the bulkhead for maximum floor space while sailing, yet seats six comfortably for dinner. The sit-down chart table is large enough for serious navigation, with chart, tool and book storage in addition to two deep drawers. There is ample room to mount radio, Loran, and instrument repeaters. It is a nav station designed to go offshore.

Weight placement is critical to the performance of a yacht, and at Carroll Marine all items of joinery must pass the test of utility, strength and weight if they are to be included. Weight control is crucial in the V-berth, but a private forward owner's cabin is important during a long cruise or a weekend overnight. The balsa cored berth structure is light and strong and acts as a longitudinal stiffener to the hull sides forward. Combine it with thick foam cushions over seven feet long and you have a big comfortable berth even a racer can love. A bureau group and hanging locker complete the forward accommodations. An overhead hatch provides light and ventilation.

The head is fully enclosed with a marine head, vanity sink, pressure water and mirrored medicine cabinet. Ventilation is by way of an overhead hatch. A shower and hot water are available options. The galley is complete and efficient. There is a gimballed stainless steel two-burner stove with oven. The stove is an Origo, non-pressurized alcohol model. Lighter, safer and more reliable than either conventional alcohol or propane, it meets our stringent requirements for utility and weight. Counter space is ample for meal preparation: lockers and drawers keep stores secure and ready for use underway. The ice box is six cubic feet with closed cell foam insulation. A deep stainless steel sink is serviced by a 30 gallon pressurized water system. For longer cruises, an additional 30 gallon tank is an available option.

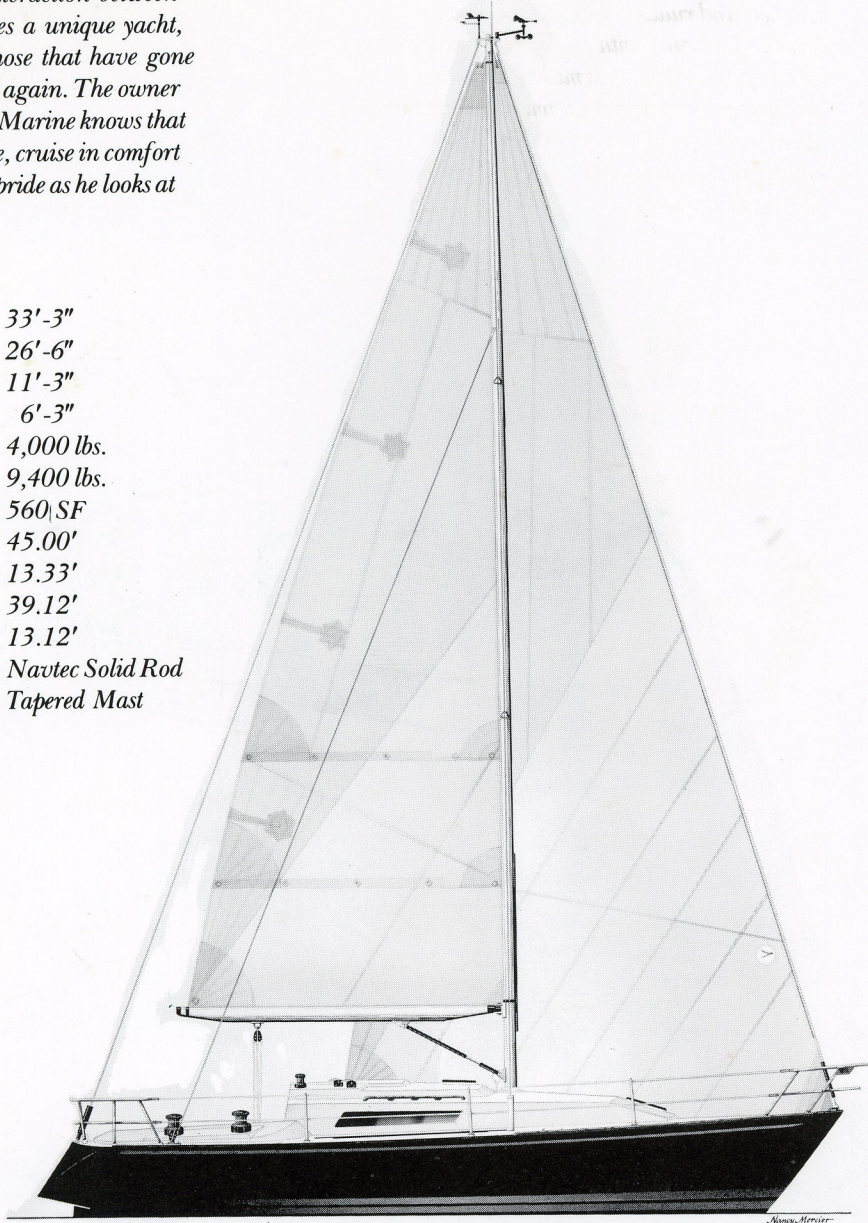


Builder's Comments

Carroll Marine Ltd. is committed to building fast, seaworthy sailing yachts that represent the best in modern design and construction technique. The association between German Frers and Carroll Marine has been a happy one, because we share a common ideal of what defines the proper yacht. The majority of our clients are competitive by nature, and successful by talent and hard work. They appreciate the design genius of German Frers and our painstaking method of building yachts. The interaction between builder and client produces a unique yacht, never quite the same as those that have gone before, never to be repeated again. The owner of a Frers 33 from Carroll Marine knows that he can race with confidence, cruise in comfort and safety, and smile with pride as he looks at her on a mooring.

Specifications

LOA	33'-3"
LWL	26'-6"
Beam	11'-3"
Draft	6'-3"
Ballast	4,000 lbs.
Displacement (Sailing)	9,400 lbs.
Sail Area (100% FT)	560/SF
I	45.00'
J	13.33'
P	39.12'
E	13.12'
Standing Rigging	Navtec Solid Rod
Rig: Double Spreader,	Tapered Mast



Carroll Marine Ltd.

FRERS 33 SPECIFICATIONS

1990

LOA	33'3"	Displacement	9000 lbs
LWL	26'6"	Ballast	4000 lbs
Beam	11'3"	Draft	6'3"
Sail Area	560 sq. ft.	Wing Keel	4'11"

CONSTRUCTION

HULL Molded fiberglass balsa cored hull comprised of alternating layers of biaxial and unidirectional E-glass with careful attention paid to proper fiber orientation. Polyester laminating resin is used with a surface of In-Plus gel coat along with an exterior fiberglass skin of vinylester resin.

DECK Molded fiberglass deck with balsa core and marine plywood in areas of high stress. As in the hull, careful attention is paid to proper orientation of the biaxial and unidirectional glass fibers. The deck is through bolted and bonded to the hull at the sheer. All major bulkheads are bonded to the deck.

STRUCTURAL GRID An interior structural grid system carries keel, rig, and hull loads. The grid is comprised of multiple plies of unidirectional E-glass and polyester resin. Aluminum and marine plywood are bonded into the grid in areas of higher loading.

RUDDER Unidirectional and biaxial E-glass molded with polyester resin and high density foam core. The rudder stock is solid aluminum with wheel steering, brake and guard. A 40" destroyer wheel is standard.

KEEL 4000 lbs. of lead alloyed with 4% antimony for hardness is bonded with epoxy and fastened with stainless steel bolts. Each keel is faired and primed with our exclusive vinylester resin and biaxial glass system.

DECK HARDWARE

- * Bow pulpit is double rail welded stainless steel with integral USCG approved navigation lights
- * Stern pulpit is double rail welded stainless steel with USCG approved stern light
- * Stanchions are tapered stainless steel with upper and lower vinyl coated lifelines
- * Custom stainless steel IOR style stemhead with tack horn
- * Two bow chocks
- * Forward mooring cleat, 8"
- * Inboard genoa tracks
- * Two low lead genoa cars with full length adjustment
- * Teak toerail forward
- * Aluminum toerail aft with adjustment slide cars
- * Teak handrails on cabin top
- * Halyards and controls lead aft through organizers to rope clutches
- * Harken roller bearing traveller with 3:1 crosshaul system
- * Two aft mooring cleats, 8"
- * Diaphragm bilge pump in cockpit
- * 40" stainless steel wheel, brake, guard

STANDARD WINCH PACKAGE

* Primary	2 each	Barient 24A
* Halyards/Controls	2 each	Barient 21A
* Handle	2 each	Barient 10" std.
* Handle Pouch	2 each	

HATCHES AND VENTILATION

- * Forward hatch 19" x 19" Aluminum
- * Vent hatch, head 13" x 7" Aluminum
- * Vent hatch 12" x 15" Aluminum
- * Main companionway
- * Opening port into quarter berth
- * Fixed ports in main cabin, P & S

SPARS

MAST Double spreader, tapered aerodynamically designed section with trisect masthead. White paint

standard. Internal conduit for wiring, with bowlight.

BOOM Aluminum extrusion with internal 5:1 outhaul, 2-reefs, topping lift, tackhooks, and lock offs for reefs.

RIGGING

STANDARD RIGGING Navtec stainless steel solid rod rigging with internal tangs. In-plane upper and lower shrouds brought down to deck (continuous). Checkstays of 1 x 19 stainless steel wire with 4:1 block and tackle. Extended Navtec backstay turnbuckle for ease of conversion to hydraulic backstay.

RUNNING RIGGING

* Main Halyard	1 each, internal lead aft
* Main Sheet	1 each, with Harken 6:1 Hexaratchet
* Main Boom Topping Lift	1 each, Stainless steel w/dacron tail
* Genoa/Spinnaker Halyard	2 each, internal lead aft
* Traveller Crosshaul	2 each
* Cunningham	1 each, 5:1 w/cam cleat
* Reefs	2 each, internal lead aft
* Outhaul	1 each, 5:1 internal

MECHANICAL SYSTEMS

- * Yanmar 2GMF 18 hp diesel, fresh water cooled
- * 2:1 straight drive transmission
- * Instrument panel with tachometer, warning lights, and buzzer
- * Seawater strainer
- * Blower
- * 2-Blade fixed propeller (folding optional)

ELECTRICAL SYSTEMS

- * 12 Volt DC system
- * Main distribution panel with circuit breakers
- * Main battery switch
- * One 90 amp battery std., provision for 2nd battery
- * Color coded wiring to ABYC specifications

TANKAGE

* Fuel	24 Gallons
* Water	30 Gallons
* Optional Water	30 Gallons

ACCOMMODATIONS

MAIN CABIN ACCOMMODATIONS Two 6'4" berths with stowage outboard and 6'4" quarter berth with stowage underneath. Teak bulkhead mounted table with seating for six. Varnished teak and holly sole and overhead teak handrails. Removable overhead panels to access deck hardware.

V-BERTH Double 6'10" berth, stowage underneath. Soft vinyl covered hull sides.

GALLEY Two burner stainless steel alcohol stove with oven and slide away stove top standard. Stainless steel deep sink with pressure water. Molded FRP ice box with shelves and pump-out. Storage for dishes and consumable items.

HEAD Includes marine head, vanity sink with pressure water, shower and sump pump, laundry hamper, mirror and towel rack.

INTERIOR LIGHTING Includes reading lights over berths, navigator's spotlight, and overhead and indirect lighting as necessary.

NOTE: These specifications are believed to be correct at the time of printing. For the sake of continuous improvement, the Builder reserves the right to make alterations without notice, as considered desirable. No such alterations, however, will be considered retroactive for yachts already delivered or under construction. Draft and displacement vary with load condition.