YACHT PROVENANCE

INDEPENDENT DOCUMENTARY RESEARCH



PUBLIC EXAMPLE EDITION

Copyright © 2026 Patrick Fitzhorn

Produced by Yacht Provenance

The copyright claim in this dossier is limited to original material owned by the copyright holder, including any protected original selection and arrangement. It does not extend to historical facts, public-domain materials, or material owned by third parties.

Photographs, listing descriptions, documents, and other third-party materials remain subject to the rights of their respective owners. Their inclusion in this dossier does not transfer those rights to Yacht Provenance or the recipient.

Yacht Provenance acknowledges the contribution of the brokers, photographers, archives, researchers, and other sources whose work helps preserve the history of yachts. Where information or material is drawn from Boats Group databases, including SoldBoats.com, the relevant source is identified in the dossier's notes or image credits. Contributors are credited when identified and as required by applicable permissions.

Third-party material is included subject to applicable permissions, licenses, and restrictions. Anyone wishing to reproduce or distribute such material separately should consult the relevant rights holder.

PUBLIC EXAMPLE EDITION

Refuge

(ex. Ted K)

An Illustrated History and Provenance



PUBLIC EXAMPLE EDITION

Artist's rendering of Refuge
Artwork supplied by the Principal.

Public website edition — 21 November 2026

REF-1998-26-0006

Contents

Table of Figures 6
1 A yacht for a cruising life 7
1.1 Vessel identity 8
1.2 Research scope and evidence 8
1.3 Ownership and use chronology 9
2 The people behind *Ted K* 10
2.1 An earlier cruising life 10
2.2 Anne Kilkenny's maritime inheritance 11
2.3 Commissioning an individual yacht 12
3 Stephen R. Seaton and the design of *Ted K* 13
3.1 From drawing boats to a professional practice 13
3.2 Sailing experience and motor-yacht work 14
3.3 The design problem aboard *Ted K* 14
4 Waterline and the making of the yacht 17
4.1 People and a custom-building practice 17
4.2 Shaping the steel 18
4.2.1 Fabricating the hull 18
4.3 Structure, machinery and an interior 20
4.4 Other boats and the yard's development 21
5 From *Ted K* to *Refuge*: owners, voyages and change 22
5.1 Pacific coast beginnings 22
5.2 The 2012 transfer and a new name 24
5.3 Refuge LLC and the maintenance record 25
5.4 The private offering and the 2026 conveyance 26
5.5 The Nanaimo sighting and later records 27
5.6 What changed, and what the inventories cannot tell us 27
6 The steel yacht: hull, decks and living spaces 29
6.1 Understanding her dimensions 30
6.2 Hull form and the bulbous bow 31
6.2.1 Hull form and rolling motion 32
6.3 Keel, appendages and protected stern gear 33
6.4 Deck circulation and sheltered control 34
6.5 A domestic interior within a working hull 37
6.5.1 Approaching the cabins 37
6.5.2 The saloon and changes of level 38
6.5.3 Fitting storage around berths 39
6.5.4 A galley within the living space 40
7 Engines to propellers 41

PUBLIC EXAMPLE EDITION

7.1 The engines and their operating character 41
7.2 Transmission, shafting and thrust 43
7.3 Propellers and rudders 43
7.4 Cooling, exhaust and service access 44
8 A working home: services and deck equipment 45
8.1 Fuel from storage to daily use 45
8.2 Electricity underway and at anchor 46
8.3 Fresh water, bathing and sanitation 49
8.4 Heat, ventilation and living aboard 51
8.5 Navigation, communications and monitoring 52
8.6 Anchoring, paravanes and the tender 53
9 Speed, endurance and the meaning of range 55
9.1 Speed and hull form 55
9.2 Reconstructing the conditional range 55
9.3 Loading, autonomy and daily distance 57
9.4 Reading the numbers in service 57
10 What survives 58
Index 59
Bibliography 61
Historical and documentary sources 61
Technical and geographical references 69
Illustrations and source plates 72
Research and presentation 72
Appendix A Vessel reference 73
A.1 Equipment-history reading guide 75
Appendix B Selected calculation notes 76
B.1 Calculation basis and selected records 76
B.2 Additional cited calculation records 81
Appendix C Documentary evidence 84
Appendix D Sources, Methods and Illustration Use 87
D.1 Research basis and interpretation 87
D.2 Illustrations, source materials and fair use 87
D.3 Title illustration and corporate credits 88
D.4 Drawing evidence and unresolved enquiries 88
D.5 Edition-specific treatments and preserved records 88

PUBLIC EXAMPLE EDITION

Table of Figures

Title-page artwork: *Refuge* (artist's rendering) 3
Figure 1.1 *Ted K* underway 7
Table 1.1 Identity at a glance 8
Table 1.2 Ownership and use chronology 9
Figure 3.1 Broadside profile of *Refuge* 15
Figure 3.2 Seaton's Naviaux lines sheet 16
Figure 3.3 Reading a lines drawing 16
Figure 4.1 Bow and credited orca artwork 19
Figure 4.2 Later bulb and bow decoration 19
Figure 4.3 Profile, rig and structural sketches 20
Figure 5.1 Recorded ownership and names 22
Figure 5.2 Early builder portrait of *Ted K* 23
Figure 5.3 Locations in the surviving record 24
Figure 5.4 Square-on transom inscription 25
Figure 5.5 Metallic-finished mast and boom 28
Figure 6.1 Reading *Refuge*'s exterior 29
Figure 6.2 Functional accommodation overview 30
Table 6.1 Operating conditions and expected rolling response 33
Figure 6.3 Haulout and apparent exhaust outlets 34
Figure 6.4 Inside the Portuguese bridge 35
Figure 6.5 Exterior passage beside the house 35
Figure 6.6 Foredeck working area 36
Figure 6.7 Pilothouse helm, settee and table 36
Figure 6.8 Sleeping accommodation and head connection 37
Figure 6.9 Two individual berths 37
Figure 6.10 Curved stair viewed from above 38
Figure 6.11 Inlaid table and saloon joinery 38
Figure 6.12 Berth, headroom and cabinetry 39
Figure 6.13 Forward sleeping area and laundry 39
Figure 6.14 Galley viewed from the raised level 40
Figure 7.1 Propulsion, power, thrust and heat 41
Figure 7.2 Machinery-space aisle between engines 42
Figure 8.1 OutBack control and operating notice 46
Figure 8.2 Strapped battery cases and selectors 47
Figure 8.3 Phasor and Kubota branding 48
Figure 8.4 Solar array and working rig 49
Figure 8.5 Shower, washbasin and toilet 50
Figure 8.6 Saloon stove and flue 51
Figure 8.7 ComNav branding and Garmin displays 52
Figure 8.8 Anchor-chain stowage 53
Figure 8.9 Rigid inflatable tender afloat 54
Figure 8.10 Stowed tender with Tohatsu outboard 54
Table 9.1 Conditional range at the reported operating points 56
Table A.1 Vessel reference 73
Figure C.1 USCG abstract, first page 84
Figure C.2 USCG abstract, continuation 85
Figure C.3 PSIX vessel and certification detail 86

PUBLIC EXAMPLE EDITION

1 A yacht for a cruising life



Figure 1.1. *Ted K* underway, in the builder archive; the visible configuration differs from the later photographs. A trial date or delivery-stage identification is not established. The photograph's date and location are unrecorded. Source S06; archived December 22, 2005. Photographer not identified in the supplied record.

In autumn 1999, Jon Naviaux and Anne Kilkenny were returning from their maiden Alaska voyage aboard their new motor yacht, *Ted K*. At Astoria they met the later owners of the sailing boat that had carried them through an earlier part of their cruising lives. Anne recalled the meeting in a letter published in Latitude 38 in February 2003. In a few lines, her account joins an old boat and a new one, former and present owners, and two different ways of travelling by sea. [S67.]

Ted K had been built at Waterline Yachts in Sidney, British Columbia, in 1998, to Stephen R. Seaton's design. The custom steel motor yacht marked a new chapter for Naviaux and Kilkenny after their years aboard an Ericson sailing yacht. Her raised pilothouse, bulbous bow and working rig gave that next boat a distinctive form. [S04, S05; S67, S68; S72.]

The Alaska account gives the commission a human setting: experienced cruising people using the boat they had chosen to have built. Their subsequent association with *Ted K* in Portland appears in a 2006 cruising-magazine note. The yacht would acquire the name *Refuge* in 2012, while retaining the official identity that connects the original build with later ownership. [S68; S72.]

The chapters that follow begin with those clients, then turn to the designer and the yard. Recorded ownership and accounts of use carry the history forward before the reader moves aboard to examine the hull, accommodation and working systems. The documents and photographs reveal different parts of that history: the people and their intentions, the professional work of making a custom yacht, and the vessel that continued to travel under a new name.

PUBLIC EXAMPLE EDITION

1.1 Vessel identity

Identity	Documented particulars and authority
Name and case	*Refuge* (ex. *Ted K*); name change recorded May 4, 2012. [S72.] REF-1998-26-0006 is the Principal-assigned YP identifier.
Official identifiers	U.S. official number 1073941; hull/manufacturer identifier QWY52SS1F598; call sign WCY8509. No separate yard/build number established. [S72; S74.]
Original clients	Jon F. Naviaux and Anne Kilkenny. [S04, p.82; S67; S72.]
Designer / interior	Stephen R. Seaton: contemporary article and client-labelled drawing. No separate project-specific interior designer identified. [S04, p.82; S45/P031; S01, S02, S03.]
Build and dating	Waterline Yachts, Sidney, British Columbia; built 1998. Builder's certificate dated May 20, 1998 in the abstract; launch, completion day and delivery dates not established. [S72; S04, p.82.]
Hull / working rig	Steel motor yacht, bulbous bow, raised pilothouse; mast-and-boom lifting/paravane gear, not evidence of a fitted sailing rig. [S04, p.82; S45/P030; S01, S02, S03.]
Propulsion	Twin reported Perkins/Cat-Perkins T1004 diesels, 110 hp each, Twin Disc transmissions and twin shafts. Exact installed variants and duty ratings unverified. [S01, S02, S03; S45.]
Recorded dimensions	PSIX reports registered length 53.00 ft, breadth 16.20 ft and depth 6.00 ft. Listings separately report navigational draft. Loaded waterline length (LWL) is not established; see section 6.1. [S74; S01, S02, S03; S45/P031.]
Latest supplied title	After Work LLC, buyer in the May 21, 2026 instrument, filed June 29; abstract ends September 9, 2026 at 6:30 a.m. No later title conclusion. [S72.]

Table 1.1. Identity at a glance. Authorities are identified in each row.

PUBLIC EXAMPLE EDITION

1.2 Research scope and evidence

Historical research closes on 15 November 2026. The basis is supplied USCG and PSIX records, contemporary yard reporting, archived builder material, owners' published accounts and sales galleries. There is no formal dated interview transcript or present-condition survey. As-built plans, engine plates, refit work orders, beneficial ownership details and a continuous voyage log are unavailable. Record cutoffs and conflicts are identified where they affect the account; Appendix D explains methods and limits.

1.3 Ownership and use chronology

Date	Record type	Event
1998; certificate May 20	Build record	Built at Sidney by Waterline for Naviaux and Kilkenny as *Ted K*. S72.
Autumn 1999	Cruising account	Return from maiden Alaska voyage, reported by Anne; meeting at Astoria. S67.
June/July 2003	Trade article	Published yard article identifies *Ted K*, Seaton and Tolman. S04.
April 2006	Cruising account	Contemporary reference places Anne, Jon and *Ted K* in Portland. S68.
April 23/24, 2012	Title instrument / filing	100% conveyance to The Thor Corporation dated April 23, filed April 24 at 12:06 p.m. S72.
May 4, 2012	Name record	Recorded name change to *Refuge*. S72.
2013–2014	Database record	Archived datasets corroborate Refuge/Thor; not additional transfers. S42, S43, S54, S55.
September 30/October 15, 2019	Title instrument / filing	Thor-to-Refuge LLC instrument September 30, filed October 15 at 9:43 a.m. S72.
2019–2023	Reported maintenance	Seller-dated dodger, electrical, electronics, domestic and heating work. S45.
Spring/May 2025	Reported maintenance	Seller-reported generator installation and haulout, seals and coatings. S45.
2025	Cruising account	Seller-reported 45-day Desolation Sound cruise. S45.
December 2025	Private offering	Private Eastsound offering; archived February 2026. S45.
May 21, 2026	Title instrument	Instrument conveying from Refuge LLC to After Work LLC dated May 21; filed June 29. S72.
May 27, 2026	Listing update	Anacortes listing update, after the May 21 instrument and before its June 29 filing. Marketing, not another established transfer. S02; S72.
June 29, 2026	Title filing	May 21 Refuge LLC-to-After Work LLC instrument filed at 11:33 a.m. Filing date, not instrument date. S72.
August 21, 2026	Photographic sighting	Nanaimo sighting, posted August 22. S51.
August 24, 2026	Certificate issue	Documentation certificate issued; not the conveyance date. S74.
September 9, 2026, 6:30 a.m.	Record cutoff	Title abstract cutoff. S72.
September to November 2026	Marketing status	La Conner marketing and mixed pending/off-market labels; no later closing established. S01, S02, S03.

Table 1.2. Ownership and use chronology. Sources identified in each entry.

PUBLIC EXAMPLE EDITION

2 The people behind *Ted K*

The commission for *Ted K* brought together Jon F. Naviaux and Anne Kilkenny, Stephen R. Seaton and Waterline Yachts. The Coast Guard build header names both clients, identifies Waterline as the builder and records construction at Sidney, British Columbia, in 1998. The photographed lines drawing supplies another link: Seaton's name beside the Naviaux project designation. A custom boat that might otherwise be known chiefly through later equipment lists thus begins with identifiable people and a particular project. [S72; S45, lines drawing P031.]

Naviaux and Kilkenny were husband and wife. A caption in Fairchild Tropical Botanic Garden's magazine explicitly identifies Jon as Anne's husband. [S69, p.4.]

Naviaux and Kilkenny approached the motor yacht with cruising experience already behind them. Their earlier vessel was an Ericson sailing yacht, named in the sources as *Folle Independance* or *Folle Independence* and later *Pneuma*. Their Pacific and Australian travels aboard that boat supplied friendships and experience that remained part of their lives after they moved to *Ted K*. [S67, S68.]

That background gives the custom commission a useful human setting. These were owners who had already spent extended periods travelling by boat. The move to a motor yacht changed the physical organization of cruising: propulsion, shelter, deck work and domestic space could be arranged around a different combination of requirements. The surviving yacht shows the result in her raised pilothouse, working exterior, substantial storage and fitted accommodation. The finished design provides the clearest surviving expression of the custom commission. [S01, S02, S03; S45; S72.]

2.1 An earlier cruising life

The Ericson continued cruising with later owners after the couple moved to their motor yacht. Anne's account of the 1999 Astoria meeting, introduced in the opening chapter, connects that continuing history with the beginning of their life aboard *Ted K*. [S67.]

The distinction between the vessels matters to their history. The Pacific and Australian cruising is evidence of the clients' earlier experience, not an ocean-crossing record for *Ted K*. The Alaska account belongs to the new motor yacht. Keeping the two together as a human story, while keeping the voyages attached to their proper boats, reveals more than either an isolated owner biography or a list of *Refuge*'s reported destinations could do.

The April 2006 note extends that connection. Anne and Jon identified themselves as formerly of the sailing yacht and now of *Ted K* in Portland. They were asking to renew contact with a cruising friend, rather than making a formal statement about ownership. Its value here is the ordinary association it records: the couple remained connected with the motor yacht and with the wider community formed through their earlier travels. [S68.]

Later inventories and photographs show the yacht as a different setting for watchkeeping and life aboard. A raised pilothouse placed steering and navigation inside a sheltered house, with external access to deck work. Separate individual berths, desk space, a working galley and two heads gave the accommodation a practical domestic character. Heating, stored water and electrical generation supported the hours when the boat was at anchor as well as those underway. These are the physical choices described and photographed in the yacht's

PUBLIC EXAMPLE EDITION

later inventories. Their operation is developed in the engineering chapters; they describe the later documented accommodation, without establishing a delivery inventory for the original clients. [S01, S02, S03; S45.]

2.2 Anne Kilkenny's maritime inheritance

Anne's father, Thomas Francis "Ted" Kilkenny, was a boatbuilder, designer and captain whose scrapbooks are held by Fairchild Tropical Botanic Garden in southern Florida. Named for the botanist and plant explorer David Fairchild, the Garden preserves a maritime archive closely connected with its own history. [S70; S75.]

The connection between a yacht captain's papers and a botanical garden is direct. Kilkenny designed, built and captained *Cheng Ho*, the vessel used for Fairchild's 1939–1940 botanical expedition to Southeast Asia. The Garden describes the 1940 voyage, from the Philippines into the Indonesian archipelago, as its first official plant-collecting expedition; it supplied specimens for the Garden's early collections. Kilkenny's photographs of the vessel's construction and voyage therefore document the means by which that botanical work was carried out. [S69, pp.4, 52–53; S70; S75.]

The finding aid follows Kilkenny's naval service, Hong Kong boatbuilding and the *Cheng Ho* project. It identifies Anne as his daughter and records her donation of the scrapbooks on May 20, 2009. [S70.]

Thomas Francis Kilkenny was born in Providence, Rhode Island, on May 29, 1894. During the First World War he served as an ensign aboard USS *Montana*, where the finding aid associates him with Paul Stevens and Phil Rhodes, later naval architects whose yachts he built in Hong Kong. [S70.]

Before the Second World War he worked at the Ah King Ship Yard in Hong Kong. The Fairchild account describes the yard coming under Japanese control during the war and Kilkenny recovering ownership afterwards. It also records his extensive travels, including the 1936 passage of *So Fong* from Hong Kong to New York, a voyage reported in the contemporary press. These experiences connect boatbuilding with the practical business of taking a completed vessel to sea. [S70.]

According to the finding aid, John Archbold and David Fairchild recommended Kilkenny to design, build and captain *Cheng Ho*. The archive includes construction and launch photographs, a December 1939 trial trip, expedition photographs and clippings documenting his work. [S70.]

Kilkenny married Jane Winks of Oregon in 1947. They lived in Bali, Hong Kong and Japan before moving to Portland in 1950, where Anne was born. He died in September 1956. Anne's later donation preserved the record of that maritime life. [S70.]

The original name *Ted K* is strongly consistent with a tribute to Anne's father. The family relationship, the familiar name and Anne's part in commissioning the boat make it a persuasive interpretation. The title document records the yacht's name without explaining it, and no explicit naming declaration accompanies the surviving material. [S69, S70; S72.]

A 2017 Fairchild publication identifies Anne and Jon aboard *Ombak Putih* during an Indonesian voyage. It records their continuing maritime interests after the conveyance of *Ted K*; the voyage belongs to *Ombak Putih*, not *Refuge*. [S69.]

PUBLIC EXAMPLE EDITION

2.3 Commissioning an individual yacht

A custom yacht makes the relationship between owner, designer and builder unusually visible. In this project, the clients' names survive in the official build entry and on the photographed drawing. Seaton is credited with the design in contemporary reporting, while Waterline's own account of its working process describes collaboration among an owner's ideas, a designer's interpretation and a yard's execution. Those records establish the professional setting in which the yacht was created. [S04; S11; S45; S72.]

The clients' own reason for choosing Seaton is not stated in the available accounts. His established Pacific Northwest practice, experience with long-range motor yachts and preference for direct relationships with custom clients provide plausible professional context. These qualities suited the kind of individual cruising boat the Naviaux commission became, but the surviving sources do not identify which consideration decided their choice. [S22, S23; S72.]

The photographed drawings record the project at the stage of hull form and working arrangement. The clients' name is attached to Seaton's lines, while a profile sheet connects the hull and house with the mast and boom. These sheets give a tangible link between a commission and the shape that Waterline built. [S45/P030–P031.]

The surviving lines sheet carries a 52-foot motor-vessel title, while the later official record lists 53 feet. The measurement distinctions are explained in the hull chapter. Here the sheet ties Seaton's work to the Naviaux project. [S45/P031; S74.]

Waterline built the yacht at Sidney in 1998. The Coast Guard abstract records a builder's certificate dated May 20 of that year. The original certificate itself is not reproduced separately; the date appears in the supplied abstract. It anchors the construction history without identifying a launch, trial or delivery day. The yacht was Canadian-built. Continuous United States documentation is an author-supplied confirmation, separate from the dated official records. [S73.] [S72, S73, S74.]

PUBLIC EXAMPLE EDITION

3 Stephen R. Seaton and the design of *Ted K*

The designer's name survives in two different records of *Ted K*. Sven Donaldson's 2003 Professional BoatBuilder article credits Steve Seaton beside a photograph of the yacht. The photographed lines sheet carries Stephen R. Seaton's name and the Naviaux project designation. One records the completed boat in a contemporary yard account; the other shows the hull as a design associated with the original clients. Together they give Seaton a firm place in this yacht's history. [S04, p.82; S45, P031.]

His involvement connects the fifty-three-foot Waterline commission with a much wider professional life. Seaton worked across sailing yachts, powered cruisers and larger custom motor yachts, through building organizations, a naval-architecture partnership and his own practice. That breadth matters to *Ted K* because a custom cruiser has to be considered as a complete vessel. Shape, machinery, weight, shelter, accommodation and construction must remain compatible. The yacht's combination of a bulbous steel hull, twin propulsion, raised pilothouse and domestic interior belongs within that integrated design task.

3.1 From drawing boats to a professional practice

Peter Whiting, a yacht broker identified in Seattle Yachts' profile as overseeing offices and manufacturer relationships, supplies the principal chronological account of Seaton's career in a memorial published on February 28, 2026, following Seaton's death on February 18. Whiting describes Seaton as one of his best friends. His account is valuable as the recollection of someone who knew the designer personally and worked in the same marine industry; its biographical assessments are attributed to that perspective. [S22; S76.] It remembers a designer whose commitment to boats began well before the professional starting date of 1969. Born in a small farming community in southern Illinois to a United States Army officer, Seaton spent part of his childhood overseas. He later served in the Navy and maintained a lifelong maritime interest. At fifteen, while living in Seattle, he was already filling notebooks with boat sketches. [S22.]

Whiting dates Seaton's summer work with Bill Garden to 1963–1965 and records part-time work for Ed Monk Sr. These Seattle offices introduced him to the practical demands of drawings that builders could use to define hulls, arrangements and construction details. [S22.]

Whiting recalls another possible career being set aside. Seaton is said to have declined a professional baseball contract in favour of yacht design. The episode conveys the strength of the choice as his colleague remembered it. His subsequent path led to Morgan Yacht Corporation in St. Petersburg, Florida, where he worked under Charley Morgan. The memorial describes him as employee number five in a business that eventually grew to roughly 650 people. [S22.]

In the late 1970s he moved away from hands-on boatbuilding to concentrate on design. With Chuck Neville he formed SEATON–NEVILLE Naval Architects in Clearwater, Florida. The partnership lasted more than eleven years before the two men separated amicably to pursue their own aims. It was a substantial stage in his professional development, linking his name with a practice rather than only with individual commissions. [S22.]

PUBLIC EXAMPLE EDITION

Seaton returned to the Pacific Northwest in 1988 and opened a small office devoted to special projects. Whiting describes a deliberately personal practice, with close and direct client relationships. That mode of work is especially relevant to the Naviaux commission. Experienced owners could bring their requirements to a designer able to work with a custom yard, while the yard could contribute its understanding of how to make and outfit the steel vessel. [S22; S11; S13.]

3.2 Sailing experience and motor-yacht work

Whiting's account ranges from dinghies to custom motor yachts and includes performance sailing, powered racing, commercial work and passenger craft. That breadth gives context to Seaton's cruising-yacht work without making every commission an example of the same type. [S22.]

In 1995 Seaton was among the founding group of Northern Marine in Anacortes, alongside Bruce Kessler and Bud Lemieux. He also produced an extensive series of designs for Delta Marine in Seattle. These associations place *Ted K*'s 1998 construction within a period of active motor-yacht work in the Pacific Northwest. The Waterline project was a smaller custom yacht within that broader professional setting. [S22.]

Whiting identifies the seventy-foot *Zopolite* among Delta's early Seaton designs and reports a ShowBoats "Best in Class" award for the 110-foot *Onika*. These larger projects help establish his experience alongside the much smaller *Ted K*. [S22.]

The later Seaton Yachts business extended his connection with cruising clients. Its company biography dates the formation of the partnership with John Clayman and L. E. "Nick" Nicholson to 2005. The business brought design, construction and sales together, serving new and brokerage sailing and motor yachts. Clayman's background included yacht design, yard management and the introduction of displacement powerboats; Nicholson brought technical publishing and offshore sailing experience. Their collaboration placed Seaton's work in a continuing conversation with owners and with the practical demands of cruising boats. [S23.]

The company biography credits Seaton with more than 400 designs over forty years, many of them long-range cruisers. Whiting's later memorial speaks of more than 550 custom projects over more than five decades. The different dates and descriptions record a long, productive practice rather than a precise census of launched yachts. Both accounts emphasize the coherence of his boats: the business describes seakindliness, efficiency and appearance, while Whiting recalls proportion, balance and close attention to detail. [S22, S23.]

3.3 The design problem aboard *Ted K*

The yacht shows the combination of requirements Seaton had to organize. A raised pilothouse provided sheltered watchkeeping, while a Portuguese bridge and external doors connected it with the working deck. The lower living spaces made room for a central saloon and galley, two sleeping cabins and bathing arrangements. The mast and boom handle equipment, including lifting the dinghy into its stowed position, and paravanes provide an external roll-damping system. Below, twin engines, transmissions and shafts occupied space alongside the storage and services needed for extended cruising. [S01, S02, S03; S45.]

PUBLIC EXAMPLE EDITION

Ted K was designed without a flybridge: an elevated external steering station. Her raised pilothouse provides the principal watchkeeping position, while the Portuguese bridge and other exterior decks give access to the open air. The photographed profile shows the upper structure serving the working mast and boom rather than a second helm. [S01/R040; S45/P030.]

The broadside photograph relates the raised house, hull openings and working spars. The enclosed helm sits above the living spaces; the upper structure carries equipment for deck work rather than a separate open flybridge. Chapter 6 follows those functions into the photographed spaces. [S01/R003; S45/P030.]



Figure 3.1. Broadside view of *Refuge*, relating the raised house, hull openings and working spars. The metallic-looking spars can be compared with the white finish in the early builder photograph. Source S01/R003; photographer and capture date unrecorded.

A flybridge provides an open-air helm and an elevated outlook in favorable weather. It also places the watchkeeper outside and adds another control station at a higher level. Flybridges occur on long-distance cruising designs as well as coastal boats: Nordhavn's N52 description discusses its integrated flybridge, and the N60 specification lists steering and engine controls there. On *Ted K*, the sheltered pilothouse, outdoor decks and working rig provide a different division of those functions. [S77, S78.]

The photographed drawing (Figure 3.2) relates the hull's curves within one design; the generic key in Figure 3.3 explains its separate views. Hull form, workable circulation, supported machinery and a habitable interior had to function together in a moving vessel. The following technical chapters examine how those choices operate.

The bow makes the relationship between design and construction particularly visible. Donaldson's account calls attention to *Ted K*'s concave topsides and the difficulty of shaping her steel bow. The bulb and the surfaces above it presented Waterline with an individual fabrication task. Seaton's lines and the yard's metalwork therefore belong to the same explanation of the yacht's pedigree. [S04, p.82.]

The sheet's 52-foot designation and the later 53-foot registered length are compared in section 6.1. Neither establishes the loaded waterline length. Project 253 remains an unconfirmed catalogue lead; see Appendix D.1. [S45/P031; S74.]

A second photographed sheet shows a profile, working rig and structural sketches. It links the hull and house to the mast, boom and working arrangements. That evidence is

PUBLIC EXAMPLE EDITION

considered with the making of the yacht in the next chapter and with the physical arrangement later in the book. [S45/P030.]

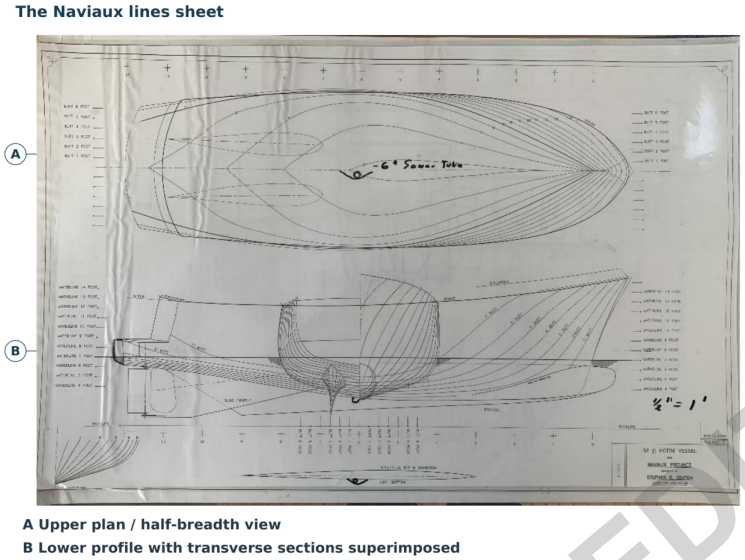


Figure 3.2. Seaton's photographed Naviaux lines sheet, with margin callouts identifying the upper plan and lower combined profile/section presentation. Source S45/P031; photographer and capture date unrecorded. Yacht Provenance editorial work; see illustration production credit S81. The photographed sheet is retained at the available source resolution; fine dimensions are not used as measurements.

A lines plan describes a hull through related views: waterlines show horizontal cuts, stations show transverse sections, and the profile supplies the longitudinal outline. Read together, they explain the changing bow surfaces more clearly than one photograph.

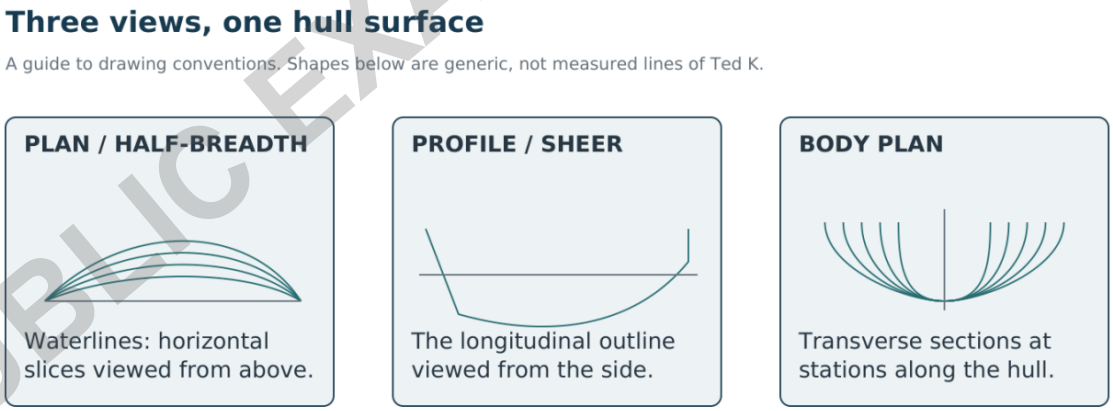


Figure 3.3. Reading a lines drawing: each view describes the same hull from a different direction. This explanatory key is a generic guide to naval drawing conventions, not a newly measured model of *Ted K*. Yacht Provenance editorial work; see illustration production credit S81. Drawing conventions are explanatory; the underlying photographed sheet is S45/P031.

Folds and perspective affect the photographed sheet. It supports attribution and interpretation of form; original offsets, scale and authenticated as-built drawings are required for precise engineering use. [S45/P031.]

PUBLIC EXAMPLE EDITION

4 Waterline and the making of the yacht

Waterline Yachts had been building boats for sixteen years by *Ted K*'s recorded build year of 1998. The yard's experience lay principally in custom steel sailing yachts, but its skills extended through fabrication, systems and joinery to complete vessels. In the Naviaux commission it brought that experience to an outside designer's motor yacht: Seaton supplied the design, and Waterline made the steel hull, machinery and living arrangements into a working boat. [S04; S10, S11, S12, S13; S72.]

The company's history gives the builder more substance than an address in a specification table. It began in 1982 with Ed Rutherford and Wally Horniak, following a two-year yacht-technology programme at Humber College. Sven Donaldson's contemporary account describes early thirty-three-foot projects and the growth of a small enterprise through the making of individual boats. Horniak later left to go cruising; Rutherford continued, with Marilyn Lowry becoming central to the business and administrative side. [S04, pp.72–83.]

This was a yard in which the organization and the craft remained close together. The clients' requirements had to be translated into drawings and purchases; metalwork had to be coordinated with machinery, coatings, insulation and the interior; and the business had to sustain the sequence through completion. Lowry's role belongs alongside the more visible acts of drawing and welding because a custom yacht depends on continuity across all of them. [S04.]

4.1 People and a custom-building practice

The documented address was on McDonald Park Road near Victoria airport, on the Saanich Peninsula. Archived Waterline pages describe a small family-run business with fabricators, joiners and technicians, and name Rutherford as the in-house designer. They also explicitly offer to adapt the yard's building techniques to an outside designer's specifications. That is the professional setting relevant to *Ted K*: the company could contribute its own design experience while carrying out Seaton's work. [S10, S11, S12, S13.]

Donaldson's 2003 visit describes fewer than ten employees, supported by skilled specialists. The date matters to the company's development, but the small scale also helps explain the character of the work. Individual tradespeople could follow a boat through different stages, and the physical quality of the result depended on how those stages met: a fair hull, protected internal surfaces, accessible equipment and joinery fitted around the structure. [S04.]

The article names Frank Jakobsen in connection with adaptable, client-specific woodworking, and John Norwood in its discussion of systems. They are part of the yard's professional history. The later *Refuge* photographs show extensive pale timber joinery and fitted services, but the available records do not assign those particular installations to either man. The documented contribution is Waterline's integrated capability, with the names retained where the source establishes them. [S04; S01, S02, S03.]

Waterline's own description of its process is unusually useful. It begins with discussion of the owner's ideas and desired features, followed by drawings and a progressively refined equipment specification. The company describes a process that remains open during

PUBLIC EXAMPLE EDITION

construction, allowing new ideas to be worked into a continuing collaboration between owner, designer and builder. For *Ted K*, the surviving client-labelled drawing and completed boat give that general description a particular outcome. [S11; S45; S72.]

Custom decisions affected several trades at once: an appliance changed power and space demands, a tank affected weight and access, and revised joinery could alter service routes. *Ted K*'s change ledger does not survive in the available record, but Waterline's described process explains the coordination the build required.

A later social-post comment attributes both design and building to Rutherford. It is a different account from the contemporary Seaton credit and the client-labelled Seaton drawing. The book follows the project-specific attribution to Seaton for original design and to Waterline for construction, while retaining the later comment as a conflicting description. The yard's wider in-house design work provides context for the terminology, not a documented explanation of what the commenter intended. [S51; S04; S45/P031.]

4.2 Shaping the steel

The photographed hull has a bulbous bow, rounded forward sections, a long centerline keel and twin protected stern-gear arrangements. The skeg shoes appear to support the rudders at their heels; the inventories describe balanced rudders, but the photograph does not establish their exact profile, balance fraction or internal construction. The photographed design sheets and contemporary yard reporting provide the evidence for the distinctive form, rather than a measured as-built hull model. [S04, p.82; S45/P030–P031; S01/R005.]

4.2.1 Fabricating the hull

A steel yacht's form is made through both geometry and sequence. Plate has to follow the intended surface, remain supported by the structure and join into the rest of the hull. Welding brings heat and shrinkage; fairness depends on the work being controlled throughout fabrication. The finished exterior therefore records more than an applied surface finish. It reflects the relationship between the lines, the internal support and the way the metal was assembled.

Waterline's sailing-yacht work gave it experience with rounded steel hulls and radius-chine construction. A radius chine uses a curved transition through the bilge in place of an abrupt angular corner. The company's contemporary reporting discusses the effort to produce fair, efficient structures, with coatings, insulation and fitted interiors forming part of the complete build. Those methods establish the yard's range of skills; *Ted K*'s actual forward form is the stronger evidence of what it accomplished on this commission. [S04; S10; S13.]

Donaldson specifically calls attention to her concave topsides and demanding bow steelwork. The bulb below the bow and the surfaces above it required an individual shaping exercise. This was a point where Seaton's design and the yard's execution could not be separated in the finished result. The recognizable bow seen in later photographs is the material consequence of both. [S04, p.82.]

PUBLIC EXAMPLE EDITION



Figure 4.1. *Ted K* in the contemporary yard account. The view shows the completed steel bow and the orca artwork credited to Waterline employee David Tolman. Photograph credited to Ed Rutherford; Professional BoatBuilder 83, p.82, source S04.

The artwork adds a named contribution within that construction story. Tolman's work on the bulb became one of the yacht's most durable visual identifiers. It can be followed from the builder material into the later sales photographs, joining the original *Ted K* to *Refuge*. The source credits the artist; the surviving record does not supply a formal title or an explanation from the owners of the image's intended meaning. [S04; S09.]

Seen from above the waterline, the fin-like part of the decoration crosses the hull stripe and links the underwater orca imagery with the visible topsides. This is the part of the motif most readily recognised when the yacht lies afloat. [S01/R002.]



Figure 4.2. Later haulout detail of the bulb and bow decoration. The distinctive forms can be compared with the contemporary yard photograph; the photograph does not date intervening coatings or repairs. Source S45/P005; capture date unrecorded. Photographer not identified in the supplied record.

PUBLIC EXAMPLE EDITION

The private seller later described the plating as quarter-inch/6-mm steel. Chapter 6 distinguishes that approximate nominal description from an original scantling schedule or a present measurement. [S45.]

4.3 Structure, machinery and an interior

The photographed profile sheet supplies a second view of the project. Its hull and house relate to the working mast and boom, with structural sketches on the same sheet. Read beside the lines plan, it helps connect external form with the arrangement that had to be built. [S45/P030.]

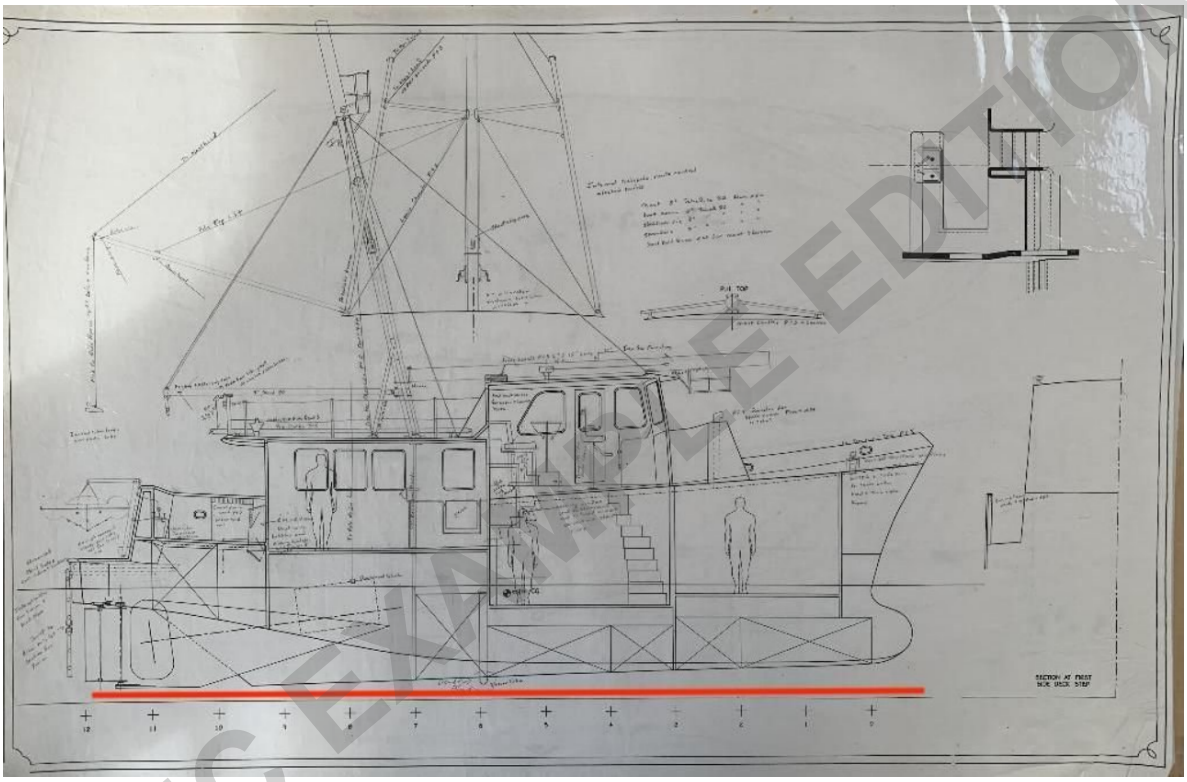


Figure 4.3. The photographed profile and working-rig sheet. Hull, house, mast and boom appear with structural sketches; the red line is part of the supplied image. Source S45, P030. The sheet is design evidence, not a complete authenticated as-built set. Photographer not identified in the supplied record. The photographed sheet is retained at the available source resolution; fine dimensions are not used as measurements.

The installation sequence had practical consequences for the completed boat. Large machinery and tanks had to be placed while access remained available. Exhaust and cooling routes had to coexist with the structure and the spaces people would occupy. Wiring and plumbing needed support before much of the interior was closed. The builder's task was therefore to make decisions in one part of the vessel compatible with work elsewhere, so that access for fabrication did not become the loss of access for maintenance.

Coatings and insulation belonged within that sequence. Steel needed protection in spaces that would later be hidden behind lining and joinery, while the interior needed a habitable boundary between the weather outside and people living aboard. A finished steel cruiser was the combined product of metalwork, surface preparation, equipment installation and

PUBLIC EXAMPLE EDITION

fitted accommodation. Waterline's documented experience in completed yachts is important because it embraced that whole task. [S04; S10, S11, S12, S13.]

The later photographs show the domestic result particularly clearly: maple panelling, figured timber accents, shaped passages, storage and an inlaid adjustable dining table. They give the reader a strong impression of the yard's type of fitted work, while the original delivery inventory and individual joinery assignments remain unrecorded. Their physical arrangement is considered in Chapter 6, where the reader can follow the spaces rather than treating the interior as a list of finish materials. [S01, S02, S03; S04.]

The official build record identifies Sidney, Waterline and the year 1998, with a builder's certificate dated May 20. It does not supply the dates of launch, trials or delivery. The certificate supplies a firm documentary date within the yacht's construction history. By autumn 1999 the yacht was in the cruising life recorded by Anne's Alaska account. [S72; S67.]

4.4 Other boats and the yard's development

Waterline's wider output helps explain its capabilities where the comparison is specific. *Mettle*, Rutherford and Lowry's sailing yacht, connects the principals' own cruising with their design and building work. Archived references to *Traversay III* and *Sea Fire* show other projects around the turn of the century. These boats establish the setting of an active custom yard, rather than a production class to which *Ted K* belonged. [S04; S60.]

The motor yacht *Askov*, later *Nightfall*, supplies a closer professional comparison. Donaldson distinguishes its Bill Garden design from Seaton's *Ted K*. The two show Waterline carrying out work by outside designers as well as building its own sailing-yacht designs. That is the relevant connection: a common builder capable of responding to different designs and clients. [S04; S32.]

The later Waterline50 *Isolabella* provides a detailed example of client participation. Andrew Burton's 2008 Cruising World review describes owners Holly Knight and Jeff Frost asking for higher galley counters and an instrument pod concealed in the dining table. These are concrete examples of custom decisions reaching into joinery and systems. They illuminate the company's ability to fit a boat to the way its owners lived, without becoming features attributed to *Refuge*. [S15.]

Burton also discusses fair steelwork and the effort to avoid unnecessary weight in the sailing yacht. The relevance to Waterline's reputation is the attention to the fabricated structure before finishing. Numerical plate thicknesses, ballast and tankage in that review remain particulars of the boat he inspected. *Ted K*'s steelwork is represented here by her own bow, drawings and seller descriptions. [S15; S04; S45.]

The business changed after the Naviaux build. Burton reports Rutherford's sale of Waterline to Maarten Kooijman and Mark Teisson in 2005. A 2008 trade account associates the later enterprise with ProNautic interiors and describes a roughly 1,300-square-metre construction hall and about twelve direct employees. These later facilities and staffing belong to the company's development, not the conditions proved for 1998. [S15, S16.]

PUBLIC EXAMPLE EDITION

5 From *Ted K* to *Refuge*: owners, voyages and change

For fourteen years after her construction, the yacht remained *Ted K*, associated with Jon Naviaux and Anne Kilkenny and with cruising on the Pacific coast. In 2012 she passed to The Thor Corporation and acquired the name *Refuge*. Two later recorded conveyances, in 2019 and 2026, carry the ownership history forward. Alongside that legal succession runs the more intimate history of a boat in use: an Alaska cruise, a Portland association, equipment maintained or renewed, reported Desolation Sound cruising and a summer sighting in Nanaimo. [S04, S05, S06, S07, S09; S45; S51; S67, S68; S72.]

The recorded succession in Figure 5.1 provides the framework. The chapter follows the life within it, keeping a distinction between recorded title and accounts of cruising or maintenance. The latter illuminate how the yacht was used without supplying a complete passage log.

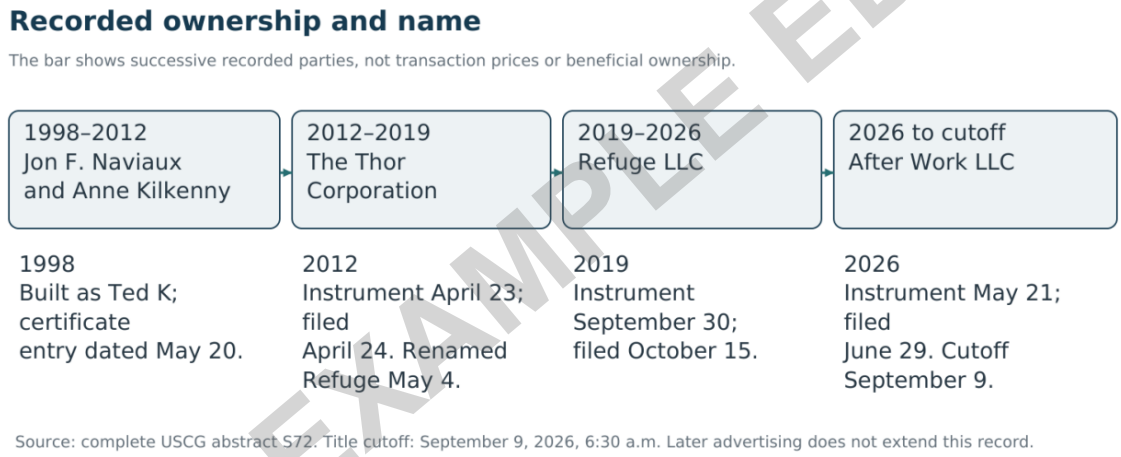


Figure 5.1. Recorded ownership from the original clients to After Work LLC. Dates below the bands distinguish execution, filing and the separate 2012 name change. The final band ends at the supplied abstract's September 9, 2026 cutoff. Source S72. Yacht Provenance editorial work; see illustration production credit S81.

5.1 Pacific coast beginnings

In the early years, the original name is particularly important. Waterline's archived photographs show *Ted K* with recognizable hull openings, house and bow decoration. The 2003 article identifies the yacht in a yard setting and credits Seaton and Tolman. Their archive dates establish when the images were preserved online; the photographs themselves are undated. [S04, S05, S06, S07, S09.]

The early builder view in Figure 5.2 supplies the visual comparison with later photographs.

PUBLIC EXAMPLE EDITION



Figure 5.2. *Ted K* in an early builder photograph. The white-finished working mast and spars, raised pilothouse and bow decoration precede the later *Refuge* photographs. Source S07; archived December 22, 2005; photographer and exposure date unrecorded.

An April 2006 Latitude 38 note is more specific about people and place. Anne Kilkenny and Jon Naviaux identify themselves as formerly of their sailing yacht and now of *Ted K* in Portland. The note concerns cruising friendships formed years earlier. In identifying the couple with *Ted K* in Portland, it also supplies a quiet glimpse of their life after the Alaska voyage. [S68.]

Later broker text describes repeated cruising between Portland and Southeast Alaska. Anne's account of the 1999 return supplies a specific early voyage within that broader reported history. Read together, they place the yacht in the coastal cruising world for which her sheltered helm, working deck and substantial domestic installation were suited. The surviving accounts name the region rather than a sequence of Alaska ports. [S01, S02, S03; S67.]

PUBLIC EXAMPLE EDITION

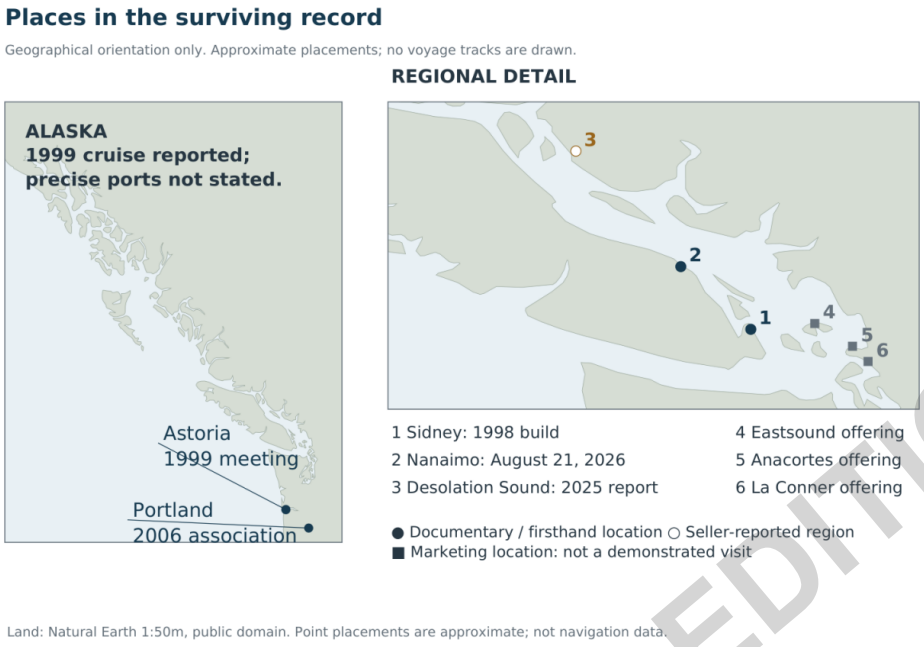


Figure 5.3. Pacific coast places mentioned in the yacht's history. The map distinguishes documented or firsthand locations, a seller-reported cruising region and locations used in advertisements. Alaska is shown as a broad region because the 1999 account does not name its ports. No passage routes are inferred. Sources S45, S51, S67, S68 and S72; public-domain land outlines from Natural Earth. Yacht Provenance editorial work; see illustration production credit S81.

5.2 The 2012 transfer and a new name

The original owners' recorded period ends with a bill of sale dated April 23, 2012. The abstract records a conveyance of 100 per cent from Jon F. Naviaux and Anne Kilkenny to The Thor Corporation, filed the following day at 12:06 p.m. The sale instrument and its filing thus fall on successive days. [S72, continuation.]

On May 4, 2012, the recorded vessel name became *Refuge*. The abstract records the change separately from the sale, but gives no explanation of the new name. It names the purchasing corporation without identifying its beneficial owners. [S72.]

The square-on stern view records the inscription REFUGE / ORCAS ISLAND / WA. It establishes the later name and hailing lettering in use, without dating when that lettering was applied. [S01/R004.]

PUBLIC EXAMPLE EDITION



Figure 5.4. The transom inscription REFUGE / ORCAS ISLAND / WA, seen square-on beneath the stowed tender. Source S01/R004; photographer and capture date unrecorded.

The recorded conveyances establish successive parties and instrument and filing dates. Advertising records are considered separately from the official title chain. [S72; S45; S01, S02, S03.]

Archived BoatInfoWorld pages from 2013 and 2014 name *Refuge* and The Thor Corporation in matching vessel records. Together with the additional 2013 captures, they carry the same name and corporate association into the period after the transfer. [S42, S43; S54, S55; S72.]

5.3 Refuge LLC and the maintenance record

The next recorded conveyance is dated September 30, 2019, from The Thor Corporation to Refuge LLC. It was filed on October 15 at 9:43 a.m. The abstract records 100 per cent conveyed. It does not identify the company’s members or explain the transaction. [S72.]

A later private-sale advertisement describes work spanning 2019–2025. The following maintenance history follows that seller’s dated account. The abstract establishes the ownership period, but the advertisement supplies the work claims; no consolidated yard job file identifies who commissioned each task. [S45; S72.]

The seller dates a dodger to 2019. Work assigned to 2022 includes navigation equipment and cameras, house batteries and several domestic improvements. The seller also lists refrigerator work, a UV filter, a TEC grill and tender-related items among these claims. In 2023, the account describes further heating and domestic work, including the cooktop and mattress. These changes are most intelligible as an effort to maintain and adapt a cruising home: navigation and communications for movement, batteries and heating for autonomy, and appliances and bedding for daily life aboard. The dates are those given by the seller. [S45.]

PUBLIC EXAMPLE EDITION

Tender photographs add another comparison to the equipment history. The brokerage view shows a rigid inflatable afloat; the later discussion of stowage and the private-sale photographs shows the different arrangements represented in the records. Neither the photograph nor the advertising sequence dates a particular tender replacement. [S01/R039; S45.]

The private account becomes more detailed for 2025. It reports a new Phasor generator powered by Kubota, rated at 6.5 kW, installed in spring. It also assigns haulout work to May: coatings, zincs, shaft seals and other attention to the underwater body, together with ceramic coating. A machinery photograph visibly carries Phasor and Kubota branding. That supports identification of the photographed unit, while the rating and date still come from the text. [S45/P044.]

The same seller reports refurbishment of Kobelt equipment and work involving controls, autopilot and VHF. A helm photograph visibly shows ComNav branding; the seller's "NAVCOM" spelling is not sufficient reason to identify a different manufacturer. Together, the text and photograph identify attention to the yacht's control equipment, although the full sequence of installations is not recorded. [S45/P058.]

A stern haulout photograph identifies Seaview North Boatyard through the lifting equipment. It is firm evidence that the yacht was lifted there on the photographed occasion. The picture is undated, so it cannot be assigned to the seller's claimed May 2025 work. Seaview's published capabilities describe the yard, rather than documenting a particular work order for *Refuge*. [S01/R005; S25, S26; S62.]

In the same general period, the seller describes 45 days cruising Desolation Sound in 2025. The claim places maintenance and use within one account of an active cruising yacht. It is not accompanied by a dated itinerary or log. For the yacht's history, its significance is the account of cruising in the same year as the reported maintenance work. [S45.]

5.4 The private offering and the 2026 conveyance

The private advertisement offered *Refuge* at Eastsound. Platform metadata records initial publication on December 14, 2025, and modification on December 18; the archived capture is dated February 25, 2026. The photographs are undated, so their exposure dates cannot be assigned from the advertisement's publication or archive metadata. [S45.]

The record is especially useful because its hull identifier exactly matches the official evidence. That match keeps the extensive photographic gallery and equipment descriptions attached to this yacht, rather than another *Refuge*. The equipment and maintenance descriptions remain the seller's representations. [S45; S72; S74.]

The next official transaction is a conveyance from Refuge LLC to After Work LLC, dated May 21, 2026, and filed June 29 at 11:33 a.m. The abstract records 100 per cent. This is a completed recorded change in title within the supplied evidence. A syndicated broker page offers the yacht at Anacortes and bears a May 27 update label, between the instrument's execution and filing dates. That label does not establish when the advertisement was observed online. [S72; S02.]

Later La Conner copy refers to new owners changing their plans. The description followed the recorded ownership change and documents a subsequent offering; it does not establish another completed transfer. [S01, S02, S03; S72.]

PUBLIC EXAMPLE EDITION

5.5 The Nanaimo sighting and later records

A supplied public sighting places *Refuge* at Nanaimo Harbour on August 21, 2026, with a post dated August 22. The caption and photographs place the recognizable yacht in the harbour. Comments associate named people with the boat and a Canadian trip; the abstract names the corporate buyer without disclosing its beneficial owners. [S51; S72.]

The newer supplied PSIX screenshot displays a recreational United States vessel, call sign WCY8509, and a certificate issued August 24, 2026, expiring August 31, 2031. The August certificate follows the May sale instrument and June filing as a separate documentation event. [S74; S72.]

The abstract itself ends at September 9, 2026, at 6:30 a.m. Its cover letter is dated September 24 and carries a later resend notation. The later cover and resend do not extend the title cutoff: After Work LLC is the latest buyer recorded through September 9. [S72.]

In November, the examined listings variously showed an offering, a pending-sale field and off-market labels. Those marketing states do not establish a subsequent completed conveyance. La Conner is their advertised location; Nanaimo is the specifically dated summer sighting. [S01, S02, S03; S51; S72.]

5.6 What changed, and what the inventories cannot tell us

Early builder photographs show *Ted K*'s mast and visible spars in a white finish. Later photographs of *Refuge* show a metallic finish consistent with exposed aluminum. The available record does not establish when this change occurred, whether the existing spars were stripped or replaced, or who performed the work. The reported 2017 renewal concerns paravane running rigging and does not resolve the history of the spars themselves. [S07; S01, photographs R037 and R040.]

PUBLIC EXAMPLE EDITION



Figure 5.5. The later working mast and boom viewed from the deck. Their metallic finish contrasts with the white-finished spars in the early *Ted K* photograph. Source S01/R037; photographer and capture date unrecorded.

The successive advertisements contain important differences. The private account gives engine hours of 5,712 and 5,700; later broker copy gives approximately 5,000–5,040. The private account reports Tides Marine shaft seals, while later copy lists PSS. The generator differs between Phasor/Kubota and Kohler. Batteries are dated to different years, and heater ratings, tank capacities, stove descriptions and electronics inventories also vary. [S01, S02, S03; S45.]

The technical chapters retain these differences where they affect each installation. Their causes remain unresolved: the lower later engine hours, for example, establish neither repowering nor meter replacement or rollback. [S01, S02, S03; S45.]

The durable thread is the yacht herself. The hull openings, house, bow form and artwork provide visual continuity between *Ted K* and *Refuge*. That continuity does not prove every fitting original. A cruising yacht accumulates maintenance and replacement in ways that photographs alone seldom date completely. The history can preserve both facts: a recognizable custom vessel survives, and her equipment record contains changes and conflicts whose exact sequence remains partly unknown. [S04, S05, S06, S07, S09; S45.]

The change from *Ted K* to *Refuge* was a change of name within the life of a recognizable yacht. Her successive owners inherited a particular hull, arrangement and working installation, then maintained and adapted it. The next chapters move aboard that surviving vessel, beginning with the shape and spaces that give the equipment its setting.

PUBLIC EXAMPLE EDITION

6 The steel yacht: hull, decks and living spaces

Seen afloat, *Refuge* has the presence of a working cruising yacht. Her house rises above a substantial hull, with a sheltered pilothouse forward of the upper working area. Seen out of the water, the relationship changes: the bulbous bow, central keel and twin stern gear become the principal features. The two views are complementary. The underwater body carries the load and provides the setting for propulsion and steering; the deck and house arrange the work of handling the yacht and the life aboard. [S01, S02, S03; S45.]

The easiest way to understand her arrangement is to begin with three connected worlds: the working exterior, the sheltered control position and the living spaces. Forward, the anchoring equipment occupies the foredeck. The raised pilothouse overlooks the bow, with the Portuguese bridge forming a sheltered exterior area ahead of it. Mast, boom and associated rigging rise above the house and working deck; aft, the tender and its handling occupy another part of the yacht's exterior life. These are functional spaces, with equipment that must be reached, operated and maintained. [S01, S02, S03; S45.]

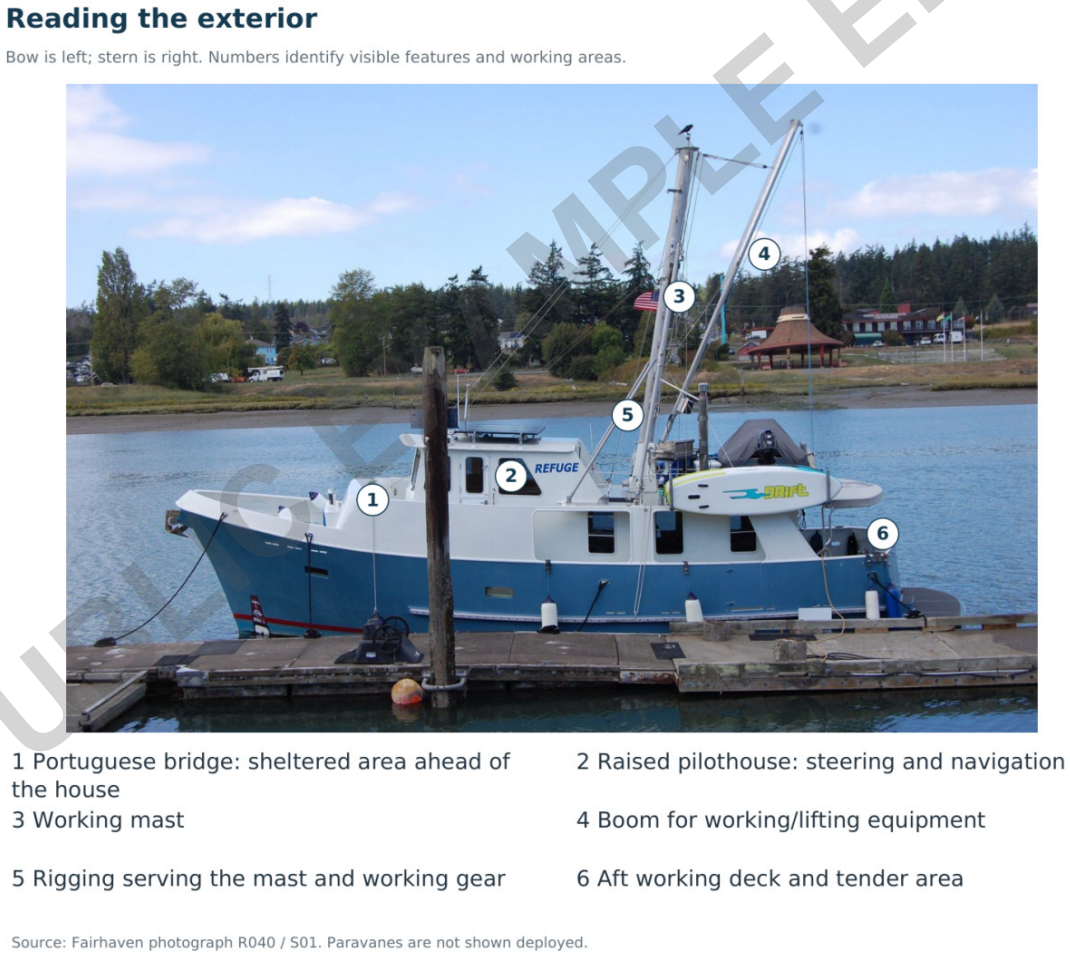


Figure 6.1. Reading *Refuge*'s exterior: Portuguese bridge, pilothouse, mast, boom, rigging and aft working/tender area. The paravanes are reported, not shown deployed. Source S01/R040; YP editorial callouts, S81. Photographer and exposure date unrecorded.

PUBLIC EXAMPLE EDITION

Within the hull and house, the saloon and galley provide the domestic centre, while two cabins and two heads support longer stays aboard. Figure 6.2 groups the reported spaces so that their names have a setting before the individual systems are discussed. It is a functional overview, not an authenticated general arrangement: the evidence does not establish every room boundary, access route or watertight subdivision. [S01, S02, S03; S45/P030–P031.]

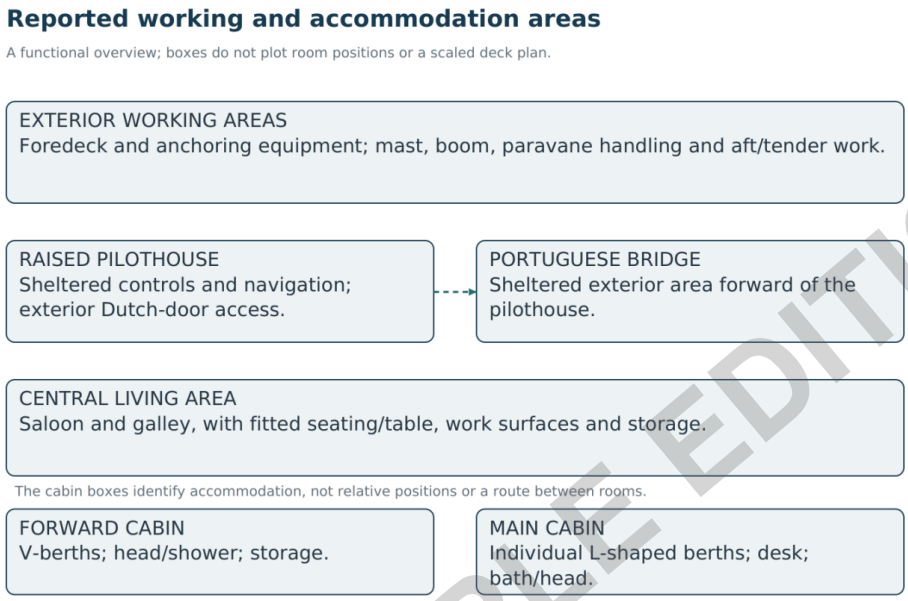


Figure 6.2. Reported working and accommodation areas, grouped by function rather than plotted as a deck plan. Sources S01, S02, S03 and S45. Yacht Provenance editorial work; see illustration production credit S81.

The Portuguese bridge (Figure 6.4), saloon (Figure 6.11) and forward sleeping area (Figure 6.13) show the arrangement in more detail.

6.1 Understanding her dimensions

The Coast Guard PSIX particulars list length 53.00 feet, breadth 16.20 feet and depth 6.00 feet. The breadth is a decimal-foot entry: 16.20 feet is 16 feet 2.4 inches, rather than 16 feet 20 inches. Later broker copy gives 16.3 feet or 16 feet 3 inches, which are themselves not exactly equal. The private advertisement gives 17 feet 6 inches. The record does not establish a single corrected beam or explain whether the larger figure includes fittings or reflects an error. [S46; S74; S01, S02, S03; S45.]

The 53-foot description converts to about 16.15 metres. The photographed lines plan's 52-foot title converts to about 15.85 metres. Overall length, registered length, length on deck and waterline length can have different endpoints. The nominal 52- and 53-foot descriptions leave the loaded waterline length unestablished, so calculations using an assumed waterline remain illustrative. [S45/P031; S74; F01.]

Depth and draft are also different. Registered depth concerns the vessel's measured vertical body under the relevant registration convention. Navigational draft is the distance from the water surface to the lowest immersed part at a particular loading condition. The advertisements give approximately five feet of draft, about 1.52 metres. PSIX's six-foot depth describes a different dimension. Clearance beneath the boat depends on actual draft,

PUBLIC EXAMPLE EDITION

which varies with loading and trim; no measured departure condition is supplied. [S01, S02, S03; S46; S74.]

Weight terminology produces a more consequential risk. Later copy gives 98,000 pounds as dry weight, approximately 44.45 metric tonnes. The private description uses 55 tons without an adequately established convention or loading basis. Neither is a measured loaded displacement. The PSIX figures of 34 gross and 27 net simplified register tons belong to a separate registration system; they are not masses and cannot be converted into displacement tonnes. [S01, S02, S03; S45, S46; S74; F02; F47.]

These distinctions affect the physical interpretation of the yacht. Fuel, freshwater, people, stores and added equipment all change displacement and may change trim. A dry-weight field cannot establish how deeply the bulb sits during a loaded passage. A nominal beam cannot by itself establish stability. The practical distinction is between the size recorded for identification, the weight of the yacht in a stated condition and the draft of the loaded boat actually making a passage.

6.2 Hull form and the bulbous bow

The hull's most individual feature is forward. The bulb projects below the bow and carries the distinctive orca imagery. Above it, the contemporary yard article calls attention to concave topsides and the difficulty of the steelwork. These shapes provide a more precise description than the broad label "trawler", which in yacht advertising often conveys an intended style of cruising rather than a documented fishing origin. [S04, p.82; S01, S02, S03.]

A bulb influences the pressure field and wave system around the bow. Under favorable conditions, its wave contribution can reduce part of the resistance associated with the main hull. That effect depends on the bulb's size, position and immersion, the hull form and speed. A yacht loaded deeply for departure and the same yacht near the end of a passage may not present the bulb to the water in exactly the same way. The bulb's effect is consequently tied to the yacht's speed and loading condition.

The Seaton lines sheet introduced in Chapter 3 connects the bulb, transverse sections and longitudinal outline. It is useful for reading form, but its photographed surface is not a source of newly measured offsets or hydrostatics. [S45/P031.]

The private seller describes the plating as quarter-inch/6-mm steel. A quarter inch is 6.35 millimetres, so the two quoted thicknesses are approximate equivalents. The description gives the seller's nominal plating figure; no original scantling schedule or present ultrasonic measurement accompanies it. [S45.]

The yard's steelwork gave physical form to the designer's curves, especially at the distinctive bow. The construction chapter describes that fabrication task. For the surviving yacht, the important unanswered structural particulars are the original plate grades and member spacing, the complete subdivision arrangement and present metal thickness. Neither the attractive exterior finish nor the seller's thickness description supplies those measurements. [S04; S45/P030.]

Coatings are particularly important in a steel yacht because they separate metal from corrosive environments. Exterior underwater protection is only part of the matter. Interior condensation, bilges, tanks and inaccessible surfaces also affect long-term preservation. A later coating claim belongs to maintenance history, while current condition would require

PUBLIC EXAMPLE EDITION

inspection. A photograph of attractive paintwork cannot show the remaining thickness of the steel beneath it. [S45; general engineering explanation.]

6.2.1 Hull form and rolling motion

The rounded-bilge form suggests a relatively smooth transition through a roll, although potentially through appreciable angles in beam seas. Smoothness of motion and resistance to rolling are different qualities. A rounded hull can have ample righting stability yet remain uncomfortable in a beam swell; its appearance alone cannot establish whether its motion is slow and comfortable or comparatively quick and stiff.

Roll amplitude is the maximum angular displacement from the reference attitude. Roll period is the time for a complete cycle. The natural roll period describes the yacht's unforced oscillation in a stated loading condition; wave encounter period describes how often she meets successive wave crests. These are different quantities. Damping removes energy from rolling and determines how quickly an unforced motion dies away; waves can continue supplying energy.

Compared with an otherwise similar hard-chine hull, rounded bilges generally produce less damping from flow separation at sharp corners. This can allow rolling to persist after a disturbance. The comparison describes one influence on motion, rather than a prediction of *Ted K*'s total damping: appendages, loading, forward speed and the characteristics of the waves also matter. Roll-damping assessment must account for the immersed geometry and operating conditions. [S79, §§2–4.]

Her long centerline keel and substantial twin skegs are expected to contribute passive hydrodynamic damping. As the yacht rolls, immersed surfaces move sideways through the water and resist that motion. Their contribution depends on their shape, area and distance from the roll axis, as well as their interaction with the hull. The skegs are longitudinal appendages, not conventional bilge keels, and their effect cannot simply be equated with the same area of bilge keel farther outboard. Keel and skegs also help the yacht track a course, but directional stability should not be confused with freedom from rolling. The semi-balanced rudders principally serve steering; their balance reduces steering torque rather than making them dedicated roll stabilizers. [S79, §§2–4.]

Roll timing depends on rotational inertia—the resistance of distributed mass to angular acceleration—and restoring stiffness. Metacentric height, GM, is the vertical separation between the center of gravity G and the transverse metacenter M for small heel angles in a stated loading condition. For otherwise comparable conditions, larger positive GM increases initial restoring stiffness and tends to shorten the natural period; greater rotational inertia tends to lengthen it. Smaller GM alone establishes neither comfort nor adequate stability. A heavy steel hull and long keel do not by themselves prove slow motion. [S79; S80; general mechanics.]

Ballast, machinery, tank loading, deckhouse, tender and working rig all affect the result through their weight and position. Liquid moving across a partly filled tank can reduce effective GM through the free-surface effect. The IMO Intact Stability Code addresses this correction; it supplies general stability principles here, rather than evidence that *Ted K* has been assessed against its criteria. Her actual GM and natural roll period remain unquantified. [S80, part B, §3.1; general mechanics.]

The outboard paravanes are the yacht's principal reported equipment specifically intended to control rolling underway. Their position gives the resisting forces a substantial

PUBLIC EXAMPLE EDITION

lever arm. Properly deployed, they are expected to reduce roll amplitude and velocity, but no measured reduction is available for this yacht. Their effect depends on speed, device and rig geometry, and sea conditions. Conventional towing paravanes rely on forward motion, so their underway benefit should not be assumed when the yacht lies at anchor. The equipment and its handling are discussed in Chapter 8. [S01, S02, S03.]

Operating condition	Expected tendency, not measured performance
Underway with paravanes stowed	Potentially appreciable rolling in beam or quartering seas, with some passive damping from the hull appendages.
Underway with paravanes deployed	Reduced rolling, dependent on speed, deployed geometry and sea conditions.
Anchored across a swell	Potentially persistent rolling, without the forward-speed benefit of conventional towing paravanes.
Wave encounter period near the natural roll period	Increased amplitude through resonance; a change of heading or speed may alter the encounter conditions.

Table 6.1. Operating conditions and expected rolling response

A measured roll-decay test, interpreted with the yacht's loading condition and stability information, would allow the loading-specific roll period and damping to be estimated more reliably than hull appearance alone. It would not by itself predict every response in a seaway. Until such evidence is available, the drawings and photographs support a qualitative explanation of the influences on motion, rather than a numerical assessment of comfort or stability.

6.3 Keel, appendages and protected stern gear

The haulout photograph shows a substantial center keel and twin propulsion-and-rudder arrangements. These features place vulnerable equipment within a deliberate underwater layout. A central keel may also affect directional behavior and the pattern of flow, but the available evidence does not establish its complete internal construction, ballast content or structural design. The term "protected" describes the visible arrangement; it does not mean that the propellers and rudders are immune to grounding or impact. [S01/R005; S45.]

The projecting amidships fitting visible in the same view is probably a transducer fitting. Its exact function and clearance relative to the keel remain unidentified. [S01/R005; S45/P058.]

Above the water, the working rig serves roll damping and lifting. The reported paravane system uses devices deployed outside the hull to resist rolling as the yacht moves through the water. The mast and boom also serve lifting work. [S01, S02, S03; S45.]

The drawings and photographs do not establish a complete watertight subdivision arrangement. The positions and integrity of collision and machinery-space boundaries remain unknown, leaving damage stability and flooding survival outside the available technical record. [S45/P030–P031.]

PUBLIC EXAMPLE EDITION

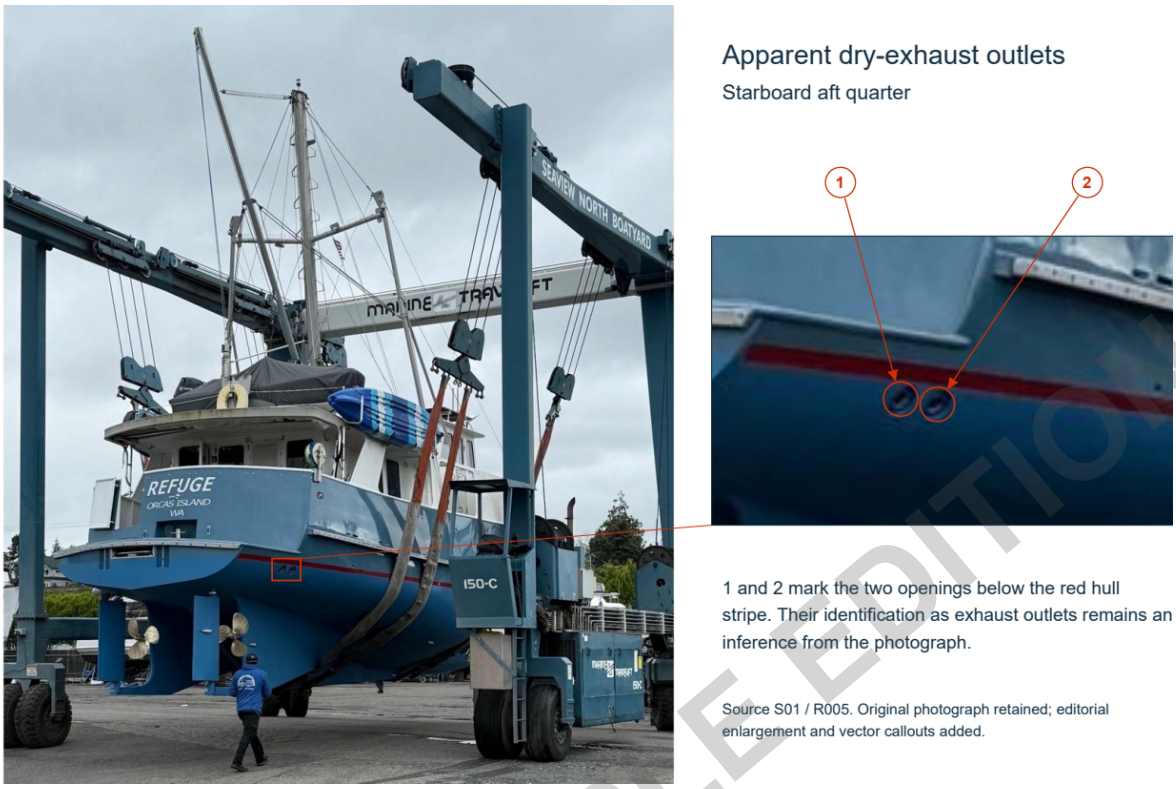


Figure 6.3. *Refuge* out of the water at Seaview North. The enlargement and numbered callouts mark the two apparent dry-exhaust outlets in the starboard aft quarter, just below the red stripe. The exhaust identification is provisional: the photograph does not trace the piping or confirm the discharge system. The full view also shows the keel, paired propellers and stern appendages. Source S01/R005; photographer and capture date unrecorded. Editorial enlargement and vector callouts added. Yacht Provenance editorial work; see illustration production credit S81.

6.4 Deck circulation and sheltered control

The raised pilothouse is a defining part of the yacht's use. It separates watchkeeping from the lower living spaces and offers an outlook over the bow. Exterior Dutch doors provide access, and the Portuguese bridge creates a sheltered external area around the front of the house. The value is practical: people can move between control and deck work without treating the saloon as the only route through the vessel. The photographs show these connections without establishing every sightline or access dimension. [S01, S02, S03.]

Inside the Portuguese bridge, the raised forward boundary screens a standing area below the pilothouse windows. The photograph shows this sheltered enclosure; the adjoining exterior passage illustrates the connection with deck access. [S45/P008, P013.]

PUBLIC EXAMPLE EDITION



Figure 6.4. Inside the Portuguese bridge, looking forward over its raised boundary. The photograph shows the standing space and fittings within the sheltered enclosure. Source S45/P008; photographer and capture date unrecorded.



Figure 6.5. A narrow exterior passage beside the house, with doorways and handholds along the route. This view adds a person-sized perspective to the functional overview. Source S45/P013; capture date unrecorded. Photographer not identified in the supplied record.

The foredeck carries the anchoring installation, while the upper working structure supports mast, boom and paravane equipment. That combination requires circulation for handling lines, tending gear and inspecting fittings.

Equipment that looks compact in a photograph occupies more space when operated: a tender swings, a boom changes position, a paravane is brought aboard and a line runs under

PUBLIC SAMPLE EDITION

load. The clear space around the equipment is part of its working arrangement. [S01, S02, S03; S45.]



Figure 6.6. Foredeck viewed toward the bow, showing the working space, raised boundaries and anchoring area ahead of the house. Source S45/P006; photographer and capture date unrecorded.

The tabernacle mast is reported as part of this arrangement. A tabernacle provides a pivoting support, but the record does not establish an operational lowering procedure, minimum air draft or safe lifting loads. The pivot is a visible feature of the arrangement; its working limits are undocumented. [S01, S02, S03.]

Inside the house, access and observation have to coexist. The helm chairs occupy the forward part of the space, while the settee and table make room for an off-watch person nearby. The stair opening connects this control position with the accommodation below. [S01/R016; S45/P054.]



Figure 6.7. Pilothouse helm, settee and table seen together. The wider view places watchkeeping and seated living space within the same room. Source S45/P054; photographer and capture date unrecorded.

PUBLIC EXAMPLE EDITION

6.5 A domestic interior within a working hull

Below the working exterior is an interior organized for living aboard. The advertisements describe two cabins and two heads. The forward cabin has a V-berth arrangement, storage and an en-suite shower and head. The main cabin is described with two extra-long individual berths arranged in an L, desk space and an en-suite jetted bath and shower. Individual berths are a meaningful choice in a cruising boat, offering separate places to rest and keeping accommodation from being described only in terms of a central double bed. [S01, S02, S03.]

6.5.1 Approaching the cabins

Fitted passages connect the sleeping and bathing spaces. The view between a berth and the adjoining head makes that connection visible, while the individual-berth photograph shows storage built into the cabin joinery. These are photographed relationships, not a measured general arrangement. [S01/R027, R029.]

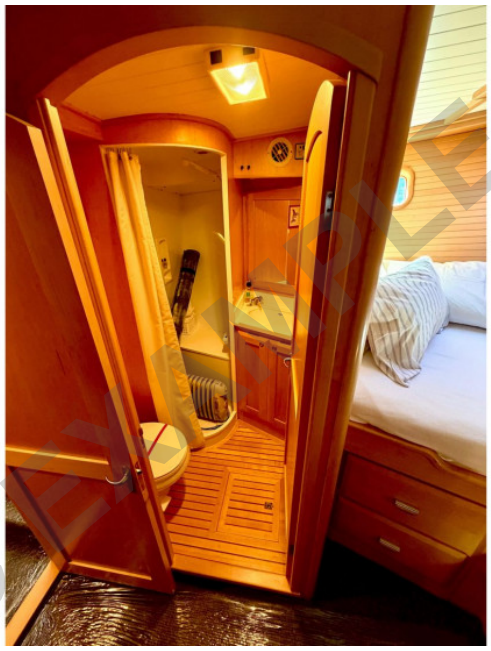


Figure 6.8. A view between sleeping accommodation and an adjoining head, making their close spatial relationship visible. Source S01/R027; photographer and capture date unrecorded.



Figure 6.9. Two individual berths arranged at an angle, with drawers and shelving built into the cabin joinery. Source S01/R029; photographer and capture date unrecorded.

PUBLIC EXAMPLE EDITION

The galley and saloon form the social and domestic centre. A hi-low inlaid table, reported to seat eight, works with the surrounding seating. Its adjustable height allows one piece of joinery to serve different purposes. Seating eight does not establish sleeping accommodation for eight or a certified persons limit; it describes the use of that living space. Curved stairs and passages connect the levels of the yacht, making the interior a sequence of fitted spaces rather than a single open room. [S01, S02, S03.]

6.5.2 The saloon and changes of level

The sofa, end tables and curved galley counter belong to one connected living area. The inlaid table and seating illustrate its domestic use; the curved stair shows how the room connects vertically with the pilothouse. [S01/R008, R023; S45/P063.]



Figure 6.10. Looking down a curved stair, showing tread shape and the confined turn between levels. Source S01/R023; photographer and capture date unrecorded.



Figure 6.11. Saloon seating and the inlaid hi-low dining table, with bird’s-eye maple among the saloon’s distinctive timber finishes. The photograph records the joinery and domestic character of the living space. Plate R008, source S01; photographer and date unrecorded.

PUBLIC EXAMPLE EDITION

The reported material palette is maple panelling and solid trim, bird's-eye maple accents, maple-and-cherry flooring and stainless fittings. In the saloon, bird's-eye maple features on the dining table and the end tables beside the sofa, bringing its distinctive small, swirling figure into the surfaces used every day. Photographs support the extensive use of pale figured timber and shaped joinery. These finishes belong to the yacht's character, but the record does not name a project-specific interior designer or prove every fitting original. Waterline's documented woodworking capability gives context without resolving individual authorship. [S01, S02, S03, S04.]

6.5.3 Fitting storage around berths

The forward berth photograph carries the joinery story into the sleeping space. Cabinetry occupies the margins around the berth, while the overhead lining defines the visible headroom; the photograph does not expose the concealed structure. [S45/P066.]



Figure 6.12. Berth and surrounding cabinetry beneath the overhead lining. The view shows the occupied space and headroom, without exposing the concealed deck structure. Source S45/P066; photographer and capture date unrecorded.



Figure 6.13. Forward sleeping area with laundry equipment fitted beside it. Plate P080, source S45; capture date unknown. Photographer not identified in the supplied record.

PUBLIC EXAMPLE EDITION

The galley is reported with stainless work surfaces, double sinks, a four-burner gimballed Broadwater cooker and oven, refrigerator/freezer and microwave. Storage and work surfaces support daily food preparation rather than occasional entertaining alone. Gimbals permit a cooker to change angle relative to a moving boat, but safe sea use also depends on restraints, fuel installation and the operator's arrangements. The installation's fuel, refrigeration and electrical demands are taken up in the chapter on life aboard. [S01, S02, S03.]

6.5.4 A galley within the living space

The galley counter curves around its working area instead of dividing the interior with a straight wall. From the saloon it reads as fitted furniture; from above, its enclosure and relationship to the lower room become clear. The refrigerator and cupboards extend that working area into the surrounding joinery. [S01/R014; S45/P060, P063.]



Figure 6.14. Looking down toward the galley from the raised level. The view explains how the counter and surrounding room fit below the pilothouse. Source S45/P063; photographer and capture date unrecorded.

A stove adds a conspicuous domestic element. The private seller calls it a Norsk Kleber soapstone stove; later text calls it Swedish and tiled. The record supplies no replacement sequence to explain those different names. The thermal mass of masonry or soapstone can moderate the release of heat after a fire is established, giving a different experience from a small fan heater. On a yacht, the hearth, flue, ventilation and surrounding clearances are integral parts of the installation. [S45/P085; S01, S02, S03.]

The return to the upper level completes the interior route. A continuous handrail follows the stair, making the change of level part of the fitted arrangement rather than a separate piece of furniture. [S45/P079.]

The fitted desk, separate berths, bathing arrangements and substantial galley make the yacht understandable as a place occupied for weeks. Another kind of working space lies around the machinery: the access needed by the people who tend the engines, filters, couplings and seals. The next chapter follows that installation from engines to propellers.

PUBLIC EXAMINATION EDITION

7 Engines to propellers

The propulsion installation is easiest to understand by following two paths. One carries energy: fuel is burned in the engines, crankshafts turn transmissions and shafts, and propellers accelerate water to move the yacht. The other carries force: propeller thrust must reach the structure, engine and shaft loads need support, and the rudders redirect the flow to steer. Cooling, lubrication, controls and exhaust make those paths sustainable. Their mechanical and thermal relationships are shown in Figure 7.1. [Installation inventory: S01, S02, S03; S45.]

Refuge is advertised with two Perkins or Cat-Perkins T1004 diesels, each rated at 110 horsepower. The twin-shaft layout is visible in the haulout photograph. The detailed inventory reports Twin Disc transmissions, Aqua Drive components, shaft seals and paired three-bladed propellers. The inventories identify the principal components, while exact engine build lists, gearing and shaft particulars remain unresolved. [S01, S02, S03; S45.]

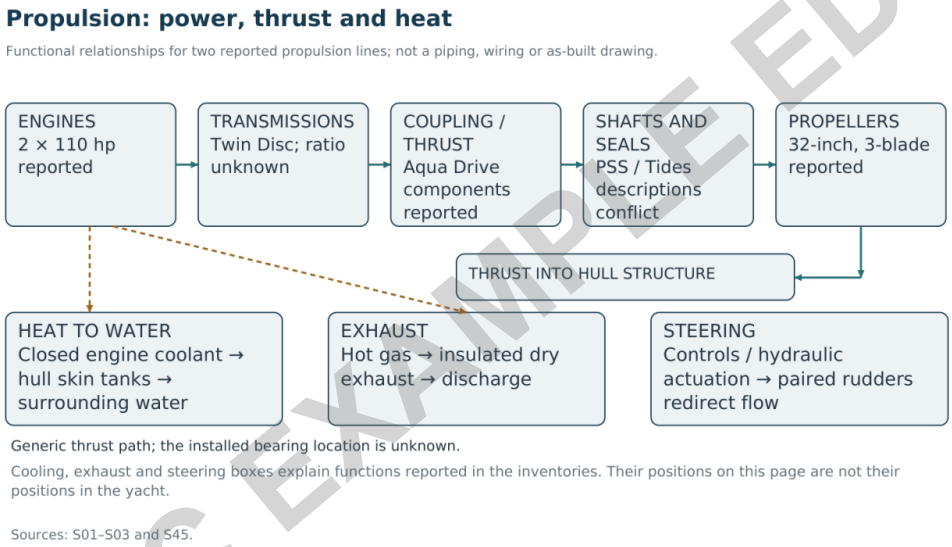


Figure 7.1. How the reported propulsion components work together. The main chain follows mechanical power from the engines to the propellers; the lower boxes distinguish cooling, dry exhaust and rudder steering. Aqua Drive equipment is reported, but its exact assembly and the shaft-bearing locations are not established. Diagram positions do not represent locations aboard. Sources S01, S02, S03 and S45. Yacht Provenance editorial work; see illustration production credit S81.

7.1 The engines and their operating character

The Perkins 1004-4T family is a plausible interpretation of the T1004 wording. The manufacturer’s engine-number guide associates AB and AC codes with that family. A factory industrial sheet describes an inline four-cylinder, turbocharged, four-stroke engine of approximately four litres, with nominal bore and stroke of 100 by 127 millimetres. These family facts help explain the machinery, but they do not authenticate the marine adaptation aboard the yacht. Engine serial numbers and build-list plates are needed to settle the exact identity and duty rating. [S27, S28, S29.]

PUBLIC EXAMPLE EDITION

The reported family combines four cylinders, turbocharging and moderate advertised output. The turbocharger uses exhaust energy to increase the air supplied to the cylinders; the yacht's actual cruising load depends on propellers, gearing, resistance and operating speed.

The Perkins industrial specification gives an industrial rating of 111 brake horsepower at 2,600 rpm and peak torque of 368 newton-metres at 1,600 rpm. These industrial comparison data do not establish *Refuge*'s marine curve, governed speed or continuous-duty rating. A marine engine can use a related base engine with different cooling, mounting, accessories, calibration and allowable duty. The industrial sheet is useful context for the reported family; the yacht's own plates would determine its exact specification. [S28; F15; F17; F41, F42, F43.]

The combined advertised rating is 220 horsepower, about 164 kilowatts. That is installed engine rating, not a statement that the yacht uses full power at cruising speed or that all rated power arrives at the propellers. Transmission and shaft losses intervene, and the operating point depends on speed, resistance, propeller loading and conditions. A low advertised fuel burn cannot be interpreted by dividing it into the total rated output as though the engines were operating at that output continuously. [S01, S02, S03; F15; engineering explanation.]

The Cat-Perkins wording has a corporate context: Caterpillar acquired Perkins in 1998. The acquisition explains the corporate association in the sales descriptions; the exact installed model and badges remain unidentified. [S31.]

The sales accounts give inconsistent engine hours, as discussed in Chapter 5. Without dated meter observations and servicing records, those figures establish neither a replacement sequence nor the engines' condition. [S45; S01, S02, S03.]

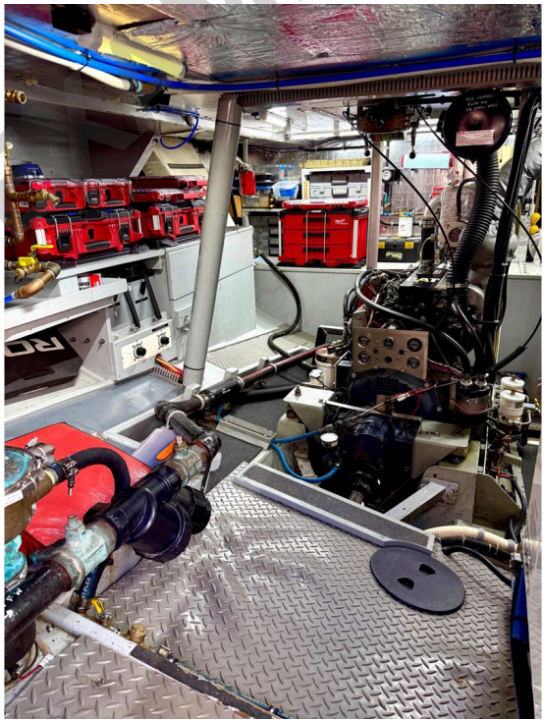


Figure 7.2. Main engines flanking the machinery-space working aisle. The aisle provides access along the inward-facing sides of the propulsion installation. Plate R030, source S01; date and photographer unrecorded. The photograph does not make serial plates or exact duty ratings legible. Unused white outer canvas trimmed for layout; photographic content unchanged.

PUBLIC EXAMPLE EDITION

7.2 Transmission, shafting and thrust

Twin Disc transmissions are reported. A marine transmission selects ahead, neutral and astern; a reduction gear lets engine and propeller turn at different speeds. The installed ratio is unknown, so shaft rpm cannot be calculated from an assumed engine speed. [S01, S02, S03.]

The summary field's "Direct Drive" label does not establish a gearless connection. The detailed inventory specifies Twin Disc transmissions within a conventional shaft installation. [S01, S02, S03.]

Aqua Drive components are reported. Such systems commonly combine a constant-velocity coupling with a thrust-bearing arrangement to accommodate engine movement and transmit propeller thrust. The inventory does not identify the actual assemblies or bearing positions aboard *Refuge*. [S01, S02, S03; general component function.]

Torque turns the shaft; thrust acts along it and needs a structural load path. Bearings support rotating components, couplings accommodate specified alignment relationships, and mounts carry machinery weight and dynamic loads. The installation must handle these different tasks together.

The typographically ambiguous shaft-diameter entry is not a measured shaft schedule. Unknown diameter, material, unsupported length and stress concentrations prevent a strength assessment; the unverified reduction ratio also prevents an actual shaft-torque calculation. [S01, S02, S03; F17; F20.]

Shaft seals allow a rotating shaft to pass through the hull while controlling water ingress. Their design, support and installation details matter because they operate at the boundary between machinery and sea. Later broker copy lists PSS seals; the private seller reports Tides Marine seals installed in 2025. The descriptions conflict, with no documented replacement sequence establishing which seals are current. [S01, S02, S03; S45.]

7.3 Propellers and rudders

The inventory describes two 32-inch, three-bladed bronze propellers. The haulout photograph confirms the paired arrangement and blade count; diameter, alloy, pitch, handedness and blade area remain unmeasured. The reported diameter is about 0.813 metres. Propeller geometry must suit shaft speed, available torque, hull resistance and clearance. [S01, S02, S03; S01/R005; F18.]

Propellers create thrust by changing water momentum and pressure. Loading, clearance and disturbed inflow can contribute to cavitation or vibration. Engine rating and a propeller description alone therefore cannot establish speed or economy.

The inventories also describe twin balanced rudders, with approximate dimensions of two by four feet. A balanced rudder carries some of its area forward of the steering axis, reducing the moment that the steering gear must overcome compared with an otherwise similar wholly unbalanced blade. The balance fraction and actual profile aboard *Refuge* are not established. The reported dimensions describe a bounding size; the actual blade area depends on its outline. [S01, S02, S03; F21.]

A rudder redirects flow and creates a side force. Its effectiveness depends on water speed, angle, hull wake and propeller flow, as well as its geometry. The paired arrangement

PUBLIC EXAMPLE EDITION

gives the yacht two steering surfaces associated with twin propulsion lines. Differential use of ahead and astern can also contribute to low-speed maneuvering, subject to the actual installation and conditions. The available inventories do not establish a bow thruster. [S01, S02, S03; engineering explanation.]

The inventory identifies the steering as “Janstrom”, a spelling that remains unresolved. Kobelt controls and a long-cord remote are reported, together with duplicated autopilot hydraulic pumps. A hydraulic steering system converts commands into movement of the rudders through pressurized fluid and actuators; its redundancy depends on the complete circuit, power supplies, valves and means of isolation. Two pumps alone do not prove that every steering failure can be bypassed. [S01, S02, S03; S45.]

Engine controls govern propulsion direction and speed; steering controls govern rudder position. A remote can make handling more flexible, but its operation depends on the installed control system and the operator’s visibility. The photographs and seller’s work claims do not provide a complete schematic or a verified emergency-steering procedure. [S01, S02, S03; S45.]

7.4 Cooling, exhaust and service access

The reported closed cooling circuits transfer engine heat through hull-associated skin tanks to surrounding water. Their complete routing, and any separate seawater services for other equipment, remain undocumented. [S01, S02, S03.]

Heat rejection depends on area, flow, temperature difference and cleanliness. No installation test establishes its capacity in warm-water or low-speed conditions.

Dry exhaust carries hot gas without the injected seawater used in a wet exhaust’s main discharge. Insulation, supports, clearances, thermal expansion and keeping fumes from occupied spaces therefore matter. Insulated exhaust is photographed, but the complete supports and joints are not documented. [S01, S02, S03; S01/R031.]

Two openings below the starboard aft red stripe are possible exhaust outlets (Figure 6.3). The photograph cannot trace their piping or establish their function. Reported dry exhaust does not prove a particular terminal route or submerged discharge. [S01, S02, S03; S01/R005.]

An installation drawing or inspection is needed to resolve the route, back pressure and protection against water entry.

The seller’s operating notice records pre-lubrication and day-tank filling. It supports those practices, not a complete equipment specification. Reported bypass filtration treats part of the oil flow separately from the main full-flow path; models and service intervals remain unknown. [S45/P055; S01, S02, S03.]

Between the engines, filters, hoses and insulated equipment share the photographed aisle. It shows service access, not measured clearances. [S01/R030.]

The route for major machinery removal is not established.

Twin propulsion lines provide maneuvering options, but common fuel, electrical or compartment failures can affect both. The installation’s character lies in integrating engines, shafting, dry exhaust and hull-associated cooling with access for maintenance.

PUBLIC EXAMPLE EDITION

8 A working home: services and deck equipment

A cruising yacht consumes more than propulsion fuel. People need light, warm spaces, food storage, fresh water, sanitation and reliable communications. Anchoring and tender handling make a sheltered bay usable; pumps and alarms protect the vessel; charging and generation keep these services available away from shore. On *Refuge*, the inventories describe a substantial domestic and working installation for a yacht of her length. Its value is best understood through the flow of fuel, electricity, water and information, and the work that each makes possible. [S01, S02, S03; S45.]

8.1 Fuel from storage to daily use

The private seller reports 1,200 US gallons of fuel distributed across six tanks, with transfer pumps and a day tank. The operating notice photographed aboard instructs the operator to fill the day tank and pre-lubricate the engines. The storage description and the posted routine show how bulk fuel and the engines' immediate supply were managed as separate tasks. The capacity is a reported total, not a measurement of fuel available to the engines in every condition. [S45/P055; F48.]

A day tank separates the immediate engine supply from bulk storage. Fuel can be transferred into a smaller service volume, while the rest remains distributed in the main tanks. The system may help organize fuel management, but its detailed piping, return routes, filtration stages and isolation arrangements are not preserved in the available documentation. The notice makes fuel transfer part of the operator's routine, while leaving the complete control arrangement unrecorded.

Bulk storage, transfer and consumption interact with the yacht's loading. Using fuel reduces weight; transferring it between tanks can alter its distribution.

Venting, fill points, access and the ability to keep water and contamination out are part of the whole installation. Twin engines may draw from arrangements that share some of these components, so two propulsion lines do not necessarily create two wholly independent fuel systems. [S45; general engineering explanation.]

Nominal capacity exceeds the amount that may be available for a particular passage. Fuel below a pickup, fuel unavailable at an adverse trim, contamination, reserve and generator demand can all reduce the amount that can responsibly be allocated to a passage. Range calculations therefore use declared assumptions, explained in the next chapter, rather than treating every advertised gallon as propulsion fuel already aboard.

PUBLIC EXAMPLE EDITION



Figure 8.1. OutBack control equipment beside the posted engine-starting and fuel-transfer reminder. The text is transcribed below; the photograph also shows an electrolysis indicator and fan-heater switches. Plate P055, source S45; capture date unknown. Photographer not identified in the supplied record.

The notice reads:

PRE-LUBE ENGINES
BEFORE STARTING
TURN SWITCHES OFF WHEN PRESSURE BUILDS
TURN ON ENGINE ROOM FANS
CHECK COMPUTANK
FILL DAY TANK
FUEL TRANSFER SWITCH
1.5 gal PER MINUTE TIMER

The last line records the transfer timer's posted setting; it is not a measured engine-consumption rate. The reminder brings several systems into one small piece of onboard life: lubrication before starting, machinery-space ventilation, tank monitoring and fuel transfer. [S45/P055.]

8.2 Electricity underway and at anchor

The electrical system has several possible sources of energy: the main-engine alternators when running, an auxiliary generator, shore supply where available, stored battery energy and the photographed solar panels. The photographs and inventories identify OutBack inverter/charger equipment and a MATE control interface, together with a reported eight Lifeline 8D AGM house batteries. The inventories also report two 150-amp alternators. These components suggest a system intended to support domestic life as well as navigation, but the actual wiring topology and capacity are not fully documented. [S01, S02, S03; S30; S45.]

PUBLIC EXAMPLE EDITION

Direct-current equipment can draw from the batteries, while alternating-current loads require an AC source or an inverter. An inverter converts battery power into AC; a charger takes energy from an appropriate AC supply and restores charge to the battery bank. Combined units organize both functions but do not create energy. Their practical value is flexibility: some appliances can operate quietly from stored energy, while charging can be scheduled when generation or shore power is available.

The cited VFX2812 family reference is nominally 12 volts DC, with 120-volt, 60-hertz AC output and a 2,800-VA rating for the cited marine model. The manufacturer reference also gives a 125-amp charge rating. This context makes the broker's "122VDC" wording inconsistent with the referenced family. It does not establish the exact suffix or all operating limits of the installed unit. Volt-amperes describe apparent AC power, watts describe real power and charging amperes describe DC current; their relationship depends on the load and operating conditions. [S30; F35, F36, F37, F38.]

Shore supply is another part of the installation. The inventory reports a six-kilowatt isolation transformer and 30- to 50-amp shore-power arrangements. A transformer provides magnetic coupling between input and output circuits; it belongs to the shore-to-boat supply arrangement, not to battery storage. Its actual protection, grounding and switching depend on the installation. At an illustrative 120 volts, a 30-amp supply corresponds to 3.6 kilovolt-amperes and 50 amps to 6.0. These are apparent-power examples, not proof that every outlet or connected appliance can draw that amount. The available supply changes with the selected source—shore, generator or inverter—and with the limits of the distribution equipment. [S01, S02, S03; F35, F36.]

An 8D designation describes a battery size category, not the total energy capacity of a bank. "Eight 8D batteries" needs the individual ampere-hour ratings and series/parallel connections before a nominal bank capacity can be calculated. The sales wording "2,000 amp" is not a sufficient substitute. Amperes measure current; ampere-hours measure charge; watt-hours relate charge to voltage. Usable stored energy also depends on battery condition, discharge limits, temperature and conversion losses. [S01; S45; F37, F38.]

Strapped battery cases beside rotary selectors show the bank as a physical installation. The visible stowage does not establish individual ratings, wiring topology or usable capacity. Those require equipment and connection records beyond the photograph. [S45/P043.]



Figure 8.2. Strapped battery cases beside a panel of rotary selectors. The image shows physical stowage and access; individual ratings and the complete bank topology are not legible. Source S45/P043; capture date unrecorded. Photographer not identified in the supplied record.

PUBLIC EXAMPLE EDITION

The battery dates conflict. The private account assigns renewal to 2022; later copy says 2023. These may describe different events or inconsistent text, but no sequence is established. Similarly, adding two alternator ratings produces a nameplate sum, not a guarantee of sustained charging into the house bank. Output depends on speed, regulation, temperature, acceptance and how the equipment is connected. A bank near full charge behaves differently from a deeply discharged bank. [S01, S02, S03; S45.]

The generator record also contains a significant disagreement. The private account reports a 6.5-kW Phasor/Kubota unit installed in spring 2025, and a photograph shows those brands. Later broker copy lists a 9-kW Kohler with 1,116 hours. The two descriptions remain unresolved; the photograph identifies the Phasor/Kubota branding without establishing a sequence of generator replacements. [S45/P044; S01, S02, S03.]



Figure 8.3. Phasor Marine and Powered by Kubota branding visible on the generator enclosure. The photograph supports the branding observation; the seller supplies the reported 6.5-kW rating and 2025 installation date. Plate P044, source S45. Photographer not identified in the supplied record.

Generator power allows simultaneous domestic loads that would draw heavily on batteries alone. It can also support charging. The actual combination permitted at one time depends on the installed rating, distribution, protection and starting demand of appliances. A motor or compressor may require more current when starting than while running. Solar panels can contribute energy during suitable light, but their photographed presence does not establish array wattage or daily yield. The yacht's energy balance cannot be reconstructed from visible panel area alone. [S01, S02, S03; photographs; engineering explanation.]

The solar-array photograph shows how panels share the working roof with the mast and deck equipment. It explains the physical allocation of space, while the electrical yield remains undocumented. [S45/P011.]

PUBLIC EARLY EDITION



Figure 8.4. Solar panels viewed toward the working rig and aft deck, relating the array to neighbouring equipment and circulation. Source S45/P011; photographer and capture date unrecorded.

8.3 Fresh water, bathing and sanitation

The private seller reports 450 gallons of freshwater and 75 gallons of holding capacity; later inventories give 400 and 100. The conversions here use US gallons. Thus 450 gallons is about 1,703 litres, while 400 is about 1,514 litres. The difference is significant for both endurance and loading, but it does not establish that tanks were changed. Capacity labels can describe different configurations or contain errors. [S45; S01, S02, S03; F28, F29; F51, F52.]

Stored freshwater serves a pressure system that makes the galley, heads and bathing arrangements usable. A pump supplies pressure, plumbing distributes water and fixtures control demand. The exact pumps and any accumulator are unidentified. In daily use, pressure water makes the fixtures convenient while making consumption less immediately visible than drawing from a small container.

The watermaker is advertised at 20 US gallons per hour, approximately 75.7 litres per hour. At that rated output, producing 400 gallons would take twenty hours and 450 gallons twenty-two and a half hours. These are ideal arithmetic times, assuming continuous production at the stated rate; they exclude existing water in the tanks, interruptions and variation in feed conditions. They show why a watermaker supplements storage rather than making time and energy irrelevant. [S01, S02, S03; S45; F30, F31; F51.]

A typical marine reverse-osmosis watermaker pushes feedwater across a membrane under pressure, separating a product stream from a more concentrated discharge. Output and quality depend on the particular equipment, feed temperature and salinity, condition and operation. The installed watermaker model is unidentified. The seller also reports a UV

PUBLIC EXAMPLE EDITION

filter, a separate treatment stage from the membrane process that removes salt. [S45; general process explanation.]

Hot water adds another energy path. Heating stored or circulating water requires a heat source and a means of distribution, and bathing facilities can consume substantial amounts. The main cabin's jetted bath and the forward shower are therefore part of the vessel's resource demands as well as its accommodation. The available inventory does not establish every heat exchanger or heating circuit, so their exact interconnection remains outside the description. [S01, S02, S03.]

Bathing facilities connect stored water and hot-water provision with everyday use. The selected view shows a separate shower beside a washbasin and toilet. These fixtures explain how the services fit within occupied space, without proving present operability. [S45/P083.]



Figure 8.5. A separate shower enclosure beside the washbasin and toilet, showing how the fixtures share the compartment. Source S45/P083; photographer and capture date unrecorded.

Two Vacuflush heads are reported. Vacuum-assisted sanitation uses a pressure difference to transport waste through the system, reducing reliance on a large flushing volume while introducing its own pumps, seals and controls. The installation's actual capacity depends on tankage and use; a tank volume does not establish how many days it lasts without an occupancy and consumption assumption. The conflicting 75- and 100-gallon holding figures remain source-specific. [S01, S02, S03; S45; F29; F52.]

The Bendix washer/dryer, galley appliances and other domestic equipment complete the relationship between comfort and resources. Laundry uses water and power; refrigeration uses energy continuously over time; cooking requires fuel or electricity and ventilation. A propane detector is listed with the galley equipment, adding a reported means of warning of gas accumulation without establishing a current test or alarm arrangement. The yacht's domestic arrangements are substantial because they support an extended stay, but their convenience is made possible by the machinery and storage around them. [S01, S02, S03.]

PUBLIC EXAMPLE EDITION

Food preparation brings the same resource questions to the galley. The overview in Figure 6.14 relates the curved counter and fitted room to the raised pilothouse. Cooker, sink, refrigeration and stores turn water, fuel and electrical supply into daily domestic use. [S01, S02, S03; S45/P063.]

8.4 Heat, ventilation and living aboard

The inventories describe Webasto heating, but disagree over its output: later text gives 22,000 BTU per hour, while the private account gives 40,000 and describes 2023 work. These are thermal ratings, approximately 6.45 and 11.72 kilowatts of heat, not the electrical consumption of a heater. Without an identified heater model, the two ratings remain unresolved. [S01, S02, S03; S45; F34.]

A hydronic heating system carries heat in a liquid circuit and releases it through heat exchangers in the living spaces. It separates the location of combustion from the locations where warmth is needed. Pumps, blowers and controls may also require electricity, while the heat output is supplied principally by fuel combustion. No full circuit diagram identifies which domestic hot-water services, if any, share the heater's heat source. [S01, S02, S03; S45.]



Figure 8.6. The saloon stove and flue. The private seller identifies Norsk Kleber soapstone; later broker wording differs. Plate P085, source S45; capture date unknown. Photographer not identified in the supplied record.

The solid-fuel stove offers a different pattern of use. It can provide a focal point in the saloon and retain warmth in its mass. It also demands fuel storage, ash handling, combustion air and a flue. The seller describes a watertight chimney cap for passage use, allowing the flue to be closed against water; it does not establish an operating configuration for a burning stove. The flue and combustion-air supply are as much part of the installation as the visible stove. [S01, S02, S03; S45/P085.]

PUBLISHER'S COPY EDITION

Ventilation is equally important when the boat is heated. People, cooking and drying clothing add moisture; cold surfaces can encourage condensation. Machinery spaces need their own air supply and heat management. A vessel can be warm and still need air movement. Air conditioning is neither positively identified nor ruled out by the available equipment descriptions. [S01, S02, S03; S45; general explanation.]

8.5 Navigation, communications and monitoring

The helm photographs show mixed generations and brands of equipment, including Garmin displays and Furuno equipment. The private seller dates navigation and camera work to 2022 and radio/control work to 2025. Later inventories include Furuno, WH, ICOM and Horizon descriptions. This is evidence of an evolving installation, not a verified single present-day equipment list. [S01, S02, S03; S45/P056–P058.]

Read with the pilothouse overview in Figure 6.7, the console photograph places the named navigation equipment at the control position. Visible ComNav and Garmin branding helps the reader evaluate inconsistent inventory wording; the image is not a measured ergonomic assessment. [S45/P054, P058.]

Electronic charts organize position and geographic information; radar supplies an independent observation of surrounding returns; depth sounders measure the water column beneath their transducer; cameras can improve observation of spaces or positions outside the direct view from the helm. Their roles overlap only partly. The photographed displays document the instruments in use, without supplying a dated position record. [S45/P056–P058; S63.]

The source-gallery chart view showing West Sound and Picnic Island provides recognizable Orcas Island context. The image records a chart view, without a dated position fix establishing the yacht's presence there. The ambiguous Furuno "FVC620/585" wording is retained as a source identification problem; a plausible FCV-620/585 reading is not a confirmed model. [S01; S45; S63.]



Figure 8.7. The helm with ComNav branding and Garmin displays. The photograph helps distinguish visible equipment from inconsistent inventory spellings. Plate P058, source S45; capture date unknown. Photographer not identified in the supplied record.

PUBLIC EXAMPLE EDITION

The vessel's documented call sign is WCY8509. A radio's identity and its installed capabilities are separate matters: the available records do not establish an MMSI history or prove an operating AIS transmitter merely from AIS-capable equipment descriptions. VHF communications, distress signalling and electronic position reporting have related purposes, but each depends on its actual installation and operation. [S46; S74; S01, S02, S03.]

Bilge pumping and monitoring are less prominent in the sales photographs but fundamental to the yacht. Water collecting low in the vessel needs detection and removal, and the cause of ingress needs attention. A complete bilge-pump schedule, compartment alarm plan and verified capacities are not supplied. The portable two-inch petrol-driven pump advertised for dewatering and fire use provides another reported resource, not a measured flow rate. Its inlet size alone cannot establish output. [S01, S02, S03.]

8.6 Anchoring, paravanes and the tender

The deck equipment extends the yacht's independence from shore. A hydraulic Nordic drum windlass is reported with an 80-kilogram Bruce anchor. The rode—the chain or cable connecting the anchor to the yacht—is described in the inventory as 100 feet of half-inch stainless chain and 440 feet of half-inch stainless cable, both marked 2022, together with a second 45-pound stainless anchor and short chain. These are source descriptions, not a recovered load certificate or proof that every listed length forms one continuous rode. [S01, S02, S03; F39, F40.]

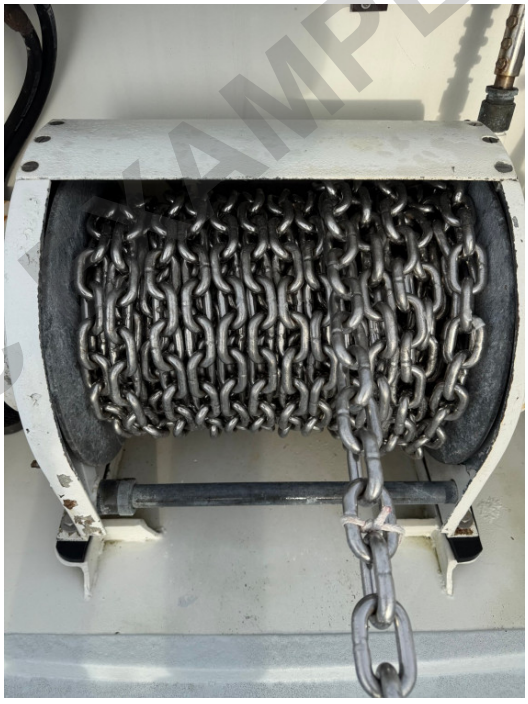


Figure 8.8. Anchor-chain stowage visible through its opening. The image gives context for the reported rode, without establishing all lengths or attachments. Plate P010, source S45; capture date unknown. Photographer not identified in the supplied record.

A drum system stores rode as it retrieves it, while the anchor's holding depends on seabed, setting, scope (rode length relative to the vertical distance from bow to seabed), environmental loads and the complete arrangement. The windlass retrieves and handles the

PUBLIC SAMPLE EDITION

rode; the load path while anchored also depends on the attachments and operating arrangement. No verified strengths are supplied for the chain, cable, attachments or supporting deck structure. [S01, S02, S03; general explanation.]

Powered warping winches forward and aft haul mooring lines to help move or secure the yacht alongside. They add mechanical advantage but also introduce machinery loads and hazards that need appropriate control. The mast and boom support tender handling and paravane work, with hydraulic winches reported. The available documentation does not establish a safe working load, load chart or complete structural analysis for lifting. A tender's weight and the reach of a boom change the loads on the yacht as well as on the fitting itself. [S01, S02, S03.]

The mast and boom in Figure 5.5 and the stowed tender illustrate how handling gear occupies working deck space. Their photographs do not establish a safe working load. [S01/R037; S45/P024.]

The mast and outriggers carry paravane deployment and retrieval loads. The running rigging used for that work is reported renewed in 2017; its design loads and measured performance are unavailable. Chapter 6 explains the distinction between roll damping and restoring stability. [S01, S02, S03.]

The tender connects an anchored yacht with shore, while its lifting and stowage occupy part of the working deck. Inventories mention a Bullfrog/Tohatsu 30-horsepower combination and an older SOLAS rigid inflatable/Yamaha combination; these entries do not settle present inclusion or the replacement sequence. [S01, S02, S03; S45.]

Figures 8.9 and 8.10 show the distinct afloat and stowed configurations. Their visible outboard branding helps compare the photographs with the inventories, but unknown capture dates prevent a dated replacement history. [S01/R039; S45/P024.]



Figure 8.9. A rigid inflatable tender afloat beside the yacht, with visible Yamaha outboard branding, compared here with the stowed tender and its Tohatsu branding. Source S01/R039; photographer and capture date unrecorded.



Figure 8.10. Tender stowed aboard with *Refugee* lettering and a visibly branded Tohatsu outboard. The photograph records this configuration without resolving the different tender inventories. Source S45/P024; capture date unrecorded. Photographer not identified in the supplied record.

The inventories list lifejackets, lights, an EPIRB and communications equipment, but do not establish current certification, service dates, a comprehensive escape plan or a certified persons limit. The EPIRB's 2011 listing date is historical, not evidence of present battery validity. [S01, S02, S03.]

The yacht's independence rests on these connected systems and the routines that sustain them: managing fuel and water, generating and storing electricity, maintaining machinery, and handling equipment for life away from shore.

PUBLIC EXAMPLE EDITION

9 Speed, endurance and the meaning of range

A range figure compresses many decisions into a single number. It combines fuel available, consumption and speed, then often leaves reserve, weather and auxiliary demand unstated. For a cruising yacht, the useful question is not simply how far an advertisement says she can go. It is what operating point the figure describes and how much confidence the evidence supports. The advertised operating points provide enough information to test several claims, while stopping short of a demonstrated passage range. [S01, S02, S03; S45; F22, F23; F25, F26; F48, F49, F50.]

The later advertisements give approximately 7.5 knots cruising and 11 knots maximum. The private account gives a seven-knot operating point with 2.5 US gallons per hour. Later text pairs 7.5 knots with three gallons per hour. These figures remain source claims. No trial in the supplied material records loading, sea state, wind, engine speed and independently measured total consumption together. [S01, S02, S03; S45.]

9.1 Speed and hull form

A displacement yacht moves through the water while supporting its weight primarily by buoyancy. As speed increases, the resistance changes through friction, wave-making and other components. The familiar square-root relationship between waterline length and a characteristic speed is a useful guide to this regime, not an absolute physical speed limit. A boat may exceed a conventional “hull speed” while requiring much greater power or behaving differently. The formula does not prove an advertised maximum. [S38; F10.]

Using an illustrative waterline length rather than an established measurement produces an illustrative answer. At 53 feet, the common coefficient of 1.34 gives about 9.76 knots; a shorter assumed waterline gives a lower result. Since the actual loaded waterline length is not established, the calculation is a way of understanding scale. It cannot authenticate 11 knots, determine a preferred cruising rpm or assess the bulb’s efficiency. [F10; S45/P031.]

The yacht’s proportions and steel construction also do not determine her speed alone. Weight affects immersed shape; surface condition affects drag; propellers must match the power train; wind and waves alter demand. The clean-hull condition following a haulout may differ from the condition before it. A meaningful performance record therefore needs an operating state, rather than a list of dimensions detached from use.

The bulb’s contribution, explained in Chapter 6, depends on the same operating-point evidence; its presence alone cannot authenticate a fuel-burn claim. [S04; S01, S02, S03.]

9.2 Reconstructing the conditional range

Table 9.1 applies the reported operating points to 1,200 US gallons nominal capacity, with ten percent withheld as a declared scenario. The resulting 1,080-gallon allocation is not measured usable fuel or a recommended reserve. For calculation, speed is treated as speed through the water, although its measurement basis is not established by the advertisements. Speed multiplied by endurance therefore gives projected distance through the water under constant conditions; actual progress over the ground also depends on currents and the route. [F48, F49, F50.]

PUBLIC EXAMPLE EDITION

The private seller pairs seven knots with 2.5 US gallons per hour. The scenario treats that burn as the total for both engines; unusable fuel and auxiliary demand are not deducted separately. [S45; F49.]

The second scenario combines the private capacity with later advertised speed and consumption. It tests consistency; it is not evidence that all inputs were measured together. [S01, S02, S03; S45; F50.]

The two claimed points imply 2.8 and 2.5 nautical miles per US gallon respectively. More speed can shorten a passage while increasing fuel use per nautical mile. These are comparisons of advertised points, not a measured consumption curve.

Quantity	Private operating point	Later point with private capacity
Nominal fuel	1,200 US gal	1,200 US gal
After 10% nominal reserve	1,080 US gal	1,080 US gal
Speed	7 kn	7.5 kn
Total burn assumed	2.5 US gal/h	3 US gal/h
Time	432 h	360 h
Conditional distance	3,024 nm	2,700 nm

Table 9.1. Conditional range at the reported operating points

Source: F48, F49, F50. Nominal reserve does not account separately for unusable fuel, generator/heater consumption, weather or a measured loading condition.

The advertised 4,000-nautical-mile figure is not substantiated by these combinations. Even assigning all 1,200 gallons to propulsion with no reserve gives 3,360 nautical miles at the first point or 3,000 nautical miles at the second. To cover 4,000 nautical miles at 7.5 knots and three gallons per hour would require 1,600 gallons consumed; retaining ten per cent of total capacity would require about 1,778 gallons nominally. That inverse calculation identifies the mismatch. It does not establish an absolute maximum range: a different operating speed, consumption rate or fuel allocation would produce a different result, and no complete consumption curve is supplied. [F22, F23; F25, F26; F48, F49, F50.]

The ten per cent convention also deserves perspective. A percentage of nominal capacity is not necessarily the same as a quantity that can reliably remain available under adverse trim, contamination or an unexpected diversion. Generator, heating and other fuel uses may draw from the same overall resource. A forecast should therefore state how these are treated, rather than quietly allocating the same fuel twice.

PUBLIC EXAMPLE EDITION

9.3 Loading, autonomy and daily distance

Fuel capacity is also a loading question. At the 1,200-US-gallon premise, the volume is approximately 4,542.5 litres. Using the cited marine-gas-oil density bracket, rather than a tested sample from the yacht, gives a fuel-mass scenario of roughly 3.73–4.00 metric tonnes. Adding the advertised 400-gallon freshwater case gives approximately 5.24–5.51 tonnes of liquids. Companion records F44, F45 examine the fuel quantity inferred for a 4,000-nautical-mile scenario, which produces a larger loading case. Neither should be added indiscriminately to an unverified dry-weight field as though it were a certified departure displacement. [F28; F44, F45; F48; S41.]

The effect of such weight depends on where it is carried and the yacht's waterplane and hydrostatics. Those data are not established. The book therefore does not calculate actual sinkage, trim change, stability margins or a safe loading limit. The practical lesson is direct: a cruising boat changes as consumables are loaded and used. Capacity, economy and the bulb's immersion belong to the same physical problem.

Daily distance is easier arithmetically but still conditional operationally. Seven knots maintained for twenty-four hours gives 168 nautical miles; 7.5 gives 180. Actual progress over the ground can differ through current, weather, maneuvering and stops. A yacht's coastal itinerary also depends on arrival times, anchorages and daylight. Multiplication does not convert a reported economical speed into a continuous passage record. [F14 and supplementary screening; S45.]

Domestic autonomy has similar limits. Freshwater storage and watermaker output interact with occupancy and habits. Battery endurance depends on the load profile and usable energy, not just the number of batteries. Heating output is not fuel consumption. These relationships explain why the technical reference preserves separate values rather than presenting one all-purpose "days at sea" figure. [F28; F30, F31; F34; F37, F38; F51, F52.]

9.4 Reading the numbers in service

The useful calculations answer specific questions: how much fuel a stated passage would consume, what the advertised tankage means in litres, how long the watermaker would need to replace a given amount, and how much progress a sustained speed would produce in a day. Their precision cannot exceed the underlying evidence. A nominal 53 feet converts to about 16.15 metres; the conversion does not imply a new measurement of the hull.

Other calculations require evidence not supplied: righting arms need stability data, rudder area needs measured geometry, and propeller-shaft torque needs a verified transmission ratio. The in-book notes retain useful conditional arithmetic; the fuller working register is retained privately. [F17; F20, F21; F46.]

Refuge's endurance is best described through conditional operating points, distinguishing capacity, consumption and demonstrated performance. The ten-per-cent-reserve scenarios give 3,024 and 2,700 nautical miles: comparisons of reported values, not proven passage ranges. Substantial storage and moderate advertised speeds support the account of coastal cruising, with propulsion and domestic demands sharing the same resources.

PUBLIC EXAMPLE EDITION

10 What survives

The most secure thread through *Refuge*'s history is an identity carried by both documents and material form. The build header names Waterline, Naviaux and Kilkenny, the year and the original *Ted K*. The continuation records the later conveyances and new name. Photographs connect the distinctive hull, house and bow artwork across those changes. The paperwork and the vessel answer different questions, but together they establish a particular yacht with a traceable past. [S04, S05, S06, S07, S09; S45; S72.]

Her pedigree has two principal professional strands. Seaton's design connects the commission with a broad career in sailing and powered yachts. Waterline's construction connects it with a small Canadian yard capable of shaping steel and completing the systems and interiors of custom vessels. David Tolman's credited bow artwork adds an individual contribution that has remained unusually visible. Together they identify distinct contributions to one custom yacht: design, fabrication and an artwork that became part of her identity. [S04; S22, S23; S72.]

The original owners supply the human purpose. Their earlier sailing experience and the first reported Alaska voyage place the motor yacht within a continuing cruising life. Later owners and maintenance accounts show a vessel continuing to be used, offered for sale and adapted. [S45; S67, S68, S69, S70; S72.]

Identity is easier to trace than original fabric. A familiar hull and house do not prove every plate or fitting unchanged, and later machinery photographs do not establish the delivery inventory. Coatings, servicing and replacement equipment are part of the history through which the yacht has survived.

The record also has boundaries. The exact catalogue project number, complete as-built drawings, some installation identities and a continuous voyage history remain unresolved. These limits belong with the material they affect. They do not erase the substantial history that can already be told, nor do they invite a more seamless story than the evidence supports.

What survives most clearly is the relationship between a cruising ambition and a physical boat. Naviaux and Kilkenny commissioned a yacht after years of sailing; Seaton and Waterline gave that next stage a particular form. Later names, owners and equipment belong to the continuing life of that form. The bulb and artwork, sheltered helm, working rig and fitted living spaces still make the vessel recognizable as the custom steel yacht first commissioned as *Ted K*.

PUBLIC EXAMPLE EDITION

Index

Abstract of Title
  record cutoff, 27, 84, 85
  reproduced abstract pages, 84, 85
accommodation, 37, 38, 39, 40
After Work LLC, 26, 27
AGM batteries, 46, 47, 48
AIS, 53
Alaska, maiden voyage, 7, 23
alternators, 46, 48
Aqua Drive, 43
Askov / *Nightfall*, 21
autonomy, 45, 47, 49, 57
batteries, 47, 48
beam, conflicting values, 30
berths, 37, 39
bilge systems, 53
builder's certificate, 12, 21, 84
bulbous bow, 18, 31
calculations
  basis and limits, 57, 76
  specific records, 76, 81
Caterpillar / Perkins, 41, 42
Cheng Ho, 11
Clayman, John, 14, 88
commissioning, 10, 12
construction
  fabrication, 18, 20
  integration, 17, 18, 20, 21
conveyances
  2012, 24, 85
  2019, 25, 85
  2026, 26, 85
cooling, 44
craftspeople, 17, 19
daily distance, 57, 81
deck circulation, 34, 35, 36
Delta Marine, 14
design pedigree, 13, 14
design process, 14, 15, 16, 17, 18
dimensions and conventions, 30, 31
displacement and loading, 31, 57
draft and registered depth, 30, 31
drawings
  lines and interpretation, 13, 15, 16
  profile and rig, 15, 16, 20
  custody and missing plans, 88
dry exhaust, 44
electrical system, 46, 47, 48
engine hours, 28, 42
Ericson 39, 10
Fairchild Tropical Botanic Garden, 11
Folle Independance / *Folle Independence* / *Pneuma*, 10
freshwater, 49, 50
fuel
  storage and transfer, 45, 46
  reserve and range, 55, 56
Furuno electronics, 52
Garden, Bill, 13, 21
Garmin electronics, 52
gearbox ratio, 43
heating and ventilation, 51, 52
holding tank, 49, 50
Horniak, Wally, 17
hull form and arrangement, 29, 30, 31, 33
hull plating, 31, 32
identity and original fabric, 28, 58
illustrations, source and methods, 72, 87, 88
Isolabella, 21
Jakobsen, Frank, 17
Janstrom identification, 44
joinery, 17, 21, 38, 39
keel and skegs, 32, 33
Kilkenny, Anne
  cruising and commission, 7, 10, 12
  family and naming, 11
Kilkenny, Thomas Francis (Ted), 11
Kobelt controls, 26, 44
Kohler generator, 28, 48
Kooijman, Maarten, 21
laundry, 39, 50
lifting gear, 36, 54
Lowry, Marilyn, 17, 21
machinery access, 44
maintenance and alterations, 25, 26, 27, 28
market status, 26, 27
mast and boom, 27, 28, 36, 54
Mettle, 21
Monk, Ed Sr., 13

PUBLIC EXAMPLE EDITION

Morgan Yacht Corporation, 13
Nanaimo, 27
Naviaux project drawings, 12, 13, 15, 16, 88
Naviaux, Jon F., 10, 12, 24
navigation and communications, 52, 53
Neville, Chuck, 13
Nightfall (ex. *Askov*), 21
Nordic windlass, 53, 54
Northern Marine, 14
Norwood, John, 17
Ombak Putih, 11
Onika, 14
original fabric, 28, 39, 58
OutBack inverter / charger, 46, 47
ownership
  chronology, 9
  recorded succession, 24, 25, 26, 27, 85
  beneficial ownership limits, 24, 25, 27
paravanes, 32, 33, 54
Perkins engines, 41, 42
Phasor generator, 26, 48
Portland, 10, 23
Portuguese bridge, 34, 35
pre-lubrication, 44, 45, 46
Project 253, 88
ProNautic, 21
propellers, 43
PSIX
  original screenshot, 86
  certificate and radio identity, 27, 53, 86
PSS, 28, 43
range
  2,700-nm scenario, 56, 57, 80
  3,024-nm scenario, 56, 57, 80
  4,000-mile claim, 56, 77, 78
  limits and reserve, 55, 56, 57
Refuge LLC, 25, 26
Refuge, name and ownership, 24, 25, 26, 27
rolling motion, 32, 33
rudders, 43, 44
Rutherford, Ed, 17, 18, 21
safety equipment, 53, 54
sanitation, 50
Sea Fire, 21
Seaton Yachts, 14, 88
Seaton, Stephen R.
  design attribution, 10, 12, 13, 18
  career and practice, 13, 14
Seaton–Neville, 13
Seaview Boatyard, 26, 34
shaft seals, 28, 43
shafting and thrust, 43
shore power, 47, 79
sistership relevance, related vessels, 21
So Fong, 11
solar panels, 48, 49
specification conflicts, 28, 30, 31, 43, 48, 49, 51, 52, 54
speed and hull form, 55
stability, evidence limits, 32, 33, 57, 83
steel construction, 18, 20, 21, 31, 32
steering, 43, 44
stern gear, 33, 34, 43
stove, 40, 51
Ted K
  probable namesake, 11
  renaming, 24
Teisson, Mark, 21
tender, 54
The Thor Corporation, 24, 25
Tides Marine, 28, 43
Tolman, David, 19, 58
tonnage, 31, 80
transducer identification, 33, 52
Traversay III, 21
Twin Disc transmissions, 41, 43
USCG, 12, 24, 25, 26, 27, 84, 85, 86
Vacuflush, 50
Vessel reference, 73, 74, 75
waterline length, 12, 30, 55, 76
Waterline Yachts, 17, 18, 20, 21
watermaker, 49, 50, 78, 79
watertight subdivision, 33
Webasto heating, 51
Zopolite, 14
Ted K, see also *Refuge*, name and ownership

PUBLIC EXAMPLE EDITION

Bibliography

The references below identify the documents, articles, photographs and technical publications used in the book. The source numbers provide stable links between the narrative and these entries. Historical records and sales representations are distinguished in their descriptions; the technical group supplies model-family data, definitions and calculation assumptions. In each source entry, a page number returns to the first citing passage on that page; bracketed letters link to the individual passages where several occur on one page.

The fuller engineering working register is retained privately. The sources used in this edition are identified below, and all calculation records cited in the narrative are reproduced in Appendix B. A source URL may now be unavailable; archive dates and publication details identify the version used.

Historical and documentary sources

S01 / YachtWorld / Fairhaven — *Refuge*, listing 10304022

Cited on pages 8 [a,b,c,d], 9, 10 [a,b], 14, 15 [a,b,c], 17, 18, 19, 21, 23, 24, 25 [a,b], 26 [a,b,c], 27 [a,b], 28 [a,b,c], 29 [a,b,c], 30 [a,b,c,d], 31 [a,b], 32, 33 [a,b,c], 34 [a,b], 35, 36 [a,b], 37 [a,b,c,d], 38 [a,b,c,d], 39, 40 [a,b,c], 41 [a,b,c], 42 [a,b,c], 43 [a,b,c,d,e,f,g,h], 44 [a,b,c,d,e,f,g], 45, 46, 47 [a,b], 48 [a,b,c], 49 [a,b], 50 [a,b,c], 51 [a,b,c,d], 52 [a,b,c], 53 [a,b,c,d], 54 [a,b,c,d,e,f,g], 55 [a,b,c], 56, 72, 73 [a,b,c,d,e,f,g], 74 [a,b,c,d,e,f,g,h,i,j,k,l], 75 [a,b,c,d,e,f,g,h], 76 [a,b,c], 77 [a,b,c,d,e], 78 [a,b,c,d], 79 [a,b,c,d,e], 80 [a,b,c,d], 81 [a,b,c,d,e], 82 [a,b,c,d,e], 83 [a,b,c].

Fairhaven brokerage inventory and photographs, listing 10304022, La Conner. The recorded pending-sale field describes marketing status, not a completed conveyance. The R-series plates come from this gallery.

Source URL: https://www.yachtworld.com/yacht/1998-waterline-passage-maker-10304022/

S02 / Denison syndicated *Refuge* listing / Anacortes

Cited on pages 9 [a,b], 10 [a,b], 14, 17, 21, 23, 25, 26 [a,b], 27, 28 [a,b], 29 [a,b], 30 [a,b,c,d], 31 [a,b], 32, 33, 34, 35, 36, 37, 38, 39, 40 [a,b], 41 [a,b,c], 42 [a,b], 43 [a,b,c,d,e,f,g,h], 44 [a,b,c,d,e,f], 45, 46, 47, 48 [a,b,c], 49 [a,b], 50 [a,b,c], 51 [a,b,c,d], 52 [a,b], 53 [a,b,c,d], 54 [a,b,c,d], 55 [a,b,c], 56, 73 [a,b,c,d,e,f], 74 [a,b,c,d,e,f,g,h,i,j,k,l], 75 [a,b,c,d,e,f,g,h], 76 [a,b], 77 [a,b,c,d,e], 78 [a,b,c,d], 79 [a,b,c,d], 80 [a,b,c,d], 81 [a,b,c,d,e], 82 [a,b], 83 [a,b].

Syndicated Fairhaven inventory, Anacortes; page updated May 27, 2026. The off-market label is a marketing observation. The shared inventory is not an independent equipment survey.

Source URL: https://www.denisonyachtsales.com/yachts-for-sale/refuge-53-waterline

PUBLIC EXAMPLE EDITION

S03 / Denison syndicated *Refuge* listing / La Conner

Cited on pages 8 [a,b,c,d], 9, 10 [a,b], 14, 17, 21, 23, 25, 26, 27, 28 [a,b], 29 [a,b], 30 [a,b,c,d], 31 [a,b], 32, 33, 34, 35, 36, 37, 38, 39, 40 [a,b], 41 [a,b,c], 42 [a,b], 43 [a,b,c,d,e,f,g,h], 44 [a,b,c,d,e,f], 45, 46, 47, 48 [a,b,c], 49 [a,b], 50 [a,b,c], 51 [a,b,c,d], 52 [a,b], 53 [a,b,c,d], 54 [a,b,c,d], 55 [a,b,c], 56, 73 [a,b,c,d,e,f], 74 [a,b,c,d,e,f,g,h,i,j,k,l], 75 [a,b,c,d,e,f,g,h], 76 [a,b], 77 [a,b,c,d,e], 78 [a,b,c,d], 79 [a,b,c,d], 80 [a,b,c,d], 81 [a,b,c,d,e], 82 [a,b], 83 [a,b].

Syndicated Fairhaven inventory, La Conner; page updated September 9, 2026. Includes the statement that new owners changed their plans. The official abstract separately supplies recorded transfer dates.
Source URL: https://www.denisonyachtsales.com/yachts-for-sale/refuge-53-waterline-I

S04 / Sven Donaldson — Waterline Yachts, Professional BoatBuilder 83, June/July 2003, pp.72–83

Cited on pages 7, 8 [a,b,c,d], 9, 12, 13, 15, 17 [a,b,c,d,e], 18 [a,b,c,d], 19 [a,b], 20, 21 [a,b,c,d], 22 [a,b], 28, 31 [a,b], 39, 55, 58 [a,b], 73 [a,b], 75, 88.

Sven Donaldson, “Waterline Yachts,” Professional BoatBuilder, no. 83, June/July 2003, pp. 72–83. Page 82 identifies *Ted K*, credits Steve Seaton and names bow artist David Tolman; page 83 discusses the distinct Garden-designed *Askov*. The article supplies the contemporary account of the yard and its methods.
Source URL: https://www.proboat.com/wp-content/uploads/2024/09/NO83.pdf

S05 / Waterline Yachts — Motor Yachts, archived 6 February 2005

Cited on pages 7, 22 [a,b], 28, 58.

Builder’s “Motor Yachts” page, archived February 6, 2005. Describes *Ted K* as a 53-foot West Coast cruiser. Its separate proposed single-engine trawler has its own specifications, which are not assigned to *Ted K*.
Source URL: https://web.archive.org/web/20050206175946/http://www.waterline-yachts.com/motoryachts/

S06 / Waterline builder archive / tedK_outside.jpg

Cited on pages 7, 22 [a,b], 28, 58, 72.

Builder photograph, tedK_outside.jpg, archived December 22, 2005. An underway view of *Ted K*. The archive date records preservation of the image; photographer and exposure date are unrecorded.
Source URL:
https://web.archive.org/web/20051222050355/http://www.waterline-yachts.com/images/tedK_outside.jpg

S07 / Waterline builder archive / tedK_d 1_L.jpg

Cited on pages 22 [a,b], 23, 27, 28, 58, 72.

Builder photograph, tedK_d1_L.jpg, archived December 22, 2005. The alongside view preserves the *Ted K* name, house, hull openings and distinctive bow treatment. Photographer and exposure date are unrecorded.
Source URL:
https://web.archive.org/web/20051222043945/http://www.waterline-yachts.com/images/tedK_d1_L.jpg

PUBLIC EXAMPLE EDITION

S09 / Waterline builder archive / tedK_d 3_L.jpg

Cited on pages 19, 22 [a,b], 28, 58, 72.

Builder's bow-art photograph, tedK_d3_L.jpg, archived April 30, 2006. The decoration can be compared with the later private-sale photographs. Photographer and exposure date are unrecorded.
Source URL:
https://web.archive.org/web/20060430020940/http://www.waterline-yachts.com/images/tedK_d3_L.jpg

S10 / Waterline — About Us, archived 7 June 2002

Cited on pages 17 [a,b], 18, 20.

Waterline's "About Us" page, archived June 7, 2002. Builder account of its founders, custom steel construction and Sidney address.
Source URL: https://web.archive.org/web/20020607175410/http://www.waterline-yachts.com/aboutus.htm

S11 / Waterline — Company, archived 6 February 2005

Cited on pages 12, 14, 17 [a,b,c], 20.

Waterline's company page, archived February 6, 2005. Names Ed Rutherford as founder/designer and describes collaboration with individual clients.
Source URL: https://web.archive.org/web/20050206173543/http://www.waterline-yachts.com/company.php

S12 / Waterline company URL, archived 13 July 2014

Cited on pages 17 [a,b], 20.

Waterline company-domain capture, July 13, 2014. Shows an expired-domain page. It does not establish the legal dissolution of the company or a yard closure date.
Source URL: https://web.archive.org/web/20140713171539/http://www.waterline-yachts.com/company.php

S13 / Waterline legacy introduction, archived 19 September 2000

Cited on pages 14, 17 [a,b], 18, 20.

Waterline introduction, archived September 19, 2000. Describes custom building and adaptation to an outside designer's specifications. The website copyright years do not date this yacht's delivery.
Source URL: https://web.archive.org/web/20000919205112/http://www.waterline-yachts.com/wlyt-in.htm

S14 / John M. MacFarlane — Vessels Built by Waterline Yachts Inc.

John M. MacFarlane, "Vessels Built by Waterline Yachts Inc." Maritime reference supplying builder background and a vessel list, rather than a complete yard catalogue or *Refuge* title history.
Source URL: https://www.nauticapedia.ca/articles.php?article=498

PUBLIC EXAMPLE EDITION

S15 / Cruising World — Waterline 50: Seriously Skookum

Cited on pages 21 [a,b,c].

Andrew Burton, "Waterline 50: Seriously Skookum," Cruising World, December 2008 issue; online publication December 12, 2008. Review of a separate Waterline sailing yacht, including the reported 2005 sale of the business to Kooijman and Teisson. Comparative construction context only.
Source URL: https://www.cruisingworld.com/sailboats/waterline-50-seriously-skookum/

S16 / Bob Greenwood — Yard Round-up, Superyacht Business, June 2008, pp.50–52

Cited on pages 21.

Bob Greenwood, "Yard Round-up," Superyacht Business, June 2008, pp. 50– 52. Dated trade account of Waterline/ProNautic ownership, workforce and facilities. Its 2008 company particulars are not the dimensions of the 1998 *Refuge* build.
Source URL: https://paperzz.com/doc/9501061/yard-round-up

S17 / BoatInfoWorld — *Refuge* / US documentation number 1073941

BoatInfoWorld entry for *Refuge*, documentation number 1073941. Secondary particulars include Waterline, 1998, 53 feet and 34 gross/27 net register tons; underlying-data update labeled November 9, 2017. Primary official evidence is reproduced in the documentary appendix.
Source URL: https://www.boatinfoworld.com/registration.asp?vn=295852

S18 / BoatInfoWorld — Portland vessel list

BoatInfoWorld Portland vessel index. A secondary owner-area association, not evidence of a passage or a current berth.
Source URL: https://www.boatinfoworld.com/boat/registrations/portland-or-oregon.asp?spg=4

S22 / Peter Whiting — Stephen R Seaton 1945–2026, Northwest Yachts, 28 February 2026

Cited on pages 12, 13 [a,b,c,d], 14 [a,b,c,d,e], 58.

Peter Whiting, "Stephen R Seaton 1945–2026," Northwest Yachts, February 28, 2026. A colleague's retrospective recording Seaton's death on February 18 and describing his upbringing, professional relationships and projects. This is the main chronological biography used in the design chapter.
Source URL: https://northwestyachts.com/stephen-r-seaton-1945-2026/

S23 / Seaton Yachts — Meet Team Seaton

Cited on pages 12, 14 [a,b], 58.

Seaton Yachts, "Meet Team Seaton." Business biography of Seaton, John Clayman and Nick Nicholson, including the 2005 partnership. Its older biographical wording is read alongside Whiting's 2026 memorial.
Source URL: https://seatonyachts.com/seaton-yachts/team-seaton/

PUBLIC EXAMPLE EDITION

S25 / Seaview Boatyard — History

Cited on pages 26.

Seaview Boatyard history: the business's 1973 origin and the Bellingham North yard's 2002 opening. The yacht's undated haulout photograph establishes a lift there, without identifying a work order.
Source URL: https://www.seaviewboatyard.com/history

S26 / Seaview Boatyard — Yard services

Cited on pages 26.

Seaview Boatyard services. Describes yard capabilities; the page does not document particular work performed on *Refuge*.
Source URL: https://www.seaviewboatyard.com/yardservices

S32 / PassageMaker — Making Memories / *Nightfall*, formerly *Askov*

Cited on pages 21.

PassageMaker, "Making Memories," concerning *Nightfall*, formerly *Askov*. A distinct Garden-designed Waterline motor yacht used for comparison; her machinery, ownership and voyages are not *Refuge*'s.
Source URL: https://passagemaker.com/gear-and-refit/making-memories/

S40 / Anchor Yachts — Waterline

Anchor Yachts, Waterline legacy builder material. A derivative account of custom collaboration, rather than an independent *Refuge* build record.
Source URL: https://anchoryachts.com/newsailboats/waterline-yachts/

S42 / BoatInfoWorld — *Refuge* / The Thor Corporation, archived 1 April 2013

Cited on pages 9, 25.

BoatInfoWorld archived vessel record, April 1, 2013; dataset update January 27, 2013. Names *Refuge* and The Thor Corporation with matching build particulars. Corroborates the primary abstract without creating an additional conveyance.
Source URL:
https://web.archive.org/web/20130401044606/http://www.boatinfoworld.com/registration.asp?vn=295852

S43 / BoatInfoWorld — *Refuge* / The Thor Corporation, archived 24 July 2014

Cited on pages 9, 25.

BoatInfoWorld archived vessel record, July 24, 2014; dataset update June 22, 2014. Names *Refuge* and The Thor Corporation. This is a later capture of the same secondary record.
Source URL:
https://web.archive.org/web/20140724104538/http://www.boatinfoworld.com/registration.asp?vn=295852

PUBLIC EXAMPLE EDITION

S45 / BoatTrader — *Refuge* private-sale advertisement 10037939, archived 25 February 2026

Cited on pages 8 [a,b,c,d], 9 [a,b,c,d], 10 [a,b,c], 12 [a,b,c], 13, 14, 15 [a,b,c,d], 16 [a,b,c], 17, 18 [a,b], 19, 20 [a,b,c], 21, 22, 24, 25 [a,b,c], 26 [a,b,c,d,e,f], 28 [a,b,c], 29 [a,b], 30 [a,b,c,d], 31 [a,b,c,d,e], 33 [a,b,c,d], 34, 35 [a,b,c], 36 [a,b,c], 38, 39 [a,b,c], 40 [a,b,c,d], 41 [a,b,c], 42, 43, 44 [a,b,c], 45 [a,b,c], 46 [a,b,c], 47 [a,b,c], 48 [a,b,c,d], 49 [a,b,c,d], 50 [a,b,c], 51 [a,b,c,d,e], 52 [a,b,c,d,e,f], 53, 54 [a,b,c,d], 55 [a,b,c], 56 [a,b], 57, 58 [a,b], 72, 73 [a,b,c,d,e,f,g], 74 [a,b,c,d,e,f,g,h,i], 75 [a,b,c,d,e], 78 [a,b,c], 79, 80 [a,b,c], 81 [a,b,c], 88 [a,b].

BoatTrader private-sale advertisement 10037939, archived February 25, 2026. Offered *Refuge* at Eastsound; platform publication December 14, 2025, modified December 18. First-person equipment, maintenance and Desolation Sound cruising claims accompany a 90-image gallery. The P-series plates, photographed plans and operating notice derive from this source. Its hull identifier matches the supplied official record.
Source URL: https://web.archive.org/web/20260225055504/https://www.boattrader.com/boat/1998-waterline-53-trawler-10037939/

S46 / USCG PSIX — *Refuge* O.N.1073941, supplied screenshot

Cited on pages 30 [a,b], 31, 53, 75, 80.

USCG PSIX screenshot supplied November 12, 2026, showing a November 9 database update. Records *Refuge*, official number 1073941, hull identifier QWY52SS1F598 and call sign WCY8509. This earlier view is distinct from the complete newer screenshot reproduced under S74.

S47 / USCG manufacturers identification list — QWY / Waterline Yachts Inc.

USCG manufacturers identification directory, code QWY, Waterline Yachts Inc., Sidney, British Columbia. Establishes the manufacturer-code association without authenticating every character of a particular hull serial.
Source URL: https://www.uscgboating.org/content/manufacturers-identification.php/manufacturers-identification-detail.php?id=8959&pageNum_manufacturers=427&totalRows_manufacturers=16263

S51 / West Coast Boats Facebook post — *Refuge*, Nanaimo Harbour, 21 August 2026

Cited on pages 9, 18, 22, 24, 27 [a,b].

Mike Rydqvist McCammon, West Coast Boats public post, August 22, 2026, captioning *Refuge* at Nanaimo Harbour on August 21. Supplied caption/comment screenshots accompany the image; the printed photographic credit reads Rydquist–McCammon. The comment attributing design to Rutherford conflicts with contemporary Seaton attribution. Named commenters are associations, not evidence of title.
Source URL: https://www.facebook.com/groups/424213994604997/posts/2921860761506962/

S54 / BoatInfoWorld — *Refuge* / The Thor Corporation, archived 1 June 2013

Cited on pages 9, 25.

BoatInfoWorld archived vessel record, June 1, 2013; dataset update May 6. Names *Refuge* and The Thor Corporation with the matching Waterline/1998/53-foot particulars. Supporting secondary evidence only.
Source URL:
https://web.archive.org/web/20130601133905/http://www.boatinfoworld.com/registration.asp?vn=295852

PUBLIC EXAMPLE EDITION

S55 / BoatInfoWorld — *Refuge* / The Thor Corporation, archived 6 September 2013

Cited on pages 9, 25.

BoatInfoWorld archived vessel record, September 6, 2013; dataset update August 25. Repeats the corporate managing-owner association; it is not another sale.
Source URL:
https://web.archive.org/web/20130906142313/http://www.boatinfoworld.com/registration.asp?vn=295852

S60 / Waterline Yachts — alternate-domain homepage and launch page, 2003 captures

Cited on pages 21.

Waterline's alternate-domain homepage and launch page, 2003 captures. Supplies company continuity and separate project references for *Traversay III*, *Sea Fire* and *Mettle*. Capture dates are not launch dates.
Source URL: https://web.archive.org/web/20030811183851/http://waterlineyachts.com/today.htm

S62 / Seaview Boatyard — gallery, blog and public sitemap

Cited on pages 26.

Seaview's gallery, project index and blog. Context for the yard shown in the undated haulout image; no named *Refuge* case study establishes the date or scope of the seller-reported May 2025 work.
Source URL: https://www.seaviewboatyard.com/gallery

S67 / Latitude 38 — Changes in Latitudes, February 2003

Cited on pages 7 [a,b], 8, 9, 10 [a,b], 21, 22, 23, 24, 58, 73.

Latitude 38, "Changes in Latitudes," February 2003, Anne Kilkenny/Jon Naviaux account. Anne describes returning from *Ted K*'s maiden Alaska voyage and meeting cruising friends at Astoria in autumn 1999. The earlier Pacific voyage belongs to their Ericson 39, not *Ted K*.
Source URL: https://www.latitude38.com/changes/Changes02-03.html

S68 / Latitude 38 — April 2006, *Ted K* / Naviaux / Kilkenny account

Cited on pages 7 [a,b], 9, 10 [a,b], 22, 23, 24, 58.

Latitude 38, April 2006, Anne Kilkenny/Jon Naviaux note, preserved in the publisher's archived monthly HTML. Identifies the couple with *Ted K* in Portland and recalls earlier cruising friendships. It reports no sale.
Source URL:
https://web.archive.org/web/20060422000316/http://www.latitude38.com:80/changes/Changes04-06.html

PUBLIC EXAMPLE EDITION

S69 / Carl Lewis — From the Director, The Tropical Garden 72(1),2017, p 4

Cited on pages 10, 11 [a,b,c], 58.

Carl Lewis, “From the Director,” The Tropical Garden 72, no. 1 (2017), p. 4, including the caption identifying Jon Naviaux as Anne Kilkenny’s husband; and Georgia Tasker, “A Plant Discussion Stretching More Than Four Centuries,” pp. 52–53. The caption supports the marriage and family context; Tasker explains the botanical purpose and collections of the *Cheng Ho* expedition. The later Indonesian voyage aboard *Ombak Putih* is separate from the history of *Ted K*.
Source URL: https://fairchildgarden.org/wp-content/uploads/2020/10/TTG-Volume-72-Number1-web.pdf

S70 / Fairchild — Thomas F. Kilkenny Collection finding aid

Cited on pages 11 [a,b,c,d,e,f,g,h], 58.

Fairchild, Thomas F. Kilkenny Collection finding aid. Identifies Thomas Francis “Ted” Kilkenny (1894–1956), donor Anne Kilkenny and the May 20, 2009 donation; describes three historical scrapbooks. This is the institutional source for family maritime background.
Source URL:
https://fairchildgarden.org/mission-history/description-of-collections/thomas-f-kilkenny-collection/

S71 / Seaton/Naviaux catalogue comparison — summary

Cited on pages 88.

Summary of the Seaton/Naviaux catalogue comparison, retained in the separate private engineering reference. The summary does not reproduce the underlying catalogue pages. Comparisons with adjacent archived designs did not establish Project 253 as *Ted K*. The linked catalogue example concerns another project, rather than a public original drawing of this yacht.
Source URL:
https://web.archive.org/web/20050117140126/http://seatondesign.com:80/40%27/project_307.htm

S72 / USCG/NVDC — Abstract of Title, O.N.1073941, with cover letter

Cited on pages 7 [a,b], 8 [a,b,c,d,e], 9 [a,b,c,d,e,f,g,h], 10 [a,b], 11, 12 [a,b,c], 17 [a,b], 21, 22 [a,b], 24 [a,b,c], 25 [a,b,c,d], 26 [a,b,c], 27 [a,b,c,d], 58 [a,b,c], 73 [a,b,c], 75 [a,b], 80, 84, 85, 88.

USCG National Vessel Documentation Center, Abstract of Title, O.N. 1073941, supplied with cover letter. Title cutoff September 9, 2026, 6:30 a.m.; cover September 24, later resent November 13. Records the original clients/build, the May 20, 1998 certificate entry, the 2012/2019/2026 conveyances and the May 4, 2012 name change. The two abstract pages are reproduced in Appendix C, with amount fields permanently omitted; the cover letter and unchanged original are retained privately.

S73 / Author’s confirmation — continuous U.S. documentation and vessel naming

Cited on pages 12, 75, 87.

Author-supplied confirmation of continuous United States documentation. This confirmation is separate from the dated USCG and PSIX records; it is not independently established by them.

PUBLIC EXAMPLE EDITION

S74 / USCG PSIX — newer supplied screenshot

Cited on pages 8 [a,b], 9, 12 [a,b], 15, 26, 27, 30 [a,b,c], 31, 53, 66, 73 [a,b,c,d,e], 75 [a,b,c], 80, 86, 88.

USCG PSIX screenshot supplied November 13, 2026; displayed database update November 9. Shows active recreational United States status, official number 1073941, QWY52SS1F598, WCY8509 and certificate dates August 24, 2026–August 31, 2031. Contact-query fields cover November 13, 2021–November 13, 2026; no contact-result message is displayed. The complete screenshot is reproduced in the documentary appendix. The unchanged original is retained privately. Supply date does not independently establish capture time.

S75 / Fairchild Tropical Botanic Garden — Mission & History

Cited on pages 11 [a,b].

Official institutional history: Garden south of Miami, opened to the public in 1938 and named for botanist/plant explorer David Fairchild; the 1940 *Cheng Ho* voyage was its first official collecting expedition and supplied early specimens. Read November 14, 2026.
Source URL: https://fairchildgarden.org/mission-history/

S76 / Seattle Yachts — Peter Whiting

Cited on pages 13.

Official broker profile: Whiting oversees offices, new/brokerage sales and manufacturer liaison; bought Northwest Yachts in 1998, with dealership/brokerage merger into Seattle Yachts in 2016. Used only to identify the memorial author and his professional context. Read November 14, 2026.
Source URL: https://www.seattleyachts.com/yacht-broker/peter-whiting

Technical and geographical references

S27 / Perkins — Engine Number Guide (manufacturer document hosted by Rutt's Machine)

Cited on pages 41, 75, 82.

Perkins, Engine Number Guide, manufacturer document hosted by Rutt's Machine. Associates AB/AC prefixes with the 1004-4T family. No installed engine serial or build-list plate is authenticated by this guide.
Source URL: https://www.ruttsmachine.com/assets/pdf/literature/Perkins-Engine-Number-Guide.pdf

S28 / Perkins — 1004-4T factory specification, PN368/01/02, 2001 (mirror text)

Cited on pages 41, 42, 75, 82 [a,b], 83.

Perkins, 1004-4T specification sheet PN368/01/02 (2001), available through an indexed mirror. Industrial comparison: four-cylinder turbocharged engine, nominal four litres, 100 × 127 mm bore/stroke; 111 bhp at 2,600 rpm and 368 N·m at 1,600 rpm. These are not an authenticated marine rating or curve for *Refuge*.
Source URL: https://es.scribd.com/document/267611130/1004-4T-SpecSheet

PUBLIC EXAMPLE EDITION

S29 / Perkins — Marine technical information

Cited on pages 41, 75.

Perkins marine technical-information portal. Manufacturer context for engine documentation. Exact installed build and serial details would be needed to select the yacht's own technical data.
Source URL: https://www.perkins.com/en_GB/products/sectors/marine/user-guides-manuals.html

S30 / OutBack Power — FX/VFX installation manual, Rev B

Cited on pages 46, 47, 75, 79, 82.

OutBack Power, FX/VFX installation manual, revision B. Referenced VFX2812M data: nominal 12 V DC, 120 V/60 Hz AC, 2,800 VA and 125 A charging. Model-family data explain the inventory wording without determining the installed suffix or wiring.
Source URL: https://www.outbackpower.com/downloads/documents/n_series/FX_series_Install.pdf

S31 / Caterpillar — Meet our family of brands

Cited on pages 42, 75.

Caterpillar, "Meet our family of brands." Records the 1998 acquisition of Perkins, providing the corporate context for Cat-Perkins sales wording.
Source URL:
https://www.caterpillar.com/en/company/history/history-timeline/meet-the-family-of-brands.html

S38 / Eric Sponberg — The Design Ratios

Cited on pages 55, 76.

Eric Sponberg, The Design Ratios. Technical definitions and applicability of displacement/length, speed/length and related concepts. Sailing-specific classifications are not adopted for *Refuge*.
Source URL: https://ericwsponberg.com/wp-content/uploads/2021/09/THE-DESIGN-RATIOS.pdf

S39 / ITTC — Fresh Water and Seawater Properties, 2024

International Towing Tank Conference, Fresh Water and Seawater Properties (2024). Density and viscosity reference for explicitly stated calculation cases; not a measurement of the water around the yacht.
Source URL: https://www.ittc.info/media/11764/75-02-01-03.pdf

S41 / Geos Group — Marine Gas Oil product specification, 2019

Cited on pages 57, 83.

Geos Group, Marine Gas Oil product specification (2019). The 0.820–0.880 kg/litre density bracket at 15°C is used as a declared loading scenario, not a tested sample of *Refuge*'s fuel.
Source URL: https://geosgroup.com/wp-content/uploads/PRODUCT_SPECIFICATION_GEOS_GROUP.pdf

PUBLIC EXAMPLE EDITION

S53 / 46 CFR 69.203–69.207 — simplified measurement definitions and applications

Cited on pages 80.

46 CFR §§69.203–69.207, simplified measurement definitions and applications. Registered length, breadth and depth have defined conventions; depth is not navigational draft. The regulation does not identify the vessel-specific measurements from which each PSIX field was entered.
Source URL:
https://www.govinfo.gov/content/pkg/CFR-2025-title46-vol2/pdf/CFR-2025-title46-vol2-sec69-203.pdf

S63 / NOAA Coast Pilot — West Sound / Picnic Island geographical context

Cited on pages 52 [a,b].

NOAA Coast Pilot, West Sound/Picnic Island geographical reference. Identifies the chart context visible on the yacht's plotter; the display is not a dated position fix.
Source URL: https://nauticalcharts.noaa.gov/publications/coast-pilot/files/cp10/CPB10_WEB.pdf

S77 / Nordhavn — N52 model description and specifications

Cited on pages 15.

Manufacturer description explicitly discusses an integrated flybridge and specifies its engine controls and wheel. Comparative arrangement example, not *Refuge* equipment or a statistical survey of coastal/offshore frequency. Read November 14, 2026.
Source URL: https://nordhavn.com/nordhavn-yacht-models/n52/

S78 / Nordhavn — N60 model description and specifications

Cited on pages 15.

Manufacturer describes long-distance cruising purpose and lists pilothouse/flybridge steering and engine controls. Comparative example only; no transfer of specifications or performance to *Refuge*. Read November 14, 2026.
Source URL: https://nordhavn.com/nordhavn-yacht-models/n60/

S79 / ITTC — Roll-damping procedures, 7.5-02-07-04.5

Cited on pages 32 [a,b,c].

International Towing Tank Conference, Estimation of Roll Damping, procedure 7.5-02-07-04.5, revision 01 (2021), approved June 2021. Sections 2–4 describe roll-motion equations, experimental methods and empirical estimation; §4.1 distinguishes damping components. Retrieved and examined on 20 November 2026; source and citation rechecked on 21 November 2026. This is methodological context, not a measured assessment of *Refuge* or proof of regulatory compliance.
Source URL: https://www.ittc.info/media/9759/75-02-07-045.pdf

PUBLIC EXAMPLE EDITION

S80 / IMO — International Code on Intact Stability, 2008, MSC.267(85)

Cited on pages 32 [a,b].

IMO resolution MSC.267(85), International Code on Intact Stability, 2008; part B, section 3.1 addresses free surfaces of liquids in tanks. Official PDF retrieved November 14, 2026. Cited for general stability principles, not proof of regulatory applicability, compliance or a vessel-specific stability assessment.
Source URL: https://wwwcdn.imo.org/localresources/en/KnowledgeCentre/IndexofIMOResolutions/MSCResolutions/MSC.267%2885%29.pdf

S81 / Yacht Provenance — illustration production credit

Cited on pages 16 [a,b], 22, 24, 29, 30, 34, 41, 72.

Yacht Provenance prepared the generic drawing-conventions key, recorded-ownership diagram, geographic orientation map, functional-space diagram and propulsion explanation for this dossier. These are editorial explanations, not additional historical records or measured as-built drawings. Their captions identify the underlying records, where applicable. Map land outlines are from Natural Earth (public-domain cartographic data, https://www.naturalearthdata.com/about/terms-of-use/). YP also added the disclosed margin callouts to the photographed lines sheet, exterior identification callouts and the marked exhaust enlargement; the source photographs and drawings retain their original rights. No copyright ownership in those source materials is claimed by YP.

Illustrations and source plates

R-series photographs identify individual images in the Fairhaven gallery S01; P-series photographs identify images in the private advertisement S45. These plate identifiers connect the selected reproductions with their source records and are not additional publications. The early builder photographs are credited individually under S06, S07 and S09. Source publication, archive and supply dates are distinguished from unrecorded exposure dates. Where a photographer or copyright owner is not established, no ownership is inferred from the gallery host. Photographed drawings retain the source attribution and are not authenticated as-built plans. Sources and methods in Appendix D explain selection and the treatment of illustrations.

The illustration production credit S81 identifies editorial authorship and the basis of the explanatory diagrams; individual captions retain the historical source references.

Research and presentation

The historical account uses the evidence assembled through 15 November 2026. It distinguishes recorded title, attributed recollections, seller representations, photographic observations and engineering interpretation. Illustrations have been selected for their contribution to that account, with sources and material uncertainties identified. The opening identity and chronology tables summarize the records; Appendix B explains the calculation assumptions and Appendix C reproduces selected official evidence. The approved decorative title illustration is presentation rather than historical evidence, with its source credit in section D.3. The Principal has approved this dossier; no new survey or present-condition certification is represented.

PUBLIC EXAMPLE EDITION

Appendix A Vessel reference

These particulars distinguish official entries, advertised specifications and conditional calculations. Chapters 2–9 explain their historical and technical significance; this section is intended for consultation. Source-specific alternatives are preserved rather than silently reconciled.

Item	Particulars and basis
Identity	*Refuge*, formerly *Ted K*; United States official number 1073941; hull/manufacturer identifier QWY52SS1F598. [S72; S74.]
Designer and builder	Stephen R. Seaton, contemporary design credit; Waterline Yachts Inc., Sidney, British Columbia. [S04, p.82; S45/P031; S72.]
Original clients and build	Jon F. Naviaux and Anne Kilkenny; built 1998; builder's certificate dated May 20, 1998, as recorded in the abstract. Launch and delivery dates not established. [S72; S67.]
Length	PSIX 53.00 ft; advertised 53 ft; photographed design title 52 ft. Measurement endpoints are not all defined. [S74; S45/P031; S01, S02, S03.]
Breadth	PSIX 16.20 ft; broker 16.3 ft or 16 ft 3 in; private seller 17 ft 6 in. No single corrected value selected. [S74; S01, S02, S03; S45.]
Depth and draft	PSIX registered depth 6.00 ft; advertised draft 5 ft. Actual loaded draft unmeasured. [S74; S01, S02, S03.]
Mass and tonnage	Advertised 98,000 lb dry; private "55 tons" without established basis. PSIX 34 gross/27 net simplified register tons are not masses. [S74; S01, S02, S03; S45.]
Structure	Steel hull; seller describes quarter-inch/6-mm plating. Actual scantlings, present thickness and complete subdivision not established. [S04; S45/P030.]
Underbody	Bulbous bow, central keel, twin shafts and paired protected rudder arrangements. [S01/R005; S45/P030.]
Engines	Twin reported Perkins/Cat-Perkins T1004, 110 hp each; exact serial, build list, duty and governed rpm unestablished. [S01, S02, S03; S45.]
Transmission	Twin Disc; reduction ratio unestablished. Aqua Drive components reported. [S01, S02, S03.]

PUBLIC EXAMPLE EDITION

Item	Particulars and basis
Shaft seals	PSS in later inventory; Tides Marine installed in 2025 in private account. [S01, S02, S03; S45.]
Propellers	Reported 32-inch, three-bladed bronze. Photograph supports paired arrangement and blade count. Pitch and handedness unknown. [S01, S02, S03; S01/R005.]
Rudders	Reported twin balanced, approximate 2-by-4-ft envelope. Actual profile and balance fraction unknown. [S01, S02, S03; S01/R005.]
Steering and controls	Unresolved “Janstrom” steering spelling; Kobelt controls/remote; duplicated autopilot pumps reported. ComNav visible; WH in inventory. No documented thruster. [S01, S02, S03; S45/P058.]
Cooling and exhaust	Reported closed cooling with hull skin tanks, dry exhaust, pre-lubrication and bypass filtration. [S01, S02, S03.]
Fuel	Private seller: 1,200 US gal in six tanks, transfer pumps and day tank. Usable capacity not measured. [S45.]
Generator	Private: 6.5-kW Phasor/Kubota, spring 2025; branding photographed. Later: 9-kW Kohler, 1,116 hours. [S45/P044; S01, S02, S03.]
House electrical	Eight reported Lifeline 8D AGM batteries; OutBack VFX2812-family inverter/charger and MATE; two reported 150-A alternators; solar panels visible. Exact Ah, topology and array rating unknown. [S01, S02, S03; S45/P043, P055.]
Shore supply	Reported 6-kW isolation transformer and 30–50-A shore supply. Actual protection and distribution not reproduced. [S01, S02, S03.]
Freshwater	Private 450 US gal; later 400 gal. Watermaker rated 20 US gal/h. [S01, S02, S03; S45.]
Sanitation	Two Vacuflush heads; showers and jetted bath. Private 75-gal holding tank; later 100 gal. [S01, S02, S03; S45.]
Heat	Webasto: private 40,000 BTU/h versus later 22,000. Stove: private Norsk Kleber soapstone versus later Swedish/tiled wording. [S01, S02, S03; S45/P085.]
Galley and laundry	Stainless counters and double sinks, four-burner gimballed Broadwater cooker/oven, refrigerator/freezer, microwave, propane detector and Bendix washer/dryer reported. [S01, S02, S03; S45/P080.]

PUBLIC EXAMPLE EDITION

Item	Particulars and basis
Navigation	Mixed Garmin, Furuno, ComNav, WH, ICOM and Horizon descriptions; cameras reported. Complete current configuration unknown. [S01, S02, S03; S45/P058.]
Radio	Call sign WCY8509. MMSI unestablished. AIS-capable descriptions do not prove an operating transmitter. [S74; S01, S02, S03.]
Anchoring	Hydraulic Nordic drum windlass; 80-kg Bruce; reported 100 ft of half-inch stainless chain and 440 ft of half-inch stainless cable, marked 2022; secondary 45-lb stainless anchor. [S01, S02, S03.]
Working gear	Tabernacle mast and boom, hydraulic paravane/lifting gear, forward and aft powered warping winches. Air draft and lifting SWL unestablished. [S01, S02, S03; S45.]
Tender	Conflicting Bullfrog/Tohatsu 30 and older SOLAS/Yamaha descriptions, plus different pictured branding. Current inclusion unknown. [S01, S02, S03; S45/P024.]
Safety	Portable two-inch petrol fire/dewatering pump, lights, lifejackets and EPIRB listed. Present certificates and service validity unknown. [S01, S02, S03.]
Performance	Private 7-kn point; later 7.5-kn cruise and 11-kn maximum advertised. No supplied measured trial. [S01, S02, S03; S45.]
Documentation	PSIX shows active U.S. recreational documentation; certificate August 24, 2026–August 31, 2031; displayed update November 9, 2026. [S74.]
Title boundary	After Work LLC is latest recorded buyer through September 9, 2026, at 6:30 a.m. No later title conclusion. [S72.]

Table A.1. Vessel reference. Sources S01, S02, S03, S04, S27, S28, S29, S30, S31, S45, S46 and S72, S73, S74.

Sources: S01, S02, S03, S04, S27, S28, S29, S30, S31, S45, S46, S72, S73, S74.

A.1 Equipment-history reading guide

The private seller assigns 2019 to the dodger; 2022 to navigation, cameras, batteries, refrigeration, a UV filter, TEC grill and tender items; 2023 to heating, cooktop and mattress work; and 2025 to the generator, haulout, seals, controls and radio work. Broker copy dates paravane running rigging to 2017 and anchor rode to 2022. These remain attributed dates, rather than a reconstructed single refit. Chapter 5 provides their chronological setting; Chapters 7–8 explain the systems.

PUBLIC EXAMPLE EDITION

Appendix B Selected calculation notes

These notes answer the dimensional, machinery and resource questions discussed in the book. Results preserve their source assumptions and are not new vessel measurements. All calculation records cited by the narrative have direct destinations below. The original engineering working material is retained separately in the private research archive; no files are embedded in this edition.

B.1 Calculation basis and selected records

The selected records below and the additional cited records in section B.2 retain their original F identifiers, methods and assumptions. They explain the calculations used in the narrative rather than establishing newly measured yacht particulars. The separate engineering working register is not required to follow these in-book references.

F01 — Principal dimensions in SI

Basis: Computed from advertisements.
Method: ft × 0.3048 = metres.
Result: 53 ft ≈ 16.15 m; 16.3 ft ≈ 4.97 m; 5 ft ≈ 1.52 m; 6.3 decimal ft of headroom ≈ 1.92 m.
Interpretation: These are conversions, not new measurements. “16 ft 3 in” in Denison equals 4.953 m; the 16.3-decimal-ft entry is 15.24 mm greater. Headroom notation may likewise be a decimal/feet-inches entry ambiguity.
Sources: S01, S02, S03

F02 — Reported dry-weight reference

Basis: Computed / loading state unverified.
Method: 98,000 lb × 0.45359237 kg/lb.
Result: approximately 44,450 kg = 44.45 tonnes.
Interpretation: The listing labels this dry weight; no weighing certificate or departure load is recovered. Hydrostatic calculations using it are reference cases, not present afloat conditions.
Sources: S01, S02, S03

F10 — Classical speed-reference sensitivity

Basis: Illustrative length cases.
Method: 1.34 × sqrt(LWL ft).
Result: 42.4 ft → 8.73 kn; 47.7 ft → 9.25 kn; 53.0 ft → 9.76 kn
Interpretation: Actual LWL is unknown. The advertised 11 kn maximum is not invalidated by exceeding an empirical reference, but no current trial verifies it.
Sources: S01, S38

PUBLIC EXAMPLE EDITION

F15 — Reported installed propulsion power

Basis: Computed / advertised.
Method: 2 × 110 mechanical hp × 0.745699872.
Result: About 82 kW per engine; about 164 kW combined.
Interpretation: Assumes mechanical hp; actual marine duty rating/rpm and delivered shaft power remain unverified.
Sources: S01, S02, S03

F18 — Reported propeller diameter

Basis: Computed / reported geometry.
Method: 32 in × 0.0254.
Result: Approximately 0.813 m.
Interpretation: Three blades and bronze are advertised; the stern photo supports blade count and twin installation, not measured diameter, pitch or alloy.
Sources: S01, S02, S03

F22 — Advertised fuel-rate conversion

Basis: Computed / US-gallon convention.
Method: 3 × 3.785411784.
Result: Approximately 11.4 L/h.
Interpretation: The source does not document a measured trial or explicitly resolve all fuel users. Assumed US gallons on the US listing; 3 imperial gal/h would be 13.638 L/h.
Sources: S01, S02, S03

F23 — Advertised fuel mileage

Basis: Advertisement arithmetic.
Method: 7.5 kn / 3 US gal/h.
Result: 2.5 nm/US gal; 0.4 US gal/nm, or about 1.51 L/nm.
Interpretation: Only as dependable as the underlying speed/burn claim and its conditions; not a measured full-load curve.
Sources: S01, S02, S03

F25 — Usable fuel implied by the range claim

Basis: Advertisement inversion.
Method: 4,000 nm / 2.5 nm per US gal.
Result: 1,600 US gal, approximately 6,060 L consumed.
Interpretation: This is inferred fuel use, not recovered tank capacity. It includes no separately established generator allowance.
Sources: S01, S02, S03

PUBLIC EXAMPLE EDITION

F26 — Minimum nominal fuel for a 10% reserve premise

Basis: Advertisement inversion.
Method: Nominal = 1,600 / 0.90.
Result: Approximately 1,778 US gal (6,730 L), with 10% of nominal volume withheld.
Interpretation: The private account S45 reports 1,200 US gal, not independently measured. The nominal amount implied by the later 4,000-nm claim exceeds that report by about 578 US gal. Unusable fuel and other consumers would increase the fuel requirement. [S45.]
Sources: S01, S02, S03

F28 — Fresh-water tank conversion and mass

Basis: Computed / advertised.
Method: 400 US gal × 3.785411784 L/gal; 1 kg/L convention.
Result: Approximately 1,514 L, or 1.51 tonnes of water.
Interpretation: Capacity, usable volume and measured tank content are different. Imperial-gallon ambiguity would change the conversion. Private seller instead gives 450 gal fresh/75 gal holding; use source-specific alternatives F51, F52, not an assumed corrected tank volume. [S45]
Sources: S01, S02, S03

F29 — Holding tank conversion

Basis: Computed / advertised.
Method: 100 US gal × 3.785411784.
Result: 378.5 L.
Interpretation: No independent tank drawing or actual usable capacity recovered. Private seller instead gives 450 gal fresh/75 gal holding; use source-specific alternatives F51, F52, not an assumed corrected tank volume. [S45]
Sources: S01, S02, S03

F30 — Watermaker production conversion

Basis: Computed / advertised.
Method: 20 US gal/h × 3.785411784.
Result: About 75.7 L/h, or 1,817 L/day at continuous rated production.
Interpretation: Actual feed-water conditions, membrane state and sustained output untested.
Sources: S01, S02, S03

PUBLIC EXAMPLE EDITION

F31 — Ideal tank refill time

Basis: Computed / ideal scenario.
Method: 400 gal / 20 gal/h.
Result: 20 hours.
Interpretation: Assumes no simultaneous use, losses, derating or initial contents. Not actual service performance. Private seller instead gives 450 gal fresh/75 gal holding; use source-specific alternatives F51, F52, not an assumed corrected tank volume. [S45]
Sources: S01, S02, S03

F34 — Heating-output conversion

Basis: Computed / advertised.
Method: 22,000 BTU/h × 0.29307107 W per BTU/h.
Result: Approximately 6.45 kW thermal.
Interpretation: Thermal output is not electrical input or measured cabin heat loss.
Sources: S01, S02, S03

F35 — Shore-power apparent-power examples

Basis: Conditional arithmetic.
Method: S = voltage × current.
Result: 3.60 kVA at 120 V / 30 A; 6.00 kVA at 120 V / 50 A.
Interpretation: Actual shore arrangement, phase, supply voltage and transformer settings must be verified. The broker's 6 kW isolation-transformer label does not prove every connection supports these outputs.
Sources: S01, S02, S03

F36 — Inverter family voltage and output

Basis: Manufacturer model reference / installed suffix unverified.
Method: 2,800 VA / 120 Vac.
Result: Nominal 12 Vdc; 120 Vac / 60 Hz; 2,800 VA; 23.33 A AC at rated apparent output for VFX2812M.
Interpretation: The source's "122VDC" conflicts with the manufacturer family specification. Exact installed model/suffix and condition still require its plate.
Sources: S01, S30

F39 — Primary-anchor force and unit scale

Basis: Computed / reported mass.
Method: Force = 80 × 9.80665.
Result: Approximately 176 lb mass and 785 N weight force.
Interpretation: Anchor mass alone does not determine holding power or the seabed/rode/conditions in which it is adequate.
Sources: S01, S02, S03

PUBLIC EXAMPLE EDITION

F40 — Rode lengths and diameter

Basis: Computed / reported inventory.
Method: ft × 0.3048; 0.5 in × 25.4.
Result: About 30.5 m of chain and 134.1 m of cable; arithmetic sum 164.6 m. Half-inch diameter equals 12.7 mm.
Interpretation: A sum does not prove a continuous usable rode, certified grade, connection strength or remaining condition.
Sources: S01, S02, S03

F47 — Gross/net tonnage identity distinction

Basis: Official PSIX register tonnages; volume/mass distinction.
Method: No mass conversion is valid.
Result: PSIX records 34 simplified gross / 27 simplified net register tons. The advertised 98,000 lb dry-mass field is a separate quantity.
Interpretation: The official PSIX labels establish the simplified register convention. These are volumetric register measures, not displacement tonnes; no mass conversion is valid. The title abstract serves identity/title, not a displacement measurement.
Sources: S46, S53, S72, S74

F48 — Private reported fuel capacity

Basis: Reported / conversion.
Method: 1200 × 3.785411784
Result: 1,200 US gal = 4,542.5 L.
Interpretation: Six tanks/day-tank arrangement is reported; total/usable fuel and auxiliary allowances remain unverified.
Sources: S45; S01, S02, S03 for comparison

F49 — Private operating-point range scenario

Basis: Conditional estimate.
Method: 1200 × 0.90 / 2.5 × 7
Result: 3,024 nm; 432 h.
Interpretation: Assumes 7 kn, total burn 2.5 US gph and 1,080 gal available. Not a demonstrated range; further unusable fuel/auxiliary demand reduce it.
Sources: S45; S01, S02, S03 for comparison

F50 — Later operating point with private tank claim

Basis: Conditional cross-source scenario.
Method: 1200 × 0.90 / 3 × 7.5
Result: 2,700 nm; 360 h.
Interpretation: Combines conflicting sales sources explicitly; not proof of actual tankage or trial performance. Does not substantiate 4,000 nm.
Sources: S45; S01, S02, S03 for comparison

PUBLIC EXAMPLE EDITION

F51 — Private fresh-water alternative

Basis: Reported / conversion.
Method: 450 × 3.785411784; 450 / 20
Result: Approximately 1,703 L, or 1.70 tonnes; ideal refill time 22.5 h.
Interpretation: US-gallon convention; capacity/usable water unmeasured and production untested.
Sources: S45; S01, S02, S03 for comparison

F52 — Private holding-tank alternative

Basis: Reported / conversion.
Method: 75 × 3.785411784
Result: 283.9 L.
Interpretation: Volume claim only; usable capacity, contents and service condition not verified.
Sources: S45; S01, S02, S03 for comparison

B.2 Additional cited calculation records

F14 — Ideal constant-speed daily distance

Basis: Computed / ideal scenario.
Method: Distance in nm = knots × 24 h.
Result: 168 nm/day at 7 kn; 180 nm/day at 7.5 kn; 264 nm/day at 11 kn.
Interpretation: No allowance for weather, current, stops or maintenance. These are not logged average daily runs.
Sources: S01, S02, S03; S45 for the 7-kn scenario.

F17 — Conditional engine torque

Basis: Illustrative rpm cases.
Method: T = P(kW) × 60,000 / (2π × rpm).
Result: 110 hp at 1800 rpm → 435.2 N·m; 110 hp at 2200 rpm → 356.0 N·m; 110 hp at 2600 rpm → 301.3 N·m
Interpretation: These are mutually conditional power/rpm pairs, not a recovered torque curve, a marine rating or torque in either propeller shaft. Gear ratios/losses unknown.
Sources: S01, S02, S03

F20 — Shaft-diameter unit issue

Basis: Conditional conversion only.
Method: If intended diameter is 2 in: 2 × 25.4 mm.
Result: 50.8 mm if the intended figure is 2 inches.
Interpretation: Inventory text begins “I 2-inch”; the punctuation/number is ambiguous. Do not use this to order shafts or calculate shaft stress.
Sources: S01, S02, S03

PUBLIC EXAMPLE EDITION

F21 — Rudder rectangular-envelope scale

Basis: Illustrative geometry / not measured area.
Method: 2 × 4 ft² × 0.09290304.
Result: 0.7432 m² per bounding rectangle.
Interpretation: Actual planform, span orientation, balance fraction and hinge axis unknown. No actual rudder aspect ratio or steering load assigned.
Sources: S01, S02, S03

F37 — Charger and alternator nameplate arithmetic

Basis: Reported / conditional arithmetic.
Method: Two 150 A alternator ratings sum to 300 A; 2,000 Ah / 125 A.
Result: 300 A nominal alternator sum; 16 h ideal bulk replacement if a 2,000 Ah bank and constant 125 A charging were assumed.
Interpretation: The source says "2,000 amp," not an authenticated Ah rating. Charge taper, losses, discharge state and engine rpm are unresolved.
Sources: S01, S30

F38 — Battery energy scenario

Basis: Illustrative interpretation only.
Method: Energy = nominal V × Ah.
Result: If 2,000 Ah at 12 V: 24 kWh nominal; 12 kWh at a chosen 50% discharge fraction.
Interpretation: Not an established bank capacity or safe discharge recommendation. The 8×8D/2023 claim requires model, topology and capacity evidence; photographs alone do not establish it.
Sources: S01, S02, S03

F41 — Conditional 1004-4T engine geometry

Basis: Manufacturer-family comparison / installation unverified.
Method: π/4 × (0.100 m)^2 × 0.127 m × 4.
Result: 3.9898 L nominal swept volume per four-cylinder engine.
Interpretation: Factory sheet identifies a four-stroke turbo family; this is not a serial-number match to *Refuge*. Do not treat a modern marine M-series as the same installation.
Sources: S01, S27, S28

F42 — Conditional four-stroke BMEP

Basis: Illustrative family/rating case.
Method: BMEP(bar) = 1200 × P(kW) / [Vd(L) × rpm].
Result: 9.49 bar at 110 mechanical hp, 2,600 rpm and the stated family geometry.
Interpretation: Not measured cylinder pressure or an authenticated marine duty point.
Sources: S01, S28

PUBLIC EXAMPLE EDITION

F43 — Conditional mean piston speed

Basis: Illustrative rpm case.
Method: 2 × stroke × rpm / 60.
Result: 11.01 m/s at 2,600 rpm.
Interpretation: No overhaul life, wear condition or allowable sustained duty follows.
Sources: S28

F44 — Fuel mass associated with the inverted minimum volume

Basis: Illustrative density bracket.
Method: Inverted 6,729.6 L × 0.82–0.88 kg/L.
Result: 5.518–5.922 t.
Interpretation: Density bracket is a declared marine-gasoil property scenario; actual fuel, temperature, capacity and loading unknown. It is not an estimate of fuel actually aboard.
Sources: S01, S41

F45 — Fuel-plus-freshwater loading scale

Basis: Illustrative load case.
Method: Previous fuel-mass case + full advertised freshwater mass.
Result: 7.032–7.436 t.
Interpretation: Do not add this to a certified lightship: no certified lightship is available. Actual waterplane and draft response cannot be calculated from this alone.
Sources: S01, S02, S03

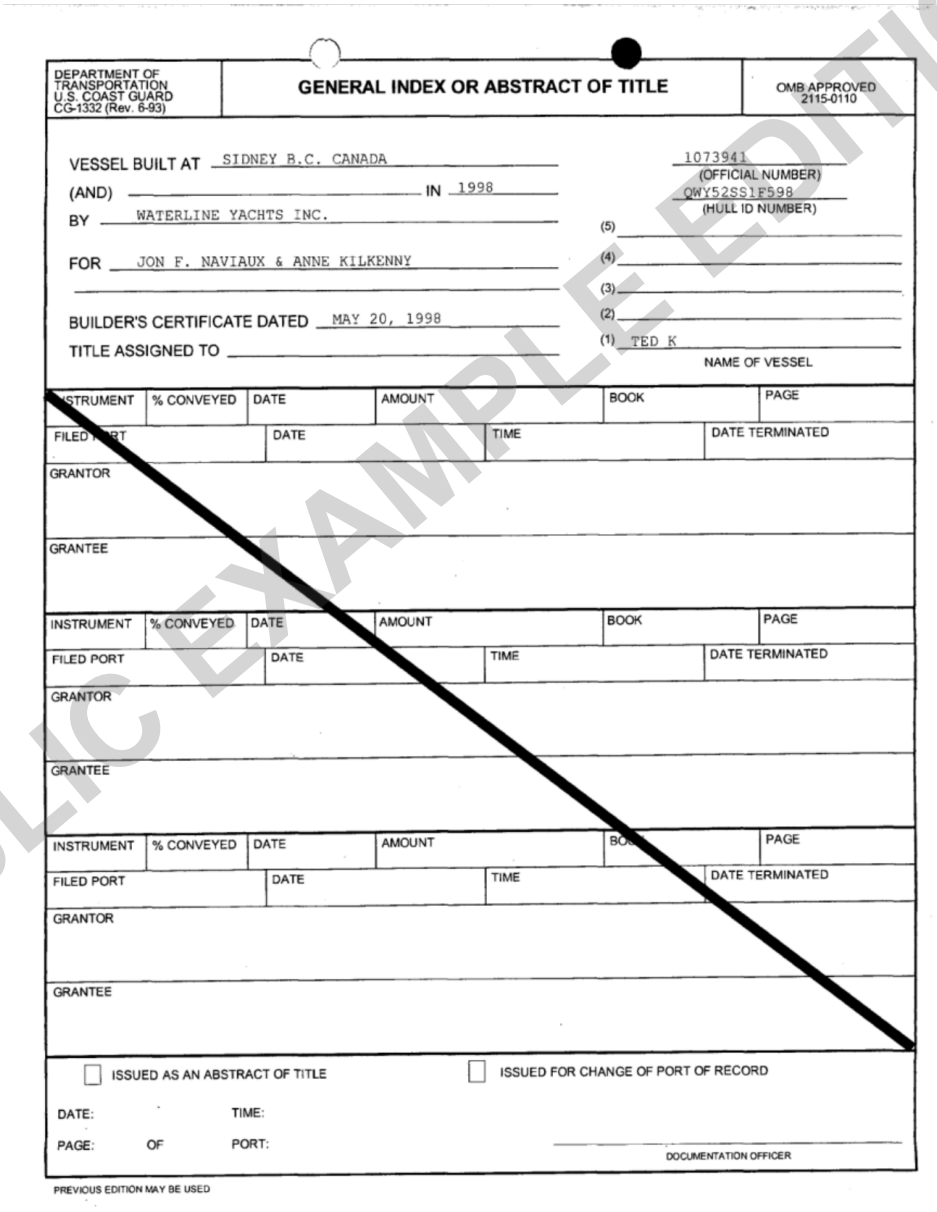
F46 — Righting-moment conversion per metre of GZ

Basis: Conditional conversion only.
Method: RM = weight force × GZ.
Result: 435.93 kN·m per 1 m GZ at the reference mass.
Interpretation: No actual GZ, GM, downflooding angle, AVS or current stability booklet was recovered. No righting capability assigned.
Sources: S01, S02, S03

PUBLIC EXAMPLE EDITION

Appendix C Documentary evidence

This focused documentary appendix reproduces the two abstract pages that support the build, identity, name and title succession, followed by the supplied PSIX status screenshot. The USCG cover letter is retained privately rather than reproduced for completeness. The title cutoff is September 9, 2026 at 6:30 a.m.; the September 24 cover and November 13 resend do not refresh it. Monetary amounts are permanently omitted under the public-edition pricing policy, and the handwritten certifying-official signature is omitted for privacy; the title events, certification date and office/title remain. Unchanged originals are retained separately, with no embedded files in this edition.



DEPARTMENT OF TRANSPORTATION
U.S. COAST GUARD
CG-1332 (Rev. 6-93)

GENERAL INDEX OR ABSTRACT OF TITLE

OMB APPROVED
2115-0110

VESSEL BUILT AT SIDNEY B.C. CANADA
(AND) _____ IN 1998
BY WATERLINE YACHTS INC.
FOR JON F. NAVIAUX & ANNE KILKENNY
BUILDER'S CERTIFICATE DATED MAY 20, 1998
TITLE ASSIGNED TO _____

1073941
(OFFICIAL NUMBER)
QWY52SS1F598
(HULL ID NUMBER)
(5) _____
(4) _____
(3) _____
(2) _____
(1) TED K
NAME OF VESSEL

INSTRUMENT	% CONVEYED	DATE	AMOUNT	BOOK	PAGE
FILED PORT		DATE	TIME	DATE TERMINATED	
GRANTOR					
GRANTEE					

INSTRUMENT	% CONVEYED	DATE	AMOUNT	BOOK	PAGE
FILED PORT		DATE	TIME	DATE TERMINATED	
GRANTOR					
GRANTEE					

INSTRUMENT	% CONVEYED	DATE	AMOUNT	BOOK	PAGE
FILED PORT		DATE	TIME	DATE TERMINATED	
GRANTOR					
GRANTEE					

☐ ISSUED AS AN ABSTRACT OF TITLE ☐ ISSUED FOR CHANGE OF PORT OF RECORD

DATE: TIME:

PAGE: OF PORT:

DOCUMENTATION OFFICER

PREVIOUS EDITION MAY BE USED

PUBLIC EXAMPLE EDITION

Figure C.1. USCG abstract, first abstract page: original build, certificate and identifying particulars. Source S72; this is page 2 of the supplied three-page agency file. The cover is retained privately.

Official No. 1073941 | DEPARTMENT OF HOMELAND SECURITY | OMB NO. 2115-0110

U.S. Coast Guard

GENERAL INDEX OR ABSTRACT OF TITLE

Continuation Sheet No. 1

INSTRUMENT TYPE: **BILL OF SALE**

% CONVEYED	DATE OF INSTRUMENT	AMOUNT	BATCH	DOC ID
100	APRIL 23, 2012	PRICING OMITTED	862256	15070378

DATE FILED	TIME FILED	STATUS
APRIL 24, 2012	12:06 PM	RECORDED

SELLER: JON F NAVIAUX & ANNE KILKENNY

BUYER: THE THOR CORPORATION

STATUS: ON RECORD

Vessel Name Changed to: REFUGE (05/04/12)

INSTRUMENT TYPE: **BILL OF SALE**

% CONVEYED	DATE OF INSTRUMENT	AMOUNT	BATCH	DOC ID
100	SEPTEMBER 30, 2019	PRICING OMITTED	68760100	76

DATE FILED	TIME FILED	STATUS
OCTOBER 15, 2019	9:43 AM	RECORDED

SELLER: THE THOR CORPORATION

BUYER: REFUGE LLC

INSTRUMENT TYPE: **BILL OF SALE**

% CONVEYED	DATE OF INSTRUMENT	AMOUNT	BATCH	DOC ID
100	MAY 21, 2026	PRICING OMITTED	84	2057626

DATE FILED	TIME FILED	STATUS
JUNE 29, 2026	11:33 AM	RECORDED

SELLER: REFUGE LLC

BUYER: AFTER WORK LLC

ISSUED AS AN ABSTRACT OF TITLE AS OF

DATE: 09/09/2026 TIME: 6:30 AM

SIGNATURE OMITTED

DIRECTOR, NATIONAL VESSEL DOCUMENTATION CENTER

CG-1332A (06/23) PREVIOUS EDITION MAY BE USED

PUBLIC EXAMPLE EDITION

Figure C.2. USCG abstract continuation: recorded conveyances and name change through September 9, 2026 at 6:30 a.m. Source S72; page 3 of the supplied agency file. Monetary amounts omitted under the public-edition pricing policy; handwritten certifying-official signature omitted for privacy. Typed office/title and certification date retained; unchanged original preserved privately.

Results for Vessel: *REFUGE*

Vessel Information:	Vessel Particulars:
Vessel Name: REFUGE	**Service:** Recreational
Primary Vessel Number: 1073941 *(Official Number (U.S.))*	**Length:** 53.00 ft
Hull Identification Number: N/A	**Breadth:** 16.20 ft
Manufacturer Hull Number: QWY52SS1F598	**Depth:** 6.00 ft
IMO Number: N/A	**Build Year:** 1998
Vessel Flag: UNITED STATES	**Alternate VINs:** N/A
Vessel Call Sign: WCY8509	

Service Information:	Tonnage Information:
Service Status: Active	**Cargo Authority:** N/A
Out Of Service Date: N/A	**Tonnage:**
Last Removed From Service By: N/A	• 27 - Simplified, Net Ton
Last Drydock: N/A	• 34 - Simplified, Gross Ton
Next Drydock: N/A	

Vessel Documents and Certifications

Document	Agency	Serial Number	Date Issued	Expiration Date	Status
CERTIFICATE OF DOCUMENTATION	USCG	N/A	August 24,2026	August 31,2031	Valid

Figure C.3. PSIX vessel and certification detail from the supplied screenshot, S74. Navigation, contact-search controls and footer omitted; record fields unchanged. The original footer shows an update of November 9, 2026, not a separately established capture time. The complete source screenshot is preserved privately.

Registered depth and register tonnage are distinct from draft and displacement. The screenshot displays certificate dates and radio identity; the abstract separately establishes recorded conveyances.

PUBLIC EXAMPLE EDITION

Appendix D Sources, Methods and Illustration Use

D.1 Research basis and interpretation

Refuge, formerly *Ted K*, is documented through 15 November 2026. Methods and source locations were checked on 21 November 2026. This Appendix D update of 22 November adds no historical research, inspection or current-position check.

Research uses digital reproductions, publications, finding aids and supplied records, without in-person archive examination. Official records, recollections, seller representations, photographic observations and engineering interpretation remain distinct. S73 is supplied confirmation, not an official agency record. Publication and archive-capture dates do not establish photographic exposure dates.

The bibliography provides sources and backlinks; Appendices B and C explain calculations and selected official records. Their dates and limitations remain applicable. This history is not a current survey, authenticated as-built specification or certification of current title or operating capability.

D.2 Illustrations, source materials and fair use

Documentary illustrations are an integral part of Yacht Provenance's research and presentation. Photographs, drawings, plans, documents and other visual materials are selected to document or explain the yacht's identity, history, provenance, design, construction, configuration, use and recorded condition. They may also help readers evaluate a finding, understand a change over time, or recognize a conflict or limitation in the historical record.

Illustrations are selected for their contribution to the investigation and its narrative. Yacht Provenance does not include documentary images merely to assemble a complete gallery. Where multiple views are included, they provide distinct information or support a meaningful comparison. Documentary illustrations placed in appendices are subject to the same selection principle.

Clearly identified decorative artwork serves a separate presentation purpose and is not represented as a historical photograph or an authenticated plan. Explanatory diagrams and reconstructions are identified according to their actual nature and evidentiary limitations.

Sources are identified in captions, notes or source records. Where known, Yacht Provenance identifies creators and other contributors; where a creator, date or other detail is uncertain, that uncertainty is acknowledged. A source identification or credit does not, by itself, establish copyright ownership, permission or fair use.

Third-party materials remain subject to applicable rights. Yacht Provenance includes them on a basis appropriate to the particular use, which may include permission, a license, public-domain status or fair use under Section 107 of the United States Copyright Act.

Yacht Provenance relies on the principle of **fair use**, established in Section 107 of the United States Copyright Act, when including certain photographs, drawings, illustrations and other materials in its dossiers. Fair use supports the use of copyrighted material for purposes such as research, scholarship, commentary and historical interpretation. Yacht Provenance selects these materials to document and explain a yacht's history and provenance, illustrate features and changes, compare evidence, and help readers understand the findings. Each illustration contributes to the research narrative and is identified through a caption, note or source record.

PUBLIC EXAMPLE EDITION

Yacht Provenance considers each use in its context, including the purpose of the use, the nature of the source work, the amount used and the effect on the work's potential market or value. The intended distribution of the dossier and applicable source-access terms are also considered. On that basis, Yacht Provenance believes its use of material included under fair use is supported by the law.

An illustration may be reproduced in full when the complete image is needed to understand or evaluate the subject, provided the basis for that particular use supports doing so. In other cases, a detail may better serve the research purpose. Images may be cropped, enlarged or annotated to assist interpretation, with material editorial changes identified. Such treatment must not misrepresent the source or alter the evidence.

The inclusion of third-party material does not transfer its copyright to Yacht Provenance or the reader. Yacht Provenance's basis for including material in this dossier does not automatically authorize a different use by someone else. Further use should be assessed in light of its own purpose, distribution and applicable rights, including any applicable fair use.

D.3 Title illustration and corporate credits

Refuge title-page artwork: supplied and selected by the Principal as *Refuge*-dossier-portrait-proportions-balanced.jpg. The visible label is Artist's rendering of *Refuge*; the source credit is Artwork supplied by the Principal. Legal approved that wording for the title-page proof on 21 November 2026. Only unused outer white canvas is trimmed for page fitting; the complete intended artwork is preserved and scaled proportionally. The supplied original remains unchanged. No creator, production method, license or copyright ownership is inferred from supply. The rendering serves decorative presentation and is not a historical photograph or evidence of a verified configuration on a particular date. Corporate pages reproduce the approved Dossier_Front_Pages.pdf master; the brandmark's subject, *Vigilant*, is not evidence about *Refuge*.

D.4 Drawing evidence and unresolved enquiries

Seaton Yachts is a possible route to *Ted K*'s complete plans. Whether John Clayman holds them or knows their custodian is unconfirmed. This research lead does not authenticate the photographed sheets used here. [S45/P030; S45/P031.]

Project 253 remains an unconfirmed catalogue lead. The photographed Naviaux sheet came from the yacht's private-sale gallery; the underlying catalogue image has not been recovered. Comparisons with adjacent designs did not settle the number. Seaton's attribution rests on the contemporary report and client-labelled drawing, independently of this lead. [S04; S45; S71.]

D.5 Edition-specific treatments and preserved records

This digital public website example has no client dedication. PUBLIC EXAMPLE EDITION identifies the edition on every page; it grants no rights in third-party material.

Appendix C permanently omits title-record monetary amounts under YP's pricing policy and, separately, the handwritten certifying-official signature for privacy. Relevant succession, certification date and typed office information remain. The PSIX crop omits unrelated search-interface and footer content without changing the retained evidentiary fields. [S72; S74.]

Unaltered source originals and title artwork remain in the private case record. This PDF contains no embedded files.

PUBLIC EXAMPLE EDITION