

12/24/2021



SAILING
VESSEL
KEWA

OWNER'S MANUAL



1999 Hallberg-Rassy 46 Hull #126 | Will Kruka

Owner's Manual

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Owner's Manual

Introduction

KEWA is a blue water sailing vessel designed, meticulously outfitted, continually upgraded, and rigorously maintained for serious coastal and offshore cruising. She was designed by Frers and built by Hallberg-Rassy in Ellos, Sweden in 1999. The hull number 126. HR46s were manufactured between 1995 and 2005, after which the HR46 was replaced with the HR48 and subsequently the HR50.

KEWA has extensive cruising experience, having crossed the Atlantic and been sailed up and down the US East Coast and to the Caribbean. She has also sailed extensively on the US and Mexico Pacific Coast, from Seattle, Washington to Ixtapa, Mexico. This experience has confirmed how well founded the boat is and resulted in the configuration, outfitting and upgrades that make the boat safe, and a true comfort and pleasure when you leave the dock whether only for a day sail or for extensive offshore cruising.

I love technology and electronics and, accordingly, KEWA is outfitted for maximum safety, flexibility, comfort, and enjoyment.

This is a living document designed to serve as a general operating guide for cruising and maintaining KEWA, and to also comment on relevant information related to the inventory, configuration, upgrading and servicing of the boat. I've also included certain cruising information related to the US and Mexico Pacific West Coast.

Visit www.sail-kewa.com for additional information.

KEWA's logo was made with the Zapfino font: *KEWA*

Pumps

- Head feed (x2)
- Head macerater/drain (x2)
- A/c / forward shower sump
- Utility bilge
- Emergency bilge
- Manual bilge
- Manual galley freshwater
- Refrigerator drain out (transient)

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Engine sump well (transient)
Engine oil change
Fridge circulation
Seawater deck wash
A/c
Watermaker feed
Watermaker high pressure (Balmar and General Pump Model WM3015C)
House freshwater
Master shower drain

Using the dock water flush system

1. Run dock hose to cockpit locker and hook up to hose/fitting.
2. In engine room, open sea chest strainer thru hull.
3. Open fresh flush valve on sea chest. All other sea chest valves should be in closed position at this time.
4. On the dock, open the water hose valve one half turn. That's plenty of flow for all systems.
5. Open the valve on the sea chest for the system you want to run or flush.
6. Turn on system and flush for approximately 10 minutes. You can run all systems at once if desired.
7. When flushing is done, turn off system/s and close appropriate sea chest valve/s. Excess water from dock hose continues to flow out through t-hull.
8. Turn off dock hose water.
9. Turn off sea chest strainer thru hull.
10. Turn off fresh flush valve on sea chest.
11. Disconnect dock hose.

Staging Notes

Add how to update and read weather section

2019 12 28 0945 24v house = -184.9ah 24.03v

Drawing 7am with solar putting in ~5a

Fridge, freezer, B&G, VHF and PC on

Falcon software on PC for iSatDock2 station 2021 12 29

Radio and Satellite Communications

With the following communications systems on board, KEWA is well outfitted for communications from literally almost any location on earth:

- Single Sideband Radio
- VHF radios (one fixed, 1 handheld)
- Portable INMARSAT iSatPhone2 satellite phone
 - Phone calls
 - Voice mail
 - Text messaging
 - Limited data connectivity for email and weather forecasts (think 9600 baud)
 - Complete with docking station with fixed external antenna
- KVH V30 TracPhone satellite dish for full internet connectivity, including
 - Voice over IP (VOIP) phone
 - Voice mail
 - Full internet data communications

Basic operation of each of these systems is reviewed in detail later in this manual.

Data and Voice Comm Configuration

iSatPhone2

- Handheld INMARSAT voice and communications
- Docking station with fixed external antenna USB connection
- Dedicated OCENS Sidekick wireless wifi internet access point (SSID: Sidekick-d32)
- Essentially global coverage
- Billing: My current base plan provides for 10 minutes per month. Utilization beyond that <<<costs>>>.

Commented [WK1]: update

The mobile iSatPhone2, when placed in the docking station, serves as the backup voice and data comm system for KEWA, in addition to providing for handheld mobile communications if required. Data throughput is relatively low (on the order of <<<9600 baud>>>) and in practice is usable for very limited/focused OCENS email and optimized weather updates from OCENS.

The docking station provides power and is connected to a dedicated fixed antenna mounted on the arch. On board phone service is provided by linking the iSatPhone2 at the patch panel in the comm locker to the POTS telephone handset mounted at the nav station, or directly accessing the handset or speaker phone in the comm locker.

Additionally, the docking station has a USB connection which is connected to a wireless access point (Sidekick). OCENS Mail and OCENS Weathernet on the PC are the client programs optimized for use with the Sidekick. Password is <<<see security document>>>.



Figure 1 World INMARSAT iSATPhone2 Coverage

KVH V30 TracPhone

- Fixed mount satellite internet connectivity for data and voice
- Controller mounted in Comm Locker above freezer
- Includes built-in Wifi (SSID: KEWASatellite)
- Includes built-in 4-port ethernet switch
- POTS (plane old telephone system) handset mounted at Nav Station (phone number is (650) 452-6018)
- Very broad, but not complete, global coverage
- Billing: <<<cost>>>
-
- Ethernet switch for hardwire ethernet connections
- eero router (SSID: KEWA eero)

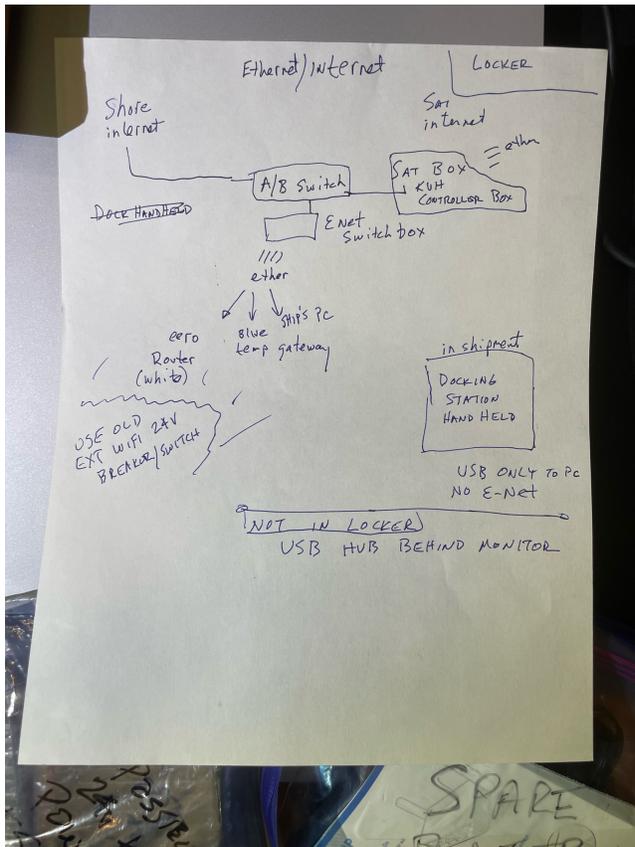
Administration consists of connecting to the KEWASatellite wifi and then either running the V30 app or using a browser to go to kvhonboard.com to login as admin

Upgraded to new, second-generation system, V30, in November 2021. The TracPhone is quite remarkable. A very small satellite dome mounted atop the arch provides high-throughput internet access (6/2 Mbps download/upload). In practice, it provides cell phone LTE-type data speeds. The biggest issue, therefore, is avoiding a runaway bill situation by blowing through the data plan due to the ease of downloading large amounts of data in short time periods (e.g., 100mb Windows updates and the like). The plan is

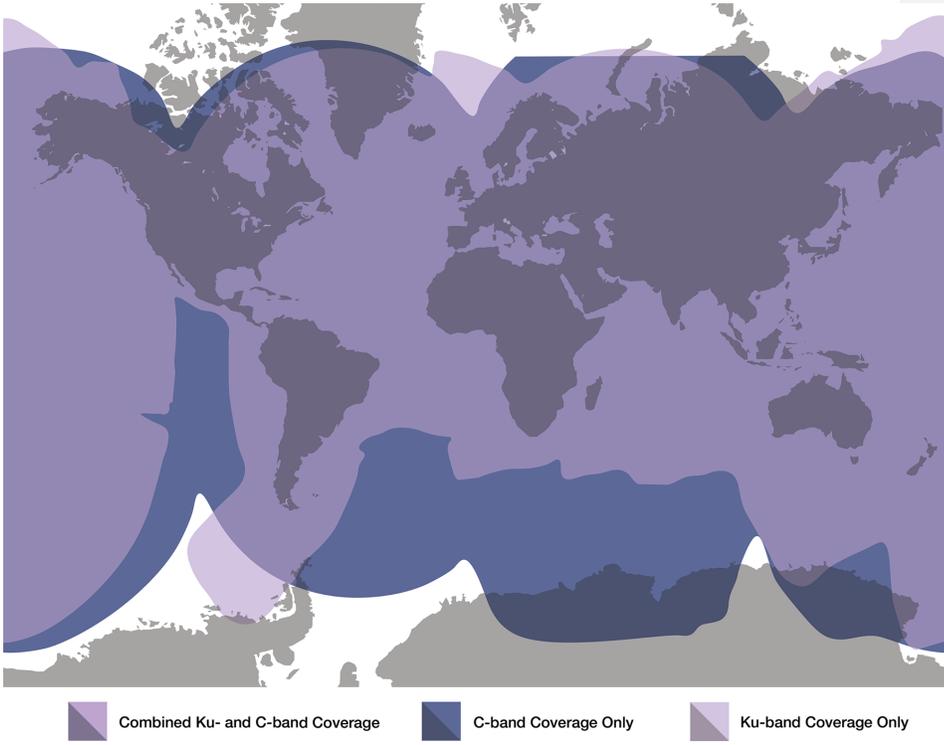
unlimited up to 1GB and then automatically steps down to a metered, but much slower plan once the limit is reached.

The system, located in the comm locker above the freezer runs off 24v power, fused at 5a. It takes about x minutes to boot up, depending on a variety of factors.

In addition to a built-in wireless in the V30 control unit, KEWA has an eero router to provide wifi access throughout the boat. There also is a hardwire ethernet connector installed at the port cockpit nav table. Connecting a hardwire dock ethernet cable to this connector feeds into the comm locker where an ethernet switch provides the selection between the shore internet or the satellite internet feeding into the ethernet switch and router installed in the comm locker.



V30 is Ku-band and global coverage is shown below.



TracPhone Billing Plans

HTS-Unlimited Use Rate Plans

NEW!

KVH's **HTS-Unlimited Use Rate Plans** deliver reliable global service at the highest speeds with a fixed monthly price and **no overage charges**. If the monthly high-speed data allotment is consumed, the system will automatically shift to the shaped data rate with unlimited usage and resets to the high-speed data rates on the first of each month.

Data Service (Ku-band – HTS Network)					
Monthly Data Plans	\$/month (USD)	High-speed Data Rates²	Shaped Data Rates	High-speed Data/month	
HTS-U200	\$149	6/2 Mbps down/up NEW!	32/32 Kbps	200 MB	
HTS-U500	\$299		64/32 Kbps	500 MB	
HTS-U1GB	\$599		NEW!	128/64 Kbps	1 GB
HTS-U2GB	\$1,199				2 GB
HTS-U5GB	\$1,619				5 GB
HTS-U10GB	\$2,179				10 GB
Plus TracPhone Enhanced Voice Service					
All phone calls to land or mobile lines <u>worldwide</u> only \$0.59/minute!					

Highest speeds with fixed monthly price & no overages

TracPhone Utilization

I use tppMeter running on Windows 7 to monitor network activity and data consumption. KVH provides a website for utilization and billing, but it usually takes a day to be updated (<https://www.mycbill.com/index.asp?page=home>).

Emergency Calls & EPIRB Activation

Do NOT issue a MAYDAY unless you are prepared to abandon the boat. If the situation is serious, but not so dire that the boat should be abandoned, then issue a PAN-PAN instead of a MAYDAY.

If the situation is a MAYDAY, activate the EPIRB first and then attempt the voice communications approaches listed below. Prioritized order:

1. EPIRB.
2. VHF (if coastal, otherwise try SSB first).
3. SSB (unless offshore, in which case SSB should be tried before VHF unless other boats are visible or known to be nearby).
4. KVH TracPhone or iSatPhone2 satellite phone.
5. Cell phone if close to shore.

EPIRB

Activate only when lives are at stake. Realize that activation very likely means abandoning the ship.

1. Remove from bracket near companionway steps
2. Unwind lanyard on back of EPIRB and secure
3. When the EPIRB is out of the bracket, but in water, it will activate. <<Note determine if unit MUST be in water or if the switch will activate when out of water>> Flip switch on top all the way back (the small tab on the side of the switch will break).
4. The EPIRB is now activated and will send a signal for 48 hours, until the battery dies. If in the life raft, the EPIRB should be secured via the lanyard and set outside of the life raft to float in the water. If on KEWA, ensure that the EPIRB is in the open (i.e., not below decks or underneath the dodger).

VHF

1. Switch to channel 16 and issue a MAYDAY per the mayday script in the SSB section below. If in coastal US waters, the channel should be well monitored by the Coast Guard and other boaters.

Cell Phone

US Coast Guard

To advise of a vessel emergency anywhere: 800-246-7236 (CAMSPAC)

In Pacific: 415-669-2000

North of Equator: 800-331-6176

Pacific SAR Coordinator Commander

U.S. Coast Guard

Pacific Area

Alameda, California Overall responsibility for areas covered by RCC Alameda, RCC Seattle, RCC Honolulu and RCC Juneau. (510) 437-3700

RCC Alameda Commander

Eleventh Coast Guard District

Alameda, California and Eastern Pacific Ocean waters assigned by international convention off the Coast of Mexico. (510) 437-3700

Mexico

When using a US cell phone in Mexico:

- To call a Mexican number, directly dial the # without any zeros, country prefixes or the “1” required for international dialing to Mexican cell phones.
- When dialing the US from Mexico, precede the number with “001” or “+1”.

USA

IAMAT

1623 Military Rd. #279

Niagara Falls, NY 14304-1745

tel: 716 754 4883

SSB Mayday

- 1) Power on ICOM IC-M802 SSB via power switch on front panel (no breaker required to be turned on). Disconnect headphones if you want to hear via the speaker.
- 2) Press “1” and “ENT” to select the distress channel (2182 kHz)
- 3) Press mic button and say:
 - a) MAYDAY – MAYDAY – MAYDAY
 - b) This is KEWA, KEWA, KEWA, Whiskey Delta Charlie 6103
 - c) MAYDAY KEWA
 - d) Report LAT and LON and any other location information (general vicinity, distance from nearest landmark, etc.)
 - e) State nature of the distress (boat holed, medical emergency, etc.)
 - f) State number of adults and children on board, and conditions of any injured
 - g) Estimate present sea worthiness of the boat (okay, damaged but stable, sinking, etc.)

- h) KEWA Coast Guard Registration number 1078844
 - i) 48-foot fiberglass sloop sailboat, white hull with blue stripe
 - j) Sloop rig with auxiliary diesel power
 - k) I will be listening on VHF channel 16 and SSB frequency 2182
(if channel 2 then 4125, 3 = 6215, 4 = 8291, 5 = 12290, 6 = 16420)
 - l) This is KEWA over.
- 4) Release mic and wait for ~30 seconds and repeat if no answer.
 - 5) If no answer after several tries, try SSB channels 2, 3, 4, 5 and 6

Satellite Communications – General Operation

KEWA is configured with two separate satellite communications systems. The first is a fixed installation of an KVH TracPhone and the second is a handheld INMARSAT iSatPhone2 with a fixed installation docking station.

Between these two systems, it is possible to communicate via voice and data pretty much anywhere on earth, including email and internet connectivity.

Both systems work solidly. The TracPhone brings reasonably fast internet connectivity to KEWA. The thing that requires careful management is data utilization. I use an application on the PC called tbbMeter that is a good tool to monitor real-time utilization as well as setting off an alarm when data utilization exceeds the amount designated in the alarm.

Satellite Systems and Services

Weather and Email

OCENS software is designed for cruising weather and email. It is very efficient in data utilization and offers great weather solutions in particular.

OCENS WeatherNet Software

WeatherNet runs on the PC. It requires some form of internet access so wifi needs to be active and connected to shore wifi, cellular hotspot or the TracPhone. If none of those is available or desirable, then the SatCom breaker should be turned on and the PC connected to the Sidekick-d32 router for dial-up using the iSatPhone2.

Once the desired weather information has been selected, you tell it to Download and then Go, and if you are already connected to the internet via it will immediately

download or if you are connected to the Sidekick, WeatherNet will use the iSatPhone2 for dial-up access. It will dial, download, and hang-up. Upon exiting the download window, WeatherNet will into the analysis software (GRIB Explorer and NetMapper).

BuoyWeather

I also like BuoyWeather, an internet website that provides very useful, local forecasts for any coordinates you select. In addition to being able to access the website directly when you are connected to the internet, you can also subscribe to a forecasts for one or more specific coordinates and the forecasts are push out to you via very efficient and concise emails which can be easily retrieved while underway.

Email

In addition to very efficient, cruising oriented weather forecasts, OCENS also offers email service. The client engine loads when Windows starts and from it you can access the email editor/reader (it uses Thunderbird) as well as execute the process to download and send emails. Similar to WeatherNet, you either need direct internet connectivity or use the dial-up iSatPhone2 via the Sidekick router.

- KEWA's OCENS email account is: kewaena@ocens.com

Voice Solutions

SSB – General Operation

Ships Radio Call Sign: WDC6103 (Whiskey – Delta – Charlie 6103)
Restricted Operators License: RR00029422

Turn off both inverters, the fridge and freezer, and the 12v PC power supply as all these devices generate noise interference (like an engine running in the background or like a whirly bird falling from the sky).

SSB Nets – Pacific Mexico Focus

UTC Summer	UTC Winter	Net	Ch 1	Ch 2	Comments
1330	1430	Sonrisa	135		Ham
1400	1400	Amigo	105	78	SSB

1530	1530	Chubasco	149		Ham
0055	0055	Southbound	105	91	SSB

SSB Mexico Cruising Nets

NAME	FREQ	Band	Zulu Summer	Zulu Winter	COVERAGE	COMMENTS	TYPE	USB / LSB
Southbound	8.122		00:55	00:55	Mexico	Weather at 01:00 Mon,Tue,Wed,Thur,Fri,Sat	SSB	USB
Southbound	4.054			01:15	Mexico	Switches after complete on 8 megs	SSB	USB
Pacific Seafarers	14.300		03:00	03:00	South Pacific	Warm up (03:00) and roll call(03:25) for underway vessels	HAM	USB
Central American Breakfast Club	7.083		13:00	13:00	Central America	not sure about time changes	HAM	LSB
Picante	6.212			13:30	Mexico	Net Controls Puerto Vallarta	SSB	USB
Sonrisa	3.968		13:30	14:30	Mexico	Weather at 13:45 Summer / 14:45UTC summer	HAM	USB
Panama Connection	8.107		13:30	13:30	SW Caribbean		SSB	USB
Amigo	8.122		14:00	14:00	Mexico	Weather at 14:15 Sun,Mon,Tue,Wed,Thur,Sat	SSB	USB
Pan Pacific Net	8.143		14:00	14:00	Central America	alternatives of 8137 and 8155 Covers the Pacific from So. Mexico to Panama to Ecuador and the Galapagos and occasionally further out towards So. Pac	SSB	USB
NW Caribbean Radio	6.209		14:00	14:00	NW Caribbean	alternative of 6D - 6516	SSB	USB
Amigo	4.149	4B	14:30	14:30	Mexico	Shifts here after Summer Passage Radio gives weather	SSB	USB
Chubasco	7.192			15:30	Mexico	warm up	HAM	LSB
Baja Calif Net	7.233.5		15:00	16:00	Mexico	Weather 15:15 / 16:15 Summer Passage radio M-Thur	HAM	LSB
Manana	14.340		18:30	18:30	Mexico		HAM	USB
Maritime Mobile Service Net	14.300		17:00		Carib & Pacific	From 17:00 - 03:00	HAM	USB
Inter Continental Net	14.300		14:00	14:00	Carib & Pacific	From 14:00 - 17:00	HAM	USB
Source: Southbound Yahoo Group								
Changes or additions pls send updates to the moderators						updated 04-05-10		

Pacific Local Time	UTC Time STD//DST	Ch #	Freq	Band	Net	Type	Comments
0700 / 0600	1400 // 1400	105	8122	USB	Amigo	SSB	<ul style="list-style-type: none"> Switches to 4149 (ch78) after Don's 1415 forecast Strong @ el Cid; difficult to copy don @ ixtapa, but relay ability to confirm desired forecast areas Confirmed 1400Z start on 12/08 & 7/09 Long range check-in's are >200nm
0700 / 0600 ?	1445 / 1430 early bird // 1345 / 1330	135	3968	LSB	Sonrisa	HAM	<ul style="list-style-type: none"> Baja, SoCal; good weather Strong @ el Cid. Strong moderator @ 0738 12/08 for early bird check-in; confirmed 1445Z net starts. Weather after emergency/underway check-in. 4/09 nothing @ 1500z in ixtapa 7/09 confirmed @ 1330z in punta mita (check-ins) 11/09 confirmed @ 1445z yelapa
0700	1500		6212	USB	Picante	SSB	
0830 / 0730	1530 // 1445	149	7294	LSB	Chubasco	HAM	<p>warm-up 15 mins earlier. Good weather forecast. Confirmed warm-up @ 1542 zulu 1/3/09 nothing 4/09 @1530z nothing 7/09 @1430z; 1445z; 1548z yelapa nothing 11/09 @1530z yelapa</p>
0800	1600	140	7200 7268		Taco		Baja and 0400
0800	1600	141	7238	LSB	Baja	HAM	
	1500	143	7260				Russian news/music; confirmed 12/08 1500Z; plus check 145 & 147
1030 /0930	1830 /1730	156	14340		Manana	HAM	Warm-up for 30 mins, then the net starts
1100	1900	156	14340	USB	Manana	HAM	
1400	2200	159	21402		Pacific	HAM	Pac, C/A, Baja
1600	0000	151	14300	USB	Almost 24-hour	HAM	
1600	0000 /0100	135	3968	LSB	Sonrisa	HAM	Happy Hour un-net
1630	0030		6516	USB	Southbound	SSB	
1800	0200 /0100		21492		Gerri's Happy Hour		Pac, Baja
1900	0300	151	14300		Pacific Seafarers		25 min warm-up
1930	0330 /0230	149	7294		Sandia		Same Freq as Chubasco

Pacific Local Time	UTC Time STD//DST	Ch #	Freq	Band	Net	Type	Comments
2000	0400	132	3856		Taco		Baja, also 1600

Chubasco Net Preamble

This text is from the Chubasco internet website.

The Chubasco net meets daily on 7.294 MHz at 1445 UTC during daylight savings time. (1530 UTC during standard time) We have an organization session that begins at 1430, daylight saving time and 1515 UTC standard time. During the organization session we pick up relays, two ways and the EX from the Sonrisa Net. We do not pass traffic unless it is priority or time valued in nature.

The primary purpose of the Chubasco Net is to pass ham traffic to and from maritime mobiles in Mexican waters, however, we will handle traffic from any station legally licensed to transmit phone on the 40-meter band. In an emergency we will talk to anyone.

Chubasco net is a controlled net Please do not transmit unless asked to do so by net control or one of the relays. We ask for specific types of traffic during the net so please wait until your type of traffic is called and check in with your suffix only slowly and phonetically using ITU phonetics.

You will be listed and called in turn for your traffic. When you are called give your complete call, your location and call your traffic. Your location is a required part of your call when operating with a Mexican provisional permit.

We ask all stations to give their location to assess the propagation and band conditions.

When you make contact with your station, please be prepared to QSY as far away from net freq. as possible so as to not to interfere with other stations especially in crowded anchorages. If you lose or fail to contact your station off net, return to the net and say, "Recheck" followed by your suffix and when your station rechecks we will assist getting you back together.

If you are operating XE and contact another XE and want to remain on the 40 meter band, Please QSY below the US voice portion that begins at 7.150 MHz. We have found 7.053 MHz to be useful.

If you have info, can relay or have a question say, "info, relay or question," followed by your suffix and wait to be recognized.

For whatever reason you come to the net Always come with your suffix slowly and phonetically.

If you go off net frequency on net business, return to the net and say, "reenter with or reenter without" depending on whether you have additional traffic or not, followed by your suffix.

Following the warm-up session there is then a call, through the relays, for any emergency or priority traffic. Next a call for short time or time valued traffic that cannot wait for the regular traffic sessions before WX.

Next a WX report. Followed by a call for WX questions.

Then a call for QST's. Items of general interest for the net. i.e. hazards to navigation, interesting news items, etc.

Then the traffic sessions are opened.

ICOM SSB Channels

Channels of Interest programmed into KEWAs' ICOM IC-M802 SSB as of 2007 11 19

Note: User channels were upgraded by ICOM factory in October 2007.

Name	New Ch#	Old Ch#	Freq	Comments
DISTRESS	1	1	2.182.0	
SOS 4S	2		4.125.0	
SOS 6S	3		6.215.0	
SOS 8S	4		8.291.0	
SOS 12S	5		12.290.0	
SOS 16S	6		16.420.0	
USCG LCL	7		2.670.0	Coast Guard & Weather
USCG 424	8		4.426.0	
USCG 601	9		6.501.0	
USCG 816	10	15	8.764.0	
USCG 1205	11	16	13.089.0	
USCG 1625	12	17	17.314.0	
WWV 2	13	2	2.500	Time
WWV 5	14	3	5.000	
WWV 10	15	4	10.000	
WWV 15	16	5	15.000	
WWV 20	17	6	20.000	
WLO 405	21		4.369.0	Weather & Vessel announcements
WFX PAC	39	78	4.344.1	Pt. Reyes weather fax
	40	79	6.451.1	
	41	80	8.680.1	
	42	81	12.786.0	
	43	82	17.149.3	
		83		
	44	84	22.525.1	
WFX HI	45	85	9.980.6	Hawaii weather fax
	46	86	11.088.1	
	47	87	16.133.1	

BBC 5	62		5.975.0	
		104	9.590.0	
		105	9.625.0	
		106	11.820.0	
BBC 11	63	107	11.835.0	
BBC 15	64		15.190.0	
CBC NEWS	65		9.755.0	
V of AM	66	109	15.290.0	Voice of America
NPR INTL	67		12.133.5	1450z @ yelapa good signal
AIR EM 6	68		5.547.0	
AIR EM 8	69		8.843.0	
AIR EM 13	70		13.300.0	
FEMA	71		10.493.0	
S-S 4051	91		4.054.0	WCK reprogrammed for Southbound net 2 nd channel 12/09
AMIGO	105		8.122.0	
CRUZHIMR	109		8.152.0	
CRUZ ALT	110		8.146.0	
CRUZ ALT	111		8.164.0	
CRUZHIMR	112		6.227.0	
CRUZ ALT	113		6.224.0	
CRUZ ALT	114		6.230.0	
TACO 385	132		3.856.0	
TACO 720	140		7.200.0	
SONRISA	135	118	3.968.0	
SPACIFIC	139		7.197.0	
BAJA 723	141	115	7.238.0	
BAJA 726	143		7.260.0	
GORDO	142		7.250.0	
HAWAII A	146		7.285.0	
HAWAII P	147		7.290.0	
CHUBASCO	149		7.192.0	Was 7.294.0; reprogrammed 12/10
CA S PAC	150		14.285.0	
“maritime svc net”	151		14.300.0	
CA HI	152		14.303.0	
GUNKHOLE	155		14.330.0	
MANANA	156	120	14.340.0	
PACIFIC	159	124	21.402.0	
		805	8.731.0	Weather
		1209	13.101.0	Weather
USCGAIR		127	8.971.0	Air control
AIREMER		129	8.843.0	

From Dockside Radio (941.661.4498)

Programming the Icom-M802, & the Open Ham/Dial Mode

The Icom M802 has an Open Ham/Dial Mode mode not discussed in early documentation. The Open Ham/Dial Mode mode enables the M802 to transmit on "Ham" frequencies, transmit on LSB (Lower SideBand), and manually tune almost like a regular AM or ham radio. The CLAR/RX key toggles the radio back-and-forth between the Channel Mode and the Open Ham/Dial Mode. To determine if the Open Ham/Dial Mode on your M802 is enabled press the CLAR/RX key on the keypad. If enabled, the LCD display will change, displaying frequency information with a cursor beneath the rightmost digit. If the display does not change or there's no cursor beneath the displayed frequency, the Open Ham/Dial Mode is not enabled. Here's how to put the radio into the Open Ham/Dial Mode and set frequencies:

Step	Instructions	Dial Display Change
1. Put the radio into the OPEN mode.	With the radio turned off hold down the 2 , mode , and TX keys at the same time, and turn the radio on. Press the CLAR/RX button. If the radio is in the Open/Dial Mode a caret { ▶ } will appear next to the RX on the top line of the LCD display (RX▶). The channel label will be replaced with the stored frequency and mode, and a cursor (underline) will be under one of the numbers. If the { ▶ } and cursor are not displayed the radio is in the "closed" mode. Repeat step 1 above.	Normal dial display. The M802 doesn't indicate if it's in the OPEN/DIAL MODE or CLOSED modes.
2 Select tuning capabilities	Turn the left knob until the cursor is under the number in the column you want to change.	8152. <u>0</u>
3 Dialing-in the Frequency	Turn the right knob left or right until the desired number in the selected column displayed (in this example 14 MHz).	<u>14</u> 152.0
4 Dialing-in the Frequency	Turn the left knob clockwise to move the cursor to the next column you want to change (in this example the 100KHz column).	14 <u>1</u> 52.0
5 Dialing-in the Frequency	Turn the right knob left or right until the desired number in the selected column displayed in the 100 KHz column (in this example 3).	143 <u>5</u> 2.0
6 Dialing-in the Frequency	Turn the left knob clockwise to move the cursor to the next column you want to change (in this example the 10KHz column).	143 <u>5</u> 2.0
7 Dialing-in the Frequency	Turn the right knob left or right until the desired number in the selected column displayed in the 10 KHz column (in this example 1).	143 <u>1</u> 2.0
8 Dialing-in the Frequency	Turn the left knob clockwise to move the cursor to the next column you want to change (in this example the 1KHz column).	1431 <u>2</u> .0
9 Dialing-in the Frequency		

- 10 Dialing-in the Frequency Turn the **right knob** left or right until the desired number in the selected column is displayed in the 1 KHz column (in this example 3). 14313.0
- 11 Store the new Transmit & receive frequency Press and hold the **ENT** key. When the {▶} disappears, the LCD display reverts back to showing the channel label, and SIMP is displayed on the top line, the new frequency and mode has been set. In this example the radio will transmit and receive on 14.313 MHz. The "SIMP" displayed on the first line of the LCD indicates the transmit and receive frequencies are the same.
- 12 Toggle Press the **FREQ/CH** key to toggle between the channel and frequency mode.
- Note: It is not necessary to set each column individually. Put the cursor under any of the columns and rotate the right-hand knob, tuning the radio as you would a regular AM / FM radio. Remember, the farther to the right a column is located, the finer the tuning increment.

Revised 11/2008

Programming Simplex Frequencies into the User Channel Group

Step	Instructions	What's Happening
1	Press the Freq/CH button to put the M-802 into the <i>Channel Mode</i> if necessary.	With each press of the CH/Freq button the LCD display will toggle back and forth, displaying the selected radio channel, and with the next press displaying the frequency stored in that radio channel.
2	Select the channel you wish to program by turning the large right-hand knob (channel selector knob)	The channel selector knob selects channels within a <i>Channel Group</i> .
3	Press the CLAR/RX button	A caret {▶} will appear next to the RX on the top line of the LCD display. The channel label will be replaced with the stored frequency and mode, and a cursor (underline) will be under one of the numbers
4	Enter the desired frequency using the keypad , or dial it in using the two large front panel knobs. Press and hold the ENT key. When the {▶} disappears, the LCD display reverts back to showing the channel label, and SIMP is displayed on the top line, the new frequency and mode has been set.	You are entering a new receive & transmit frequency. Stores the new RX & TX frequency and mode for this radio channel into the M-802's permanent memory.

Revised 11/2008

Programming Duplex Frequencies into the User Channel Group

Step	Instructions	What's Happening
1	Store the receive frequency following the instructions for programming a simplex frequency.	Writes the receive frequency into memory.
2	Press the TX key	LCD displays changes to the frequency mode and TX flashes.
5	Enter the new transmit frequency using the keypad , or knobs .	
6	Press and hold the ENT key.	Writes the new transmit frequency into memory. The LCD display reverts back to

showing the channel label and DUP replaces SMIP.

Adding Names/Labels to Your Channels

Step	Instructions	What's Happening
1	Press the Freq/CH button to put the M-802 into the <i>Channel Mode</i> if necessary.	Put the M-802 into the Channel Mode.
2	Press the " F " (Function button)	Enable the function mode.
3	Press the Freq/CH	The LCD dial display will show a line of character positions.
4	Rotate the right-hand Channel Selector knob to select the first character position.	Rotating the channel selector knob selects the character position where you want to enter a letter or number.
5	Using the keypad, enter the desired character.	Use the "1" key for Q, Z, q, z, and space, the
6	Rotate the right-hand Channel Selector knob to select the next character position.	"0" key for 0, and symbols + - = / () * < > and @
7	Using the keypad , enter the next character. Continue with steps 6 - 7 until you have either completed the channel label, or all eight positions are filled.	The maximum channel label size is eight characters.
8		
9	Press ENT when finished.	Stores the newly entered channel label into the radio's permanent memory.

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Revised 112008

Monitoring Weather Forecasts

Many sources of marine weather forecasts can be leveraged to formulate a pretty good understanding of the weather outlook for at least a few days out:

- Direct observation
- NOAA website
- Weather channels on VHF radios that monitor continual NOAA weather observations and forecasts
- SSB broadcasts of NOAA weather forecasts
- SSB broadcasts of non-government forecasts
- Buoyweather.com subscription (via email)
- OCENS subscription (via direct data connection)

Buoyweather.com

A subscription is required, but this is a good website when you are able to browse the web directly for forecasts, and you can also request concise wind & wave forecasts for any location via email. It appears to take about 10 - 15 minutes from request for an email forecast to be received.

Buoyweather also offers pushed emails (request routine email forecasts for specific lat/lons).

Send the following email to data@buoyweather.com (no subject required):

```
nww3forecast
kewaena@ocens.net
kewaena@ocens.net
20.75
-105.75
-6
2
nww3
```

Where: The first email address is the account name
 The second email address is where the forecast will be sent
 21.5 is the lat (north) <<.5 = 30 mins>>
 -105.5 is the lon (west)
 -6 is the UTC offset (-8 = pacific time, -7 = mountain time)

OCENS

OCENS offers a comprehensive range of cruising oriented software, including the ability to download compressed weather charts, text forecasts and GRIB files. They also offer email. The service runs on satellite data communications (INMARSAT or Iridium), or a broadband internet connection.

We have email, WeatherMapper, GRIB Explorer and NetMapper software from OCENS installed on KEWA's PC. This software works utilizing the satellite data connection, or, of course, broadband internet connectivity if that is available.

The basic utilization is to run WeatherMapper, outline the region of interest on the interactive graphic map (larger area, not pinpoint is better), select desired forecast items off the first or second page (I usually select either 3 or 5 day selections of wave, wind and depending on the season, precipitation) and then press Download. The download software starts and then you simply press Go.

In the "More Products" section of WeatherNet, traditional NOAA processed weather forecast charts are available for downloading. I've set up a folder with the most interesting ones for Pacific Mexico.

Mexico Weather Cheatsheet

VHF	Ixtapa, La Paz	0830 CH22 local ixtapa net; weather coverage is spotty at best
SSB	Pacific West Coast	1400Z; 0900 central SSB; can check in 1415 Don on Amigo Net
SSB		Xxxx chubasco net
Satellite Phone	Pacific	Automatic email alerts from buoyweather.com to kewaena@ocens.net
		On demand virtual buoy from buoyweather.com

Navigation

In addition to paper charts, as of July 2021 there are three principal navigation systems on board:

- Expedition navigation software running on the Ship's PC at the nav station utilizing C-Map charts
- iPad & iPhone running both C-Map and Navionics apps, plus iNavX app which uses Navionics charts through separate paid subscription(s)
- 3 B&G Zeus chartplotters with Navionics charts

Navico owns C-Map and offers a very nice charting and navigation app ecosystem, while Garmin owns Navionics and offers a similar but not as impressive app ecosystem.

C-Map, Navionics and iNavX charts have annual subscriptions with updates available to download to the PC, iPad and/or the chart SD Cards directly. C-Map updates can be managed through the Expedition Software and Navionics requires running the "Chart Installer" PC program.

Planning Routes

The basic process:

1. Use C-Maps iOS app or website to plot route. Runs on virtually any device (iPhone, iPad, Windows or Mac) and stores resulting route in the cloud.
2. Using GoFree Wifi on the B&G system on the boat, connect the nav station Zeus to the internet and have C-Map Embark update.
3. Once the route is confirmed on the Zeus, export GPX file from Storage / Waypoints. Be sure to export GPX format to the right-side microSD card.
4. Remove the right-side microSD card and install on Ship's PC.
5. Open Expedition and go to Marks / Import to load the GPX file. The routes and waypoints will now be active in the Marks / Edit Marks menu.

Expedition Chartplotting Software

This PC-based chart plotting software reads NMEA GPS and other instrument information on the NMEA bus via an interface device configured as <<com 8 and com 9>> into the PC.

The charts are Jeppesen C-Map. They can be upgraded from within the Expedition software, but major updates require serious broadband connectivity and/or media purchased and shipped via mail due to the size of the core chart package. Website is ww1.jeppesen.com. Chart kits installed include:

- NA-D027.15 Central America and Caribbean

B&G Zeus2 Chartplotters

Three chartplotters (1 x 12", 2 x 9") are installed on the electronics backbone on the boat. I use the Navionics chart kit. www.navionics.com. The charts are contained on a microSD card. A single card installed on one of the chartplotters on the backbone is shared across all three units. The card can be removed and plugged in a PC for updating.

Detailing

Exterior Washing

KEWA must be at least rinsed with freshwater when returning to the dock after being on the water. It is highly desirable to do a complete soap wash-down of the exterior after every use, using Boat Zoap or West Marine boat soap. I schedule a professional wash-down at the dock twice a month when the boat is left at dock.

Auto wash mitts help in getting all the rails, stanchions, and other hard-to-reach areas on the boat.

Teak Deck

While actively cruising, plenty of saltwater and foot traffic on the deck keeps the teak looking and no cleaning is required. At other times, wash the decks with mild boat soap using a very soft chamois mop, mopping perpendicular to the grain. If the teak deck becomes dark, which generally occurs when not used frequently, it can be cleaned several times per year with Teackdecking Systems ECO-100 power or ECO-300 pre-mixed liquid cleaner, a very light mixture of TSP and water, or a VERY dilute bleach and water mix. DO NOT use any two-part cleaners (acids) as they are too strong and will ultimately damage the teak. Wet the deck, rub with a stiff sponge against to the grain with the solution. Let stand for five minutes then rinse. Do small sections, one at a time, so it does not dry before rinsing.

NOTE: It is imperative that the decks NOT be scrubbed with a brush, which quickly wears away the softer wood between the grain, resulting in an ugly deck that is not smooth. Only chamois mops or Scotch-Brite Maroon pad or equivalent should be used and rinsed very well. ALWAYS scrub against the grain, not with it.

If there are areas of the deck where the caulked seams don't dry as fast as the rest of the teak, the caulking must be repaired immediately to maintain the integrity of the deck.

Saltwater is very good for the deck as it helps them retain moisture, but unfortunately many marinas do not have clean water and therefore its generally recommended that the deck only be washed with saltwater when underway.

Recommendation from Annapolis Yacht Sales: We recommend keeping your teak clean regularly (at least once per month during season) with a diluted solution of Lemon Fresh Ammonia and fresh water. Using a 5-gallon bucket, dilute the water/ammonia solution to a ratio of 6 parts water to 1 part ammonia. Pre-wet the area where you are working with plenty of fresh water. Using a white scotchbrite pad (available at West Marine or hardware stores) gently work the solution into the teak scrubbing with the grain and let stand for one minute. Rinse with plenty of fresh water. Note: Heavy concentration of ammonia or prolonged contact with ammonia can also damage anodizing and chromed surfaces be sure to work with extreme caution.

Hull Wax/Polish

I use Collinite Fiberglass cleaner and Collinite hard wax for the fiberglass. FSR helps with tough rust, etc., stains. Treehouse heavy duty rubbing compound works in extreme situations. Clean and wax around exhaust ports as soon as possible after a voyage to remove black stains before they set hard.

Stainless Steel

I use 3M Metal polish or Collinite Metal Polish for the stainless.

<Look into wax options for the stainless.>

Mast/Boom

Polish the mast and boom periodically with 3M aluminum polish.

Bottom

In the San Francisco Bay Area, a quarterly bottom cleaning with a haul out every two years should be sufficient, although an annual haul-out enables servicing of the prop and adds to piece of mind. In Mexico while at marinas, I have the bottom cleaned once per month.

When in tropical waters, I use scuba gear and clean the bottom with a stiff sponge, along with a 3M scrub pad and a plastic putty knife for the propeller and to remove any barnacles.

Interior

Wipe the mahogany wood with a microfiber cloth and Cabinet Magic spray, or Pledge or Murphy's premoistened furniture wipes. Polish the metal using Flitz metal polish.

The fabric is Dinamica.

The carpets should be vacuumed frequently, and the rugs shaken out. Use the small 120v Red Devil hand-held vacuum to vacuum the carpets. A Makita portable vacuum is in the hall cabinet for small vacuum clean-up jobs. Acetone may be used to remove stains from the carpet.

For the heads and galley, Simple Green is a good cleaner that is widely available. We buy Simple Green in concentrated form and dilute it 1:10 in a spray bottle. Occasional use of 409 to kill bacteria is also recommended.

Directions

Please use Cabinet Magic spray, located underneath the galley sink, on the interior wood. The white terrycloth towels sitting out in the galley may be used with the spray.

The clear plastic spray bottle underneath the galley sink with green liquid (simple green) may be used to clean the interior surfaces other than wood.

Please shake out the rugs outside the boat.

The red vacuum in the very forward locker in the v-berth may be used to vacuum the floor. The inverter needs to be turned on to run the vacuum. It is located in the hallway going back to the stern cabin in the boat. It is a small black switch on the left hand side when walking back to the stern cabin (it is labeled "110V Inverter"). Please turn the inverter off when finished. The yellow battery powered vacuum in the hallway cabinet (underneath the inverter switch) may also be used if needed. Please DO NOT use the yellow plug-in vacuum in the forward v-berth as the vacuum bag inside it is not attached, unless the vacuum is opened up and the vacuum bag re-attached with the black rubber band inside the vacuum canister.

To operate the heads, both black valves at each head must be turned to be up & down (vertical) instead of sideways. The heads must be turned on at the breaker panel at the nav station (see lower right-hand side of the panel for the two switches for the two heads). Please close the black valves and turn the heads off at the breaker panel when finished. The water pressure switch is also located on the breaker panel, near the head switches. It too needs to be turned off after use.

Be sure to clean under the wood grate in both heads – lift the grates up and clean underneath, including around the drain.

Engine Room

Freshwater rinse with squirt bottle whenever saltwater is spilled (e.g., when cleaning the raw water intake strainers). Krud Kutter and Spray 9 work well to cut through grime on the engine room floor, especially when used with a scrub brush or pad. Simple Green works well when there is not a grime layer. Scrubbing with a brush and cleaner, and then rinsing with a hose achieves the best results.

The engine, which does not leak oil, does result in accumulations in the engine room floor when run extensively. Oil absorbent mats placed under the engine facilitate keeping the engine room clean.

Bilge

Occasional rinses with bilge cleaner (Starbright xxx) and/or a light mix of bleach water to kill any bacteria. I run a dock hose when possible and wash from both the engine room and the forward sole locker. The automatic bilge pump should come on and pump most of the bilge out. The manual bilge pump can then be used to get the bilge water level even lower.

Sailing

Rig and Sail Particulars

I: 59.05 ft / 18.00 m
J: 18.54 ft / 5.65 m
P: 52.16 ft / 15.90 m
E: 18.04 ft / 5.50 m
S.A. Fore: 547.39 ft² / 50.85 m²
S.A. Main: 470.48 ft² / 43.71 m²
S.A. Total (100% Fore + Main Triangles): 1,017.88 ft² / 94.56 m²
S.A./Disp. (calc.): 15.21
Est. Forestay Len.: 61.89 ft / 18.86 m
Mast Height from DWL: 64.00 ft / 19.51 m

Mainsail

The furling mainsail is a nice convenience, but some care is required to operate the furling efficiently. General guidelines when furling (in or out) are to have the backstay slacked and the boom high (only very moderate tension on the leach). The mainsheet needs to be slack, which can often be achieved by heading about 5-10 degrees off the wind to starboard. Keep some slack in the foot of the sail; do not pull it tight against the boom. Once the sail is completely unfurled, ease the mainsheet if necessary to ensure there is no tension on it and then tighten the outhaul as desired. Tightening the outhaul with the mainsheet tight and the sail loaded puts undue stress on the outhaul block and will break the sheave. Replacing the outhaul block is complex, as it requires removing the headliner in the master head. To further complicate this, the block is no longer available from Lewmar, although HR Parts seems to have a stock.

I had the original battens replaced by Quantum fiberglass flat battens in August 2007. The original battens were round and constructed of three materials – fiberglass, carbon fiber and metal -- and broke frequently. The new battens are stronger and a much better design.

Genoa

<<instructions>>

Jib

<<instructions, including how to pole out>>

Staysail

<<instructions, including how to lead the sheets>>

Code Zero

A loose luff, blue, yellow and white furling headsail made by Elvstrom. It is made of lightweight nylon and flies like an asymmetrical spinnaker. Due to the cut of the sail you can't effectively head below about 125 degrees with the main up, but it presents a huge amount of sail area and is a lot of fun when on a broad reach through just above a beam reach.

Attach the tack shackle to a tack line that is run through a block on the bowsprit and tied off to a forward cleat. Run the control line loop for the furler along the deck and secure it to a stanchion using the shock line and clip. Wrap a couple of turns of the furler loop around the gypsy on the windlass to secure it. Lay the sail out down the side deck and around the aft deck. Ensure that it is consistently and tightly furled so portions of it don't catch wind when it is hoisted and before you are ready to unfurl it. Grab the head swivel and take it back to the foredeck, doubling back on top of the sail, and attach the halyard. Attach a single spinnaker sheet, run outside the lifelines, through the aft spinnaker block and to the small cockpit winch. Hoist behind the mainsail. Unwrap the furler control lines and ease the sail out.

The previous owner reports the sail is spec'd for the following (max wind speed at point of sail):

- 25 knots at 125°
- 20 knots at 100°
- 12 knots at 80°

Heavy Air Symmetrical Spinnaker

A blue and white spinnaker made by Elvstrom, configured with an ATN spinnaker sock.

Can be flown with or without the pole depending on how deep a point of sail is desired.

Attach the tack to a tack line that is run through a block on the bowsprit and tied off to a forward cleat. The sock control line should be run through a ratchet block anchored somewhere on the foredeck. Lay the sail out down the side deck and around the aft deck. Ensure that it is not twisted. Grab the head shackle and take it back to the foredeck, doubling back on top of the sail and attach the halyard. Attach a single spinnaker sheet, run outside the lifelines, through the aft spinnaker block and to the small cockpit winch. Hoist behind the mainsail. Pull down on the ATN sock control line to raise the sock and fly the sail. When dousing the spinnaker, first blanket the spinnaker behind the mainsail so it collapses some.

The previous owner reports the sail is specified for the following (max wind speed at point of sail):

- 25-30 knots at 140°
- 20 knots at 115°
- 15 knots at 90°

Light Air Asymmetrical Spinnaker

A white spinnaker with a flower logo and an ATN sock, made by Quantum. Allowable wind conditions should be approximately one half that of the heavy air sail. The previous owner reports that he does not recommend using this sail on the pole.

Asymmetrical Spinnaker Tack Line

I had three spectra tack lines, about 3 feet long, made by Quantum. They have spliced loops in each end to facilitate connection to the bowsprit and the tack of the sail. These thin, green lines are extremely strong. The spectra tack lines should be doubled back when flying the furling Code 0 to provide a tighter luff.

Anchor Sail

The winds are routinely strong in the Bay Area and we've also encountered 30K+ winds while anchored in Mexico. KEWA tends to sail fairly heavily while anchored, perhaps due to the hard dodger; I'm not sure. To help mitigate this, I have a Banner Bay Marine Fin Delta #2 anchor sail that markedly reduces sailing while anchored. The anchor sail attaches to the topping lift, the boom and the dinghy davits.

Preventer

I installed strong, high-tech spectra lines on each side of the boom, attached at the outboard end and tied to a horn cleat near the gooseneck. This makes it very easy to rig the preventer no matter what the sailing conditions or sail configuration. A small diameter blue line stored in the aft lazarette then attaches with a snap shackle to the desired boom preventer line (port or starboard) after the boom line is un-cleated. This blue line is lightly rated so that in an extreme condition (boom in the water, for example) it should break. To control the preventer, the line runs forward to a cleat or a block (attached using one of the spectra tack lines to the fixed tang on the deck just aft of the stemhead), and then back through the genoa blocks to the cockpit winches.

Motoring

When operating the engine for any length of time, the blower (labeled “Fan” on the 24v breaker panel) must be on to provide a good flow of cooler air into the engine room. This can reduce the temperature in the engine room by about 10 degrees F.

Refer to the section on the propeller for details, but note that KEWA has a Gori dual forward pitch prop. Operating the prop in overdrive works well when motor sailing, or motoring in light seas or conditions that otherwise are easy on the boat. You can expect 1 to 1.5 additional knots when in high gear in benign conditions.

HR recommends 1800 – 2600 RPM as a normal speed for the engine. I like the very low end of this range as it seems to provide good speed (approximately 7.5K boat speed with the prop in overdrive gear) and moderate fuel consumption. The engine can run at very high RPMs without damage; however this would only make sense if there is some need for a burst of power in an abnormal situation.

The engine does not routinely burn oil, although the oil level must be checked before every usage to avoid any problems. The coolant level should, of course, also be checked at the same time.

HR recommends running the engine at max RPM on the standard Gori gear briefly every now and then to avoid overload of the engine and related carbon build-up issues.

<<Hydraulic or manual transmission (seems manual)?>>

Maintenance Items

1. Grease shaft seal once per year or every 200 operating hours.
- 2.

Mechanical

Yanmar 4LH-TE 105 HP Turbocharged Diesel Auxiliary

This engine provides a very nice amount of power for the boat, including being able to drive the two high-output alternators. Yanmar has a good reputation and I've been very pleased with the engine.

There are many suppliers for Yanmar parts. Pacwest out of San Diego is a distributor on the West Coast, and, unfortunately, Yanmar forces you to use distributors in your local area instead of whichever one you'd prefer. Mack Boring is good on the East Coast, and carries additional items beyond Yanmar parts.

The factory installed a Volvo Penta cooling water strainer. It is well documented on the HR Users Group on Yahoo that this strainer exhibits electrolysis in the metal fittings, and this issue was observed in early 2008, so the unit was replaced in April of 2008 with a very nice, all-plastic Vetus strainer (FTR330/32), with a custom metal mounting bracket.

I found corrosion caused by saltwater leaking from the small cooling water drain fitting on the aft of the engine. The original fitting was not constructed of the proper materials and got eaten away by electrolysis. The new Yanmar factory replacement part is of a much higher brass construction.

A total of three Napa XL 25 9470 belts drive the 24v and 12v alternators, two for the 24V and one for the 12v.

Cruising Range

At 174 gallons diesel capacity (excluding the 5-gallon jerry can of diesel kept in the bow locker), and assuming an average speed of 6 knots and an average fuel consumption of 1.62 gallons/hour of operation (observed consumption with quite moderate genset use in "normal" conditions (i.e., not motoring into heavy weather for hours on end)), the approximate cruising range under auxiliary power is 644nm. Of course, you would never want to get anywhere near running out of fuel, and conditions can often be less than ideal. Modeling various scenarios including higher consumption, slower headway and a 25% safety factor gives cruising ranges from 563nm to 326nm, with the 326nm scenario assuming a quite conservative 2 gallons/hour, 5 knots of headway and a 25% safety factor. The average of various scenarios that tend towards being conservative comes out to an easy 450nm.

Hallberg-Rassy estimates consumption for the HR48 at 6 liters per hour under normal conditions.

Date	Where	Gal	\$	\$/Gal	Engine Hours	GenSet Hours	Engine Hrs Delta	Gal/Hr	Gen/Eng Ratio
07/06/05	Shilshole Bay, WA	140.40	\$381.74	\$2.72					
08/15/05	Elliott Bay Marina, WA	87.91	\$246.05	\$2.80	1761.10				
08/19/05	Brookings, OR	108.48	\$294.00	\$2.71	1828.10		67.00	1.62	
05/20/06	Jack London, CA	108.47	\$413.15	\$3.81	1895.90	905.60	67.80	1.60	
12/03/06	Emeryville, CA	127.00	\$382.27	\$3.01	1973.10	942.20	77.20	1.65	
11/34/07	Emeryville, CA	90.50	\$339.37	\$3.75	2049.30	988.00	76.20	1.19	
12/22/07	West Harbor, SD,CA								

Gallons	/ Gallons per Hr	= Hrs	x speed	= range	Safety Factor	Safe Range
174	1.51	115	6.0	690	25%	518
174	1.51	115	7.0	805	25%	604
174	1.75	99	6.0	597	25%	447
174	2.00	87	5.0	435	25%	326

Changing the Oil

The Yanmar manual recommends an oil change every 150 hours, but I try to change the oil approximately every 100 hours when the engine is used intermittently. The oil filter should be changed with every oil change. I use Delo 15w40. Reported capacity is 5.8 quarts, but in my configuration, it actually appears to require approximately 10 quarts.

I installed a remote oil filter assembly sold by Mack Boring to facilitate changing the oil filter. The assembly mounts the oil filter off the engine and in a vertical orientation. This makes the filter easier to access and since it is vertical, it avoids spilling oil all over the place when changing the filter. The new filter can also now be filled with oil prior to installing it. An added benefit is that this off-engine oil filter arrangement increases the oil capacity, which in general is a good thing as it provides for additional dilution of contaminants.

I have also installed a Groco GHSN-13 12v dedicated oil change pump in the engine room with 1/2" NPT valve fittings. In the case of the auxiliary engine, the drain line is attached to a custom 22mm drain fitting with a ball valve attached. In the case of the genset, the pump drain line is attached to the genset dedicated oil drain line.

Items Required

- Diaper
- Oil absorbing towel
- Oil filter wrench
- Oil filters
- Quart ziplocks for filters
- Gallon ziplock or plastic wastebasket bag for quart ziplocks, diaper, etc.
- White fill funnel
- Waste oil containers (2.5 gallons for engine, 2.5 quarts for genset)
- Delo 14W40 (~10 quarts engine, 2.5 quarts for genset)
- Paper towels

- Drop light

Procedure for Dedicated Oil Change Pump

1. Run engine for 5 - 7 minutes, ~2 minutes for the genset, and turn off.
2. Oil Pump breaker on at panel
3. Open drain valve on engine
4. Ensure pump drain fitting and fitting at engine drain plug are opened
5. Inserted pump drain tube into first collection container
6. Activate pump (watch for overflow as the pump is high volume; turn off pump to switch collection containers).
7. Drain until no more oil. Shut off pump and close valves at pump and engine drain plug.

Procedure for Jabsco manual oil change pump

1. Warm the engine for about 15 minutes. *Note:* 5 mins is too short to thin the oil -- it can take about 3 hours if 5 min engine warm-up is used and it is cold outside. If the oil is warmed properly, it should take one hour or less.
2. Remove dipstick and insert pump tube fully down dipstick hole.
3. Actuate Jabsco pump. The container will be one-half full when the engine is drained.
4. Put zip lock around the old oil filter, a diaper and catch tin below it, and remove with an oil filter wrench. A lot of used oil will drain out, so be sure the diaper and tin are well positioned.
5. Lube the oil filter gasket on the new oil filter w/ oil and install until gasket touches and then 2 – 3 more turns.
6. Log oil change along with engine hours.
7. Start engine and run for 10 minutes to ensure no leaks.
8. Stop engine and check oil level. Top off as necessary.

Westerbeke Genset

I replaced the factory original Fisher-Panda 6kW 220v 50hz generator w/ Soundguard with a Westerbeke 6kW genset in 2014 and the unit was commissioned in 2015. The Westerbeke has been a fantastic upgrade – very reliable, delivers the specified current and is not temperamental and unreliable like the Fisher-Panda. I would never buy a Fisher-Panda genset – there is something wrong with the design, perhaps due to running a small diesel at 2x the RPM of the Westerbeke. In any event the unit was forever overheating with nowhere near the specified current (their manual says that in operation it should be something like 70 percent of the 6kW, but I couldn't even achieve that) and it was a constant and endless process of repairing the unit. It was running when I replaced it and I offered to give it to the mechanic who installed the Westerbeke, but he instead permanently damaged it to ensure that no one would ever try to run it again because then he'd be called to service it.

In any event, I really like the flexibility that a generator offers, but the tradeoff, of course, is that it is another complex system on board. Being able to charge the batteries without running the engine or, in case there is an alternator or regulator problem, is very convenient. Functionality uniquely enabled by the genset while underway includes being able to run the watermaker, the air conditioning, the SCUBA compressor and the washing machine.

The oil must be changed every 100 hours, and the oil level must always be kept at MAX. The oil capacity of the generator is about 2.5 quarts if the oil filter is changed. I use Delo 15W40 oil (same oil as the main engine).

The Groco dedicated oil change pump is connected directly to the genset oil drain line. Open the valve just forward of the genset sound case and the valve on the Groco pump to drain the oil (see detailed instructions above under Yanmar Oil Changing).

Operating Tips

To start the genset, push the “start” button on the control panel in the hallway, look at the display to see if it is warming up or if it is asking start to be pressed again. Once the unit is started, turn the hallway selector switch to Ship’s Gen.

Let the generator reach 140 – 150 degrees F before loading (should be about 5 to 10 minutes), although light loads may be applied to help with warm-up.

To stop the genset, gradually remove the electrical loads and then give the genset at least 5 minutes to run without load and cool down a bit. Then, simply press “stop.”

Loading

This particular Westerbeke unit can be configured to run 8kw at 110v at 1800 rpm, or 6kw at 220v at 1500 rpm. My configuration is 220v. The unit is rated to provide 27a @ 220v and is spec’d to be able to provide that level of amperage in service -- unlike the Fischer-Panda which was spec’d to provide only up to 70 percent of the unit rating (and never could even provide that).

There is an amp meter on the breaker panel for the genset amps.

A depleted house 24v bank being charged is presently set (see discussion on Charging) to not draw more than 14a. A/C startup blips to about 10 -12a upon start-up and then runs at 5a.

AquaDrive System

A shaft mounting system that ensures that the full thrust of the propeller is used to move the boat forward in the water and not move the engine forward on the engine mounts.

Gori Propeller

This propeller has blades that adjust to optimize the pitch for forward and reverse motoring, and sailing. An additional feature of the Gori is that it has an “overdrive” to enable more efficient propeller pitch when motor sailing.

The propeller requires annual, out-of-water servicing. The gears are exposed, and a good cleaning, replacement of the “bumpers” and zincs, and lubrication keeps the prop in working order. With the boat in the water, the zincs, of course, also need to be inspected routinely and replaced as necessary. Present estimate is about every six months, but is likely very dependent on the particular circumstances.

Reverse provides the same pitch as in the normal forward gear. Also, by keeping the blades folded for the reverse gear, but going forward instead, you have what essentially is a forward “high gear.” To achieve this, motor in reverse until the boat is moving through the water backwards, then switch into forward gear while the boat is still moving backwards. There is no need to jam the shifter into forward from reverse – stop for a few seconds in neutral before pushing the shifter into forward. However, if the boat is kept in neutral too long and reverse momentum is lost, instead of going right into forward gear, the blades will flip back to normal gear. In normal gear and flat water, the boat typically achieves approximately 6 knots at 1700 rpm. In high gear, the boat should achieve approximately 7 to 7.5 knots at 1700 rpm.

Sailing:

When sailing the blades will fold and the shaft will stop spinning giving you less drag and more speed. With mechanical transmissions you should put the shift lever into reverse (per the engine manufacturer’s instructions), this will further hold the shaft stationary. Hydraulic transmissions will not rotate when under sail with the Gori propeller.

The previous owner reported 3 occurrences of rope/nets wound into the propeller and had “spurs” (line cutters) installed. The debris never wrapped on the shaft, only in the prop itself. They noticed it pulling when experiencing very inadequate power when pulling into an anchorage and trying to stop the boat (the prop stops folding properly). The solution is to put on dive gear and cut the fouling away.

When the propeller starts to turn under power, water pressure develops immediately on the exposed portion of the blade. The water pressure determines if the blades open to the right or to the left. The propeller opens one way when turning clockwise and the other way when turning counterclockwise. The face of each blade has one pitch and the back of each blade has a higher pitch.

When the vessel is put into forward, the propeller opens so that the face of each blade is the positive pressure side. The water pressure pushing on the blade face pushes the vessel forward. When the vessel is put into neutral before putting the vessel in reverse, the blades fold immediately under the current caused by the forward motion of the vessel. In reverse, the propeller rotates in the opposite direction, flipping the blades over. The water

pressure is again pushing on the blade face and pulls the vessel in reverse. When under sail in favorable conditions, the skipper can decide to motor sail using the back face of the propeller blades, which have a steeper pitch than the front face of the blades. This is accomplished by starting the engine and backing down to put the propeller in the correct orientation. While putting the vessel in neutral, the current keeps the blades open. When the transmission is put into forward, the propeller blades do not flip over, because the positive pressure that develops when the prop starts to turn holds the blades in place. The sails are raised and the vessel is now overdrive, achieving higher speeds for a given RPM, or better fuel economy by running at reduced RPM's at a given speed. The "overdrive" is used when motor sailing in fair weather or when using the engine under sail. The "overdrive" gives the same speed at lower rpms. The result is less engine noise, less vibration and better fuel economy.

When changing from "overdrive" to normal ahead, the shift and throttle control is set in neutral, which allows the propeller to fold. Then the shift and throttle control is set to forward again.

Sailing

To configure the prop for sailing in a mechanical transmission set up per the HR manual:

1. When sailing: Stop the engine. It doesn't matter in what position the throttle lever is.
2. When the engine is stopped, take the throttle to reverse position. Now the propeller is in sailing position.
3. Take the throttle back to neutral, so that the engine can be started up quickly, in case you should need to do so.

Gori Prop Service and Detailed Operating Instructions

Replacing the Aft Zinc

1. This should be done if more than 50% of the zinc has eroded away.
2. Undo the allen head bolt and remove the old zinc.
3. Clean the surface of the propeller hub to ensure a good clean contact between the hub and the new zinc.
4. Replace the zinc with a new one. Index the fwd end of zinc with the end of the hub.
5. Use the new allen head bolt supplied. Smear with Loctite before re-installing the bolt. Check that the blades will swing freely from fwd through to reverse.

Replacing the Fwd Collar Zinc

1. First remove the 4 x allen-head bolts and remove what is left of the zinc.
2. Clean the surface of the propeller hub to ensure a good clean contact between the hub and the new zinc.
3. Install the new zinc using the Loctite (supplied) on each of the 4 x allen-head bolts.

Replacing Flexible Stops

1. These can be replaced **without removing** the blades.
2. Using a flat screw driver. Pry out the old or worn Flexi-stops.
3. Push the new flexi-stops in place. It may be necessary to swivel the blades open and closed to obtain the best angle for re-installing the new ones. Remember they are flexible.

Operating Instructions

The Gori 3-blade propeller has two distinct pitch settings in the forward direction – standard and overdrive or, as the Hallberg-Rassy manual refers to them, first gear (high revolution) and second gear (low revolution). Although standard forward is the pitch setting that Gori views as the “normal” setting, Hallberg-Rassy recommends second gear as the normal gear, and my experience has been that overdrive works great under most conditions.

In overdrive, the pitch setting in forward is increased, thus decreasing the engine RPM between 300 to 600 RPM. The boat will attain the same boat speed at lower RPM in the overdrive position as it is a pitch increase.

Ahead

The propeller will operate in the standard fwd setting when the blades open due to the centrifugal force of the shaft when in gear. Should you have backed out of your slip and then engaged fwd while the boat was in fact still moving aft you may well be in “overdrive” without knowing it. To go back to standard fwd, gear simply move the shift lever into neutral for several seconds ... (allowing the blades time to fold together), and then go back into fwd. You will soon learn the difference between standard and “overdrive” by checking boat speed and engine RPM/sounds. When maneuvering around the marina you may well remain in “overdrive”. Therefore when leaving the marina and beginning your trip always check that you are in the drive position you want be it standard or “overdrive”.

Astern

In the reverse position the blades swivel 180° opposite the forward position which ensures the same blade shape and leading edge to the water ... resulting in higher efficiency. This will also greatly reduce or even eliminate prop-walk when maneuvering in reverse in the marina. If the boat has not been used for some time, it is wise to shift cautiously between fwd and reverse a few times before going out sailing in order to clean the teeth of the blades and the gears from further fouling. In the reverse position the pitch on the blades is at a greater angle/pitch than when in standard fwd. This is done purposely as many transmissions have higher ratios in reverse than fwd and so require a greater pitch to take into account the slower shaft rpm when in reverse.

Overdrive

As mentioned above this position is obtained when the blades are set in the reverse position, but the blades and shaft are rotating fwd. In this situation you will have a

propeller with an increased pitch setting. Overdrive allows a lower cruising RPM for the same boat speed. It will be as much as 300~600 engine RPM lower than when in standard fwd.

Shifting From Overdrive to Standard Drive

1. Be sure that you are moving ahead at around 3~4kts.
2. Move the shift lever into the neutral position
3. wait several seconds, to allow the blades to fold to their sailing position
4. Re-engage fwd with the shift lever.
5. You should now be in standard fwd (increased engine RPM)

On some larger vessels it has been found that to stop the shaft rotation even more quickly than as above ... simply put the shift lever into the reverse position momentarily, this will cause the shaft to stop its freewheeling more quickly than just relying on the water flow. Once the shaft has stopped re-engage fwd and increase engine RPM.

Shifting from Standard Drive to Overdrive

1. Reduce RPM and move the shift lever into neutral
2. Shift into reverse and increase engine RPM to around 1000 RPM. This will set the blades into reverse.
3. Shift from reverse to fwd position without hesitation. You will now be in “overdrive”. By moving the shift lever smartly from reverse thru to fwd the shaft and blades will not have the opportunity to stop and the water flow fold the blades as for sailing, thereby remaining open in the reverse or “overdrive” position.
4. Do not press the engine to the max RPM when in “overdrive” as this will result in overloading.

Only use “overdrive” when motoring in clam weather or when motor-sailing.

Sailing

When sailing the blades will fold and the shaft will stop spinning giving you less drag and more speed. With mechanical transmissions you should put the shift lever into reverse (per the engine manufacturer’s instructions), this will further hold the shaft stationary. Hydraulic transmissions will not rotate when under sail with the Gori propeller.

Side Power 10 HP Bow Thruster

The controls are integral to the engine throttle lever on the binnacle. Always test the bow thruster before you need it to make sure that it is turned on and functioning properly. Wait a few seconds after thrusting in one direction before thrusting in the other direction in order to let the gears stop spinning and to avoid severe damage. The unit blocks a too-rapid-direction reversal itself, by disengaging the switch in the opposite direction, but it is still best to wait a few seconds and avoid any risk of damage.

As with the prop, the zincs must be regularly monitored and replaced as necessary (present estimate is replacement approximately every 6 months).

Also it is important to check the oil level (reservoir located in V-berth in center under the bunks).

Hull, Deck and Arch

The hull construction is GFP covered by gelcoat above and below the waterline. Below the waterline, the GFP is covered with a two-part Epoxy primer/water barrier (two coats) and two to three coats of antifouling paint.

The boat was hauled in November 2010 to renew the antifouling paint. Due to the buildup of coats over the years, the bottom was stripped down to the gelcoat (via chemical stripper and sanding), some blisters on the rudder were sanded and refilled with a gelcoat/ground fiberglass mixture, and two coats of Pettit 2-part epoxy primer/water barrier were applied, along with 2.5 coats of Pettit Trinidad SR antifouling paint. The bottom was in great shape with no blisters other than some minor blistering on the rudder, particularly the starboard side.

Teardrop zincs were installed on the skeg fitting as a precautionary measure.

Arch

After years of day sailing and cruising the boat, I installed a custom designed arch during the major 2014/2015 refit of KEWA.

There are lots of opinions on arches. I carefully considered pros and cons and then spent many months researching, designing modifying and finalizing KEWA's arch. I'm extremely pleased with the results.

In general, clean lines and no gear on deck make sailboats look great. However, depending on the philosophy of how the boat is outfitted and how you like to use it, a proper arch is robustly enabling.

Key considerations for me:

- Great place to mount large solar panels
- Provide custom enhanced aft deck pushpit seating (with solar panels providing nice shade)
- Very solid place to hoist dingy and keep large and small outboards (previous Kato dingy davits were functional at a basic level but were uncomfortably light duty).
- Optimized platform to mount the full suite of antennas necessary for modern communications and navigation electronics.
- Extending hard railing off the arch to replace the lifelines further provides for secure on-deck SCUBA tank storage, secondary anchor nest, grill and table mount, etc.

KEWA's arch is principally constructed of over-sized 2" stainless tubing and optimized for easy stern boat access, configuration of the antenna farm and solar panels. I'm extremely pleased with the aesthetics of the arch and how well it integrates into the design and functionality of the boat.

Electrical

KEWA has a very comprehensive and flexible electrical system. On-board, power is available throughout the boat, whether at the dock or underway:

- 12vdc
- 24vdc
- USB charging plugs
- 110vac
- 220vac

Power is supplied via battery banks, inverters, chargers, solar, the genset and/or shore power.

Loads, Utilization & Capacity

The basic demand and supply in terms of daily utilization of the batteries when away from the dock:

Updated:	12/26/2019				
		Total	Usable in 35% charging regime		
24v House Capacity		630	221		
		Hourly	Hours	Ah	Comments
Demand	Base	8.5	24	204	Fridge/Freezer, nav, radios, etc.
	Peak	5	3	15	Fans, lights, inverter
	Total			219	
Supply	Solar Peak	13	4	52	
	Solar Sub-peak	5	4	20	
	Subtotal Solar		8	72	
Delta				147	Gap to be charged by genset or aux
GenSet	Bulk	50	1	50	
	Absorb	40	1	40	
	Float	30	1.9	57	
	Total		3.9	147	

Typical load at anchor in what I'll call baseline functional mode (fridge, freezer, a couple of fans, PC, instruments and a couple of the Zeuses is about 7 – 10a/h.

Note that toaster and microwave should be run while genset is running as the 220v charger/inverter provides a passthrough function, thus saving undue drain and strain on the batteries via inverter model.

On a good day, the solar produces 10 – 17a of charge, which is split going into the 12v and 24v house batteries during the optimum solar collection window from about 12:00 to 4:00 and about 5a average during another 2 -3 hours on either side of that.

Commented [WK2]: Verify and update

Typical Loads

Item	System	Amps Typical	Max Amps	Comments
PC + Monitor	24v	2 - 4a		
Fridge & Freezer	24v	2a min 5a when on		
KVH SatComm	24v / Inverter	3 – 7a	10a	
VHF	12v	0.6		
Zues2 – 12” head	24v	0.6		
Anchor & Salon nite lights				
Typical night lighting				
Instruments	12v	0.8		
Autopilot				
Stereo	12v	0.5 - 0.9		
110v inverter (no load)	24v	1.0 – 1.3		
WiFi booster		0.3 – 0.5		
iSatPhone2		0.2		

Batteries are the heart of the electronics system and KEWA is configured with 4 separate battery banks:

- House 24v
- House 12v
- Aux engine start battery (12v)
- Genset start battery (12v)

Redundancy for engine and genset starting is provided via manual switches (located between the bunks in the master cabin) that tie in house or start banks in the event the respective dedicated start battery is depleted.

Shore power input as presently configured is for 110v into the soft start transformer on board, whether the shower power cord delivers 110v or 220v. The transformer wiring

presently essentially only takes one line of the 220v so there is 110v input. The transformer can be reconfigured to accept 220v input by re-wiring the feeds and wires on the top of the transforms. The boat uses a lot of power, so 50a 125v or 50a 125/250v is the preferred input at the dock, although 30a 110/125v can be used if 50a service is not available, provided care is taken not to overload the 30a service by running multiple high-current devices simultaneously (e.g., don't run chargers while running the SCUBA compressor).

KEWA is configured with a soft-start transformer to deliver 220v on the load side as she fundamentally runs on 220V European power. Due to the sensitive nature of modern electronics and the fact that dock-supplied voltages can be all over the map, KEWA is also fitted with an aftermarket Variac adjustable transformer. This transformer is easily manually adjusted to ensure that the voltage coming out of the step-up transformer is not too high or too low for the electrical items on the boat. For example, without the Variac, the shore power in La Cruz would often rise to over 130 volts during the day. After the step-up, the voltage would be so high (260v) that the Magma charger would shutdown to protect itself. With the Variac, I could adjust the voltage to stay in a reasonable range for operation of all the devices on board. Meters are installed at the nav station to indicate shore power voltage, post-step-up voltage, and shore power AC amps. The fourth meter indicates genset amps.

Chargers & Inverters

Installed during 2014/2015 refit:

- 240v Magnum MS-4124 PE 4100 VA Inverter/Charger, 230v 50Hz
- 240v Magnum MS-2024 2000 VA Inverter/Charger, 120v 60Hz
- 240v Mastervolt Powercharger 12/40-3 Battery Charger

The inverter of the 4124 PE (sometimes referred to as just 4124 E) runs off 24v input. The setup on the unit's control head allows easy max charge amps adjustment for the 24v House Bank. It would be set to 130a, which is 21% of the 630ah @ 24v House Bank capacity and well within the guidelines of 15% - 25% of capacity, plus load during charging (usually around 7 - 12a) however per the spec of the charger, the max available charge rate is 105a, or 17% of capacity.

Commented [WK3]: update

The 12v Mastervolt charger is 40 amps total and can charge up to three separate 12 volt battery banks. Dipswitches on the charger allow you to select a single battery type for the charger and as of 11/21 it's set to AGM.

- House AGM 8D
- Aux start AGM Grp 31
- Genset start lead acid Grp 31

Solar

I added solar panels during the major refit performed in 2014/2015. Two Kyocera Model KD250GX-LFB2 250-watt panels are permanently mounted on the arch. In practice, the

panels produce a combined maximum of about 16a – 17a @ 24v at peak on sunny days (I've recorded as high as 18.8), which is pretty good given that the theoretical maximum is 20.8a. The system ends up producing 70 – 80ah on average per day in generally sunny warm weather, 10 – 20a of which may be excess versus the drain on the batteries during the day, depending on what state the batteries are in. This goes a long way towards keeping up with basic navigation electronics and the refrigeration. I really like the non-intrusive nature of solar power and am extremely pleased to have it on KEWA.

The MasterVolt solar controller is interfaced to the ship's PC so current charging values as well as history is available via the MasterVolt PC application.

Batteries

All the batteries were updated to Lifeline AGM batteries in July 2010 from Discover AGM batteries that I had installed in October 2006 to replace the original flooded cell Tudor batteries supplied by the factory. AGM batteries provide relatively high capacity for the space they occupy (higher than the original Tudor 140s from the HR factory), but also weigh more. They require no maintenance in terms of filling with water, which is a notable convenience as it eliminates the tedious and awkward requirement to periodically pull apart the bunks to get to the batteries and top them off with water. Further, as these are closed-cell batteries, charging them does not generate any material amount of hydrogen gas, which in non-closed cell batteries is potentially dangerous even though the HR battery boxes are nicely vented. While I was pleased with the Discover batteries for several years, I had a catastrophic failure of the 8D after only 3.75 years so have decided to convert to Lifelines which also come with the advantage of being more widely available.

Both the Lifelines and the Discover AGM batteries seem to adhere to the dimensions of standard flooded cell batteries, which makes them much more easily suited, although not perfectly suited, to fit into the existing HR battery boxes. Unfortunately, the battery boxes installed by HR are tightly sized to the non-standard Tudor batteries. The Discover batteries were taller than the Tudors and therefore required some minor modifications to the battery restraint system including screwing down the battery box covers.

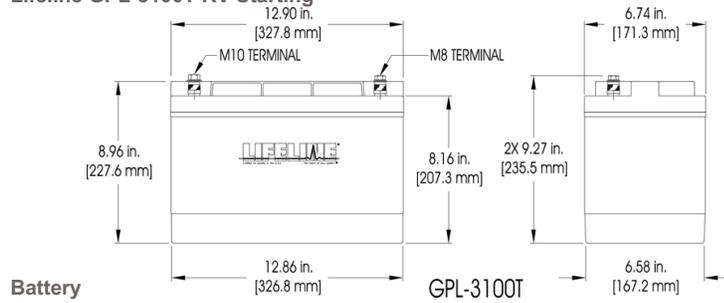
Discover 8D dimensions 19.5" + 1" for handles long by 11" wide by 9.125" tall, rated at 290AH. Standard flooded cell battery is maybe one-half that.

Auxiliary engine start battery box can hold, at max, an 18" x 9" x 10" battery.

Recommend Lifeline GPL-3100T. Fits in box and meets Yanmar recommendation (which is only spec'd in AH at 120ah):

Lifeline GPL-3100T AGM Battery

Lifeline GPL-3100T RV Starting



Lifeline Battery Part Number	Cold Cranking Amps			Instant Amps .2 Seconds	Minutes of Discharge 25 Amps
	68°	32°	0°		
GPL-3100T	1120	950	810	1950	228

Product Description

Lifeline GPL-3100T AGM Battery

Lifeline GPL-3100T RV Starting Battery Lifeline GPL-3100T Marine Battery Schematic

100 amp hours

RV Battery Specifications:

Voltage 12v
 Length – in(mm) 12.90
 Width – in(mm) 6.74
 Height – in(mm) 9.27
 Weight 67.00 lbs / 30.40 kgs

Lifeline Battery

Part Number	Cold Cranking Amps	Instant Amps
.2 Seconds	Minutes of Discharge	
68° 32° 0°	25 Amps	
GPL-3100T	1120 950 810	1950 228

Charging

Capacity Summary

For KEWA's Lifeline house 24v bank, assuming the batteries are in good shape, following the Efficient Recharging Regime outlined in this section results in 221 amp-hours of routinely usable 24V capacity:

- Batteries can be discharged until the amp-house meter reads: **-315**
- Then should be charged until the amp hour reading is: **-95**

Assume, on average that there may be a draw of 8a while inhabiting the boat. This means 18 hours of operation between charging, but this obviously is highly variable.

Charging Summary

With all the electronics on board, and people generally fully availing themselves of them, monitoring and maintaining the state-of-charge (SOC) is a routine event throughout a day on board.

There are two monitoring systems installed on KEWA. The primary system, the LinkPros, monitor all four battery banks on board (24v house, 12v house, 12v engine start, 12v genset start). The heads are located in the passageway aft and provide full profiling of the house banks and voltage-only for the starting batteries.

The second system is an installed optional accessory to the Magnum inverter/charger. It is accessed via the 230v Magnum remote head also located in the passageway aft. Pressing Meter and selecting menu option 5 – BMK Meters takes you into this system which somewhat similar to the LinkPros provides Battery SOC, DC Volts, DC Amps and some other measurements.

Charging itself is achieved via two principal systems, with solar as a baseline. The first is the battery chargers (230v Magnum Inverter/Charger and MasterVolt 12v charger) and the second is the alternators (24v Balmar and 12v Balmar) on the aux engine. The genset has its own dedicated battery, located in the engine room, that is charged by the genset's alternator. Solar is supplied via two xxx panels, which on a clear, sunny day provide up to about 17a max.

Commented [WK4]: Insert brand

Commented [WK5]: brand

The solar system has a control panel mounted in the master bunk electronics cabinet, but also convenient PC software to monitor the current as well as configure the controller. The solar charges the 24v house bank and xxx. It is nice as it is quiet and just does its job when the sun is up. During a sunny day, it provides enough power to put up to about 8a of positive charge into the house bank while also powering whatever else is typically on. In general, the solar system probably keeps up with the refrigeration system daily but isn't powerful enough to obviate the need for genset or engine-based charging when away from the dock.

Commented [WK6]: 12v house and 12v engine start??

The principal charging method at and away from the dock is the chargers unless, of course, we are motoring. The two chargers are controlled by breakers in the aft passageway AC panel – one each for 24v and 12v. The 24v breaker allows the 230v Magnum control panel to then start, stop and change charging parameters for the 24v house bank. The 12v breaker simply turns on/off the dedicated 12v charger, which charges the 12v house bank and the 12v aux battery via two charging outputs.

The Magnum control panel allows limits on the amperage drawn. Under Setup / 03 Charger setup, the AC Input Amps can be adjusted. I presently have it at 12a which puts a maximum of about 70amp into the 24v house if it is depleted.

Commented [WK7]: Check – I think changed to 100a

Note: As of 8/3/2017, during peak solar time, when, depending on the state of the battery, the solar panels may be achieving at or above 25.6v, the Magnum won't charge. Removing the yellow auto fuse in the fuse holder under the solar panel kill the solar input and allows the Magnum system to not get confused due to high voltage as to the battery state, enabling the Magnum to properly and fully charge the batteries.

Commented [WK8]: Make this a task to change

When charging the batteries at anchor via the high-output alternators on the Yanmar auxiliary engine, I run the engine at about 1200 RPM, which provides about 90A to a discharged battery bank.

Charging Details

AGM batteries require a different and more carefully controlled charging process than traditional open-cell lead acid batteries. To accommodate this requirement, a new 12v Balmar alternator with external three-stage regulator was installed to replace the original Hitachi alternator with its internal single-stage regulator.

The single stage 12v alternator and regulator on the genset are designed to charge a start battery but ramps up to about 15v. This is a little high for AGM batteries. The regulator and alternator may be disconnected entirely, and the Echo Charger will then charge the 12v start battery when the 12v battery charger is turned on. The Echo Charger, however, drives too low a voltage and very little current to the second (starter) battery. If the genset alternator and regulator are disconnected, the genset would then utilize the start battery to operate and thus would drain it slightly (about 0.1 to 0.3a) during operation, unless, as would normally be the case, the 12v charger is turned on while the genset is running.

Commented [WK9]: Is this still current?

Lifeline Battery Charging Guidelines per Lifeline Documentation

Bulk/Absorb 14.2 – 14.4 (28.4 – 28.8)
Float 13.2 – 13.4 (26.4 – 26.8)
(at 77°F +/- 10°F)

Discover AGM Charging per Discover documentation

@ 77 degrees F: CHARGE = 14.20v to 14.72v (std to max)

FLOAT = 13.40v to 13.80v
 BULK charge should be less than or equal to 30a per 100ah and should end when voltage is 14.4v to 14.7v (28.8V to 29.4v)
 ABS charge maintained at 14.4v to 14.7v (28.8v to 29.4v) until current acceptance drops by less than .1a in a 1-hour period.
 FLOAT charge is 13.5v to 13.8v (27.0v to 27.6v)

Lifeline Battery Capacity (Dec 2021)

KEWA DC Power															
2021 11 27															
										Amp Hours / Bank					
Battery Bank	Brand	Type	Model	Install Date	Amp-Hrs / Battery	CCA @ 68 F	Voltage	Qty	Config'd Volts	Total	50%	35%	85%	15%	
24v House	Lifeline	AGM	GPL-4DL	2021 11 23	210	1595	12	6	24	630	315	221	536	95	
12v House	Lifeline	AGM	GPL-8DL		255	1975	12	1	12	255	128	89	217	38	
Yanmar Start	Lifeline	AGM	GPL-31T		105	880	12	1	12	105					
Genset Start		Flooded	Group 31			1000	12	1	12						
Efficient Recharging Regime															
System	Spec'd Max Capacity A	Practical Beginning Capacity @ 85%	Discharged balance (@ 50% of max)	Practical Capacity	Away from shore, charge to at least 85%										
24v House	630	536	315	221	536										
12v House	255	217	128	89	217										

Lifeline: 12v 210 Ah 4D 8.7 W x 8.64 H x 20.76 L 124 lbs
 MV: 24v 200 Ah 4D 7.8 W x 14.0 H x 24.5 L 125.7 lbs
 MV: 24v 50 Ah 6.8w x 8.3h x 13 33 lbs

Lifeline Battery Capacity (pre-Dec 2019)

KEWA DC Power														
7/5/2010														
										Amp Hours / Bank				
Battery Bank	Battery	Amp-Hrs / Battery	Battery Voltage	Qty	Config'd Volts	Total	50%	35%	85%	15%				
24v House	GPL4D	210	12	4	24	420	210	147	357	63				
12v House	GPL8D	255	12	1	12	255	128	89	217	38				
Starting	GPL31	105	12	1	12	105								
Efficient Recharging Regime														
Capacity	Beginning capacity	- amps used	=discharged balance	=% charged	@ 85% charged									
420	357	147	210	50%	357	147 amp needed to hit 85%								
						-63 target reading @ 85% chg'd								
255	217	89	128	50%	217	89 amp needed to hit 85%								
						-38 target reading @ 85% chg'd								

Discover Battery Capacity (old batteries; replaced with Lifelines)

KEWA DC Power										
10/15/2006										
						Amp Hours				
	Battery	Amp-Hrs	Battery Voltage	Qty	Configed Volts	Total	50%	35%	85%	15%
24v Service	EV4DA	245	12	4	24	490	245	171.5	416.5	73.5
12v Service	EV8DA	290	12	1	12	290	145	101.5	246.5	43.5
Starting	EV31A	114	12	1	12	114	57	39.9		
Charging Example										
Capacity	Beginning capacity	- amps used	=discharged balance	=% charged	@ 85% charged					
490	416.5	171.5	245	50%	416.5	171.5	amp needed to hit 85% target reading @ 85% chg'd			
290	246.5	101.5	145	50%	246.5	101.5	amp needed to hit 85% target reading @ 85% chg'd			
							-43.5 target reading @ 85% chg'd			
Charging										
7/6/2010										
		BULK	ABS	FLOAT	Comments					
24v	Lifeline - Min	28.4		26.4						
	Lifeline - Max	28.8		26.8						
	Alternator	28.8	28.4	26.8	Custom programmable					
	Charger	28.8	28.8	27.0	Existing MV as config'd					
12v	Recommended - Min	14.2		13.2						
	Recommended - Max	14.4		13.4						
	Alternator				? How did scullion set this up ?					
	Charger	14.4	14.3	13.8	New MV 35a; @ gel setting					

Getting the charging profiles configured properly and functioning adequately requires some attention to set up and monitoring.

Deep cycle batteries generally shouldn't be discharged more than 50% of total amp hour capacity. When charging a battery to its full capacity, the last 15% of the charging is very inefficient (takes a long time). Therefore, when in a regime of charging utilizing the genset or the engine and running either for the sole purpose of charging the batteries, it is recommended that a battery bank be discharged to 50% of its capacity and then recharged only to 85% of its capacity. Charging back to 100% is fine but takes excessive genset hours or engine hours to achieve the final full charge. Per Lifeline documentation, the Lifeline AGM batteries should be recharged to 100% capacity every 5 to 10 discharge cycles to preserve batter capacity. Also, if the batteries are occasionally discharged more than 50%, it generally is not damaging to the battery as long as the battery is recharged the same day.

For KEWA's Lifeline house bank, assuming the batteries are in good shape, following the Efficient Recharging Regime outlined in this section results in 147 amp-hours of routinely usable 24V capacity:

- Batteries can be discharged until the amp-house meter reads: **-210**
- Then should be charged until the amp hour reading is: **-63**

Battery Charge Indication by Reading Voltage

	100%	75%	50%	25%
12V	12.6	12.4	12.2	12.0
24V	25.2	24.8	24.4	24.0

These are open circuit voltage reading (no load on battery).

Percentage of Charge	12 Volt Battery Voltage	24 Volt Battery Voltage	Specific Gravity
100	12.70	25.40	1.265
95	12.64	25.25	1.257
90	12.58	25.16	1.249
85	12.52	25.04	1.241
80	12.46	24.92	1.233
75	12.40	24.80	1.225
70	12.36	24.72	1.218
65	12.32	24.64	1.211
60	12.28	24.56	1.204
55	12.24	24.48	1.197
50	12.20	24.40	1.190
45	12.16	24.32	1.183
40	12.12	24.24	1.176
35	12.08	24.16	1.169
30	12.04	24.08	1.162
25	12.00	24.00	1.155
20	11.98	23.96	1.148
15	11.96	23.92	1.141
10	11.94	23.88	1.134
5	11.92	23.84	1.127
Discharged	11.90	23.80	1.120

Battery Charging Profiles

- 12v regulator is a Balmar 3-stage external unit (model 614 with a spare on hand model 612-dual) and charges based on the selected/programmed profile <detail>. There is a backup regulator built into the Balmar 12v alternator. The Balmar external regulator and the switch to select which regulator to use is located under the nav station footwell.
- As of 2021 11 27, battery type is set to “AgL” which is, appropriately, the AGM battery type.

- 24v regulator is a Balmar 3-stage external unit (model MC-624, with a back-up spare on board) and charges based on the selected profile. Standard Flooded Lead Acid profile is BULK at 28.8v, ABS at 28.4v and FLOAT at 28.4v. Gel = 28.2, 27.8, 27.4. AGM = 28.76, 28.36, 26.76.
 - As of 2021 11 27 battery type is appropriately configured as “P04” which is AGM battery type.
- 12v charger BULK charges until it hits 14.25v, ABS charges for 4 hrs or until current is less than 1A for 15mins, whichever is earlier, then FLOAT charges at 13.25v. Jumper setting provides optional FLOAT voltage of 13.8v.
- 24v charger BULK charges until it hits 28.8v, holds for 4 hrs for ABS, then FLOATS at 26.8v

Inverting

The 230v unit uses the 24v house bank and can provide continuous 50 Hz AC current of 18a, although I can't imagine what that would do to the batteries.

The 110v unit uses the 24v house bank and can provide continuous 60 Hz AC current of 17a.

The inverters provide true sine wave output so they can efficiently run every device, including ones with more sensitive electronics.

CSCP Set Up & Resetting

Press Set Up button for 5 seconds (the green LED will flash when Set Up mode is active). Then briefly press the button for the function to be set up (blue lettering). The present value will be displayed. After 3 seconds of pressing the function button, the display will begin to scroll through the range of values that can be selected. Release the button when the desired value is displayed.

The *Power Share* feature sets the AC current limit for battery charging to avoid overloading available AC sources. To enter Power Share set up, ensure that the green LED on the charge button is illuminated before entering set up mode. The selections are 5, 10, 15 and 20. The higher the number, the greater the amps available for charging. 10 appears to be a good setting for 30amp shore power service (20 will definitely overload 30amp shore service). The genset can handle 20.

The full-specification charging rate for the MV charger is 70 amps, which is what I see on the CSCP monitor.

If the amp-hours monitor gets out of synch and/or the low battery warning appears even though the batteries are charged, you can manually reset the amp-hour counter. First completely charge the batteries (to the point that they do not accept any more than a trickle charge at most), then select the desired battery bank, press Set Up for 5 seconds and press Reset A Hrs for 3 seconds.

The CSCP can require resetting. I've only had to perform this one time when the display showed a steady (and likely incorrect voltage) and the keys were essentially dead (pressing them did nothing – it just stayed stuck on the voltage display). Step 1, which is all that was required in this case, was to depower and repower the CSCP. Ensure that shower power and the generator are disconnected or off. Lift the seat bottom between the master bunks and there is a two-prong automobile-type fuse mounted to the support wall below the seat. Pull the fuse, wait 30 seconds and then reinstall the fuse. Ensure that the reinstallation decisively makes the circuit connection (don't let the fuse make and break the circuit) or this will further confuse the CSCP. The panel should start working. If not, refer to the small manual (stored under the nav seat) for further instructions, including Step 2, which resets all values to the factory defaults and then, of course, requires subsequent reprogramming.

Turning on the 24v analog dial gauge on at the electrical panel illuminates the CSCP backlight. Ditto for the 12v gauge and the 12v monitor.

Alternators and Regulators

Balmar 140amp Alternator (24v)

I upgraded the 65amp unit to a Balmer 140amp unit, with a new Balmer 624 regulator, in September 2007. This high amp alternate facilitates a rapid recharge of the considerably large capacity 24v battery bank. While the genset is, perhaps, more ideally suited for running when the only requirement is to charge the batteries, within a couple of hours of engine run time, the high output alternator on the engine efficiently recharges the batteries. A similar recharge by the genset set running the charger takes approximately four hours of genset run time.

Balmar 24v Voltage Regulator

A Balmar multi-stage programmable regulator is installed under the floorboard at the nav station seat. With this regulator the charging program can be selected from a set of factory-predefined programs to match the charging profile required for the AGM batteries.

Commented [WK10]: Not anymore!

Balmar 100amp Alternator (12v)

Original Hitachi alternator upgraded to a Balmer 100amp unit, with a new Balmer 612 regulator, in October 2006.

Balmar 12v Voltage Regulator

A Balmar multi-stage programmable regulator is installed under the floorboard at the nav station seat. With this regulator the charging program can be selected from a set of factory-predefined programs.

Next to the 12v regulator is a switch labeled INTERNAL, OFF and EXTERNAL. This controls which regulator to use – the internal regulator in the alternator, the external regulator, or neither. If the external regulator malfunctions, with the engine off, switch to

internal and restart the engine. This engages what is effectively a back-up regulator, which is not a sophisticated 3-stage regulator, but is a lot better than not being able to charge the 12v batteries with the alternator at all.

Don't run both the AC chargers and the alternators at the same time as that may overheat the batteries.

Comments on the Original Tudor Batteries

The batteries provided by the HR factory are nicely set up -- isolated, vented battery boxes with removable locking boards to hold down the batteries. However, the batteries as supplied were poor. They were not true deep cycle and, unfortunately, the tightly sized battery box is dimensioned too close to the odd size and difficult to source Tudor batteries. The system originally consisted of 6 x 12volt @ 140amp-hours for the 24v side, (providing at total of 420amp at 24volts), 1 x 12volt @ 140amp-hours for the 12v service and 1 x 12volt @ 140 amp-hours for the starter battery.

HR Yahoo group user reports that the original 140amp Tudor domestic batteries measure 51cm x 19cm x 19cm. Others think they are actually 513 x 189 x 223 mm and have used the Tudor HD (4D LT) (as installed by HR in many yachts) as well as the HDX (improved version) and found that they worked quite well for 3-4 seasons.

Some HR Yahoo group users reported that they installed 4 of the newest Tudor SHD (Super Heavy Duty), and so far, are very happy with them, as they are more adapted to deep-discharge situations. The size is the same, but they had to change the cabling as the poles are only available in one version and it was reversed from the previous installation.

Tudor is a part of the Exide Group, which has distributors worldwide. Some report that you can get an ExideGel battery in the exact same size, the G120 120 Ah.

Nearly all flooded batteries are in the 1.260 to 1.280 range when fully charged at room temperature. Most deep cycle batteries should be in the 1.277 to 1.280 range at 77 degrees F.

Per Calder: In the US, the standard temp is 80°F. If 70°F, subtract 0.004. If 90°F, then add 0.004. Let the battery rest for up to 24 hours if coming off vigorous use.

Per The specific gravity, SG, of the electrolyte in each cell of a battery shows the battery's state of charge:

Full 100% charged = 1.280

75% charged = 1.240

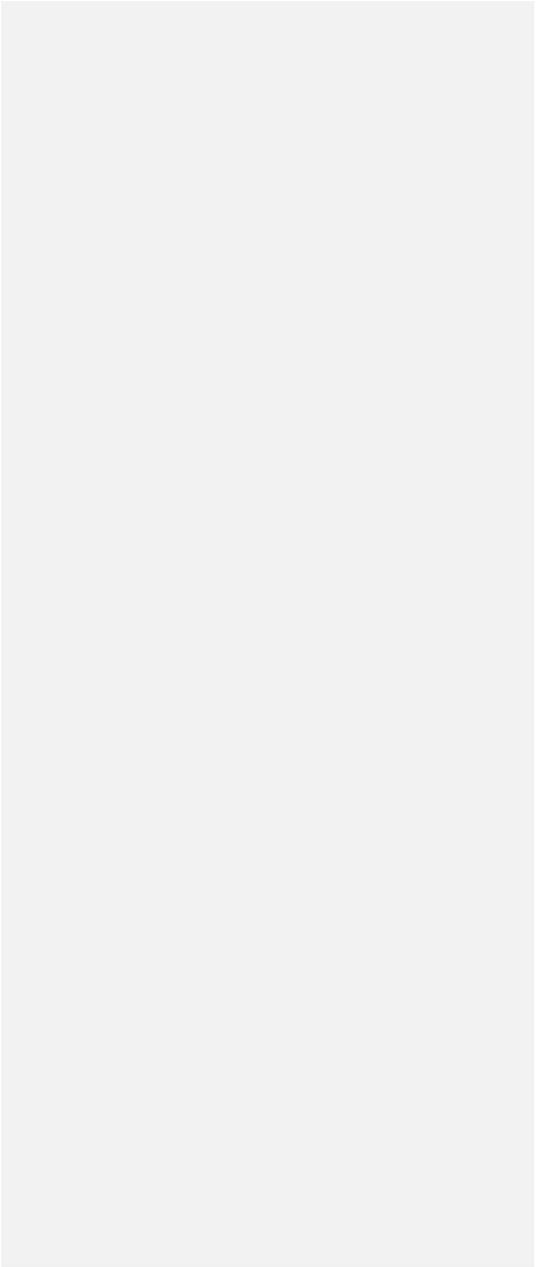
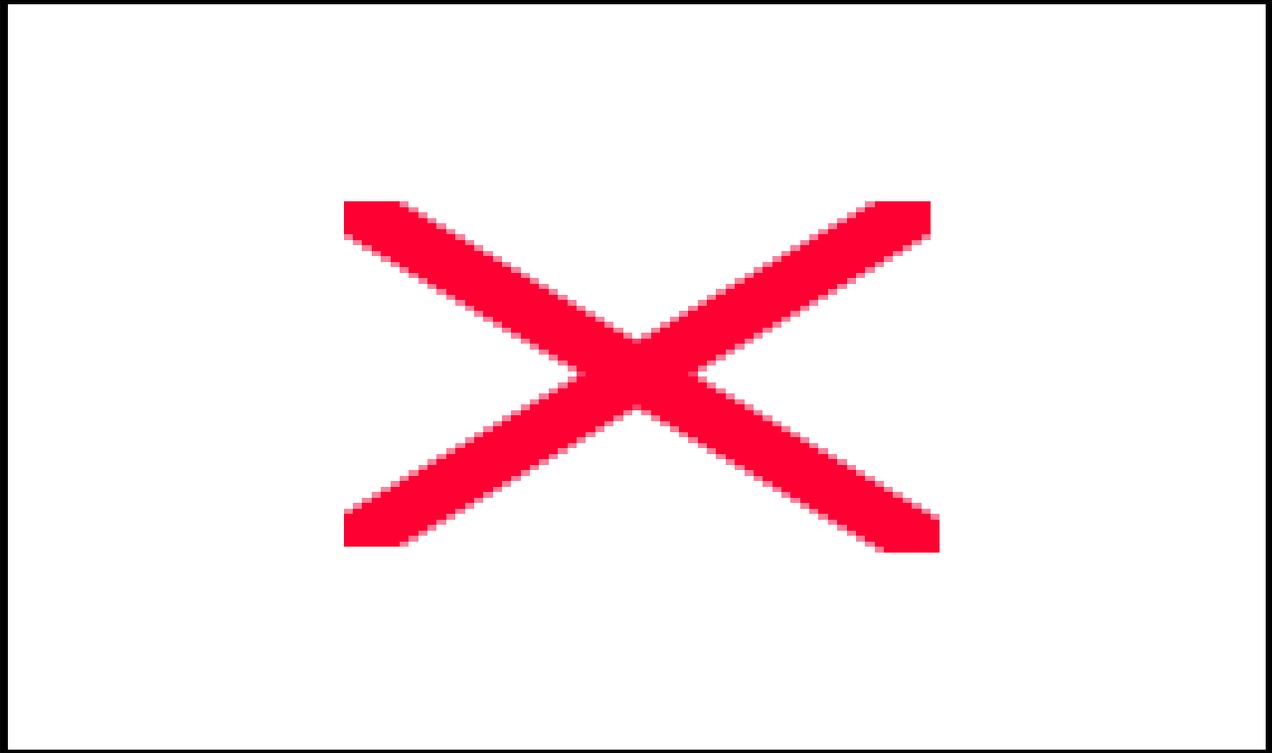
50% charged = 1.200

25% charged = 1.160

Dead 0% charged = 1.120.

Electronics

Data Wiring Schematic



GPS data is on port COMM 10.

Electronics With Routine Software/Firmware Updates

Modern electronics are fantastic, but do set you up for often constant updating of firmware and software. The checklist includes:

- Zeus2 firmware (each head)
- Zeus2 charts <<details>>
- Argonaut PC Windows 7 software
- Expedition Software on WinTel PC
- Expedition Charts <<details>>
- OCENS
 - Weathernet
 - OCENS mail
- iSatPhone 2 firmware
- iSatDock 2 firmware
- Sidekick firmware
- Badboy firmware
- Apple AirPort firmware

Lightening

In the event of concerns about lightening, the following checklist helps isolate the risk to the electronics:

1. Disconnect the VHF antenna from the back of the ICOM VHF radio.
2. Disconnect the SSB GTO wire from the deck fitting, zip it to the backstay adjuster.
3. Disconnect the KVH coax and data cables, put plastic bags over the ends to keep them dry.
4. Disconnect the iSat sat phone wires at the iSat dock in the closet
5. Disconnect the nema 2000 cable from the wind instrument on the mast
6. Disconnect the Radar cables behind the wood panel in the quarter berth
7. Disconnect the AIS vhf cable (on the arch), plastic bag it.
8. Turn off the inverters and disconnect the shore power cord from the dock.

Chart Plotting

KEWA has two independent fixed mount chart plotting systems, with flexible input and output choices. Also, there is a handheld Garmin 78sc which can be interfaced with a USB mini cable.

Expedition4D Navigation Software

This PC-based chart plotting system is an extremely feature-rich tool.

The GPS feed is pulled from the B&G network backbone using a NMEA2000 to USB interface. There are multiple GPS feeds on the network including a fixed mount antenna on the arch and each of the Zeus2 heads has a built-in GPS, with the unit at the helm having the best view of the satellites.

Zeus2 Chart Plotters

Three completely self-contained control heads exist on the network (helm, chart table and nav station). By default they read the GPS signal from the arch-mounted antenna, but each of the units has an internal GPS antenna as well.

AIS

KEWA's AIS with a separate VHF antenna provides great 2-way awareness of other vessels and their intentions. There are times (at dock and at anchor, for example) when broadcasting AIS would just clutter someone's nav system so there is a micro-located on the breaker pane to turn off AIS broadcasting, or silent mode can be enabled through Settings on the Zeus2's, but it is several menu layers deep and the status can't as easily be determined at a glance, like looking at the switch.

ProAIS2 software allows configuration interaction with the AIS.

Route Sharing

At present there is not a known method to share (i.e., upload/download) waypoints and routes between the two separate B&G Zeus2 and PC-based Expedition systems.

Autopilot: Robertson AP300X

The autopilot is installed with control heads at the Helm, Nav station and instrument panel under the dodger. The unit has two drives, and the drive selector switch located in the comm locker:

- "Shore" = Robertson linear drive under small master bunk.
- "Genset" = Whitlock drive in engine room.

A handy feature for singlehanded sailing is the automatic turning function. Press the Dodge button twice and then select port or starboard to initiate the turn.

The normal mode of using the autopilot with a sailboat is to simply have it maintain a compass heading or a wind angle. It can be driven by routes from the navigation systems but that is not recommended, particularly for sailboats.

Instruments: B&G Triton

Inputs

Displays

Locations of key components

Radar: B&G

The radar antenna is located on the mast and is accessible from any of the three Zeus2s. Great unit, low current and nice software features, including easy overlays with charts.

Commented [WK11]: Check for necessary interface – usb cable??

Commented [WK12]: Requires research

Commented [WK13]: Update to new model

Commented [WK14]: Check labeling

Commented [WK15]: Update this section with new equipment

Commented [WK16]: Provide model number

SSB: ICOM IC-M802 with AT-140 Auto Antenna Tuner

The original SGC unit was replaced in early 2007 with the highly regarded ICOM IC-M802. There were widely reported issues with clipping and although I never experienced the problem, I returned the unit in the fall of 2007 for the factory fix as well as a channel update. It was refreshed again in 2015.

The tuner is located in the port aft cabinet over the bunks. The main unit is located in the forward locker in the aft stateroom and the control head is mounted at the nav station. The unit runs off the 12v house battery.

When operating the radio, turn off 12v and 24v chargers and inverters, and the fridge and freezer to eliminate noise interference. The 12v PC power supply also contributes some noise, at least on certain channels. Always remember to turn the fridge and freezer back on after a session!

See www.sailmail.com for info regarding SSB email.

Phone Calls

Inmarsat iSatPhone 2

Handheld unit with docking station that has a dedicated external antenna, power and PC interface. The unit docks in the comm locker.

This is a very handy setup, enabling robust, worldwide voice and email communications through a professional maritime network. The network also allows for direct internet access, although the baud rate is slow and the per-byte fees are excessive.

Ensure the Sat Com breaker is on and the phone booted up. Easiest to use the POTS handset at the nav station. Simply pick it up and listen for dial tone to dial out.

To dial out:

00 + Country Code + Area Code + Telephone number
e.g., 001-650-906-2234

To call KEWA from US landline:

011-870-764-459-391

Commented [WK17]: Update

The email client I use for short email communications while underway is OCENSMail (kewaena@ocens.com).

The phone requires a subscription and depending on the plan, it costs about \$1.00/minute.

KVH V3 TracPhone

Fixed satellite unit that provides internet connectivity with VOIP voice dialing. The electronics are located in the comm locker.

Commented [WK18]: Update this section

This is a very handy setup, enabling reasonably fast internet connectivity in many but not all areas (especially offshore; see coverage map). Ensure that computer, phones and iPads are not inadvertently connecting to the network as it is easy to suck down a lot of data and run up massive bills.

Ensure the 110v inverter is on and power on the large outlet strip in the comms locker. Everything should boot up in about 8 – 10 minutes. Then, simply pick it up the POTS handset at the nav station and listen for dial tone (it will sound like a busy signal for a few seconds and then turn into a normal dial tone.

Calling a US number:

Area code + phone number
e.g., 408 201 2786

Calling an international number:

011 + country code + area code + number
e.g., dialing a Mexico number: 011 52 1 (329) 29 55367

Cell Phone

Mexico

When using a US cell phone in Mexico:

- To call a Mexican number, directly dial the # without any zeros, country prefixes or the “1” required for international dialing to Mexican cell phones.
- When dialing the US from Mexico, precede the number with “001” or “+1”.

Other

VHF: Icom M604

A great system. Main unit is at the nav station and remotes are mounted at the binnacle and in the master cabin. Includes loudhailer.

Radio Shack Wireless Temp / Atomic Clock

The monitor/clock is located at the nav station. Remote temperature sensors are located in the fridge, freezer and engine room.

- Press ‘reset’ on remote sensor (inside battery compartment), then hold ‘memory’ and ‘channel’ to search for sensor.
- Hold ‘channel’ for 2 seconds to enter scan mode.
- Select channel and then press ‘memory’ for 3 seconds to reset memory.

Oregon Scientific model THGR122NX works as a replacement remote as Radio Shack doesn’t carry this system anymore.

Ground Tackle, Anchoring & Docking

Windlass: Vertical Lofrans Progress 2

Control switches are located on deck next to the windlass and also on the on the binnacle.

DO NOT operate the windlass when the engine is not running. It draws too much current.

The above deck assembly requires at least annual disassembly and lubrication. This should be completed more frequently when cruising.

We installed a chain counter at the helm in 2017, eliminating the necessity of the maintenance of the 20' chain markers not to mention the complexity of real-time communications while working the anchor.

While anchoring we have one person on the bow, with the helmsman driving and raising/lowering the anchor. We've also found that portable radios with headsets can be helpful for enhanced communication with crew on the bow, whether anchoring or navigating through shallow waters.

Anchors

Primary Anchor: 33kg / 75 lb Rocna

Anchors become a religious discussion for many people. All I can say is that after cruising extensively with the 75lb CQR provided by the factory I became increasingly disillusioned with the ability for the anchor to set. Although the CQR is a common cruising workhorse anchor, I was rarely able to set it on the first try and sometimes would go five or more tries until it would set to I switched to the Rocna. I've been extremely pleased with the Rocna so far. It almost always sets on the first try, which is not only convenient, but gives me increased peace of mind should the anchor somehow break free during a weather event and need to reset itself.

I back down at 1500 rpm on the anchor even if there is nothing adverse in the forecast and always use a dual line bridle.

I've had various anchors, shackles and chains, including:

Suncor stainless steel anchor swivel connected the CQR anchor, but the shackle on the anchor was too large and the Suncor swivel would routinely jam on it. I then switched to a standard galvanized anchor shackle/swivel to connect the anchor to 300' of 3/8" BBB chain.

I later upgraded to 5/16" HT chain (G4) with a working load limit of 3,900 lbs. and breaking strength of 11,600 lbs with a weight of 1.1 lbs/ft versus the 3/8" BBB at 2,650 working load limit, 11,000 lbs breaking strength and 1.6 lbs/ft.

I also installed a heavy-duty anchor chain stopper on the deck to protect the windlass from any loads while anchored. A dual-line bridle with ABI chain grabber is tied to the forward cleats to absorb shock loads.

Secondary Anchor II: FX-55 Fortress

This over-sized Danforth-style anchor is made of aluminum so it is very light weight (32lbs), but has very strong holding power in certain types of seabeds. It can be stored either in the holder on the port pushpit or disassembled in the red storage bag in the aft locker. The rode is 25' 3/8" HT chain and 250' 3/4" 3-strand and is stored in the aft port deck locker.

I have a spare anchor rode with 10' 3/8" chain and 150' 5/8" three-strand rode, stored in the aft lazarette.

I also used to have a 20kg Bruce anchor on board, but found it to be of no utility so removed it to provide additional space in the anchor locker.

Mooring

We use a SwissTech mooring grabber and carry 250' of 3/4" 3-strand (the same line as the Fortress anchor rode). These are requirements when mooring at Angel Island in San Francisco Bay, where you must pick up both a bow and a stern mooring to keep the strong currents from swinging you into other boats.

Canvas and Cushions

Bimini

Best to put this up with two people and make sure that the rotating attach-points on the side of the dodger don't get any leverage in the wrong direction. Attach the front two webbing straps to the eye bolts on the cabin top in front of the dodger. Swing the boom out to the side, and lift up and back (watching the attach points) until it is fully extended. Attach the rear webbing straps to the line on the triangle attach point in front of the traveler.

Cockpit Enclosure

This is very useful in the Pacific Northwest, especially in winter. When going to the tropics, it can easily be removed with four screws and stored.

Sun Awning

This large canvas awning is tied to the running backstays and the shrouds. It can be adjusted more to one side or the other to, depending on the path of the sun, to provide the best protection.

Cushions

The closed-cell foam cushions are most practical when sailing. The Sunbrella cushions are more attractive and comfortable when relaxing or entertaining. The varnished trays under the dodger can be covered either using the Sunbrella covers or the closed cell foam.

Follow the instructions from Sunbrella for cleaning all of the various canvas covers and cushions on the boat (it is important not to clean them using harsh detergents as it will reduce their waterproof characteristics).

Safety

Primary EPIRB ACR Category II 406 EPIRB with integral GPS

The EPIRB is mounted in the salon next to the companionway steps. To activate, remove it from the holder and flip the switch all the way over, breaking the small tab. The GPS should be activated above decks to facilitate obtaining a good GPS read. It has an integral lanyard to tie it to the boat or the life raft. If tied to the life raft, let it float in the ocean. The unit is registered properly. The battery life is 48 hours.

Note that once the EPIRB is removed from the holder <it will activate automatically when it is wet, even if the switch is not turned on???

Secondary EPIRB ACR RapidFix 406 EPIRB with GPS Interface

This EPIRB is stored in the ditchbag <<<has been abandoned and should be replaced before going offshore>>>

Jacklines

The previous owner had 1" webbing jacklines with eyes installed fore and aft for attachment. I find these needlessly difficult to install and am much more satisfied with Hathaway custom jacklines with line at one end for easy cinching to a cleat or padeye.

Always remove jacklines upon arrival to reduce UV degradation of the webbing.

Liferaft: Autoflug ALK2000R 6-Man Raft

Autoflug started supplying survival needs in the aircraft industry. It is reported but not confirmed that they sold their marine unit to Zodiac. This unit is stored in a low-profile canister forward of the dodger, in a stainless steel rack. The painter is tied to the rack as well. To deploy, open the rack, take the canister to the side and heave it in the water. The painter, which must remain tied to the rack, may need to be yanked to automatically inflate the raft. A basic coastal survival kit is stored inside the raft. When the raft is higher in the water than the boat, it is time to be in the raft and cut the painter with the knife stored inside.

The ditch bag must be retrieved from the cockpit locker and the first aid kit must be retrieved from under the salon settee, and brought to the raft, along with other grab items including extra food, water and clothing.

COMAR (Coast Marine in San Francisco) services the life raft.

<list internal contents of liferaft.>

<Provide deployment cheatsheet.>

MOM-8A

This is an instantly deployable unit that includes a horseshoe, pole and sea anchor. It needs to be serviced and repacked once a year. COMAR also services the MOM8.

To deploy, simply pull hard on the black T handle on the top of the unit. This will pull the pin out and the will then drop in the water and inflate.

Inflatable LifeSling

This inflates and is connected to the boat to enable recovery of a MOB. Open the cover, retrieve the yellow packet and heave it towards the MOB. It will inflate and, since it is tied to the boat via a long yellow line, will enable recovery of the MOB. Best approach is to circle around the MOB with the LifeSling in the water, putting it within easy reach of the MOB. Then stop the boat and pull the MOB towards the boat. Depending on the circumstances, the MOB can be retrieved via the ladder on the transom, or a halyard may be shackled to the rig and the MOB may be hoisted out of the water.

West Marine Throw Rope

The throw rope is in a yellow bag attached to the stern rail. Open the bag, hold one end of the line and toss the bag towards the MOB. The line should feed out of the bag as it flies towards the MOB.

Flares

Flares are located in a large yellow flare container in the cockpit locker. Additional flares are in the ditchbag and also the liferaft itself.

As of November 2007, the current flare inventory consists of the ORC recommendations for coastal sailing (3 red, 3 white, 3 parachutes and 2 orange smoke). Plenty of outdated flares are on board as well, stored in a sealed orange utility box in the amidships bilge locker. There is a mount for a white collision flare at the helm.

Fire Extinguishers

The boat came with CE approved extinguishers, but no USCG approved extinguishers. The previous owner replaced one of the installed CE units with a USGC approved unit, and also installed an additional USCG approved unit. The original CE units are on board as backups, stored in closets.

Emergency Handpump

Need to get one. Consider Edson handpump, although the aluminum version reported readily corrodes after a few years, so the bronze one is recommended. They come prepackaged on a flat board with intake and output hoses. It would store under the settee in the main saloon.

Lifejackets/PFDs

We carry auto-inflating PFDs with built-in harness for primary use. We also carry two manual inflation, hip-pocket PFDs and 6 of the inherently buoyant, bright orange, offshore lifejackets with whistles attached.

If abandoning ship consider wearing the non-inflating orange lifejackets, not the auto-inflation ones, as they are likely more comfortable, resilient and offer more protection than the inflatable units.

Ditch Kit

We have an ACR ditch kit bag, containing the following items:

<insert ditch bag config sheet here>

<<previous owner: We've attached a long lanyard and two small floating fenders to add buoyancy. In it we keep:

- Handheld VHF
- smoke signals
- Signal flag
- Signal mirror
- 3 Strobe lights
- First aid kit
- Dramamine>>

First Aid Kits

We have an Adventure Marine 2000 first aid kit, which is configured for offshore passages. It is stored behind the aft salon chair. Additionally, we have a xxx coastal passage first aid kit stored in the salon port middle cabinet, along with a black gym bag containing quantities of various OTC first aid and personal comfort items.

Commented [WK19]: Provide info

Radar Reflector: Firdell Blipper

It is difficult to determine how well this works, but it offers some piece of mind and hopefully makes the boat at least a little more visible to radar. It is mounted to the mast.

Deck Gear Notes

Deck Lights

KEWA has a red LED floodlight to illuminate the foredeck and also stern LED lights for dingy work or whatever at night. The stern lights can illuminate in white (by simply turning them on at the nav breaker panel) or in red (by cycling the power switch on-off-on in fairly rapid succession).

Granny Bars

Makes work at the mast much easier and safer, plus they serve as a handy place to hang extra lines or fenders.

Dorade Vent Plugs

The dorade vents must be plugged when going offshore as large waves can flood the deck resulting in seawater jetting in through the vent openings. The previous owner modified the screw-in mushroom caps, which are stored in aft, over-bunk v-berth cabinet on the starboard side, by cutting off some of the overhang so the resulting cap can slide in the scoop and be screwed it down.

Drop Boards

The lower drop board has latches to lock it in place. The previous owner reports that a bungee cord can be made with connectors that attaches from the ladder inside to the padeye in the cockpit by threading through the vents in the upper drop board. This can be used to hold the upper board in place and allow full opening and closing of the sliding hatch. Securing the top drop board is required for ORC regulations, but I believe that sliding locks, accessible from both inside and outside the boat are required to meet those regulations.

Our top drop board was modified to remove the vented slots and instead be replaced with heavy duty lexan. This keeps below decks more sealed off (advantageous for the air conditioning) and provides a sight path between below decks and the cockpit. It is a very nice touch.

Galley

Force 10 – 3 Burner Stove

This is a pretty nice stove and work well most of the time. The only design flaw is that the heavy oven door can easily cause the entire oven to swing radically if the oven is not gimbaled and if care is not taken when opening the door.

The previous owner had a few problems with the stove. There were some issues with lighting the oven, which were resolved by pulling off the face plate, rotating the pipe that the oven temperature knob is connected to (thus moving the knob out a very small amount; enough to allow it to be pushed in, which is required to light the oven). The oven valve siezed on 7/06 and it was a complicated process to replace it. Unfortunately, this was exacerbated by Force 10 shipping the valve, but electing to not include a 10 cent gasket required for installation.

Propane System

The HR 46 comes from the factory with two propane tanks that are of a European size, which appears to not be readily obtainable in the US. As a result of requiring new valves, the previous owner replaced the tanks with US tanks which are a bit smaller in size. I had a new hold-down system built using starboard. The dual-valve system is generally not happy in a marine environment. In particular the mounting bracket readily corrodes, so I've had that replace with starboard, and additionally, a nice cover to protect the tank selection valve and solenoid has also been added.

Propane Pressure Gauge

A dual tank system with a tank selector switch and pressure gauges was added in the propane locker. This makes it easy to see when the tank is empty as well as simple to switch over to the other tank without having to move any hoses. It appears, however, that if a tank is removed, the other tank may free flow out the free tank connector if the remaining full tank is opened up.

Fireboy Xintex S-2A Propane Detector

This system is configured so that the solenoid is in-line and in the propane locker where it is somewhat exposed to the elements so it may fail. Spares are required to ensure that the propane system doesn't become unusable.

Magma Barbeque and Table

A must have.

Frigoboat Refrigerator/Freezer

KEWA has two 24v refrigeration units. Each can be configured as a refrigerator or a freezer. These are very nice systems as they keep the boxes at a pretty constant temperature versus a holding plate system that is either freshly cooled or getting warm.

A RadioShack wireless temperature monitor makes it easy to make sure that the temperature is set properly and that everything is working. On the dial gauges, the higher numbers are colder. The previous owner reported only two problems with them. The first was due to a buildup of marine growth in the cooling water input going to the condenser. In the warmer waters of the Caribbean, without enough cooling water flowing, the condenser would overheat and shutdown (it has a temp sensor and shuts itself down automatically to prevent damage). Once it cooled down enough from not running, it would restart itself and run until overheating again. It was

difficult to figure out the cause, because it would cool down the iceboxes, then they would warm up, and so on. Once they cleaned out the hoses with a very long bottlebrush it worked fine. To avoid this, always leaving the system on to keep water moving through the system. The second problem encountered was related to low 24v voltage, which causes the system to shut itself down. Also, ensure that the pump that feeds the raw water is functional. This pump cycles on and off, and it can be hard to notice if it is actually not working as the units will continue to cool under certain circumstances even without the pump functioning properly. The pump was replaced in summer 2007.

Electrolux Microwave

Very handy for popcorn, quick meals and thawing frozen foods when necessary. To operate, the genset or the 220v inverter must be turned on (the inverter control is on the CSCB panel in walkway). The low power main breaker and microwave breakers must also be turned on. It draws something like 30a so its use should be kept to a minimum.

Heads

Electric Flush Toilets

A nice upgrade instead of the manual pump units. The previous owner installed inline sanitation devices that use the blue pucks available from West Marine. I tend to not use the pucks, as they are expensive and unnecessary after any stagnant water has been thoroughly flushed from the system. The pucks are somewhat helpful in drowning out the stench of a stagnant head, but they do not eliminate it.

The macerator motors require annual servicing (to replace the seals and o-rings that protect the motor from what's in the head. If not serviced routinely, the motors will sustain damage and seize. Both heads now have the newer Jabsco toilet base installed. In the aft head, the base must be de-mounted to enable servicing of the motor as the new base has slightly different dimensions than the original base and this means that the motor cannot be removed without de-mounting the base first. This is a faster process than trying to demount the motor with the bases affixed anyway.

Ensure there are service kits and extra joker valves on board. Recommended maintenance by the previous owner includes replacing the joker valve and removing any localized buildup of calcium about once a year. Running white vinegar through the head periodically helps reduce calcium buildup.

The raw water feed pump is a Par-Max4 Model 31631-1094 by Jabsco/Xylem.

Holding Tanks

Each of the two heads has a holding tank with a dual-valve system – the top valve opens/closes the holding tank flow, and the bottom valve opens/closes the feed to overboard. The valves are located behind the panel on the starboard side of the forward head and in the vanity cabinet outside the aft head. Each tank has a Gobius 4 monitor to indicate approximately how full the tank is.

To calibrate the Gobius, ensure the tank is empty and hold down the button on the Gobius display panel until the four lights turn on. The calibration takes about 30 seconds and ends with the blue light on. Each unit draws about 40 mA. The unit can be put to sleep with a short press of the display button, and wakes back up with a similar short press of the button. A blue light indicates an empty tank and each other colored light in the stack represents the tank level in approximately ¼ increments of the tank capacity. So the red light on the top of the stack indicates the tank has reached ¾ capacity.

The two stainless steel holding tanks require flushing with fresh water and then vinegar after each use to avoid buildup of corrosive elements and/or sludge inside the tanks:

- Drain (by putting both valves vertical) or pumpout the holding tank.
- Fill up to rinse with fresh water and then drain or pump out.
- Pour one gallon of white vinegar into each tank and let sit for one hour then drain or flush.

Both tanks were replaced in 2015.

Water

MT Freshwater AB – MT 3200

A very nice system to have on board as it obviously reduces supply concerns related to water management. Dependant principally on the temperature (it is less efficient when the water is cold), this model produces approximately 25 - 35 gallons per hour (max spec is 130 liters/34 gallons per hour) and is AC powered.

The unit is the Basic Version V.

The high pressure pump, a critical component of the system, seized and was replaced with a more powerful and efficient pump during the summer of 2006. Further the membrane housing (along with membranes) was replaced as part of the 2014/2015 major refit. At the same time, various fittings, gauges, etc., were replaced or repaired.

Important features:

- Automatic rinse cycle. After each use, it flushes the system with charcoal-filtered freshwater for 20 minutes. Then, each day at a programmable time, it does a 20-minute freshwater flush. This eliminates the need to pickle the watermaker if you are not going to use it for some time (recommended to be weeks, not months). Open the front of the control box using the large 4 plastic screws in the corners. The timer controller is inside. Note: This rinse cycle consumes a fair amount of water, so ensure that an adequate supply is available in the tank and do not let the tank run dry.
- Redirect-able intake and output hoses. Built-in hosing and valves provide for switching the seawater input from the thru-hull over to a hose you can place in a bucket. Similarly, the output hose can easily be switched over to hose into a bucket. This makes cleaning and pickling the watermaker an easy job and not a chore. The output hose is located just inside the engine room door on the right, labeled with a diagram showing how to set it. The input hose is located in the walkway cabinet.

Making Water

- Open watermaker seawater stopcock.
- Genset on
- Watermaker 230V breaker on
- Flushwater valve open <?>>
- Open feedwater valve
- Pressure regulating valve open (i.e., turn left)
- Product to waste open (handle to waste/sink)
- Leave salinity off for now.
- Leave flushing off for now.
- Feedwater switch on (push over to start and confirm that water is flowing through strainer). May need to push several times and/or hold it for a few seconds to get it primed with enough pressure to keep running. Let run for a minute or two.
- High Pressure pump switch to Auto. If pump cuts off, ensure feedwater pump is running well, has no clogs in the strainer and is stabilized.

- Let water flow – air bubbles will exist for a while, but after a few minutes the flow will stabilize.
- Adjust pressure to about 600PSI which should give a flow of about 100 at the float in the flow indicator. Pressure gauge on top of microfilter (aft filter) reads about 2 bar.
- Flow for one hour if unit was pickled. Otherwise flow for about 15 minutes.
- Salinity on. Taste water at sink feed; change product valve to tank when water tastes good.
- Makes about 30 +/- gallons per hour (low temperature and/or high salt content decrease water production)

To shut down

- Turn flushing on
- Turn HP pump off
- Turn feedwater pump off
- Turn salinity off
- Close feedwater valve
- Back off pressure valve
- Turn product valve to sink/waste
- Unit reportedly will automatically flush itself, however I've never observed this occurring so I have initiated a flush manually by unscrewing box cover and pushing small start button on timer control unit. Can be left for up to one week in this state.

Restart Once De-Pickled

- Genset on; watermaker on at 220v breaker panel
- Confirm flush water valve open
- Confirm seacock open
- Ensure salinity off
- Set product valve to waste for initial 15-minute flush (15 minutes required if unit idle for greater than two days).
- Open feedwater
- Start feedwater pump valve and let flush for a minute or two
- Start HP pump (position Auto)
- Adjust pressure to 5 bars and let stabilize
- Salinity on (with valve to waste/sink) routes water to sink. Switch valve to from waste/sink to tank routes water to tank. Salinity off with water to tank routes water to waste (outside the boat).

Advice from MT Support

To test if membranes are okay, run water when at sea and see if the conductivity alarm goes off. Even if there is no high conductivity alarm, bacteria could be present in the storage tanks and pipes. A sample of produced water can be sent to a lab for testing, or a simple taste test can be performed.

Membranes are \$475 each from ENWA. Membrane type 2540 SWC1 and two are required for the MT3200. Ordering from overseas requires expensive freight charges, probably about \$200 if by courier. *(Note: I actually believe that these membranes are industry standard and can be ordered from other sources via the internet.)*

Chemicals are even more expensive to forward, so I have attached their descriptions to this email. If you go to www.ashland.com you will find at reseller I hope in your area. (Note: The chemicals are also available from HR Parts, and Swedish Marine in Richmond, CA reports that they can supply chemicals as well.)

It may be a little tricky to get the old membranes out, depending on the location of the pressure vessels. At least 130 cm free space on either side is required, as the membrane itself is 120 cms long. Alternatively, both black pressure vessels can be removed, the membranes exchanged and then reinstalled. Also note the end caps (in white plastic) can break if you tight them too much when putting them back. The holes are cone-shaped. Make sure you close down and start up again according to the manual.

MT-3200 Watermaker Cleaning & Pickling

Solutions & Materials

MT-10 is the cleaning solution

- Circulate for 1 hour
- Flush with fresh water for 15 mins

MT-5 is the pickling solution (replacement for MT-8)

- Circulate for 1 hour

MT-20 is the descaling solution

- Use two clean five-gallon buckets, with a 3rd bucket that can be less than 5 gallons for the rinse step when cleaning, and for any slop.
- Also need a carbon filter to filter source water and remove chlorine if using shore water. In-line filter with hose fittings works well.

Pickling Procedure

1. Close seawater thru hull.
2. Close flushwater valve
3. Close feedwater shutoff valve.
4. Open pressure-regulating valve fully.
5. Set Product water valve to waste.
6. Change microfilter
 1. Clean blue filter housings in soap/bleach and rinse well.
 2. Remove o-ring clean, coat in Vaseline and replace.
7. Change carbon filter
8. Turn salinity off (means product flows to waste)
9. Split one bottle of solution/powder between the two 5-gallon buckets and mix well with 5 gallons of carbon-filtered water (needs to be chlorine free) per bucket.
10. Remove plug from feed line inlet and affix service hose, which tees into the feed line. The fitting to connect the service hose is located between the two blue filter cases in the passageway cabinet. This service hose is used to suck the solution from the buckets into the system. Position the service hose end in one of the solution buckets.
11. Uncoil the discharge hose, which is located in the engine room under the port cockpit drain tube and position the end in the same solution bucket. Open the discharge hose

valve at the fitting near the drain tube. This tube is used to discharge the solution from the system back into the buckets for re-circulation. Position the discharge hose in the same bucket as the service hose.

12. Start the high-pressure pump (MAN setting). It may take a couple of minutes for the pump to flush the air out of the system and stabilize.
13. Run this configuration for 30 minutes per bucket.
14. If cleaning, then flush system with fresh water for 15 minutes and then repeat the above steps for the pickling process. Otherwise, turn off the pump and close all valves to secure the solution in the system.
15. The pickling solution will pickle the system for as long as one year, according to the manual. Before next use, flush for 60 minutes before making water.

Watermaker Filter Notes

Miscellaneous Operating Tips

I use either a 3 or 5 micron filter for the watermaker. These filters clog quite easily if the water has algae or other stuff in it. When the filter becomes clogged, the watermaker shuts itself down due to inadequate supply of raw water. Water should be made outside of anchorages and in crystal clear water if at all possible.

Water Tank Maintenance

Once a year, or once every three months in the tropics, sanitize the water tank and hoses:

- Empty the water tank (run it dry and turn the freshwater pump breaker off)
- Mix ¼ cup of liquid dishwashing detergent and 1/8 cup of bleach; pour carefully into freshwater fill on the deck (ensure it is the water fill deck fitting and be careful not to spill soap or bleach on the teak deck)
- Add about 10 gallons of clean, sanitized water to the tank
- Turn on pump breaker
- Open each tap and shower head valve and actuate the galley foot pump. Close each valve as soon as the cleaning solution appears at the respective faucet.
- Let everything sit for about one hour.
- Open each valve and run the rest of the cleaning solution out. (WK: one at a time hot/cold with fin)
- Follow with four washes of about 10 gallons each of freshwater through the tank.
- Completely refill and completely drain the tank with all faucets open, periodically alternating each faucet between full-on hot setting and full-on cold setting to ensure that all the cleaning mixture gets flushed out.
- Add about 10 gallons to the tank and taste test. If no soap taste, refill entire tank with clean, sanitized water. If soapy taste, refill ¼ to ½, flush and retest.
- Fit new filters as necessary:
 - Clean the screen on the water pump pump-guard in the engine room when performing the cleaning, or otherwise as may be required.
 - Change the freshwater filter (located in the engine room after the above cleaning, when visibly dirty or maybe every 1000 gallons or so, depending on the type of filter being used).
 - Unscrew housing and discard old filter.

- Clean entire housing with soap and bleach, removing O-ring for cleaning as well.
- Very lightly re-grease O-ring seal with silicone grease or K-Y jelly and reseal.
- Install new filter and tighten filter housing.
- Test for leaks and tighten further if necessary.
- Change the Seagull filter under the galley sink about every season or more frequently if it is utilized heavily (more than 1000 gallons) or if water from it begins to exhibit any taste or odor. Ensure filter housing interior is completely clean.

This method is adapted from Amanda Swan-Neal's *Essential Galley Companion* and so far, has kept our water sweet.

To treat water in a jerry can, use 1 teaspoon of bleach for every 10 gallons of water.

Pressure Water System

The house water pump is located in the aft of the engine room. The breaker, "Freshw. Pump" turns the pump on or off, and the pump monitors pressure and activates as needed. Note that the flush cycle on the watermaker uses house water to flush the membranes once per day. Curiously, this appears to provide its own power to the pump so even if the freshwater pump breaker is turned off, the pump will actuate as necessary to flush the watermaker membranes.

The Aquapress pressure bladder (red ball located in engine room) has the pressure fill valve on top of it (unscrew the plastic black cap). The pre-charged pressure is 1.5 bars and the maximum working pressure is 8 bars. This unit was replaced with a better stainless steel unit in 2015.

Commented [WK20]: update

Tenders

Dingy

We have an AB model AL10, 10.5-foot aluminum-hull dinghy. The aluminum is lightweight (120 lbs) and rugged, which is nice for landing on any kind of beach, including rocky ones. The hull design has a pronounced full and deep hull, upturned bow and oversized inflatable hull sections, all of which provides more comfort and protection in wavy conditions. Further, there is a double hull/sole to provide better footing and flat-floor storage capability inside the boat, all at a very manageable weight of about 120 pounds.

Taking a dingy excursion of any material length (more than just buzzing around the anchorage) requires some extra consideration. Items to consider bringing include:

- Life jackets and paddles, which should be in the dingy no matter what the circumstances.
- Handheld GPS to find the way back to the boat in fog or confusing situations
- Handheld VHF, which is handy if help may be required.
- Flare (or two)
- Motorola family band radios if parties will be splitting up at any point.
- Handheld depth sounder.
- Basic first aid kit
- Water and snacks and possibly a small cooler
- Sunscreen
- Insect repellent
- Potentially, a basic dingy repair kit, pump and basic outboard repair kit
- Spare gas and two-stroke oil
- Anchors and rodes

We have a seat cushion/under-seat storage canvas that greatly facilitates bringing additional items and keeping everything organized.

Spring-loaded 16" diameter by 4" wide dinghy wheels (Model 2100 Quick Release Launching Wheels from allinflatables.com) are installed on the transom to facilitate beaching. Lowering the wheels enables them to touch bottom first and protect the outboard prop as the boat is motored up towards the beach. The wheels also make it easy to pull the dinghy out of the surf, as well as re-launch without the usual challenges of quickly getting into deep enough water to not ding the prop, getting everyone on board, lowering the outboard and starting it before getting washed back on to the beach. These particular dingy wheels are very robust, have wide enough wheels to be effective on sand, and the quick release feature is very convenient.

The dingy fits on the forward deck, resting just over the dorade guard and sitting on the windlass. To launch, use the spinnaker halyard. The dingy should be turned on its port side with the hull facing to KEWA's starboard. The spinnaker sheet is then attached to the Wichard lifting harness and as the halyard is pull, the dingy will slowly roll over to its normal upright position as long as someone manages the bow with the painter and the stern with your arms to keep it off the mast and shrouds. It can then be lifted over the lifelines and, pushing outward on the dingy pontoons at first and later the halyard, lowered into the water without scraping the hull or catching on the lifelines.

The previous dinghy we had, which came with the boat when we bought her, was a Caribe 10' RIB, MVP model, which has a V-hull in the front half of the dinghy and a flat bottom to the rear. It also has only a single hull, yet weighs more than the AB. The flat part of the hull was problematic in that when stored on the davits, water would readily collect in the v-hull part of the boat and not drain out.

When offshore or doing any serious coastal cruising, the dinghy must be stored on deck to ensure it remains under control. Using a spinnaker halyard, it is quite easy for two people, and even possible for one person, to get the dinghy on and off the foredeck. Fully inflated and upside, with the bow of the dinghy sitting on the windlass and the stern just forward of the halyard bar, it fits just fine. Strap the dinghy to the folding padeyes using the 2-inch black webbing tie downs. The dinghy can be lifted via the bow eye, which lifts the dinghy vertically, or via the Wichard 3-point strap which allows the dinghy to be lifted horizontally.

We have two outboards – a 15HP two-stroke Yamaha and a 2HP four-stroke Honda. The 15HP is very powerful, driving the dinghy to plane very quickly, and even allowing for a plane while pulling someone on a tube. The 2HP weighs less than 30 pounds and therefore is extremely easy to install and remove from the dinghy (or leave on the dinghy while on the davits under the right conditions). As there is an outboard lift, the 15HP is very manageable however it is quite a bit more of a process to install and remove.

There is considerable ground tackle for the dinghy. The inventory includes a Guardian dinghy anchor (Danforth style) with chain and line rode, and a folding grapnel-type anchor with about 20' of stainless steel chain and 30' of rode. A mushroom anchor that can use the spare secondary anchor rode (about 15' of chain and 100' of rode) finishes out the inventory.

The previous owner reports: In very light surf and no tides (Caribbean), we drop the mushroom anchor as we close on the shore and pay out rode until we are almost beached (with the rode fasted to the stern); one person steps out of the bow and takes the folding grapnel anchor on shore (with the rode fastened to the bow.) The stern anchor is made fast to hold the boat about 15-25' offshore (just outside any surf.) The person on shore can pull the dinghy close in again for the second person to unload and then lets the boat back out (the weight of the stern anchor and rode will pull the boat back out.) The bow anchor is then dropped up the beach and used to pull the boat back in when ready to depart. This keeps you from having to drag a heavy dinghy on and off the beach and reduce wear and tear on the hull from dragging it over rocks and sand.

Locking the dinghy with a padlock and a long anchor chain is highly recommended anytime when in a populated area.

Kayak: Ocean Kayak Malibu TwoXL

A wonderful addition to our cruising inventory. Stowed in brackets attached to stanchions, the kayak is easily launched and very effective to get around on (obviously no need for a motor and quite easy to paddle efficiently). The kayak can hold about 2.5 people due to the extra-long length.

Paddleboards: Starboard Inflatables

Another addition to the water toy inventory. They are enjoyed by everyone, whether just floating on them off the stern or actually paddle boarding. Lots of problems with seams blowing on this. They are very finicky to storage configuration and temperature. The concept is great, and when the seams hold they are very nice, and it is extremely convenient to be able to stow them in a small space. Presently, we have a Starboard xxx and a Starboard xxx. There are brackets attached to starboard stanchions which can hold both paddleboards while inflated.

Commented [WK21]: update

Technical Notes

Breakers Discussion

1. Autopilot breaker turns on all sailing instruments, including owner's cabin instrument repeater.
2. Instruments 2 breaker turns on hailer
3. Radio turns on stereo
4. Stern light breaker enables stern flood light; switch is above hailer in cockpit
5. Lights 4 enables cockpit under-dodger lights
6. Side lights turns on all deck level nav lights
7. Masthead Lights turns on steaming light
8. Compass Light turns on salon foot red night lights (not the compass light anymore)
9. Leave GPS breaker on to keep Simrad GPS internal battery charged
10. Windlass breaker is in nav station footwell.
11. Electric winch breakers are in nav station footwell

Commented [WK22]: update

Medications

	Drug	Comments	Type
	Compazine (prochlorperazine) suppositories, 25 mg	Strong recommendation by Mahina	Rx
	Stugeron (www.canadadrugsonline.com)	Strong. Not available in US.	OTC
	Scopolamine Patches	Watson	Rx
	Bonine	Not good for kids	OTC
	Bonine for Kids		OTC
	Dramamine		OTC
	Phenergan (Promethazine), 25mg	Watson	Rx
	Ephedrine, 50mg	???	
	Phenergan suppositories, 25mg	Watson	Rx
	Antibiotics	Watson	Rx
	Vicodin or percocet	Watson	Rx
	Percocet (requires triple prescription)		Rx
	Dimetane DC cough medicine		
	Parapectolin or Lomotil	diarrhea	
	Imodium diarrhea	Use instead of Parapectolin/Lomotil	OTC
	Pepto Bismol		
	Lanacaine	Itch relief	OTC
	Corticosporin drops	For swimmer's ear	Rx
	Tylenol #3	Pain	Rx
	Valium 10mg	Sedative	Rx
	Zofran	vomiting (for kids too)	Rx

Stugeron / Cinnarizine

There is one OTC medicine available that contains cinnarizine. It is called Stugeron and is used for the control of vestibular disorders such as vertigo, tinnitus, nausea and vomiting, or can be used as a treatment for motion sickness. The recommended dose of Stugeron for vestibular symptoms is 30mg (two tablets) three times daily. For treatment of motion sickness the recommended dose is 30mg two hours before travel, then 15mg every eight hours during the journey if necessary. Dosage for the elderly is the same as for adults. Stugeron should preferably be taken after meals. The BNF recommends label number two – “Warning. May cause drowsiness. If affected do not drive or operate machinery. Avoid alcoholic drink.” While the recommended Stugeron dosage is two tablets two hours before departure with additional single tablets every eight hours, some users report that a pair of tablets an hour or so after departure, in addition to the two taken earlier, suffices for the rest of the passage.

From canadadrugsonline.com

Storage

KEWA has extensive storage capacity.

V-berth

Port Bunk, on top	<ul style="list-style-type: none"> ▪ 130% jib, if not bent on
Forward, under bunk	<ul style="list-style-type: none"> ▪ Staysail ▪ 95% Jib (must be rolled very tight) ▪ ATN mast head line ▪ Bow ladder ▪ Spare stanchions (1 supported, 2 straight posts) ▪ Quart of bowthruster gear oil ▪ Kid's life jacket spares (x2)
Port under bunk	<ul style="list-style-type: none"> ▪ Spinnaker ▪ Anchor sail ▪ Mastmate ▪ ATN mast climber
Starboard under bunk	<ul style="list-style-type: none"> ▪ Light air asymmetric ▪ Code zero ▪ Workbench top

Cockpit locker

Aft deck locker

V-berth starboard cabinets

V-berth port cabinets

Bunk-berth cabinets

Fishing gear	

Bunk-berth cabinet

Fishing gear	

Bunk-berth under bunk locker

Master

Engine & genset belts	Forward, starboard under double bunk
Old genset heat exchanger	“
Genset remote oil filter hose/brackets	“
Assorted fuel & water hoses	“

Master

Engine & genset belts	Forward, starboard under double bunk
Old genset heat exchanger	“
Genset remote oil filter hose/brackets	“
Assorted fuel & water hoses	“
Rebuilt (new condition) Yanmar starter	“
Used (works) genset starter	“
Used (works) Yanmar water pump	“
Used genset water pumps qtr (work, but leak)	“

Fishing

Hard to beat the experience of ocean fishing, especially when success yields a fridge full of a fresh delicacy.

We almost always drag several trolling lures anytime there is even a remote chance of catching something. So far, the success list consists of tuna, sailfish, crevalle jack (fun to catch but basically not edible), and lots of pacific bonito and striped bonito.

Fishing stationary has yielded spotted cabrilla, assorted rockfish, ballyhoo, trigger fish, grunts and lots of porcupine puffers and pacific mackerel. We've also enjoyed nice dungenous crab.

Trolling

1. Dolphin Delight (green & yellow) rigged with Uncle Josh Striper Split Tail pork rind bait, set closest to boat on handline or light 25lb trolling rig.
2. Eat Me Lures plug or Hi-5 plug towed behind the Dolphin Delight on medium weight rig.
3. Diving Rapala plug or Yozumi/Maurader on heavier rig, or a heavier Hi-5 plug.

Fishing Off The Deck

Heddon Sonar Flash lures in green and pink have worked well whether jigged or casted.

Rig

Two-speed Penn reel facilitates retrieval under a variety of conditions; rigged with largest lure. Single-speed Penn Senator is the classic workhorse.

A couple of Penn salmon reels for light trolling or lots of fun.

For the big reels, I do a bimini twist and then tie a 80lb, 50 foot shock leader to it using the uni-knot. A trolling snap is also tied with a uni-knot.

Miscellaneous

Entertainment System

The entertainment system components include

- Pioneer xxx tuner with iPhone, Bluetooth and CDs
- Vizio TV
- Samsung Blu-ray/DVD player
- Boston Acoustic Pro60 Component speakers in salon
- Sea and Symphony cockpit speakers
- SiriusXM music is fed from the B&G network, though its own amplifier. Installed is a speaker switch to select between that amplifier or the Pioneer tuner.

Commented [WK23]: update

Washing Machine: Kenny Euronova 600 Washer

A handy device that washes well. As the capacity is only for small loads, you need to run it frequently to avoid building up an insurmountable backlog of laundry. There is no dryer, so use the lifelines or rig clothesline from the shrouds around the forestay and back to the shrouds on the other side. Keep plenty of quality wooden clothespins on board.

Before using, disengage the tie-down strap by opening the bin under the washer to access the ratchet device, and ensure the through hull is open (access to stopcock is behind the access panel below the washer door, and is labeled).

Turn the left-most dial from "0" to either the spin or no spin selection. Load a very small amount of detergent into bin 2, set the cycle select to 2 and the water temp to 40, load the clothes, and power on the heavy duty washer breaker to start the wash. A full #2 cycle takes a little over one hour.

When finished, turn the spin selection dial to "0" and be sure to ratchet the tie-down strap tightly.

SCUBA Compressor: Nuvair

Makes daily SCUBA diving off the boat a reality.

The compressor runs on 220V AC power, either shore or the genset. To use the genset as the power source, plug the compressor in to the 220V outlet in the aft port side of the engine room and turn on the Heavy Duty outlet breaker at the far aft end of the 230v breaker panel. Do not run other AC devices when operating the compressor via the genset as the compressor draws a lot of current. When running from the genset, the compressor runs at 211v and draws about 9 amps when under load, 5.4 amps when not compressing. On shore power, voltage is 221v.

It takes about 30 minutes to fill a tank. Be sure to drain the condensate from the two valves each 15 minutes. I installed a quick disconnect fitting for the SCUBA fill hose to facilitate removal and proper storage of the hose to avoid kinking or weakening of the hose due to awkward bends or folding while being stored on the unit.

The Nuvair unit is quite a nice unit, however the factory did a poor job assembling it. They did not properly set up or provide instruction for the drains. For example, the drain nipples were not supplied for two of the three drain valves. They also appear to use inferior quality bolts. For example, the small bolt holding together the bracket to support the dual condenser lines blew

apart while the generator was running. Further, the gasket on the top of the first condenser unit blew out after only a few hours of usage. On top of that, they used a belt that was too small, resulting in a strained unit and a burnt-out belt. An additional discovery was that the power cord was not tightened properly inside the unit and also the insulation on each of the three wires had been cut through, apparently in the process of removing the cord insulation. After dealing with all these issues, including going to a size A30 belt and properly installing a new power cord, the unit is running beautifully.

It generates a lot of heat and needs a lot of air. It has an internal trip for high temp and well as voltage problems and will shut down if conditions warrant. Once the condition is rectified (unit cooled down or voltage stabilized), it can be re-powered on and will run again. Keypad allows reset in certain error conditions, and the unit also does a great job of internal diagnostics in failure situations.

Fill process:

1. Install remote breather (intake) tube, with filter tied outside forward hatch.
2. Install high pressure fill hose.
3. Tank near compressor w/ fill valve attached. Tank valve and fill valve closed. Fill bleed valve closed.
4. Ensure both compressor bleed valves fully opened.
5. Start unit and let run for a minute or so
6. Close both bleed valves on the compressor (usually requires additional tightening as the pressure builds)
7. Open fill valve and tank valve.
8. After 15 mins open both bleed valves to drain condensate; close bleed valves.
9. Tank will reach 3000 to 3200 psi in about 30 minutes. Close tank valve and fill valve; open bleed valve and fill bleed valve.
10. Disconnect tank.

Manuals (Baldor inverter drive and Coltri Sub compressor) are kept below nav station seat.

Each of the two compressor drains needs .17" ID tubing. I use vinyl tubing that is .25" OD to connect to the two hose-to-pipe fittings on a T that has a long nipple connected in the third outlet on the T, and which is then situated inside a disposable jug for the water and oil to drain through. I also have quick connect T fittings that accept the vinyl tubing on two ends and are .25" pipe thread on the other.

Swim Ladder

KEWA has a scoop transom with a folding swim ladder. The folder ladder requires a strap to secure the ladder in the up position. This configuration is fantastic for diving and swimming off the boat.

Safe

Another piece-of-mind item. Makes a lot of sense to have one.

Climbing the Mast

As I am usually solo or with a small helper, I rely heavily on a MastMate. This web ladder uses slides to go up the storm trysail track on the mast and is pulled up with the topping lift. I use a

bowline to attach the topping lift to the ring on the MastMate instead of the topping shackle for safety reasons. On board I also have a Top Climber (which uses a dedicated line tied to the foredeck and a mountain climbing rig to ascend solo up the line. The MastMate has the advantage of keeping you close to the mast the entire time, so you can service items at whatever height, while the Top Climber doesn't put you near the mast until you are essentially at the masthead. A bosun's chair is aboard for speedier set up and climbing when there is adult assistance.

The MastMate comes with a nice belt to keep you strapped to the mast, and also to carry supplies and tools. Always bring:

- Rigging tape
- 4-way screwdriver
- channel locks
- small tap hammer
- Boeshield
- Camera
- Rag
- Gloves can also be a good idea

Additional items to consider:

Knee pads

Halyard tied next to mast to provide a little something to clip on or grab if needed

Wear traditional cushioned life vest to protect against swinging into the mast.

Helm Step

Optional accessory from HR Parts. The previous owner had installed one, but it broke and I strongly prefer the cockpit without it.

Squeegee

Keep a small squeegee in the cockpit for wiping down the dodger windows when they get splashed.

Aft Lazarette

On the forward bulkhead on each side, a 1"x2" teak strip is mounted with rope holders every ~8 inches for storage of spinnaker sheets, staysail sheets and other lines. The bottom of the lazarette is lined with dry-deck. Several milk crates and other plastic storage containers are stored there as well.

Appendix I -- KEWA Inventory

Commented [WK24]: update

Item	Mfg	Model/Serial #	Description	Volt	Ma n	Date
Aux Engine	Yanmar	4LH-TE-96 # 11125	Turbocharged, 110HP 4 cylinder diesel engine		HC	Orig
Transmission		KM5A				Orig
Drive System	Aqua Drive					
Fuel Filter	Racor	120A	Cartridge R12x (S=2, T=10, P=30 micron)			9/07
Genset						
Fuel Filter Aux	Racor	Dual 75/500FGX	Replacement element 2010 series			6/06
Regulator	Balmar	MaxCharge MC-624	24v multi-stage regulator	24v		9/07
	Balmar	MaxCharge MC-612	12v multi-stage regulator	12v	Y	10/06
Alternator	Balmar	91224	24v 140A alternator	24v		9/07
	Balmar	60-100-SR-IG S# 4106B	12v 100A alternator w/ internal backup regulator	12v		10/06
	Hitachi	LR180-03C 119573 77201	12v 80A alternator <ORIGINAL 12v ALTERNATOR, KEPT AS A SPARE>	12v		
Inverter/Charger and Related	Mastervolt	24/2500/70 P# 028022500 S# A01066814/A4	Combi Inverter/Charger 24v/220V; 70A charger	220		
	Mastervolt	24/1000	Inverter 24v/110v modified sine wave	24v		
	Mastervolt	IVO 12/35	12V 220V 35a charger	220		10/06
	Xantrex		Echo Charge	12vdc		10/06
	Mastervolt		Softstart			
	Mastervolt	CSCP	Combi System Control Panel (24v)			
	Xantrex	Link 2000	12v Battery monitor			10/06
Batteries	Lifeline	4D AGM	24v House Battery (4 x 12v 210a)	24vdc		10/06
	Lifeline	8D AGM	12v House Battery (1 x 12v 255a)	12vdc		10/06
	Discover	Grp31 AGM	Starter Battery (1 x 12v 105a)	12vdc		10/06
Compass	Simrad	RFC55R	rategyro compass			
	Suunto		Binnacle compass			Orig
Autopilot	Robertson	AP20/HLD 2000LS	Autopilot computer			
	Robertson		(3) Autopilot controls (helm, nav station and under dodger)			

Item	Mfg	Model/Serial #	Description	Volt	Ma n	Date
	Whitlock		autopilot drive attached to rod steering system in engine room			
	Robertson		hydraulic autopilot drive unit on independent rudder post arm			
Genset	Fischer Panda	P6 980902	Model 6 PMS Genset 6kW 220v 50hz generator w/ Soundguard	12v start	Y	Orig
Backstay Tensioner	NAVTEC	A 370-A-22	Hydraulic backstay tensioner			
Galley Range	Force 10	M:61358 S:801988	3-Burner galley range			
Bow Thruster	Sidepower		10hp			
Instruments	Simrad	IS11	Speed, log, depth, wind, central (multifunction display) mounted over companionway			
	Simrad	IS11	Multifunction display in master cabin			
	ShipModul	MiniPlex - 41BT	NMEA Bluetooth multiplexer	12v		
VHF	Simrad	Shipmate RS 8300 Dual	VHF with handsets at nav station and helm and external speakers at nav station and cockpit; spare handset			
	ICOM	IC-M72	VHF hand held, primary			8/07
	Apelco		VHF hand held, backup			WK
	ICOM		VHF hand held, backup			WK
GPS/Plotter	Simrad	GN 32	GPS/DGPS @ nav station			
	Garmin	GPS 48	Hand held GPS			WK
	Garmin	GPS 192C	Chart Plotter @ helm			7/05
Loudhailer	Raymarine	430	Loudhailer with preprogrammed fog signals and speaker mounted on mast.			
SSB	ICOM	IC-M802 S# 0106112	Single sideband radio	12v		1/07
	ICOM	AT-140	SSB auto antenna tuner			1/07
Antenna System	RR Electronic	Pacific	Antenna/amplifier/filter system (GSM/VHF/TV/SSB/AM/FM/Weatherfax)			
			Insulated backstay			
Radar	Simrad/Anritsu	RA771-3	4kw, open array radar with antenna mounted on stainless steel pole			
			Radar CRT display at nav station			
			8" LCD radar repeater in cockpit			

Item	Mfg	Model/Serial #	Description	Volt	Ma n	Date
			8" LCD radar repeater (spare)			
Weatherfax	Furuno	FAX-208 Mark-2	Weatherfax			
EPIRB	ACR	RapidFix 406	EPIRB Beacon ID: 2DCC361EBAFFBFF			
Life Raft	Autoflug	ALK2000R	6-person, low profile			
Dinghy	AB	AL10 XMO51064L607	Aluminum hull, with beach wheels, 10.5 feet			11/07
	Yamaha	15MSHX #684C S 418146	15HP 2-stroke outboard engine			
	Honda	#2302901	2HP 4-stroke outboard engine			11/07
Kayak	Ocean Kayak	Malibu Two XL XKA46122H708	2.5-person sit-on-top kayak			10/07
Barometer	Speedtech		Electronic barometer			
	Weems & Plath		Analog bulkhead-mounted barometer			
Temp Monitor	Radio Shack		Local plus 3 wireless remotes (Fridge, Freezer, Engine Room)			2005
PC	Fujitsu	Lifebook S6231	Notebook PC			6/05
	Planar	Part #997-2165-00, ID PV-150, s/n M0036HE2104135	15" Flatscreen monitor	12V 2.5A		
	Logitech		Keyboard (Bluetooth)			7/05
	Logitech		Trackball (USB)			1/06
	D-Link		7x USB hub			
	Sea Level	SeaPORT	4x RS232 to USB adapter			2005
	Sea Level	SeaLink P# 2105	1x RS232 to USB adapter			2005
	Linksys	Wireless-G	USB network adapter			WK
	Nobeltec	0075-651548-7196- 097491	Visual Nav Suite			WK
	Nobeltec	UG124-57B2D-20E0F-B73CD	Sailing Package			10/06
	Nobeltec	59360-45961-08260-49915	Region 14 chart kit			WK
	Nobeltec	61100-22926-65080-87679	Region 15 chart kit			WK
	Nobeltec	68557-31435-12092-35575	Region 12 chart kit			WK
	Nobeltec	0075-651548-7196-097491	Passport WC #MX0031S (Pacific, Mexico, Baja)			12/07
	Nobeltec	59753-24012-97827-39792	Passport WC #MX0030L (Central America) WF-39			12/07
			Starry Night software			
	Canon	PIXMA iP90	Printer w/ optional Bluetooth interface			WK

Item	Mfg	Model/Serial #	Description	Volt	Ma n	Date
	Xaxero	WeatherFax 2000	Weather fax software and USB demodulator			6/07
			EasyMail Inmarsat C email software			
			StratosNet mini-M internet/email software			
	RAM		PC mount with wiring			
SatCom	Thrane & Thrane	C: TT3020CM (or is it TT3626CM as on phone?) Transceiver S# 00205020	Inmarsat-C (or mini-C?)			
	Thrane & Thrane	Serial # 76TT0755E6D2	INMARSAT Mini-M			
Stereo	Pioneer	DEH-P4100 SuperTuner	Deck			
	Pioneer	CDX-P680 CD	6-disc CD Changer			
	Pioneer	CXB4285	Remote control (qty 2)			
	Pioneer		6-disc cassette (qty 3)			
	Apple		iPOD w/ powered cradle			
	RadioShack		Audio input selector box (iPOD or DVD player)			2005
	Boston Acoustic	Pro 60	Component salon speakers			2006
	Sea & Symphony		Cockpit speakers			
Video	Sharp		Flatscreen TV			
	Colby		Progressive Scan DVD	220		WK
Windlass	Lofrans	Progress II	1200w windlass w/ gypsy	24v		
	Lofrans	02644	3400rpm 69a 1200w electric motor	24v		
	Lofrans	610024CB	COD 700-2000w motor 150a control box	24v		1998
Electric Heads	Jabsco	Model 37245-1094	Quiet Flush Electric Toilet, Large bowl (qty 2)	24emc		
Water Heater	Sigmar	B040UT316	40 liter Termoinox, 220v 800w	220		
Watermaker	ENWA (was MT Freshwater AB)	MT 3200/SSH	1998 #231	230		
Pressure Tank	Aquapress	AFC8	8 liter pressure bladder for freshwater system			
Washer	Kenny	Euronova 600	Washing machine	220		
SCUBA Compressor	Nuvair		Compressor for filling SCUBA tanks	220	Y	2007

Item	Mfg	Model/Serial #	Description	Volt	Ma n	Date	
Flotation Devices	Mustang	150N/35lb, Serial 971294, 971296	Crewfit, Uses Mustang Survival Rearm Pack C10019 or C10014			WK	
	Stearns		Hip Pack, Halkey-Roberts Inflation 840, 840 AMUXEP6, Replacement Kit 905 or 906 (0906KIT-00-000), qty 2			WK	
	West Marine		Autoinflate vest w/ integral harness, qty 2			2006	
	Mustang	Svendsens	Hydrostatic inflatable			4/07	
	Mustang		Kids life vests, 50 – 90 lbs, qty 4			8/07	
	Crewfit						
Refrigeration	Frigoboat		Two separate systems; each frig or freezer	24			
Safety	Survival Technologies (Switlik)		MOM8				
	West Marine		Throw Rope				
	Life Sling	Inflatable	Life Sling, inflatable			5/07	
Power Connections	Marinco	Cordset	30a 125v 50' (length?)				
	Marinco	Cordset	30a 125v 25' (length?)				
	Marinco		Pigtail, 30a 125v female to 50a 125v male				
	Marinco		Pigtail, 30a 125v female to 50a 125/250v male (qty 2)				
	Marinco		Pigtail, 30a 125v male to 50a 125/250v female				
	Marinco		Pigtail, 30a 125v female to 20a 125v male				
	Marinco		Pigtail, 30a 125v female to 15a 125v male				
	Marinco		Adapter, 30a 125v female to 15a 125v male				
	Hubbell		Adapter, 30a 125v female to 15a 125v male				
	Marinco		Adapter, 30a 125v male to 20a/15a 125v female				
	Marinco		Adapter, 30a 125v female to 20a 125v male				
	Jewelry	Harken		Snatch block, high load, (1/2"?) (qty 2)			6/05
		Schaeffer		FID block, (??) (qty 2)			6/07
Anchor	Lewmar		CQR 75 lbs				
	Suncor		Main anchor SS swivel 3/8" to 1/2"			7/07	
			Chain, primary anchor, 3/8" BBB, 190', joined to 110'				

Item	Mfg	Model/Serial #	Description	Volt	Ma n	Date
	Rocna		Rocna 33			
	Bruce		Bruce 20kg			
			Anchor rode, 300' 5/16" HT G4			2015
	Fortress	FX-55	32lb aluminum anchor			10/07
			Rode (25' 3/8" HT, 250' 5/8" 3-strand)			
Sails	Elvstrom		Main, hydranet cloth, with full-length vertical battens; new Quantum battens 8/07			6/03
	UK Sails		Main			11/21
	Quantum		Jib 90%			10/07
	Quantum		Genoa (140%??)			
	Quantum		Spinnaker, light air asymmetric with ATN sock			
	Elvstrom		Spinnaker, heavy air with ATN sock			
	Elvstrom		Spinnaker, furling cruising (Code Zero)			
	Elvstrom		Staysail, hanked			
	Banner Bay		Anchor Sail, FinDelta #2			9/07

Appendix II -- Assorted Specifications

Yanmar raw water intake hose	1.25" ID
Water hose	0.5" ID <check this>
FischerPanda fuel hose	5/16"

Appendix III -- Cheat Sheets

The following section of the manual contains a series of checklists for common activities.

Guidelines for Working on KEWA

Nothing personal, but some less-than-optimum past experiences have made it necessary to make certain that anyone performing work on KEWA follows these guidelines:

- ❑ The bilge is clean, so please keep it that way. Do not allow oil, fuel, sawdust, screws, tie wrap cuttings, debris, raw water, antifreeze or anything other than fresh water to drain into the bilge. If something does enter the bilge, no matter what it is, please clean the bilge out thoroughly and properly dispose of it.
- ❑ Take your shoes off or wear booties when stepping on deck or going below.
- ❑ Wipe your feet before setting foot on the deck. Protect the deck and cockpit if there is going to be traffic.
- ❑ If there is work to be done below deck, put down protective cardboard, tarps or paper. Do not set anything on any mahogany wood surface, and use cardboard or plastic if setting something that may scratch or stain the formica.
- ❑ All jobs must include proper clean up to return the boat to the condition it was in prior to starting the job. If you drill or sand something on or below deck, clean up immediately afterwards.
- ❑ Thoroughly test the installation/repair.
- ❑ Provide at least a brief written summary of the work completed and any notes on special considerations, configuration selections, etc. Also, please report if you saw anything anywhere on the boat that you believe I should pay special attention to.
- ❑ Please provide manuals and receipts for any equipment provided as part of the job.

Thank You!

Sail Rig Cheat Sheets

Staysail

Set Up

- ❑ Unclip removable inner forestay from mast and affix to foredeck tang. Ensure that the forestay is situated between the genny sheets. Hand tighten nut.
- ❑ Prepare runners by affixing removable runner lines (stored in aft cockpit locker) to runners stored via tackle on shrouds. Feed runners thru spinnaker blocks at aft toe rail tangs and into cockpit.
- ❑ Thick blue sheets are in aft deck locker. Tie sheets to sail and coil to granny bars. Sheets run inside all the shrouds and thru forward block then thru turning block upper sheave and to cockpit.
- ❑ Run staysail halyard forward and tie off to tack pennant line tied to forestay tang.
- ❑ Hank on staysail.
- ❑ Tie sail to deck with sail ties and lashing lines.

Jib & Genoa

90% Quantum

Lead sheets through forward car outside of all shrouds unless beating, and then run inside of aft shroud.

Sail is quite small for the pole, but it is fine as long as pole is guyed fore and aft.

130% Elvstrom

Lead sheets outside all shrouds, unless furled and beating in which case needs to run inside one aft shroud.

Notes on Bending Sails and Sail Trim

Can hoist or drop genoa/jib when sheeted in on any point of sail (depends on how tight the headfoil is).

Pole

Use with heavy air spinnaker or to hold a headsail out for wing-on-wing downwind sailing. I always use a fore and aft guy to control the pole.

- ❑ Tie both ends of single 100' guy line to pole. (creates a large loop).
- ❑ Ensure topping lift is attached.
- ❑ Ensure pole snap is lubricated and functioning smoothly.
- ❑ Tie guy to forward cleat and amidships cleat (different ends of the large loop); ensure everything is rigged outside the lifelines.
- ❑ Remove pole from holder using pole lift (lift slightly to clear pole holder and then lift to raise pole lift to clear life lines
- ❑ Snap pole on jib/genoa sheet
- ❑ Adjust pole using pole and topping lifts, and guys. Keep pole close to furled sail clew.
- ❑ Unfurl sail to approximately 100%, adjusting guys as necessary.

Pole rig (see USS Passage Making pg 19; also Calder's Cruiser's Guide)

Heavy Air Spinnaker

This sail is cut symmetrically, although it can be flown tied to the bowsprit (i.e., as an asymmetrical spinnaker).

KEWA Cruise Prep

- Freshwater system cleaned (see separate instructions)
- All surfaces below (bunk rooms, heads, salon) below cleaned with microfiber towel and 10:1 water/vinegar mix
- Mirrors cleaned with windex
- Speed transducer installed and area rinsed with fresh water
- Exterior rinsed and chammied the day before or the morning of.
- Freshwater tank filled with sanitized, filtered water
- "Big" canvas (boat cover, toe rail cover, dingy and kayak covers) removed and stored off the boat
- "Small" canvas removed and stored in lockers
- Wash boat, kayak and dingy
- Dingy inflated and hoisted on arch
- Kayak on-board in holders on port side
- Engine compartment checked and cleaned
- Bilge checked and cleaned/drained
- Confirm engine and genset raw water seacocks open; start and run each for 10 minutes to confirm operation; check temperature
- Propane tanks filled if needed (2 house tanks in locker and grill tank on arch)
- Heads tested and cleaned
- Bedding, hand towels, etc. taken to and returned from cleaners/washateria
- Interior vacuumed and dusted
- Sinks and counters in heads and galley cleaned
- Fridge and freezer compartments cleaned, including underneath the removable bottoms inside the compartments
- Fridge and freezer turned on

- ❑ Diesel topped off
- ❑ Scuba tanks filled (note: both tanks are probably full, but given length of time, should have a full service/inspection and be refilled)
- ❑ Outboards commissioned and gas tanks filled (big engine 2-stroke with oil; little engine 4-stroke w/o oil)

Departure / Return Cheat Sheets

Commented [WK25]: update all sections

Arriving to the Boat When Docked

- ❑ Drop boards stored in cockpit lazarette
- ❑ Check bilge
- ❑ Check refrigerator temp & odor (under 45 degrees); drain excess water
- ❑ Check freezer temp (under 15 degrees), or start freezer if turned off
- ❑ Open all hatches
- ❑ Electric Panel
 - All light switches ON
 - Freshwater pump ON
 - Both toilets ON
 - Ensure bilge pump ON
- ❑ 110v Inverter ON
- ❑ If staying at dock
 - Plug in water heater (in engine room) and turn on at 220VAC Panel
 - 12v battery charger on if less than 12.5v
 - 24v battery charger on if less than 25.0v

Basic Cruise Prep

- Set 24v charger Power Share (CSCP control panel) to 20 for full charge
- Turn AC selector panel OFF
- Heavy Duty 220v breakers OFF
- Disconnect shore power cord at boat and leave on dock or store in aft lazarette
- Canvas removed and stored in cockpit lazarette
- Check water tank level
- Check fuel level
- Check 2 and 4-stroke gas tank levels
- Winch handle at mast
- Boat plug installed in aft deck locker drain
- Simrad VHF handset at helm
- Handheld VHF at helm
- Air horn at helm
- Knife at helm
- Halyards led to mast
- Fully lift dinghy on davits; tighten retaining straps or tie-down hard on deck
- Helm & helm instrument covers removed and stored in cockpit lazarette
- Windscreen instrument covers removed and stored under nav seat
- Simard GPS ON at nav station
- Autopilot breaker on; confirm GPS breaker ON
- Start Nobeltec on PC; verify GPS & instrument NMEA feed OK
- Garmin GPS ON at helm
- Bow thruster cockpit switch on
- Radar ON if potentially required
- FURL breaker on
- Winch breaker in nav station footwell on
- Windlass breaker in nav station footwell on unless heading offshore
- Knotmeter transducer inserted / rinse bilge with fresh water
- Destow mainsheet
- VHF on
- Autopilot on
- Check genset coolant
- Check genset oil
- Check engine coolant
- Check engine oil
- Check bilge
- Close hatches and ports
- Backstay tensioner loaded
- Halyards loaded
- Kayak tied down
- Propane valve opened

Offshore or Extended Cruise Prep (Additional Prep Beyond Basic Prep)

- Plot route on Nobeltec
- Dinghy on deck
- Batten down deck lockers
- Attach outboard lift line to Yamaha outboard
- Tighten windlass
- Anchor chain tight
- Jacklines rigged
- Inner forestay moved forward
- Staysail bent; halyard on
- Prepare cruise log
- Ready runners
- Close forward cabin screw vent
- Vent plugs in dorades
- Knife at mast
- Radar repeater installed under dodger
- Check SCUBA tanks; fill

Upon Departure

- Satcomm system on; EasyMail started on PC
- Upload Nobeltec routes to Garmin at helm
- Reset Nobeltec log
- Activate Nobeltec route
- Activate Nobeltec tracking
- Reset Garmin GPS logs
- Activate Garmin route
- Reset Simrad log
- Radar on; Repeater on
- Windlass breaker OFF in nav station footwell

At Destination

- ❑ De-load backstay
- ❑ De-load halyards
- ❑ Lines away from mast
- ❑ Stow jacklines
- ❑ Winch breakers OFF in nav station footwell

Returning the Boat to the Dock

- ❑ Knotmeter transducer plug replaced / fresh water rinse / pump bilge
- ❑ Winch handles from helm and mast stored in cockpit lazarette
- ❑ Halyards led to pulpit or bungeed away from mast to shrouds
- ❑ VHF handset off helm and stored at Nav station
- ❑ Replace instrument covers
- ❑ Replace hatch & winch covers
- ❑ Replace helm cover
- ❑ Loosen dinghy storage straps; lower stern; ensure drain plug removed
- ❑ Set 24v charger Power Share to 10 if 30A shore power service
- ❑ Shore power connected (MasterVolt confirms AC IN)
- ❑ Turn ON shore power at AC Panel
- ❑ Propane OFF at tank valves & electric panel
- ❑ Close out ship's log; record any issues, required supplies, etc.
- ❑ Remove aft deck locker drain
- ❑ Wash boat

Leaving the Boat at Dock (Relatively Short Term)

- ❑ Clear perishables out of refrigerator and freezer; drain
- ❑ 12V charger ON at 220V AC Panel
- ❑ 24V charger ON at Mastervolt CSCP
- ❑ 220v inverter OFF at CSCP panel
- ❑ 110v Inverter OFF
- ❑ Water heater – OFF at 220V AC Panel and pull plug in engine room
- ❑ Close and lock hatches
- ❑ Replace hatch and winch covers
- ❑ VHF handheld, Simard VHF handset and air horn below decks
- ❑ Electric Panel: Everything OFF except:
 - Refrig (leave at least one on to keep water circulating and prevent growth in hoses)
 - Lights #4 (allows use of lights under dodger when returning at dark)
 - GPS (provides for longer life of the GPS internal memory battery)
 - Bilge Pump
 - Fresh water pump ON if watermaker flush active
- ❑ Drop boards replaced & locked

Underway Cheat Sheets

Anchorage at Night

- Radio off
- 110v inverter off
- PC off
- Anchor light on
- Courtesy lights on

Boat Servicing for Extended Stay at Dock

- Keep all lines tied/stowed as found (not moved)
- keep fridge and freezer open and completely dry
- Flush watermaker
- Engine room floor clean & dry (all areas)
- clean out vacuums including vacuum filters
- Genset battery level topped off
- Keep heads clean
- Flushing holding tanks and heads with vinegar monthly
- Maintain drinking water
- Clean under seat and bunks
- Clean under floor boards in master
- Clean engine room including underneath shaft gland
- Immediately touch up any bare spots in brightwork
- Keep 10 coats on brightwork
- Keep mildew off dodger inside ceiling
- Bilge cleaned and drained

Daily / Weekly Servicing -- Exterior

- Tighten dock lines
 - Center boat in slip
 - Ensure line tails not in the water
 - Inspect for any damage
- Inspect and adjust fenders
 - Ensure fenders are not touching the water
- Ensure halyards, etc., tied off properly
- Quick clean-up or rinse if any dirt or debris
- Open and air out bow locker and propane locker if damp from recent rain or boat washing
- Ensure all canvas in place

Date Performed		By	
Comments:			

Monthly Servicing -- Exterior

- Clean bottom thoroughly.
 - Do not use metal scrapers anywhere (except perhaps on the prop)
 - Plastic putty knife to remove barnacles if required
 - Sponge, towel or Scotch scrub pad (white only) to remove growth on hull
 - Use sponge or towel to clean the water line
- Service zincs
 - Zinc locations
 - Tear drops on each side of rudder skeg fitting
 - Small zinc in center of main prop
 - Large collar in front of main prop
 - In center of bow prop on each side of boat
 - Inspect each zinc, ensure properly seated and tighten well with proper screw or allen wrench as needed, or replace if 50% or more deteriorated.
 - Inspect prop, grounding plates, shaft, skeg fitting and thru hulls for any signs of pitting or electrolysis. Notify me immediately (+1-650-489-5392) if any early signs of damage or unusual zinc deterioration.
- Wash boat
 - Use mild boat soap properly diluted
 - Do not blast water on the deck and NEVER use any kind of a brush on any of the teak. Only use a sponge or towel. NEVER rub with the grain of the wood, only across it.
- Wash dingy
 - Use boat soap to wash interior, and exterior and/or cover if dirty
 - Lift dingy bow up using a halyard, or turn dingy over to ensure interior is aired out and dry
- Open bow locker, rinse with fresh water if needed and allow locker to fully air dry
- Open propane locker and rise out any debris
- Polish stainless (stanchions, pulpit, pushpit and arch, etc.)

Monthly Servicing -- Interior

Systems

- Electrical
 - Log voltage on 12V Monitor in hallway: _____ V.
 - Log voltage on 24V Monitor in hallway: _____ V.
 - Notify me immediately if 12V reading is less than 13 or 24V reading is less than 26V
- Engine
 - Check engine room for any signs of leaks or corrosion
 - Check engine oil (must be at full level)
 - Open engine raw water seacock (in aft on port of engine room).
 - Start engine and immediately ensure water comes from aft port exhaust.
 - Run engine for about 10 minutes in reverse at ~1000 - 1200 rpm until temp reaches >60°.
 - Return engine to neutral idle for 1 to 2 minutes.
 - Shutdown engine and close seacock.
- Genset
 - Check oil
 - Open genset raw water seacock (in aft on starboard of engine room)
 - Start genset and listen immediately for water tricking in the cockpit drain
 - Operate for about 10 minutes
 - Shutdown genset and close seacock
- Bilge
 - Check water level
 - Any foreign substances (oil, etc.)?
- Heads
 - Both "Toilet Pump" breakers ON at breaker panel
 - For each head, turn bottom black valve handle vertical; fill and flush head until clear (approximately 6 cycles)
 - Quick clean with marine-safe toilet cleaner with bowl brush & rinse
 - Pour in some fresh water and do a final drain
 - Close valve (turn handle back to horizontal)
 - Pour in more fresh water
 - Both "Toilet Pump" breakers off
- House Water
 - "Freshw. Pump" breaker ON at breaker panel
 - Run water from all faucets for a couple of minutes
 - "Freshw. Pump" breaker OFF
 - Using dual dock filter attached to hose, refill water tank (starboard side fill)
- If refrigerator is on, log reading 1 @ nav station temp gauge; should be between ~40 and 52 degrees: _____.
- Confirm breaker and switch settings

- In hallway
 - 110v Inverter OFF
 - 24V Monitor & Control charge light illuminated
 - Black power selection switch set to Shore Power
- In hallway cabinet
 - All light duty breakers OFF
 - Heavy Duty main breaker ON
 - 12V charger ON
- Everything OFF except:
 - Lights #4
 - GPS
 - Bilge Pump
 - Refrigerator (on only if I left it that way)
- Hatches closed and locked
- Drop boards replaced & locked

Interior Cleaning Instructions

Heads

Wipe down all bathroom surfaces (toilets, sinks, walls, mirrors, shower curtains, cabinets)

One sponge dedicated to toilets only

Second sponge dedicated for all other surfaces

Use Simple Green or Green Works on all plastic and ceramic surfaces (not the wood)

Use window cleaner ONLY on the mirrors (no windows or other surfaces)

Use dilute vinegar on shower curtains

Remove floor grates; clean underneath and ensure it is dry

Galley, salon and cabins

Remove rugs and shake outside

Vacuum carpeting

Clean wood surfaces with Pledge wipes

Clean other galley surfaces using Simple Green or Green Works

Wipe down all surfaces with dilute vinegar on a rag

Remove mats and boards from fridge and freezer and clean them and interior with Simple Green

No chemical sprays of any sort on the ports. They are made of plastic and window cleaner or other chemical cleaners will damage them.

Appendix IV – Key Suppliers

HR Parts	info@hrparts.com (Vickie) www.hrparts.com	Factory parts supply
Boatzincs	Boatzincs.com	Bow thruster and Gori prop zincs
		Watermaker chemicals
		Watermaker filters
		Yanmar parts

Appendix Y-- VHF Channels

DISTRESS SAFETY AND CALLING - Use this channel to get the attention of another station or the Coast Guard (calling) or in emergencies (distress and safety).	16
INTERSHIP SAFETY - Use this channel for ship-to-ship safety messages and for search and rescue messages and ships and aircraft of the Coast Guard.	6
COAST GUARD LIAISON - Use this channel to talk to the Coast Guard (but first make contact on Channel 16).	22
NONCOMMERCIAL - Working channels for voluntary boats. Messages must be about the needs of the ship. Typical uses include fishing reports, rendezvous, scheduling repairs and berthing information. Use Channels 67 and 72 only for ship-to-ship messages.	9⁶, 68, 69, 71, 72, 78, 79⁴, 80⁴, 67⁷
COMMERCIAL - Working channels for working ships only. Messages must be about business or the needs of the ship. Use channels 8, 67, 72 and 88 only for ship-to-ship messages.	1⁵, 7, 8, 9, 10, 11, 18, 19, 63⁵, 67⁷, 79, 80, 88¹
PUBLIC CORRESPONDENCE (MARINE OPERATOR) - Use these channels to call the marine operator at a public coast station. By contacting a public coast station, you can make and receive calls from telephones on shore. Except for distress calls, public coast stations usually charge for this service.	24, 25, 26, 27, 28, 84, 85, 86, 87, 88²
PORT OPERATIONS - These channels are used in directing the movement of ships in or near ports, locks or waterways. Messages must be about the operational handling movement and safety of ships. In certain major ports, Channels 11,12 and are not available for general port operations messages. Use channel 20 only for ship-to-coast messages. Channel 77 is limited to intership communications to and from pilots	1⁵, 5³, 12, 14, 20, 63⁵, 65, 66, 73, 74, 77
NAVIGATIONAL - (Also known as the bridge-to-bridge channel.) This channel is available to all ships. Messages must be about ship navigation, for example, passing or meeting other ships. You must keep your messages short. Your power output must not be more than one watt. This is also the main working channel at most locks and drawbridges.	13, 67
MARITIME CONTROL - This channel may be used to talk to ships and coast stations operated by state or local governments. Messages must pertain to regulation and control, boating activities, or assistance to ships.	17
DIGITAL SELECTIVE CALLING - Use this channel for distress and safety calling and for general purpose calling using only digital selective calling techniques.	70
WEATHER - On these channels you may receive weather broadcasts of the National Oceanic and Atmospheric Administration. These channels are only for receiving. You cannot transmit on them.	Wx-1 162.55, Wx-2 162.4, Wx-3 162.475

Channel Superscript Translation

1. Not available in the Great Lakes, St. Lawrence Seaway, or the Puget Sound and the Strait of Juan de Fuca and its approaches.
2. Only for use in the Great Lakes, St. Lawrence Seaway, and Puget Sound and the Strait of Juan de Fuca and its approaches.
3. Available only in the Houston and New Orleans areas.
4. Available only in the Great Lakes.
5. Available only in the New Orleans area.
6. Available for Intership, ship, and coast general purpose calling by noncommercial ships.
7. Available only in the Puget Sound and the Strait of Juan de Fuca.

Appendix X -- NATO Phonetic Alphabet

<u>A</u> lpha	<u>J</u> uliet	<u>S</u> ierra
<u>B</u> ravo	<u>K</u> ilo	<u>T</u> ango
<u>C</u> harlie	<u>L</u> ima	<u>U</u> niform
<u>D</u> elta	<u>M</u> ike	<u>V</u> ictor
<u>E</u> cho	<u>N</u> ovember	<u>W</u> hiskey
<u>F</u> oxtrot	<u>O</u> scar	<u>X</u> -ray
<u>G</u> olf	<u>P</u> apa	<u>Y</u> ankee
<u>H</u> otel	<u>Q</u> uebec	<u>Z</u> ulu
<u>I</u> ndia	<u>R</u> omeo	

Appendix IV – Seasickness Meds Discussion

Stugeron Information

Stugeron (Cinnarizine) is effective in the control of travel sickness. Control of vestibular symptoms of both peripheral and central origin and of labyrinthine disorders including vertigo, dizziness, tinnitus, nystagmus, nausea and vomiting. Prophylaxis of motion sickness. Adjunct therapy for symptoms of peripheral arterial disease. Stugeron (Cinnarizine) is known to block histamine receptors (these receptors are found in a lot of body sites, including the brain's vomiting centre). Therefore, Stugeron (Cinnarizine) blocks the histamine receptors found in the patient's vomiting centre, preventing the brain from sending any nerve message that would regularly result in vomiting to the stomach.

Stugeron Side Effects

The most common antihistaminic side-effect of Stugeron(Cinnarizine) is sedation which can vary from slight drowsiness to deep sleep, and including inability to concentrate, lassitude, dizziness, and inco-ordination. Sedative effects, when they occur, may diminish after a few days. Other side-effects include gastro-intestinal disturbances such as nausea, vomiting, diarrhoea or constipation, anorexia or increased appetite and epigastric pain. Somnolence and gastro-intestinal disturbances are usually transient and may often be prevented by achieving the optimum dosage gradually. Stugeron (Cinnarizine) may also produce antimuscarinic effects such as blurred vision, difficulty in micturition, dysuria, dryness of mouth and tightness of chest. Central effects may include muscular weakness, headache and euphoria. Weight gain, perspiration or allergic reactions may be observed. Cases of lichen planus and lupus-like symptoms and an isolated case of cholestatic jaundice have been reported. In elderly people cases of aggravation or an appearance of extrapyramidal symptoms sometimes associated with depressive feelings have been described during prolonged therapy. The treatment should be discontinued in such cases. Interactions: Stugeron (Cinnarizine) may enhance the sedative effect of central nervous system depressants including alcohol, barbiturates, hypnotics, narcotic analgesics, tricyclic antidepressants, sedatives and tranquillisers. The side-effects of anticholinergic substances such as atropine and tricyclic antidepressants may be enhanced by the concomitant administration of antihistamines. Monoamine-oxidase inhibitors may enhance the antimuscarinic effects of antihistamines. Diagnostic interference: Because of its antihistamine effect, Stugeron (Cinnarizine) tablets may prevent otherwise positive reactions to dermal reactivity indicators if used up to 4 days prior to skin testing. **KNOWN SYMPTOMS OF OVERDOSAGE AND PARTICULARS OF ITS TREATMENT:** Overdose may be fatal especially in infants and children in whom the main symptoms are central nervous system stimulation and antimuscarinic effects including ataxia, excitement, hallucinations, muscle tremor, convulsions, dilated pupils, dry mouth, flushed face and hyperpyrexia. Deepening coma, cardiorespiratory collapse, and death may occur within 18 hours. In adults the usual symptoms are central nervous

depression with drowsiness, coma and convulsions. Hypertension may also occur. Treatment is symptomatic and supportive.

Stugeron Directions

As with other antihistamines, Stugeron (Cinnarizine) tablets may cause epigastric distress; taking it after meals may diminish gastric irritation. Adults and children over the age of 12 years: Peripheral circulatory disorders: 2-3 x 25 mg tablets three times daily. Disorders of balance: 1 x 25 mg tablet three times daily. The maximum recommended dosage should not exceed 225 mg (9 tablets) daily - if necessary the dosage may be divided over 2 or 3 intakes per day. As the effect of Stugeron(Cinnarizine) tablets on vertigo is dose dependent, the dosage should be increased progressively. Motion Sickness: Adults: 25 mg may be taken 2 hours before the start of the journey and 12,5 mg to 25 mg may be repeated every 8 hours during the journey when necessary. Children 8 to 12 years: 12,5 mg (half a tablet) three times daily when necessary. Children 5 to 7 years: 6,25 mg three times daily when necessary. (Forte - 75mg): As with other antihistamines, cinnarizine may cause epigastric distress; taking it after meals may diminish gastric irritation. Adults and children over the age of 12 years: Peripheral circulatory disorders: 2 to 3 capsules of 75 mg daily. Disorders of balance: 1 capsule of 75 mg daily. The maximum recommended dosage should not exceed 225 mg (3 capsules) daily - if necessary the dosage may be divided over 2 or 3 intakes per day. As the effect of cinnarizine on vertigo is dose dependant, the dosage should be increased progressively.

Medication for Motion Sickness

<http://www.dizziness-and-balance.com/disorders/central/motion.htm>.

Most medications for motion sickness need to be taken at least 30 minutes before exposure to the activity that can cause the problem. Persons with glaucoma or prostate problems should not take most of these medications unless so advised by their doctor.

- Antihistamines
 - *Meclizine (Antivert, Bonine)*. In the antihistamine family. Can cause drowsiness. Like other most other medications, it is best to take these before motion stimulation.
 - *Dimenhydrinate (Dramamine)*. Similar to meclizine. Liquid forms are available for children 2 years of age or more.
 - *Cyclizine* is similar to meclizine. It is suitable for children 6 years of age or older as well as adults. It is most useful in situations involving short trips (e.g., automobile).
- Haldol, Thorazine -- these anti-psychotic drugs have dopamine blocking activity which is useful for blocking nausea as well as stimulating stomach motion which helps clear food from the digestive tract.

- *Promethazine*. This drug is one of the most effective available for motion sickness. One dose lasts up to 8 hours. Like the other drugs, it can cause drowsiness.
- *Diazepam (valium)* and related "benzodiazepine" medications such as lorazepam and klonazepam. While these drugs are not traditionally used for motion sickness, some people find them useful in small amounts. These medications are very helpful for a related condition, [MDD](#).
- Scopolamine patches -- these patches are sometimes very helpful. They are a time release form of an anticholinergic medication, scopolamine. Scopolamine is also available in pill format (usually given for irritable bowel). Scopolamine was found the most useful medication for prevention of motion sickness induced by cross-coriolis stimulation (Dornhoffer et al, 2004). Whether or not this is true for other types of motion stimulation is not known.
- Zofran and other serotonin-family anti nausea drugs -- these are powerful anti-nausea medications. They do not prevent motion sickness but they may prevent vomiting.
- *Other medications.*
 - Migraine medications: Verapamil (a calcium channel blocker), venlafaxine (an antidepressant)
 - Seizure medications phenytoin and carbamazepine (sodium channel blockers)
 - Non-benzodiazepine anxiety medications. Buspirone (Buspar)
 - Alternative medications [Beta-histine](#) (Serc). Oddly, this medication is sometimes very effective.
- Medications that don't work for motion sickness:
 - antihistamines such as fexofenadine and cetirizine that do not get into the brain (Cheung, B. S., R. Heskin, et al.; 2003).

Table & Text from www.yachtsdelivered.com/seasick

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Trade Name	Generic Ingredient	Type	RX/OTC - Min Age
Dramamine	Dimenhydrinate	Tablet	OTC - 2 years
Gravol	Dimenhydrinate	Tablet	OTC
Calm-X	Dimenhydrinate		OTC
Marmine	Dimenhydrinate		OTC
Bonine	Meclizine	Tablet	OTC - 12 years
Antivert	Meclizine	Tablet	OTC
Dramaine II	Meclizine	Tablet	OTC
Benedryl	Diphenhydrinate	Syrup	OTC - 22 months
Nordryl	Diphenhydrinate	Syrup	OTC

Marezine	Cyclizine	Tablet	OTC - 12 years
Compazine	Prochlorperazine	Tablet, Sup, Inj, Syrp	RX - High Risk
Phenergan	Promethazine	Tablet, Sup, Inj, Syrp	RX
TransdermSCoP Xtr	Scopolamine	Skin Patch	RX
Scopace Xtr	Scopolamine	Tablet	RX
Scopolamine Gel Xtr	Scopolamine	Gel	RX
Stugeron	Cinnarizine	Tablet	OTC? Outside US
Antimet	Cinnarizine	Tablet	same as Stugeron

Xtr = External Web Site.

RX = Prescription. OTC = Over the Counter (does not require prescription.)

Syrp = Syrup.

Sup. = Suppositories

Inj = Injectable

Dosage of Meclizine and Dimenhydrinate (Dramamine)

Dosages are generally determined, based upon body weight.

	Dimenhydrinate 50 mg	Meclizine 25 mg
Baby	1/8 to 1/4 tablet	same, see caution.
Child	1/2 tablet	same, see caution.
Average Adult	1	same
Heavy Adult	1 to 1/2 tablets	same
Frequency	every 4 hours	every 10-12 hours

Cautions: see the notes below.

Note: These dosages for amounts and frequency should match those on the packaging. **If not, use that on the package. Warning!! I am not a doctor and these are only suggestions based upon my experience with the medications. As usual, use these at your own discretion.**

Children Warning: The literature indicates that Meclizine has not been tested in children under 12. Therefore, it could have side effects which might not be acceptable.

The following dosages for Dimenhydrinate are from more detailed pharmacy books.

Adult: 50-100 mg every 4-6hours by mouth, (maximum, 400 mg per day)

Child 6-12 yr: 25-50 mg every 6-8hours by mouth (maximum, 150 mg per day)

Child 2-6 yr: less than 25 mg every 6-8hours by mouth (maximum, 75 mg per day)

Note: there is no "Baby" dosage.

Suggestions for Extra Heavy Dosages

In the case of Dimenhydrinate, I have found that it is often necessary to give the pills an hour earlier than above, i.e.. every 3 hours instead of 4. Also, that about 20% of victims require 1/2 again as much as recommended, i.e.. for an average adult 1 and 1/2 tablets, or perhaps 2 for a heavy adult. These suggestions for "over dosing" should not interpreted to mean that the over dose should be continued for any longer than necessary. In general, for not more than the first 2 or 3 doses.

In the case of Meclizine, I have never had to use extra to get a cure.

My rule of thumb for giving extra medication is simple. If the victim is not recovering within about 30 minutes they should be given some more. The early failures I had in curing someone already sick, appear to have been due to a reluctance on my part to increase the dosage above the package recommendations. A careful reading of the official instructions indicates that a modest over dose to get the patient stabilized is generally safe. But should be discontinued in subsequent doses, as soon as practical. I have added material from detailed pharmacy recommendations, to supplement my suggestions.

I can't emphasis enough, that failure to use an adequate amount for the patient, considering their condition, will almost certainly result in a failure to cure. And you will have given pills which may have/may not have been absorbed. And the worst part of that is that you may not be able to tell how much has been absorbed. Then you will be in a real quandary as to how much more to give. It is my experience that any patient who shows signs of not becoming cured after giving the pills, has almost certainly swallowed them or somehow not absorbed the pills. Be aggressive to start, then be cautious after you have them stabilized(not sick).

Dramamine is available in a chewable tablet, so is meclizine (both are over-the-counter drugs.) Dramamine has been tested on children as young as 2. I have used on both of these on children. The trick to using these things, is not to swallow the drug, but let it dissolve in the mouth. Be warned, meclizine chewable is hard on the lining of the mouth. It should be chewed up very fine and not allowed to stay long, in any one place. Swallowing some of this is ok. Frankly I have taken to not even chewing it, just suck on it until it dissolves. Chewable Dramamine is not as hard on the lining and I prefer it for children, but it is more expensive.

The chewed tablet will absorb best in the cheek, but you can hold it under the tongue.

Details about Dosages to Use

In general follow the directions included with the pills. With the exception of the suggestions I have given you here in this material, also see detailed dosages and notes.

The effects of these chewable drugs is almost instantaneous (30 seconds?), and improves with time. In the case of adults who are already sick, it may take 1 1/2 Dramamine tablets to get them stabilized (a little over-dosing is generally ok, if not continued.) Meclizine chewable is now my favored medication for almost everyone. The 25mg tablets are very effective, children included(1/2 tablet) and generally last many hours longer than Dramamine. Rarely do we have to do this more than once more unless rough water comes along.

The generic name for the ingredient in Dramamine is Dimenhydrinate HCl. West Marine and most marine stores have this as well as most pharmacies. The cost is about **\$6 for 8 tablets**.

Meclizine is available under the trade name of "Bonine" and is normally sold at the same places where you buy Dramamine. Packages of **8 tablets generally cost about \$6**.

A source for bottles of **100 generic (about \$6)**

Chewable Meclizine Hydrochloride Tablets - NDC 0536-3990-01, Prod. # 003-9905 from:

Rugby Laboratories. You can **order this through your local pharmacy**, just give them the code number(s) above).

VitaMotion-S (oral spray), Dimenhydrinate with ginger and vitamin B6. \$20. [KarMor Pharm. Lab](#). 2401 S. 24th Street. Phoenix, AZ 85034.

Seasickness Medications for Kids

keeping one finger over one ear (blocking one ear). This stops the balancing liquid near your ears from moving around, therefore stopping the brain from detecting any motion sickness.

Several drugs can prevent motion sickness, but none works every time. Unfortunately, there's no way to know in advance which one will help your child, so if one fails, you may want to try another. Dimenhydrinate (Dramamine) is the old standby. More recently, drug makers have added cyclizine (Marezine), diphenhydramine (Benadryl), meclizine (Bonine), and the prescription drug promethazine (Phenergan) -- but the Centers for Disease Control does not recommend meclizine or promethazine for children.

Be sure to consider your child's age when picking a drug: Don't use dimenhydrinate and diphenhydramine for children under 2. Meclizine should not be used for kids under 12, and the motion sickness drug scopolamine (Transderm Scop) should not be used for children at all.

All of those drugs are antihistamines, a class of medicines sometimes used to staunch the flow of runny noses. They all come with some side effects as well, which can include dry mouth and blurred vision. The most common complaint is drowsiness, so don't combine them with any other sedative. They work best when taken at least a half-hour before the motion begins, and some are available in special preparations, such as syrups.

Before you go traveling, it's a good idea to give your child a test of any medication you plan to use on your trip; that way you can make sure there are no unpleasant side effects. If your child has glaucoma or a breathing problem such as emphysema or chronic bronchitis, talk with his doctor before giving him any of the above drugs.

There are anecdotal reports that some do. For centuries sailors have chewed ginger to soothe their seasickness, but the few scientific studies on ginger's anti-nausea properties have shown mixed success. Although there have been no published experiments involving children, experts say that ginger tea is safe for children (although not for infants). If you want to try it, dissolve 1/8 to 1/4 teaspoon of powdered ginger in a cup of hot water, or boil two slices of fresh ginger root (each about 1/8 of an inch thick) to one cup of water for about 10 minutes. Sweeten to taste, and offer small sips throughout the day.

You could also try giving your child a sip or two of peppermint or chamomile tea, which has long been used to relieve stomach upset. And some people have found a traditional remedy -- giving crackers to settle the stomach -- effective as well.

By Laird Harrison / CONSUMER HEALTH INTERACTIVE

Over-the-counter drugs used to deter and/or treat mal de mer include Dramamine, Meclizine (common name Bonine) or diphenhydramine (commonly known as Benadryl).

The following OTC drugs consist of ingredients that have been considered safe and effective for the treatment of motion sickness by the Food and Drug Administration:

- Marezine (and others). Includes the active ingredient cyclizine and is not for use in children under age six years.
- Benadryl (and others). Includes the active ingredient diphenhydramine and is not for use in children under age six years.
- Dramamine (and others). Includes the active ingredient dimenhydrinate and is not for use in children under age two years.
- Bonine (and others). Includes the active ingredient meclizine and is not for use in children under age 12 years.

Another prescription drug that is sometimes given for motion sickness is [ondansetron](#) (Zofran), which was originally developed to treat nausea associated with [cancer](#)

chemotherapy. Unlike cyclizine, ondansetron appears to be safe for use in children under the age of six.

sucking on crystallised ginger or sipping ginger tea can help to relieve the nausea.

Useful Anti-Motion Sickness Drugs		
Generic Name Brand Name (Manufacturer)	Form (OTC/Rx)	Duration of Action
Dimenhydrinate Dramamine (Searle)	tablet (OTC) liquid (OTC) injection (Rx)	4-6 hr 4-6 hr 4-6 hr
Dimenhydrinate Dramamine (Richardson)	chewable tablet (OTC)	4-6 hr
Dimenhydrinate Gravol (Horner)	timed-release capsule (OTC:B&C) suppository (OTC: B&C)	6 hr 6 hr
Meclizine HCl Bonine (Leeming)	chewable tablet (OTC)	6-12 hr
Meclizine HCl Antivert (Roerig)	tablet (Rx)	6-12 hr
Meclizine HCl Meclizine (Geneva)	tablet (OTC)	6-12 hr
Cinnarizine Stugeron (Janssen)	tablet (Rx: UK&B)	6-12 hr
Cyclizine Marezine (Burrough)	capsule (OTC) injection	4-6 hr 4-6 hr
Transdermal Scopolamine Transderm-Scop (CIBA)	skin patch (Rx, OTC: B&C)	2-3 days
Promethazine Phynergan (Wyeth)	tablet (Rx) suppository (Rx) injection (Rx)	6-12 hr 6-12 hr 6-12 hr
Promethazine & Ephedrine Phernergan + Ephedrine (Wyeth)	tablet (Rx)	6-12 hr

OTC: over the counter

Rx: by prescription only

OTC (B&C): OTC in Bermuda & Canada

OTC (UK&B): OTC in UK & Bermuda

Source: www.marinemedical.com

T A B L E 1

Prevention and treatment of motion sickness

Class	Regimen
Agent	
Antidopaminergics	
Promethazine - Rx	<i>Adult:</i> 25 mg PO/PR 30–60 minutes before departure, then q12 hours PRN <i>Pediatric (> 2yrs):</i> 0.5 mg/kg (max: 25 mg) PO/PR 30–60 minutes before departure, then q12 hours PRN
Metoclopramide – Rx*	<i>Adult:</i> 10 mg PO/IM q4–6 hrs
Anticholinergic	
Scopolamine (Transderm-Scopolamine) - Rx**	<i>Adults and children > 12 years:</i> PO: 250–800 µg 1 hour before antiemetic effect is needed <i>TOPICAL:</i> 1 disc (1.5 mg) applied to skin behind ear 4 hours before antiemetic effects are needed.
Antihistamine/Anticholinergic	
Meclizine - OTC	<i>Adults >12 yrs:</i> 25-50 mg PO q24h
Diphenhydramine - OTC	<i>Adults and adolescents:</i> 25–50 mg PO every 4–6 hours PRN (NTE 300 mg in 24 hours) <i>Children 6–12 years:</i> 12.5–25 mg PO every 4–6 hours PRN, (NTE 150 mg in 24 hours)
Dimenhydrinate - OTC	<i>Adults:</i> 50–100 mg PO every 4–6 hours PRN, (NTE 400 mg/day) <i>Children 6–12 years of age:</i> 25–50 mg PO every 6–8 hours PRN, (NTE 150 mg/day) <i>Children 2–5 years of age:</i> 12.5–25 mg PO every 6–8 hours PRN, (NTE 75 mg/day)
Cyclizine - OTC	<i>Adults and children >= 12 years:</i> 50 mg PO q4-6 hours. (NTE 200 mg per 24 hours) <i>Children 6–11 years:</i> 25 mg PO q6–8 hours. (NTE 75 mg per 24 hours)
Nonpharmacologic	
Ginger (herbal) - OTC	<i>Adults:</i> 1000 mg PO q4 hours PRN, (NTE 2–4 g/day)
Trip Ease (homeopathic) – OTC Borax, cocculus indicus, gelsemium, kreosotum, rhus toxicodendron, tabacum	<i>Adults:</i> 1 tablet at the start of the trip, then 1 tablet q1 hr while symptoms persist
ReliefBand (electrical stimulation) - OTC	<i>Adults:</i> Wear device over median nerve of wrist and titrate to level of tolerance for prevention and treatment
Sea Bands (acupressure) - OTC	<i>Adults:</i> Wear over Nei-Kuan (P6 acupressure point) for prevention and treatment

*Not approved by the FDA for prevention of motion sickness

**For prevention only

For children older than 2 years, dimenhydrinate or diphenhydramine may be used on a mg/kg basis (1 to 1.5 mg/kg and 1 mg/kg, respectively).