SHEET A1 # PI A BOX **PAGE 1 OF 2**

ALUMINUM · CXCESNS | MAIN ISLAND | BOTH CAN BUSES | WIRED TO LIGHTNING COPPER

THE BOX CXCESNS aluminum junction box, 11.8 x 8.3 x 3.9 in, IP66, silicone gasket, four lid screws. Two on hand, identical: mark Pi A before anything goes in. Scrape to bare metal under the lid screws and at the bond stud.

WHERE Inboard aft of the settee, glued by its back face to the hull below the waterline for cooling, no hole in that face; at least 2 ft from the main battery and motor cables where space allows, for the IMUs. Page 1: the computer stack, the watchdog and the sensors on the plate.

1 **Compute module (CM5)** HAVE
Raspberry Pi CM5, 8 GB / 32 GB: a bare green board about 2.2 x 1.6 in with two dense connectors underneath. Boots from its own built-in memory. Two on hand, one per box.

2 **Carrier board** CHECK FIRST
Two on hand: a Geekworm X1500 (two M.2 slots, Aug 26) and one with no order logged, which Compute Bay 4.2 calls a CM5 IO Board Rev 2 (Pi B's). Pi A's runs the 4 TB drive and the Hailo together: prove both slots before wiring.

3 **4 TB NVMe SSD** ON THE WAY
WD Blue SN5000 4 TB: a gum-stick card 0.87 x 3.15 in (M.2 2280), label on top. Screws flat into the carrier's first M.2 slot. Shipped Sep 23, due Sep 28; no delivery mail.

4 **Hailo-8L AI card** HAVE
Hailo-8L M.2 module (Mouser HM21LB1C2LAE) in the carrier's second slot. Three bought: this one flies, the other two are Boat 2 stock.

5 **CAN FD HAT** HAVE
Waveshare 2-CH CAN FD HAT, SKU 17075: a Pi-sized board on the 40-pin header with two CAN (boat data wire) channels, 5 kV isolation and screw terminals. Terminator jumpers OFF.

6 **Watchdog WD-A** HAVE
Arduino Nano Every with headers (ABX00033), a small blue board about 1.8 x 0.7 in. Watches Pi A's heartbeat, cycles its power after the set silence, holds the motor kill line.

7 **WD-A rail relay** HAVE
AEDIKO 5 V 1-channel relay module (10-pack, here Oct 7). Pi A's 24 V feed runs through its normally closed contact, ahead of the converter: coil off means Pi A on, so a dead Nano leaves Pi A running.

8 **WD-A 5 V supply** HAVE
Pololu D36V6F5 (5 V 600 mA, 50 V max in), a tiny green board with bare holes; its terminal block goes on at the workbench. Fed ahead of the relay, so the relay never cuts it. Powers the Nano, the relay coil and the opto board's input side.

9 **Opto board** HAVE
HiLetgo PC817 4-channel optocoupler board (2-pack, here Oct 7): the signal crosses as light, no wire joins the two sides. Carries WD-A's alive line to WD-B and the motor kill line. Input 3.6 to 30 V, so the Nano's 5 V drives it.

10 **Safe-mode resistors** CHECK FIRST
One wire inside the box from a WD-A output pin to Pi A header pin 37 (GPIO26): a 15k resistor in the wire, a 22k from pin 37 to ground, so the pin sees about 3 V. From the MelkTemn 1/4 W kit (Sep 1): check it holds both values. No box hole.

11 **GPS A** HAVE
hiBCTR NEO-7M module (SMA jack), 4-pack of Sep 9. One RLECS 4-pin female Dupont lead (here Oct 7) on VCC, GND, TX, RX, a zip tie lengthwise over plug and board. Its AEDIKO antenna sits on a deck pad; only the coax comes in. Check SMA, not RP-SMA.

12 **IMU A1 and IMU A2** CHECK SHELF
Two Adafruit BNO085 motion boards (#4754), about 1 x 0.7 in, on one I2C pair (a two-wire chip link), A2 at the second address. One at each end of the plate, flat, square, bolted rigid, a forward arrow on the plate by each. Three shipped Sep 10, no delivery mail.

13 **Iridium A isolator** HAVE
EC Buying ADuM1201 board: a small board with an 8-pin chip and a gap printed across the middle. On the Iridium A serial line. Three 3-packs ordered, two delivered: count the bag.

LEAVE OUT The dAISy and every USB adapter (all in the hub box), a USB isolator, any network switch (the TSW202 at the stern is the only one), the EBYTE wing radio and its whip, the LoRa bonnet (Boat 2 stock), the RTL-SDR, the ZED-F9P, a quad serial board, VE.Direct USB cables, a secure chip, a blade fuse block.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

ALUMINUM · CXCESNS | MAIN ISLAND | BOTH CAN BUSES | WIRED TO LIGHTNING COPPER

WHERE Page 2: power, mounting and the wall. Fed 16/2 from its own 10 A breaker at the bar (line 10, end stud), wired breaker, TVS, INA226, converter, carrier. No load current passes through the box except its own feed and the hub's 5 V lead.

1 **Pi A 5 V converter** ON THE WAY
Mean Well DDR-60L-5: 5 V 12 A, 18 to 75 V in, isolated (its 5 V side has no wire link to its 24 V side), a DIN-rail module with screw terminals. Ordered Oct 7, due Oct 13 to 15. On a short DIN rail at the far end of the plate from the IMUs. Output set to 5.1 V; output negative tied to input negative. It feeds Pi A and the hub's 5 V lead only.

2 **Fuse for the hub's 5 V lead** CHECK FIRST
A 3 A inline fuse on the short 2-core lead from the Mean Well's 5 V output, out by entry 12 to the USB hub. Sealed inline ATC/ATO holder: nine on hand, seven go to the bus board, so count. Fuse from the JOREST blade kit.

3 **TVS diode** HAVE
At the box's 24 V input. 1.5KE33CA surge diode: black body with wire legs, a stripe at one end, printed 1.5KE33CA. Chanzon 20-pack on hand, about 13 used boat wide; check the bag is not the 1N5408 flybacks.

4 **INA226 current meter** CHECK FIRST
INA226 board with its shunt, on the box feed: the only branch meter on the boat (Compute Bay 11). No tracker row, and the order log shows three INA226 sent back Sep 8: check one is left before fitting.

5 **Terminal strip** HAVE
DIN rail (the snap-on mounting rail, 1.4 in (35 mm) wide) cut to length, with screw terminal blocks and end stops. On hand: the Erayco UK2.5B kit and the MELIFE 30-piece kit the guides name, two more DIN terminal kits (Aug 16), VAMRONE 4 in rails and a uxcell 50-pack of end stops.

6 **Humidity board** HAVE
AHT30 temperature and humidity board, a small board with a white sensor. Ten bought Aug 16.

7 **Desiccant** HAVE
wisedry 50 g silica gel packs, ten to a bag; a first-setup aid. Open: whether Pi A keeps one once its back sits on the cold hull; the hull measurements settle it.

8 **Board plate** CHECK FIRST
1/8 in (3 mm) G10 sheet (stiff fiberglass board), about 11.2 x 7.6 in, on the ledge holes (copy them by paper rubbing). One 1/8 in sheet is on record, 13.2 x 11.8 in (Aug 9): one plate, not two (Claude's arithmetic). Standoffs: the M3 nylon kit (Aug 1) and the M2.5 nylon kit (Oct 6), bolted through with nuts.

9 **Carrier bracket** HAVE
1/8 in 6061 aluminum L-bracket, about 3 x 3 x 4 in, two slotted base holes; the carrier stands upright on it. Cut from the two 6 x 12 x 1/8 in sheets on hand (Sep 25).

10 **CM5 heat path** HAVE
A flat aluminum block on the CM5 (never the finned cooler), then Thermal Grizzly Minus Pad 8 (gray soft sheet, 3.9 x 3.9 in) at 0.04 and 0.08 in (1.0 and 2.0 mm), stacked, to the hull-glued back wall; a wave spring or spring-loaded screws in the clamp. Pads bought Sep 13; the block from aluminum stock.

11 **Bond stud** CHECK FIRST
1/4-20 stud through a 1/4 in hole, carrying one 6 AWG wire to the lightning copper; the CAN shield drain lands here. Pi A only, never Pi B. 6 AWG lugs on hand; count the green 6 AWG wire (Wire List A5).

THROUGH THE WALL 11 entries + vent + bond stud, on any face but the glued back: PG9 x1 (1, 24 V feed) · PG7 x8 (2 CAN control drop, 3 CAN house drop, 4 motor controller serial and kill, 5 Iridium A serial, 6 alive line to Pi B, 7 the wing CAN adapter's USB lead, 12 the hub's 5 V lead, S the hub's USB lead) · wall jack x1 (8, Ethernet to switch port 7, outside face taped) · SMA bulkhead x1 (11, GPS A) · vent · bond stud. Entries 9, 10, 13, 14 not drilled. One mix-31 ferrite (clip-on magnetic collar) glued below each entry.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A1a USB HUB BOX

SMALL BOX · NOT PICKED | BESIDE PI A | NO CAN BUS | TWO USB LEADS TO PI A

THE BOX Not picked: to buy. Plastic or metal is open, and so whether it takes a vent. On hand with no job written: a YINGXINELCT cast aluminum box 8.66 x 5.71 x 3.15 in and a Fielect aluminum box 7.40 x 4.72 x 3.07 in (Sep 7).

WHERE Beside Pi A. Two USB leads go to Pi A: the hub's own lead (Pi A entry S) and the wing CAN adapter's lead (entry 7), which never goes through the hub. The hub runs off Pi A's 5 V (Pi A entry 12), so it restarts whenever WD-A cycles Pi A. The box's own 24 V feed, 16/2 on its 5 A breaker (line 12), feeds only the 12 V converter.

1 **Powered USB hub** ON THE WAY
StarTech USB210AIND: a 10-port industrial USB 2.0 hub on a DIN rail, 5 to 24 V in on a barrel jack or a 2-wire terminal block. Bought Oct 7, due Oct 9. Its detachable lead to Pi A is clamped within 2 in and staked at both ends. Ports: dAISy, SBMS0, SDI-12, DO sensor, SBE 45, wing reader; four spare.

2 **dAISy AIS receiver** HAVE
Wegmatt dAISy 2+ dual-channel AIS receiver, USB, with an SMA jack (here Aug 21). On a hub port, always on.

3 **dAISy antenna bulkhead and jumper** CHECK FIRST
One SMA F-F bulkhead (1/4 in hole) in the wall: five on hand. The Eifagur stubby VHF antenna (PL-259 plug) needs one SMA to SO-239 jumper: count the shelf; if none, XRDS-RF 2-pack, Amazon B0CXCGRF11, $13.99.

4 **Wing RS-485 reader** ON THE WAY
Waveshare USB TO 2CH RS485 (SKU 27646): isolated, FTDI chips, DIN-rail case, on one hub port: the tip wind meter and the wing compass. 120 ohm terminators OFF. Due Oct 8.

5 **Wing CAN adapter** HAVE
DSD TECH SH-C30G isolated USB to CAN adapter, here Oct 8, for the trim actuator's own CAN link. Its short USB lead goes to Pi A's second USB port, never a hub port. 120 ohm switch ON.

6 **DO sensor cable** ON THE WAY
FTDI USB-RS485-WE-1800-BT: a USB plug on a 6 ft cable ending in bare wires, cut short to a screw terminal. Bought Oct 7, due Oct 8. FTDI only, never CH340.

7 **SBE 45 adapter** WAITING
Read the SBE 45's label when it lands (about Oct 26), then buy: RS-232, the FTDI USB-RS232-WE-1800-BT (about $30, a guess); RS-485, a second USB-RS485-WE-1800-BT.

8 **SDI-12 USB adapter** CHECK SHELF
From Tindie, $60, shipped Sep 10, no delivery mail. Reads the BaroVUE 10 and HygroVUE 10; set the HygroVUE to address 1 first.

9 **24 V to 12 V converter** HAVE
YRDZXG 24 to 12 V 5 A sealed converter (B0D14YRQM3), the third of five, here Sep 28. Bench-tested first (no-load draw, 12 V out at 29 V in). Feeds only the BaroVUE 10 and HygroVUE 10.

10 **Fuse for the 24 V line** CHECK FIRST
One fused 24 V line feeds the 12 V converter. Size: A1a sets it at fit-out, BOM 15.4 says 1 A. Sealed inline ATC/ATO holder: nine on hand, seven go to the bus board, so count. Fuse from the JOREST blade kit.

11 **TVS diode** HAVE
At the 12 V converter's input. 1.5KE33CA surge diode: black body with wire legs, a stripe at one end, printed 1.5KE33CA. Chanzon 20-pack on hand, about 13 used boat wide; check the bag is not the 1N5408 flybacks.

12 **Rail and ground block** HAVE
A short DIN rail for the hub and the reader, and a terminal block joining the ground terminals of the reader and the CAN adapter, where the wing cable's brown pair lands.

LEAVE OUT The DROK 24 to 5 V converter bought for this box, the DSD TECH SH-G01A USB isolator, a relay to cycle the hub alone, a quad serial board, any CH340 adapter.

THROUGH THE WALL About 10 entries; the glands wait on the box. In: 24 V feed (12 V converter only) · in: the hub's 5 V lead from Pi A · out: the hub's USB lead and the CAN adapter's USB lead to Pi A · in: the SBMS0's USB lead · in: the dAISy coax (SMA bulkhead) · in: the wing cable (shield trimmed back and sleeved here, touching nothing) · out: the DO sensor, SDI-12 (with 12 V) and SBE 45 lines.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A2

PI B BOX

ALUMINUM · CXCESNS | BACKUP ISLAND | BOTH BUSES, ISOLATED | FLOATS · NO BOND STUD

THE BOX The second CXCESNS aluminum box, 11.8 x 8.3 x 3.9 in, IP66. No bond stud, ever.

WHERE A few feet from Pi A, bolted through the settee panel with four 1/4-20 316 bolts. All entries on the bottom face. Powered only from the emergency bank, negative left floating. Plastic glands and plain UTP Ethernet: no metal shell or shield ties this box to Pi A.

1 **Compute module (CM5)** HAVE
The second Raspberry Pi CM5, 8 GB / 32 GB, as Pi A's.

2 **Carrier board** CHECK FIRST
The second carrier on hand; Compute Bay 4.2 calls it a CM5 IO Board Rev 2 with one M.2 slot. Mark which carrier is which before marking boxes.

3 **256 GB NVMe SSD** HAVE
fanxiang S500 Pro 256 GB, a gum-stick M.2 card, here Sep 10: Pi B's copy of the boat's state.

4 **CAN FD HAT** HAVE
The second Waveshare 2-CH CAN FD HAT. Its 5 kV isolation lets Pi B sit on both buses and still float.

5 **Watchdog WD-B** HAVE
Arduino Nano Every. Holds Pi B's power, runs its wake schedule, reads the lightning detector, keeps the strike log. Never cuts Pi B's power for lightning.

6 **WD-B rail relay** HAVE
AEDIKO 5 V 1-channel relay module: Pi B's 24 V feed through its normally closed contact, ahead of the converter. Coil off means Pi B on.

7 **WD-B 5 V supply** HAVE
Pololu D36V6F5, fed ahead of the relay; powers the Nano and the relay coil.

8 **Level shifter** HAVE
HiLetgo 4-channel two-way I2C level converter (10-pack, here Oct 7): the 3.3 V detector's SDA, SCL and IRQ to the 5 V Nano.

9 **24 V to 5 V converter** CHECK SHELF
Pi B's own, on the floating negative. Potted Klnuoxj 24 to 5 V 5 A converter: a small sealed block with wire leads. Two 4-packs bought Aug 16 (eight), no delivery mail: count the shelf. Three are used: Pi B, the central node and Release Node B.

10 **Fuse** CHECK FIRST
Compute Bay 4.2 puts a fuse in Pi B's feed in this box; Electronics plan A10 fuses that feed on the emergency bank's DIN strip. The docs do not say if both.

11 **TVS diodes** CHECK FIRST
1.5KE33CA at the converter's input and at WD-B's D36V6F5, on the floating negative. The Lightning Guide (7.7) also puts one on the detector lead; no part is named for that 3.3 V line.

12 **Terminal strip** HAVE
Short DIN strip, as in Pi A: every field wire lands here first.

13 **GPS B** HAVE
The second hiBCTR NEO-7M, on emergency power, wired as GPS A on an RLECS 4-pin lead. Its AEDIKO antenna sits on the pylon; coax in by entry 9.

14 **IMU B** CHECK SHELF
The third BNO085 (#4754), mounted and set as A1 and A2: flat, square, a forward arrow on the plate. Shipped Sep 10, no delivery mail.

15 **Iridium B isolator** HAVE
ADuM1201 board, as in Pi A. Count the bag.

16 **Opto board, alive line** CHECK FIRST
Entry 5 says an optocoupler is inside; Compute Bay 4.1 runs the alive line through Pi A's PC817 board. Whether the 2-pack's second board goes here is not written.

17 **Humidity board and desiccant** HAVE
AHT30 board and one wisedry 50 g silica gel pack.

18 **Plate, bracket, heat path** CHECK FIRST
As Pi A (1/8 in G10 plate, L-bracket, Minus Pad 8 stack), but the CM5 block presses on a SIDEWALL. The one 1/8 in G10 sheet on record makes one plate, not two.

THROUGH THE WALL 9 entries, entry 7 a blank spare, all on the bottom face: PG7 x6 (1 emergency bank feed, 2 CAN control, 3 CAN house, 4 Iridium B serial, 5 alive line from Pi A, 6 the detector's 7-core lead) · wall jack x1 (8, Ethernet to switch port 8, UTP, taped outside) · SMA bulkhead x1 (9, GPS B) · vent. Open: entry 9's metal SMA bulkhead, where Compute Bay 7.3 says nothing conductive touches this wall. Ferrite below each entry.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A3 CENTRAL NODE PAGE 1 OF 2

PLASTIC · TICONN · ABOUT 16 x 12 x 6 IN | CONTROL BUS | NEAR THE BATTERY | RELEASES · LOADS · STEERING

THE BOX TICONN IP67 outdoor box, about 16 x 12 x 6 in (BOM about $52; TICONN boxes bought Aug 16). Size it once the boards are laid out.
WHERE Near the battery box, the main bus board and the compute boxes. Every field wire lands on the DIN rail first. No soldering on the boat; one-time bench soldering only. Page 1: the brain, the relays and the release parts.

1 **Nucleo (the node brain)** HAVE
STM32 NUCLEO-G431KB: a narrow board about 2 x 0.7 in, part number printed on it. Two on hand (no order mail): check each says G431KB; the G431RB (a bigger Nucleo-64) stays on the bench. Before burn-in, take off the four solder links (A4, A5, A2, A7).

2 **Nano screw carrier** HAVE
AITRIP Nano screw-terminal adapter: green board, two rows of screw terminals; the Nucleo plugs in and is staked after burn-in.

3 **CAN transceiver board** HAVE
Alinan SN65HVD230 3.3 V CAN board, small and blue. Four on hand (Aug 24).

4 **CAN surge module** HAVE
Taidacent RS-12V/2S DIN-rail surge module, 12 V: a narrow DIN block with screw terminals, on the CAN drop. Two from Sep 7: this one and Release Node B's.

5 **MCP23017 expander** CHECK FIRST
Waveshare MCP23017 board ($12.74, here Sep 28): 16 more on/off lines over the I2C link. Drives relay channels 1 to 4 and 6 to 12 and the steering cut coil; reads the two Water Witches, the release bus and the drive fault. Never a release line. The guides want a screw-terminal version: check how its outputs land.

6 **Expander pull-downs** CHECK FIRST
Pull-down resistors under the expander's output screws, so a reset reads OFF. Value not written. The MelkTemn 2,600-piece 1/4 W resistor kit is on hand (Sep 1).

7 **24 V to 5 V converter** CHECK SHELF
Feeds the Nucleo and the logic. Potted Klnuoxj 24 to 5 V 5 A converter: a small sealed block with wire leads. Two 4-packs bought Aug 16 (eight), no delivery mail: count the shelf. Three are used: Pi B, the central node and Release Node B.

8 **DIN rail and terminals** HAVE
DIN rail (the snap-on mounting rail, 1.4 in (35 mm) wide) cut to length, with screw terminal blocks and end stops. On hand: the Erayco UK2.5B kit and the MELIFE 30-piece kit the guides name, two more DIN terminal kits (Aug 16), VAMRONE 4 in rails and a uxcell 50-pack of end stops.

9 **Relay module 1** HAVE
HiLetgo 24 V 8-channel relay module: a long board with eight blue relay cans and screw terminals. Channels 1 to 8; channel 5 (release enable) from Nucleo pin D3.

10 **Relay module 2** CHECK SHELF
Same HiLetgo part: channel 9 camera UV-C, 10 Orion-Tr, 11 puller reverse, 12 bilge pump 2, 13 the horn (from Nucleo pin A2); 14 to 16 no driver. Two HiLetgo orders in August: look before buying.

11 **MOSFET switch modules x6** HAVE
One per release channel 1 to 6 (MOSFET: a transistor switch), 3.3 V input, own gate pull-down: the 600 W MOS modules on hand (nine 2-packs, Aug 24).

12 **Release fuse holder** CHECK FIRST
Compute Bay 10.3 keeps a Littelfuse FHAC0002ZXJ sealed ATO holder (on hand) in the release feed, which is on a 30 A breaker at the bar. Open: whether this fuse stays (Mike's call).

13 **Horn fuse** CHECK FIRST
A 5 A inline fuse on relay channel 13's contact, feeding the horn's 24 V out by entry 30. Sealed inline ATC/ATO holder: nine on hand, seven go to the bus board, so count. Fuse from the JOREST blade kit.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A3 CENTRAL NODE PAGE 2 OF 2

PLASTIC · TICONN · ABOUT 16 x 12 x 6 IN | CONTROL BUS | NEAR THE BATTERY | RELEASES · LOADS · STEERING

WHERE Page 2: the cord pullers, steering, sensors, the charging stop and the wall.

1 **Opto input board** HAVE
Fafeicy 8-channel optical isolation board: eight opto chips in a row. Reads the two Water Witch pump outputs (24 V present = pump running). Five bought Aug 16, one used.

2 **Puller reversing relays x4** HAVE
MY2NJ-type 24 V DC relays, 8-pin, clear case with LED, each in a screw-terminal DIN socket. Amazon B0GY3ZM4YB, $41.20 for four, here Sep 26. Read coil + and - on the relay and the socket pin numbers before wiring.

3 **1N5408 flyback diodes x4** HAVE
CHANZON 1N5408: black body, wire legs, silver stripe. One per puller, at its reversing relay's input (MOSFET side to release bus), under the screws. None on the burn wires.

4 **Puller fuse holders** ON THE WAY
MECCANIXITY UK5 DIN holders for 1/4 x 3/4 in (5 x 20 mm) glass fuses, 6-pack with end stops, four used. Bought Oct 7, due Oct 8.

5 **Puller fuses** ON THE WAY
QBGTFAK slow-blow 1/4 x 3/4 in (5 x 20 mm) glass fuse kit, 0.5 to 10 A. One per puller, between its MOSFET module and its reversing relay; the size is set at the one-puller bench test. Bought Oct 7, due Oct 8.

6 **Steering drive** HAVE
Pololu G2 High-Power Motor Driver 24v13 (Pololu 2992), a small board printed 24v13, here Sep 28. At the bench, solder on its two power terminal blocks and one 8-way screw strip on the logic row.

7 **Logic screw strip** HAVE
Hxchen 8-way 0.1 in screw terminal block, 20-pack ($13.99), for the drive's logic row.

8 **Steering power-cut relay** HAVE
HiLetgo 24 V 30 A one-channel relay module: one big relay can on a small board. Wired closed when unpowered, so the actuator stays fed; coil on an expander output.

9 **Wiper resistor** HAVE
One 1k 1/4 W resistor from the MelkTemn kit, under DIN screws in the actuator's green wiper line to pin A1.

10 **BME280 barometer** HAVE
BME280 board (pressure, temperature, humidity), small. Two delivered Sep 10. Reads outside pressure through the box's vent.

11 **Humidity board** HAVE
AHT30 temperature and humidity board.

12 **DS18B20 chains x2** HAVE
Waterproof DS18B20 temperature probes, a steel bullet on a lead. Chain 1: the six battery probes (the battery trip). Chain 2: compartment air. About 8 probes in all.

13 **TVS diode** HAVE
1.5KE33CA surge diode: black body with wire legs, a stripe at one end, printed 1.5KE33CA. Chanzon 20-pack on hand, about 13 used boat wide; check the bag is not the 1N5408 flybacks.

14 **Charging stop landing** HAVE
Two DIN terminals beside relay 8. The thin battery positive and the one run from the five Victron cables land here; the 1k resistor and the joining strip are at the main bus board.

LEAVE OUT Burn-wire short relays, INA226 meters, a VE.Direct reader, gas sensor boards, confirm switches, a photocell relay, a second opto board.

THROUGH THE WALL About 16 holes + vent: PG7 x3 (1 CAN control drop, 27 camera UV-C feed, 28 Orion-Tr remote) · PG9 x5 (2 24 V feed, 18 two 1-wire chains, 22 charging stop bundle, 29 wet lab line in, 30 horn pair out) · PG11 x5 (3, 4 release trunks; 12, 13 steering in and out; 14 aft trunk; 15 only if needed) · PG13.5 x2 (16, six 16/2 switched-load runs) · 2a release feeder, PG11 or PG13.5 once the 12/2 jacket is measured · vent. Spares 17, 20, 25 not drilled.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A4 BMS BOX (THE WATCHMAN BOX)

PLASTIC IP65 · AS BOUGHT | ON THE BATTERY BOX AFT WALL | NO BUS | WATCHES, CONTROLS NOTHING

THE BOX Small IP65 plastic box with mounting plate (QILIPSU class) and a short DIN rail. On hand from August: two QILIPSU (one is Release Node B's) and two Raculety IP65 boxes; the docs do not say which one this is.

WHERE Bolted through the battery box's aft wall on the minus side, opposite the main fuse, at mid-height or above, where the wall's inside faces only the air gap and the aft G10 plate; never on a long side wall, never inside the box. All glands face down, each cable with a drip loop. The two shunts sit on the main bus board; only their sense leads come here.

1 **Battery watchman** `HAVE`
Electrodacus SBMS0: a bare green board with a 12-pin cell socket and a green 16-pin push-in plug. Received Aug 27. Reads the 8 group voltages, both shunts and the pack temperature.

2 **WiFi/USB add-on board** `CHECK SHELF`
Electrodacus WiFi/USB board for the SBMS0, paid by PayPal Sep 2, no mail trail. Required: the battery percentage reaches Pi A only through its micro USB lead, which plugs into the USB hub.

3 **Balancer** `HAVE`
JKBMS JK-B2A8S 2 A active balancer with its 11-pin harness: nine taps plus its own power pair. Talks to nothing; set up by phone over Bluetooth.

4 **Ribbon breakout board** `ON THE WAY`
Winford BRK2X6-L-DIN: a 12-pin ribbon-to-screw-terminal board on DIN clips, for the SBMS0's nine taps (W0 on 1, jumpered to 2 with the shield drain; W1 to W7 on 3 to 9; W8 on 10, jumpered to 11 and 12). Ordered Oct 3, shipped Oct 5.

5 **12-pin ribbon** `CHECK FIRST`
A 12-pin female-to-female ribbon, about 8 in, from the SBMS0's cell socket to the breakout; the SBMS0's own ribbon is not cut. The MECCANIXITY 12-pin 6 in ribbon here Oct 6 may be it: read its two plugs. If not, Amazon B07L9Q3R2K.

6 **SBMS0 tap cable** `HAVE`
11 cores of the 22 AWG 12-core shielded cable on hand: the nine taps (W0 black to W8 gray, resistor colors) and XT1; the 12th taped spare. Its shield is grounded at this end only.

7 **Balancer tap cable** `HAVE`
ENERJOUR 18 AWG 10-conductor cable (UL 2464, tinned, 10 ft, Sep 7): nine cores, the white one spare.

8 **Butt splices x9** `CHECK FIRST`
Adhesive heat-shrink crimp butt splices, JK harness to the 18/10 cores, B0 to B8 on W0 to W8; at W0 and W8 two wires share one end (maybe the next size up). Butt splices came Sep 16: check the sizes.

9 **XT1 thermistor lead** `HAVE`
DROK 10K 3950 probe on a 39 in (1 m) waterproof lead (3-pack, Sep 1). The probe is trapped on a cell face in the battery box; the lead lands on green plug pins 15 and 16. Calibrate in ice water before it is trapped.

10 **Shunt sense leads** `HAVE`
Two twisted pairs from a stranded Cat6 patch cord on hand, plugs cut off: brown (battery shunt) to green plug pins 4 and 3, orange (solar shunt) to pins 2 and 1. Their fuse links are at the shunts.

11 **Mounting bolts** `HAVE`
Four 1/4 in stainless bolts through the aft wall, each hole bored oversize, filled with thickened epoxy and redrilled, each bolt bedded in sealant; fender washers inside, nylon lock nuts or blue Loctite.

LEAVE OUT Charger wiring, the 1k resistor, the EXTIO4 charge pause, a humidity board, gas sensors.

THROUGH THE WALL 4 holes + vent, all facing down: 1 the tap bundle (both tap cables and the DS18B20 chain, sleeved; PG13.5, PG16 or PG21, the same size as the battery box's, once measured) · 3 PG9 shunt sense leads · 4 PG7 USB lead to the hub box · 6 PG7 DS18B20 chain out to the central node · vent. Entries 2 and 5 not drilled. Plus the four bolt holes in its back. Tie each harness to the plate at its plug.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A6 AFT JUNCTION

PLASTIC · TICONN · ABOUT 12 x 8 x 5 IN | ON NO BUS | STERN | PASSIVE · NO NUCLEO

THE BOX TICONN IP67 outdoor box, about 12 x 8 x 5 in, on hand. About 14 entries (15 if the second trunk is drilled): measure the box before the loom.
WHERE At the stern, side by side with the aluminum network switch box (sheet A6a), which takes every network cable. A passive patch panel: post cables, deck sensors and switched loads land on DIN terminals. Fed 16/2 from its own 20 A breaker (line 6), always on.

1 **Motoring-white relay** HAVE
HiLetgo 24 V 30 A one-channel relay module; its coil runs from central node channel 7. The two all-round whites come on only when it is dark and the motor runs, or in fog.

2 **Post wind meter 5 V regulator** HAVE
Pololu D36V6F5 (5 V 600 mA), a tiny green board, just after the wind sensor's fuse. Terminal block on at the workbench, then pot it. Never 24 V into the Calypso.

3 **Post feed fuses** CHECK FIRST
One blade fuse per post feed. Sizes and count not written. Sealed inline ATC/ATO holder: nine on hand, seven go to the bus board, so count. Fuse from the JOREST blade kit.

4 **DIN rail and terminals** HAVE
DIN rail (the snap-on mounting rail, 1.4 in (35 mm) wide) cut to length, with screw terminal blocks and end stops. On hand: the Erayco UK2.5B kit and the MELIFE 30-piece kit the guides name, two more DIN terminal kits (Aug 16), VAMRONE 4 in rails and a uxcell 50-pack of end stops.

LEAVE OUT The switch, its supply and every network cable (switch box, sheet A6a); the Ethernet surge protectors (the surge board near the deck); a photocell relay, a weather pod, shaft sensors, the Netgear switches. Open: whether the switch's 24 V is jumpered across from this box or runs to the switch box on its own (Mike to say).

THROUGH THE WALL About 14 holes + vent: PG7 x5 (3, 4 post wind and lights; 5 plugged; 18 encoder A; 19 bow lantern) · PG9 x3 (9 24 V feed; 16 bilge leads; 17 plugged) · PG11 x4 (11 to 13 load bundles out; 14 trunk to the node; 15 only if needed) · PG13.5 x2 (10, the switched-load runs in) · vent. Entries 1, 2, 6 to 8 and 20 to 24 are on the switch box.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A6a

NETWORK SWITCH BOX

ALUMINUM · CXCESNS | BESIDE THE AFT JUNCTION | GLUED TO THE HULL | NOT ON THE LIGHTNING COPPER

THE BOX CXCESNS aluminum box, 11.8 x 8.3 x 3.9 in, IP66, the same as the two compute boxes. Here Oct 5 ($69.87).

WHERE At the stern beside the aft junction, glued by its back face to the hull for cooling like the Pi A box, and wired to nothing. Inside: only the switch with its SFP module and its 48 V supply, clipped to a DIN rail on a long side wall (the box is 3.9 in deep, the switch 4.8 in). The surge protectors are on their own board near the deck (last three lines).

1 **Network switch** HAVE
Teltonika TSW202: DIN-rail managed PoE+ switch (PoE: power down the network cable), 8 ports plus 2 SFP slots, printed TSW202. Firmware pinned, auto-update off, boot state all ports ON. Always on, never on a relay.

2 **SFP module** HAVE
10GTEK SFP-T copper module (a plug-in network module), two bought Sep 8. One in SFP slot 9 for Starlink.

3 **48 V supply** HAVE
Mean Well DDR-120B-48 DIN-rail DC-DC, 120 W, 24 V in. Set to 54.0 V, then seal the trimmer with paint.

4 **TVS diode** HAVE
At the 48 V supply's input. 1.5KE33CA surge diode: black body with wire legs, a stripe at one end, printed 1.5KE33CA. Chanzon 20-pack on hand, about 13 used boat wide; check the bag is not the 1N5408 flybacks.

5 **Side-wall DIN rail** CHECK FIRST
One rail on a long side wall, long enough for the switch and the supply side by side. Not priced in the BOM; whether the VAMRONE 4 in rails or the Erayco kit's 8 in rail on hand is long enough is not worked out.

6 **Wall jacks x9** HAVE
Alrhso IP67 Cat6 panel couplers (bulkhead jacks, zinc and plastic, a plug in each side), one per cable: ports 1 to 8 and SFP 9. 16 on hand for the boat's 13. Side or bottom walls only, never the top.

7 **Tape and grease for the jacks** HAVE
XFasten self-fusing silicone tape and AGS dielectric grease, on hand. Outside face only: a thin smear of grease on the plug, plug in, tape stretched to about twice its length, half-overlapped from the jack's threads over the plug and 1 to 2 in down the cable.

8 **Patch cords** HAVE
Rapink 1 ft 10-pack and two Mnlnbuao 6 in 10-packs (here Oct 6): one from each wall jack to its switch port. No coils in the box; tie each within about 2 in of its plug.

9 **Right-angle plugs at the ports** WAITING
Right-angle cords, or short right-angle adapters, so no cord bends hard in the 2.3 in left. Which way they must point: read it off the switch, with the rail to port distance, before ordering.

10 **Surge board, near the deck: Ethernet surge protectors x5** HAVE
Ubiquiti ETH-SP-G2 (outdoor-rated), here Oct 4: a small plastic box with two RJ45 jacks and a ground lead. For the two post cameras, Starlink, the foredeck fisheye and the interior camera. None for the underwater camera or the light driver.

11 **Surge board, near the deck: board, bus bar, ground lead** NOT PICKED
A small board on a bulkhead where the outside cables first come inside, a small tinned bus bar for the five grounds, one 6 AWG lead a foot or two to the lightning copper. Open: which bulkhead (where the copper runs). Not priced.

12 **Surge board, near the deck: Cat6 runs down to the jacks** WAITING
Short premade Cat6, one from each protector down to its wall jack here. Measure the runs at the boat before buying.

LEAVE OUT No surge protector, ground bar or lightning part inside this box, no bond stud, no ground lead entry, no cooling plate (the box itself is glued to the hull).

THROUGH THE WALL About 10 entries + vent: wall jacks x9 (ports 1 to 8, SFP 9) · PG9 (24 V feed; open whether it is a jumper from the aft junction or its own run) · vent. SFP 10 not drilled. Network cables are premade: check each plug passes its deck holes and glands, or use a split gland.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A7

MOTOR CONTROLLER BOX (VESC A)

BOUGHT SEALED ENCLOSURE | CONTROL BUS | COCKPIT WEB, AT THE MOTOR | ONE CONTROLLER ON BOAT 1

THE BOX A bought sealed enclosure, on hand (tracker: VESC boxes HAVE; the model is not named in the docs). Its floor takes the aluminum cooling plate.

WHERE On the cockpit web at the motor. The only motor controller on Boat 1: losing it costs time, not the trip, because the wing sails the boat.

1 **Motor controller** HAVE
Flipsky 75200 Pro V2.0, aluminum board, power-button version, bought Oct 3 on Amazon ($160.99), here Oct 7. If the Sep 5 PayPal one turns up too, one goes back. Sits on the cooling plate. Find pin 1 on each plug with a meter.

2 **Shorted plug** CHECK FIRST
A crimped plug that joins IGNITE to BAT+ on the power-switch plug (pins GND, IGNITE, BAT+), so the board runs whenever the battery is on. Plug type not written: read it off the board.

3 **COMM plug leads** HAVE
JST-PH 0.08 in (2.0 mm) 8-pin pairs with 26 AWG leads, ten pairs (Sep 2). Splits to the serial backup (TX, RX, GND) and the motor sensor (5V, GND, ADC1, ADC2).

4 **CAN plug leads** HAVE
Kidisoii JST-GH 0.05 in (1.25 mm) kit, 2 to 10 pin, pre-crimped 28 AWG. Use the 5-pin: CANH, CANL, GND only; PWR.ON left open.

5 **Motor sensor mating plug** ON THE WAY
ELITE.CITI Metri-Pack 150 8-way sealed pair, 20 to 22 AWG, $14.81, due Oct 2 to 8. Mates the ME1616's grey sensor pigtail.

6 **Sensor divider resistors** CHECK FIRST
10k from the sensor and 18k to ground on sin and on cos, crimped in the harness and potted, unless the bench check shows the tops stay under 3.2 V. 18k not confirmed in the kit.

7 **Bus capacitors x4** HAVE
Nichicon 1,000 uF 63 V capacitors (cans), here Sep 28, on a small G10 board bolted to the two posts.

8 **Power posts x2** HAVE
MGI SpeedWare 3/8 in power junction posts, $18.95, rated 160 A, here Sep 28. The 2 AWG feed, the controller's 8 AWG leads and the capacitor board land here; about 3 in apart.

9 **Cooling plate** WAITING
Aluminum plate through the box floor, set in heat-carrying epoxy, wired to nothing. Size it before the box is drilled.

10 **Phase clamp ferrite** HAVE
One 1.0 in mix-31 snap-on clamp (Fair-Rite, Sep 13) over all three phase leads, just outside the wall.

11 **Input TVS** CHECK FIRST
The box sheet draws the battery leads in through a TVS; the Electronics plan lists none here. The docs do not agree.

LEAVE OUT A precharge resistor (Mike, Sep 29); VESC B and its contactor (Boat 2 only).

THROUGH THE WALL 8 holes: PG7 x3 (CAN control drop, serial and kill to Pi A, motor sensor lead) · PG16 x5 (battery + and -, three phase leads). A ferrite on each entry; the one big clamp over the three phases.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A9 BATTERY BOX

PLYWOOD · BUILT, CELLS IN | MAIN BANK | NO BUS · NO ELECTRONICS | NO HEATERS · NO GAS SENSORS

THE BOX 3/4 in okoume plywood box, glassed, per the Battery Box Building Guide. Lid on 24 E-Z Lok inserts and 1/4-20 screws.

WHERE The main bank, built and glued in; the cells are in for good (Sep 24). Nothing that thinks lives here: only cells, links, probes and harness ends. The watchman box and the main fuse bolt to the outside of the aft wall.

1 **Cells x32** HAVE
EVE MB31 314 Ah LiFePO4, 8S4P, in the box. Four more stay ashore at half charge.

2 **Pack compression set** HAVE
G10 end plates, three 3/8-16 rods in PEX sleeves, 3/8 in Belleville (cone spring) washers, spacer blocks, mica sheets. Fitted with the cells.

3 **Cell nut washers, M6** ON THE WAY
PATIKIL M6 x 12 mm 304 cone spring washers, one under every cell nut, 64 needed. One 50-pack here; the second ordered Sep 26, due Sep 30, no delivery mail.

4 **Stack-to-stack jumper** HAVE
One of the copper braid links (2-pack, here Oct 6): M6 holes at 2.9 in (74 mm) pitch, bent to the about 2-3/8 in span across the center gap at the FORWARD end. If it is bare, sleeve the braid in heat shrink, lugs left clear.

5 **Lid hold-down foam** CHECK FIRST
CloudBuyer strip 1 x 3/4 in, 13 ft, here. The spec is medium closed-cell neoprene 1-1/2 in wide: check it on one batten before gluing all three.

6 **Lid gasket** HAVE
WOD closed-cell sponge rubber tape, 3/8 x 3/4 in, 30 ft roll.

7 **Tap wire fuse links x18** CHECK FIRST
A 30 AWG fuse link (a short wire that melts like a fuse) at the ring end of every tap wire: nine for the SBMS0, nine for the JK, each on its own ring on its own post (18 rings). The tracker shows the links as HAVE; the BOM priced nine: count 18.

8 **Harness dressing** HAVE
Adhesive-lined heat shrink at the gland, split loom on each branch, nylon cable clamps (R-clamps, Sep 25) on wood screws 1/2 in long at most, dipped in epoxy, never more than 18 in apart. Nothing tied to the cells.

9 **Pack temperature probes x6** HAVE
DS18B20 probes on cell faces: the battery trip. Their chain leaves in the tap bundle.

10 **XT1 thermistor** HAVE
The watchman's DROK probe (sheet A4), held hard on a cell face by something solid, not tape and not box air.

11 **Glands and vent** HAVE
Two PG16 for the mains and one gland for the tap bundle (PG13.5, PG16 or PG21, once the sleeved bundle is measured), all on hand; one IP68 breather screw (Sep 14) as the vent.

12 **Relief stub** HAVE
1-1/2 in Sch 40 PVC stub, a Dometic/Sealand 1-1/2 in duckbill (OEM 385310076) lips out, and a PVC coupling clamping it. No screen.

13 **Main fuse** HAVE
300 A Class T fuse and block (JIAKUPA kit), bolted OUTSIDE the aft wall, + side, mid-height, within 12 in of where the + main leaves. Check the room for the 4.8 x 2.0 in block first.

LEAVE OUT Do not re-propose: heaters, gas sensors, a high-water sensor, an overboard duct, a burst membrane, a rim doubler, a bug cap or flame mesh.

THROUGH THE WALL 5 holes + bolts: PG16 x2 (2 AWG mains, aft wall) · tap bundle gland (aft wall) · vent (aft wall) · 2 in relief stub hole (forward wall, high) · the main fuse's bolts · the watchman box's four 1/4 in bolts (aft wall, minus side). The pack is in: drill with a towel over the busbars, taped tools, rings off. Every bolt through the wall bedded in sealant.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A10 # EMERGENCY BANK

BOUGHT BATTERY · NO BOX BUILT | BACKUP ISLAND | NO BUS | PLASTIC CASE · FLOATS

THE BOX Dyness 24V 100Ah LiFePO4, plastic case, 20.9 x 8.11 x 8.54 in, 42.6 lb. Everything lands on its M8 (5/16 in) posts or on a small fused DIN strip beside it.

WHERE The battery is its own enclosure: no gland, no hole schedule. It feeds Pi B, Iridium B and the detector, and stays apart from the main bank.

1 **The battery** HAVE
Dyness 24V 100Ah, built-in 100 A BMS, not the Bluetooth version. Here and strapped in.

2 **Shelf and straps** HAVE
Chocked shelf and two straps over the top.

3 **30 A ANL fuse** HAVE
Renogy 30 A ANL fuse with holder, $12.65, here Sep 28; within a few inches of the + post.

4 **Post boots** BUY
Insulating boots for the M8 posts, red and black (tracker Buy list). Or tape the posts.

5 **Fused DIN strip** CHECK FIRST
Small DIN strip beside the battery: feeds to Pi B and Iridium B, the 75/10 in, the Orion-Tr in (its own 10 A fuse). Open: the fuse sizes for Pi B, Iridium B and the 75/10.

6 **Orion-Tr charger** HAVE
Victron Orion-Tr Isolated 24/24-5, blue case, here Sep 25. Within about a foot of the battery, dry, upright, on wood or G10, no bond wire.

7 **SmartSolar 75/10** HAVE
Victron SmartSolar 75/10, blue case, beside the Orion-Tr.

THROUGH THE WALL No glands, no vent, no hole schedule: this battery is not a built box.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A15

RELEASE NODE B

PLASTIC · QILIPSU · SMALL | HOUSE BUS END | STERN, NEAR THE TRANSOM BOXES | SECOND RELEASE CHAIN

THE BOX QILIPSU junction box with mounting plate (B07FFPJ82R), small, about $18. Two bought Aug 16. Size it once the boards are laid out.
WHERE At the stern, at the house bus end (its tee carries the terminator plug). Fires horn B of drogue boxes 1 and 2, so the central node is not the only box that can release. Fed 12/2 from its own 30 A breaker (stud 2). Its cables leave by their own glands on their own route.

1 **Nucleo (the node brain)** HAVE
STM32 NUCLEO-G431KB, the second of the two on hand; check it says G431KB. Five pins used.

2 **Nano screw carrier** HAVE
AITRIP Nano screw-terminal adapter.

3 **CAN transceiver board** HAVE
Alinan SN65HVD230, one of the four on hand.

4 **CAN surge module** HAVE
Taidacent RS-12V/2S, the second of the Sep 7 pair.

5 **24 V to 5 V converter** CHECK SHELF
Potted Klnuoxj 24 to 5 V 5 A converter: a small sealed block with wire leads. Two 4-packs bought Aug 16 (eight), no delivery mail: count the shelf. Three are used: Pi B, the central node and Release Node B.

6 **Fuse** CHECK FIRST
A15 lists a fuse; the feeder is on a 30 A breaker at the bar. Open: whether the FHAC0002ZXJ holder stays, and what this fuse guards.

7 **Enable relay** HAVE
HiLetgo 24 V 30 A one-channel relay module. The only thing that puts 24 V on this node's release bus.

8 **MOSFET switch modules x2** HAVE
Horn B of each drogue box: two of the 600 W MOS modules on hand.

9 **Mini DIN strip** HAVE
A short DIN strip: every field wire lands here first.

10 **TVS diode** HAVE
1.5KE33CA surge diode: black body with wire legs, a stripe at one end, printed 1.5KE33CA. Chanzon 20-pack on hand, about 13 used boat wide; check the bag is not the 1N5408 flybacks.

LEAVE OUT Shorting relays, an opto board, a humidity board, flyback diodes (burn wires need none). Entries 5 to 8 not drilled.

THROUGH THE WALL 4 entries + vent: PG7 (CAN house drop) · PG11 or PG13.5 (12/2 feeder; measure its jacket) · PG7 x2 (drogue box 1 and 2, horn B) · vent. Never share a gland with the central node's cables.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET A17 # WING BOX

SMALL BOX · NOT PICKED | BELOW THE DECK | OWN CAN LINK, OFF BOTH BUSES | STOPS A MAST STRIKE

THE BOX Not picked: material, size, holes and vent are all open; picking the box and the cables settles them.

WHERE Below the deck, where the wing's wires come into the hull: the hull cables from the slip ring (the turning electrical joint at the wing's foot, Rion HC2549, due about Oct 20) drop through their own deck gland into it. Every ring wire gets a fuse or surge part at its entry. Nothing in it thinks: the readers are in the USB hub box. Fed 16/2 from its own 5 A breaker (line 14), then the box's own 5 A fuse.

1. **5 A fuse and holder** `CHECK FIRST`
   On the ring's 24 V pair, feeding the trim actuator and the tip branch. Sealed inline ATC/ATO holder: nine on hand, seven go to the bus board, so count. Fuse from the JOREST blade kit.
2. **TVS diode** `HAVE`
   Across the ring's 24 V pair, after the fuse. 1.5KE33CA surge diode: black body with wire legs, a stripe at one end, printed 1.5KE33CA. Chanzon 20-pack on hand, about 13 used boat wide; check the bag is not the 1N5408 flybacks.
3. **Surge modules x2** `ON THE WAY`
   Taidacent RS-12V/2S, 12 V (Amazon B0BGL675ND), $21.98 each, ordered Sep 26, due Sep 30, no delivery mail: one on the trim actuator's CAN pair, one on the tip wind meter's RS-485 pair.
4. **Third surge module** `ON THE WAY`
   The same Taidacent, bought Oct 7, due Oct 21 or later, for the wing compass's RS-485 pair (it rides power rings 3 and 4).
5. **Ground terminal** `HAVE`
   The box's 24 V negative terminal, a DIN terminal: the three modules' ground terminals, the wing cable's brown pair and its shield pigtail all land here, so the boat keeps its one bond wire. DIN terminal kits on hand.
6. **Wing cable to the hub box** `BUY`
   Any shielded Cat6, all copper, a shield over all four pairs (Mike, Oct 9); shielded Cat6 on hand does it, else the Monoprice Cat6A S/FTP 25 ft, Amazon B077H5LL5N, $14.98. Plugs cut off, cut to the run. Blue: CAN (H solid, L white). Orange: tip meter RS-485 (A solid, B white). Green: compass RS-485 (the same). Brown: ground, both wires. Ferrules on stranded ends. Shield grounded at this end only (Mike: OK, Oct 9).
7. **Hull cables from the ring** `NOT PICKED`
   The ring's three fixed-side leads plug (Deutsch DT) into hull cables at the can wall; the hull cables come down through their own deck gland into this box. Open: how many cables, and which.

LEAVE OUT No reader or adapter in this box (both are in the USB hub box). No angle sensor: the Amphenol PST360 is on the Send back tab.

THROUGH THE WALL Not set. At least: the 24 V feed in (16/2), the hull cables from the ring (count open), the wing cable out to the hub box, and a vent if plastic.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET DB

DROGUE BOXES 1 AND 2

BOUGHT BOXES · ONE OPEN | ON THE TRANSOM | TWO RELEASE CHANNELS EACH | NO SWITCH ON THE LID

THE BOX Two needed. One bought: a VEVOR fiberglass box 19.7 x 15.7 x 7.9 in ($74.01, ordered Sep 28; the tracker shows it on the way). Open: the second box (Mike's word); the TICONN IP67 box of Oct 3 may be it. Check each body with a magnet, pack a drogue in before stripping any metal, and measure the transom width up high.

WHERE One per drogue, on the transom. Each lid is held by one strap over two horns. Horn A fires from the central node, horn B from Release Node B; either one alone cuts the strap. Per box unless it says otherwise.

1 **Jordan series drogue** HAVE
OceanBrake, 80 cones on yellow line, bridle and chain tail; arrived Sep 25. Check the chain tail came.

2 **Lid** HAVE
4 layers of 1708 glass, or the box's own door stripped with 2 layers inside.

3 **Sewn hinge** ON THE WAY
1/8 in Amsteel Blue (on hand) sewn through, covered with PKS Dacron sail tape, 3 in x 5 ft: one roll ordered, due Oct 1 to 7 (the guide plans two: check one covers both lids).

4 **Lid strap** HAVE
1/8 in Amsteel Blue, about 4 ft, rubbed with candle wax, figure 8 stopper knots.

5 **Horns and ledge** HAVE
Cut from 1/4 in G10 sheet, horns glued to the lid with EPDM strip in the grooves.

6 **Nichrome coils x6** HAVE
Nichrome 80, 28 AWG (or 30 AWG, the bake-off decides), three coils per horn, about 37 turns on the strap.

7 **Coil lead crimps** CHECK FIRST
Nichrome tails crimped to tinned copper leads, never soldered, each crimp potted in epoxy. Crimp part not named.

8 **Potted wire pass-throughs x2** CHECK FIRST
One epoxy-sealed pass-through per channel, low on the transom, separate routes. Part and hole size not written.

9 **Ejector pad** HAVE
2 in PE foam sheet, 16 x 12 in (2-pack bought).

10 **Strap hole liners** WAITING
1/4 in OD x 1/8 in ID PTFE tube, a few inches per box. The piece bought went back (refunded Oct 2). Open: whether to buy it again (Mike's word).

LEAVE OUT No microswitch on the lid, no bridle switch: the speed drop and the aft camera confirm.

THROUGH THE WALL Two potted pass-throughs per box (horn A, horn B). No vent.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET SMALL

SMALL BOXES

ONE TO THREE PARTS EACH | IRIDIUM · DETECTOR · STARLINK | TRANSOM STRIP · LIGHT DRIVER | WING TIP

WHERE Boxes with only a few parts. Each name starts with its box. Iridium A sits near Pi A on the main bank (own 5 A breaker, stud 7); Iridium B near Pi B on the emergency bank.

1 **A11 Iridium A and B: modem x2** HAVE
RockBLOCK 9603N on its carrier, SparkFun, Jul 31. One shipped to Gunnison, CO: confirm both are here and both are the external-antenna version.

2 **A11 Iridium A and B: isolated 5 V converter x2** BUY
Mean Well DDR-15G-5 (Claude's pick): 9 to 36 V in, 5 V 3 A out, 4,000 V between input and output, a DIN-rail module with screw terminals, on a short rail on the box's mounting plate. Amazon B07B6553JY, or $20.50 at Jameco.

3 **A11 Iridium A and B: TVS x2** HAVE
1.5KE33CA at each converter's input.

4 **A11 Iridium boxes themselves x2** BUY
TICONN IP67 ABS box, 5.9 x 5.9 x 3.5 in, with its mounting plate (Claude's pick), Amazon B0B87THLGC, pick that size. 3 PG7 + vent. The converter stands about 2-1/2 in off the plate.

5 **A11 outside: stubs and antennas** HAVE
Two quarter-wave stub arrestors on hand (the Fairview order is cancelled); each coax runs straight to its stub. Antennas: Maxtena M1621HCT-P-SMA x2, delivered Aug 11.

6 **A12 Detector: AS3935** HAVE
SparkFun lightning detector, SEN-15441, a small red board, alone in a tiny plastic box within 3 ft of Pi B, touching no metal. One PG7 + vent. Box not named.

7 **A13 Starlink: the dish** HAVE
Starlink Mini. Its deck mount and cover are not chosen. One wall jack (taped) and a PG9 for power. No heater.

8 **A16 Transom terminal box** HAVE
Box on hand (about 12 x 8 x 5 in). Inside only a DIN strip, one landing per conductor, labels at both ends.

9 **Light driver dry box** BUY
PoE Texas AT-LED-24V driver (bare board, on hand) for the two 4 in disc lights, on switch port 6. Its small dry box is to buy; its Cat6 comes in on one wall jack, taped.

10 **Wing tip box: 5 V converter** HAVE
DROK sealed 24 to 5 V converter (here Sep 28), for the Calypso tip meter only. Never 24 V into the meter.

11 **Wing tip box: 1 A fuse** CHECK FIRST
A sealed inline holder with a 1 A fuse on the tip branch's 24 V, ahead of the compass and the converter. Count the holders (nine on hand, seven at the bus board).

12 **Wing tip box itself** NOT PICKED
A small sealed box at the tip; the tip mount drawing places it. Holds the fuse, the converter and the compass's splices: crimped heat-shrink splices, no solder.

THROUGH THE WALL Iridium A and B: PG7 x3 each + vent. Detector: PG7 + vent. Starlink: wall jack + PG9. Transom box: PG11 x4, PG9 x3 (one plugged), vent. Light driver box: one wall jack, the rest not counted. Tip box: not counted.

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.

SHEET NB NOT IN A BOX, OR NOT ON BOAT 1

SO NOTHING ARRIVES WITHOUT A HOME

WHERE These parts have no enclosure of ours, no job written yet, or no place on Boat 1. Sort them to the spot named.

- **A5 FSESC box:** deleted on both boats. Do not buy, do not build.
- **A8 VESC B box:** Boat 2 only, with its phase contactor. Boat 1 sails with one controller.
- **A14 em-trak B921:** AIS transponder in its own sealed case on the house bus (shipped Sep 16, no delivery mail). Power on relay channel 4, fails ON.
- **A14 Ewellix CAHB-22:** steering actuator, no bus and no box: its cable runs to the central node, entries 12 and 13.
- **Main bus board:** not a box: the fifteen breakers (all on hand), MEGA fuses, the two shunts (on the way) with a fuse link on each sense wire, the five solar fuses, the two battery bus surge modules (on the way), the five solar surge modules (due Oct 11), the 1k charging-stop resistor and the joining strip for the five remote on/off cables.
- **CAN bus power:** two YRDZXG 24 to 12 V converters at the compute multiport, one per bus, each behind its own 5 A breaker. No box written.
- **Camera port:** Axis P1245 main unit inside; the LM317 regulator (on hand) and the three UV-C LEDs (due Oct 19 to 23) at the port. No box written.
- **Wet lab electrics:** XWST 24 V converter (here Oct 1), the valves, pumps and the board that reads the pressure sensor and temperature probe. No box written.
- **Hydrophone audio interface:** MOTU M2 (here Sep 30). No box and no USB port written: Pi A's two USB ports are taken and the hub's port list does not name it.
- **Horn:** FARBIN 24 V stainless pair, one per boat, to buy: low on the instrument post, mouth down, on relay channel 13 through the 5 A fuse in the central node.
- **Wing compass:** WitMotion HWT905 (due Oct 7 to 9): on its G10 pad on the tip cap, not in a box; its power and RS-485 splices sit in the tip box.
- **No job written yet:** two Taidacent surge modules bought Oct 7 for the DO sensor and SBE 45 lines (on the way); a second AS3935 board (Playing With Fusion); two Pi GPIO screw-terminal boards (on the way); the Winford BRK2X6-L-FT board; the TICONN IP67 box of Oct 3. Mike to say what each is for.
- **Not fitted:** the DROK 24 to 5 V converter bought for the hub box and the DSD TECH SH-G01A USB isolator (on hand, no job); the Amphenol PST360 angle sensor (Send back tab).

STATUS KEY, SOURCES Pending Amendments v10.3, the v10.2 guides and Box Wiring Sheets, and the order tracker as read 2026-10-09. HAVE here. ON THE WAY ordered. CHECK SHELF shipped, no delivery mail. BUY not ordered. CHECK FIRST verify before fitting, or the sources disagree. WAITING needs a measurement or an answer first. NOT PICKED no part chosen yet.