

PSP - PRA

TJN - 3 Jun 22

Cost Notes		
inflation factor		
1.25		
price 2024	source	price 2022

Juan De Fuca Refit Recommendations

Above Deck / Main Deck Level

1 Remove Fendering System-Tires, tire support brackets, D Rubber. Replace or repair components with new if needed. Check hull and deck structure covered by fendering system and repair as needed if deficiencies are found. Repair elongated holes in guard strake (use GPO3 bushings) where needed. When re-installing fender system components, rebed all metal brackets and fastenings. Use new 316L stainless bolts, washers, and nuts.		
2 Re-surface main deck and flybridge deck using original coating system specifications for type of paint, color and grit	NBC	\$22,000
3 Remove all exterior bedded and through-bolted metal brackets, railings, fixtures, hardware, and deck hatch bases. Prepare surfaces and openings for re-bedding and re-attachment of same. Repair or replace metal items with like if damage or deterioration is evident. Re-attach with 316L SS bolts, washers, and nuts.	NBC	\$11,000
4 Remove and discard all aluminum frame windows. Install fiberglass inserts for glue-in style windows. All forward windows and side windows port and stbd shall be heated laminated safety glass of appropriate thickness and strength for their respective locations in the wheelhouse. Aft-facing window is unheated monolithic tempered glass and does not need to be heated.	NBC	\$88,200
5 Repaint Deckhouse, to cover re-work of window inserts.	NBC	\$20,000
6 Replace all electrical plugs and switches, low and high voltage. Inspect Pauluhn fixtures for condition to determine if they are reusable.		
7 Forepeak deck hatch - remove hatch ring and re-bed. Replace gasket and bushing for handle. Service lubricate and replace other parts as needed.	NBC	\$1,920
8 Replace gasket, lubricate and adjust dogs for hatch to anchor storage compartment forward of windshield.		\$960
9 Remove life sling units and brackets on foredeck.		\$300
10 Repair House Side Deck Lighting. Try to use existing fittings and fiber optic cable if they pass inspection. Research light source for fiber optics to see if LED or more durable bulb is available.		
11A Service Lifterafts.	\$1,950 JS/PS Infl	\$1,560
11B Replace Lifterafts		
12 Replace dogged access panel in aft control station pedestal with a bolted panel to stop leaks. Use a GPO3 panel, closely spaced screws tapped into pedestal.		
13 Add welded stn stl strut from control station pedestal to hand rail immediately aft, to support pedestal and strengthen. (some cracking at deck)		

Flybridge Level

Replace Hamilton control heads, helm stations and panels with new Hamilton system. Build new raised and tilted mounting surface for control heads to prevent water from pooling and leaking below into console.		
1 Replace flybridge VHF radio with like ICOM model.	NBC	\$1,000
2 Remove speakers. Plug speaker penetrations in console face.	NBC	\$960
Remove and refurbish seerchlights.		TBD
3 Remove diving board hinges, inspect site for possible leaks, fix leaks, re-install	NBC	\$2,880
Improve wireways and ducting penetrations through wheelhouse roof under console to prevent water from		
4 using those pathways.		
5 Replace all electrical plugs and switches – low and high voltage.		
Enclose new Hamilton Control Heads per Tim Nolan Marine Design plans (raised tilted panel and Bread		
6 Box cover).		\$5,500
7 Remove Mast. Strip down of all electronics, bolted bracketing, wiring. Rebuild or replace hydraulic cylinder, replace hydraulic fittings and hoses. Surface blast, repair deteriorated metal, prep for new coating system inside and out. Remount new electronics package.		\$8,300
8 Rebuild or replace horn with similar unit.	t.b.d.	\$200
9 Replace both Bolsters in Boatmen steering stations.		\$800
10 Remove HVAC Blowers and replace with new under flybridge console.		\$8,000
11 Renew self-adhesive non-skid on aluminum hatches, main deck.		
12 Repair missing diving board latch, port side aft. Replace cables, damaged swage fitting. Lubricate slam latches or replace with a better one to avoid future damage.		\$1,400
13 Inspect Heporth Windshield Wipes. Blades, linkage, motors, hoses. Replace as needed.		\$5,000

Inside Wheelhouse

1 Remove headliner, wall panels, associated furring, wiring, piping, and ducting. Inspect to identify and remediate leaks from above. Remove wood trim around windows to enable replacement of same.		\$3,000
2 Inspect console framing and structure for deterioration and water damage. Repair or replace as needed.		\$2,500
3 Remove (carefully) aft corner cabinet modules and store for subsequent re-installation.		
4 Remove and replace all high and low voltage electrical wiring, top to bottom.		
5 Replace all electrical plugs and switches – high and low voltage.		\$5,000
6 Re-use Eknex passenger seating. Replace cushions for seating with new, if needed, from manufacturer.		
7 Replace Helm and Copilot Seats. (Upgrade to Stidd?)		\$24,000
8 Replace Sliding stairway hatch UHMW guides. Upgrade to Nylatron		\$1,800
9 Assess under-console electronics and computers for condition, reliability, and compatibility with upgraded equipment. Note that current Computers are used for chart and navigation software, vessel management software, interfacing vessel alarm and monitoring systems with radio modems and other electronic devices. Doubling up of computers is necessary to provide backup of vital systems. Big Bay Technologies (a local manufacturer /vendor) supplied and configured both hardware and software. Big Bay Technologies continues to specialize in building and marketing shock mounted marine-specific computers and software. They have been PSP's vessel computer supplier and maintenance provider from the start.		
	tbd	
10 Install complete new communication and nav-electronics packages.		\$150,000
11 Note that Radio Modems located under forward control console transmit alarm information to PSP Boatmen office. They need to remain an active part of any new alarm & monitoring electronics package if installed. Other options for transmission of alarm monitoring data (cellular) could be explored, but final choice should emphasize reliability and note track record of radio modems.		\$30,000

12 All lighting fixtures should be marine grade LED lighting with switching, color and dimming schemes duplicated. Most interior wheelhouse high and low voltage lighting circuits incorporate dimmer functionality. Dimmer rheostats are located in various positions under forward wheelhouse console.	parts only	\$11,950
13 Install New Floor Covering, similar to original product.		\$57,000
14 Engineer and install HVAC ductwork for new system.		\$15,600
15 Inspect Wheelhouse Entrance Door for condition and watertightness. Replace gasket. Replace door if needed.		250-5000
16 Replace wall panels and headliner with new. Same appearance and materials if possible. Firing as needed.	labor only	\$15,000 materials tbd
17 Replace window trim with painted molded fiberglass trim.		\$26,000
18 Make a better mount for GoPro camera, out of the way and out of the helmsman's line of sight		\$500

Below Deck - All Spaces

1 Remove all sound treatment material in overhead and on side shell. Take down to bare fiberglass surface. Replace with like kind or better materials.		\$57,200
2 Re-wire all below deck spaces.	labor	see #8 below
3 Replace all light fixtures with marine grade LED light fixtures to provide similar or better / brighter lighting, both low voltage and high voltage systems.		
4 Service all WT bulkhead door hatch latch mechanism and hardware. Replace all sealing gaskets. Check to make sure door is securely bedded and bolted to bulkhead surfaces.		
5 Check diaphragm material for soundness where bulkheads and deck meet to make watertight connection inboard of fenderstrake. (Should be elastic, not brittle)		
6 Clean and Paint.		
7 material for rewire of entire boat		\$280,612
8 labor to dewire and rewire entire pilot boat		\$533,000

Bilges

1 Check all high bilge level alarm sensors for condition and function. Replace if necessary.		included above
2 Remove Water Puppy on-demand bilge pump system. Remove plastic piping. Repair all holes where system penetrated bulkheads to restore watertight integrity of compartments.		\$2,000
3 Clean and re-paint.		

Forepeak Void

1 Remove and Re-bed Watertight Hatch deck ring. Replace Hatch Gasket and service or replace all hardware as needed.		\$4,000
2 Clean and Paint.		\$10,400

Storeroom

1 Update CO2 system and components as needed. Remove bottles for pressure check and re-certification. All components of fire suppression and engine room air intake and exhaust shutdown system to be updated.		\$10,000
2 Inspect potable water tank mounting. Remove and Re-bed deck fill where leaking. Replace fill hose and clamps.		\$2,500
3 Clean and Paint.		\$5,500

Head

1 Repair Seat or replace Incinolet with a new one.		\$4,000
2 Improve water faucet and hand washing capability of sink.		
3 Clean and Paint.		\$4,500

Stairwell and main bus/breaker panel space

1 Inspect Main Breaker Panel for condition and suitability after upgrades. (Steve Moore, NBC) Remove and Re-bed Watertight Escape Hatch Deck Ring. Replace Hatch Gasket. Service hardware and replace as needed.	NBC	\$29,000
2 Clean and Paint.		\$3,500

Tool Room

1 Retain Oily Water Separator and filter system.		tbd
2 Replace HVAC compressor units, control panel & piping with new system components.		\$16,500
3 Replace air compressor unit.		\$1,100
4 Research Fiber Optic Lighting units for house side lighting. Call manufacturer re: updated light source with LED light or more robust bulbs. Remove and Re-bed outside fixtures.		\$1,000
5 Explore the feasibility of adding sea suction for bilge pump system and installing topside deck connection to allow fire hose attachment.		\$12,000
6 Inspect Bilge Pump. Replace or re-build pump as needed. Check motor.		\$1,500
7 Retain isolation transformer. (or replace with smaller, lighter)	replace	\$19,000
8 Inspect battery chargers and battery sizing and quantity to account for modifications from original and reduction of loads due to replacing Halogen with LED lights.	parts only	\$3,024
9 Clean and Paint.		\$7,500

Fuel Tank Room

1 Inspect fuel tanks in place. (look for signs of corrosion in sump) Repair if needed.	tbd	\$5,500
2 Inspect condition of fuel level gauges.	tbd	\$1,100
3 Replace all valves and hose.		\$3,500
4 Clean and Paint.		\$7,500

Engine Room

1 Check WT Door between Engine Room and Pump Room for tightness and strength. Make a filler block where WT BHD has been cut away		\$3,500
2 Check Blue Sky Hatch Bases for watertight integrity. Clean all dog fastening hardware, inspect and replace as necessary if deformed or damaged. Replace gaskets with new material.		\$5,500
3 Upgrade engine ventilation system to Delta T to reduce pressure drop in engine room and reduce rise in temperature. Upgrade will include new moisture eliminator intakes in deckhouse buttresses, and marine grade Halon-activated shutters, replacing Munters demisters and current shutters. Kanalfakt fans in aft dorade boxes will be replaced with marine grade variables speed fans and marine grade fire dampers activated by the fire suppression system. New system is automatic and activated by sensors.	NBC	\$50,000
4 Remove Generators and associated support systems. Replace with new in original locations. Consider relocating generators to tool room for better trim, in which case air intakes, cooling, and exhaust systems will need to be designed and installed, as well as additional sound damping.	\$57,263 JS/Mike Porter	\$45,810
5 Install Generators	\$12,500 PLTPS	\$10,000
6 Review Batteries and Chargers. Replace with new? Sizes and quantities subject to review based on updated load study.		above
7 Replace Lube Oil Spinners and metal particle detectors.		
8 Retain fuel manifolds w/ filters.		\$3,500
9 Retain CAT Instrument panels if healthy.		
10 Replace CAT wiring harness to engine due to wear observed	labor included above	\$6,000
11 Replace all Electrical Switches, low and high voltage.	incluked above	
12 Clean and Paint.		
13 Remove Main Engines and Reverse Reduction gears. Send to OEM for re-build.		
14 NC Machinery Port Engine Rebuild	\$147,500 JS	\$118,000
15 NC Machinery Starboard Engine Rebuild	\$155,000 JS	\$124,000
16A Karl Senner Gear Coolers and Couplers	\$33,125 JS	\$26,500
16B Rebuild Gears		
17 Replace coupling doughnuts.		
18 Service Drivelines, Driveline Services of Portland	\$5,786 JS	\$4,629
19 Replace Anodes	\$2,125 JS	\$1,700
20 Replace bulkhead shaft seal.		
21 Replace engine mounts with new units.		
22 Retain Eco Vent Crankcase Blowby Filter units above engines. Refurbish for reinstall. Take apart, clean, paint and replace filter elements. Replace all hose and soft connector fittings.	NBD	
23 Replace heat wrapped exhaust piping / per original manufacturer specifications.		
24 Replace all hoses in engine room.		
25 new Hamilton Jet controls	tbd est	\$40,000

Waterjets, pump room & overhang

1A (Hamilton Jet Service)	\$53,128 JS	\$42,502
1B		
Inspect Waterjet units and repaired as necessary depending on results of inspection. Complete refurbishment of waterjet hydraulic system. Install new Hamilton AVX system throughout whole boat. Include steering wheel helms and separate Throttle & Bucket control heads similar to present configuration.		
2 R&R Cathodic / Corrosion Monitoring system		
3 Replace waterlift mufflers and exhaust piping components as necessary.		\$25,000
Remove and Re-bed Watertight Hatch Deck Ring. Replace Hatch Gasket and service or replace hardware 4 needed.		\$3,500
5 Remove and Replace Deteriorated Insulation.		
6 Remove and Replace flood light glass windows in transom with glue-in style glass	in glass quote	
7 Replace older halogen flood light fixtures with comparable or brighter LED fixtures.		\$1,350
8 Clean and Paint.		\$7,500

Hull – Sideshell – Transom and Bottom

1 Inspect all outside hull surfaces for damage or deterioration and repair as necessary. Run moisture check on all surface below waterline.		tbd
2 Repaint hull.	\$46,875 PLTPS	\$37,500
3 Remove all layers of bottom paint and recoat.		\$25,000
4 Re-do bottom paint system. Tie coat etc		
5 Remove all manlift components, inspect for wear and replace metal and HDPE bushings and bearings as needed. Re-build hydraulic cylinders and valving. Replace hoses and fittings. Inspect web platform and servings for Ultraviolet & Weather deterioration. Replace if necessary.		tbd
6 Remove, Replace and Re-bed all through hull fittings. Check hull penetration for water incursion.		
7 Add Humphree Interceptors to outboard edges of frog perch, parts without ride control option:	\$16,250 TJN/JPS	\$13,000
8 Intall Humphree Actuator in custom WT box on frog perch	\$22,500 TJN/JPS	\$18,000

Sum of numbers entered above:	\$554,001
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Notes:

- 1 If proceeding with the CAT 3412 mains, consider purchasing a set of swing main engines.
- 2 The addition of the Humphree Interceptors is a way to improve speed. Very effective on Long Beach Pilot Boats, increasing speed by as much as 2 knots in the light condition in the 18 knot range.
- 3 Source Initials:
JS Joe Semler
TJN Tim Nolan
JPS Jacobsen Pilot Service
PLTPS Platypus
\$50,000 estimate for TNMD engineering
- 4 In some cases (Liferafts, Gearboxes, Waterjets) there are A and B options for the same item number, indicating that there is a choice between "Service" vs "Replace" or "Service" vs "Rebuild", in which the cost of one or the other should be counted, but not both.
- 5
Total estimated cost in 2022 dollars. NOTE THAT COST IN 2024 WILL BE HIGHER. \$ 2,213,845