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CERTIFICATION - NO. 11009J
U.S.C.G. Masters License

File #: EMS-8-1415-2

Date of Inspection: August 14, 2015
Commissioned by: Randy Pauly
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General

This survey is a standard production fishing 'work boat' (will be used for recreational fishing) with work-deck, enclosed helm station and small storage area forward. Manufactured in 1979, under the authority of Radon Boats, she is typical of the small commercial fishing boats found on the Central Coast of California.

Vessel Name	“Black Hole”
Designer of Vessel:	Don Radon - Radon Boats
Model Year:	1979
CA. State Registration #:	CF-7721 GM
Registration Tags:	2015 Tags - #K-024986

Specifications

Specifications were taken from common publications, actual measurements or estimations.

L.O.A.	21'	Beam	8'
Draft	Est: 24”	Hull - HIN#	RC00051579
Disp.	4000lbs. (est)	Hull Type	Semi-displacement planing monohull.

SURVEY SITE

This vessel was inspected on its trailer at Morro Bay, Ca. Weather was mild. The client attended the inspection. Additionally, Sea Trials were conducted within the harbor of Morro Bay and upon the Pacific Ocean waters.

GENERAL DESCRIPTION

Vessel:	Twin engine fishing vessel.
Topsides/Trunk Color:	Grayish Black.
Superstructure:	White
Bottom Paint/Boot Stripe Color:	Black
Registration location:	Lower port/starboard superstructure.

SCOPE OF SURVEY

The purpose of this inspection and survey report is to determine, insofar as possible within the limitations of visual and physical accessibility, through non-destructive means the vessel's condition at the time of survey by reporting deficiencies against the standards quoted in the 'Comments' section of this report and to present the surveyors personal opinion as to the vessel's condition. Certain parts of the structure, systems and equipment may be inaccessible without removing decks, tanks, bulkheads and headliners etc. or in the case of cored structures, drilling core samples or, if applicable or the obvious limitations of an inspection of a vessel stored on it's trailer. This would be prohibitively time consuming, potentially destructive, costly to restore, difficult to access and are not within the scope of this survey. All attempts will be made to describe, within the body of this survey report, these limitations.

Coatings build-up, corrosion, marine growth, excessive gear onboard or dirt may have hampered the surveyor's ability to inspect. Additionally, thick layers of bottom paint may inhibit bottom inspection. Trailer is not part of this survey and should not be considered inspected.

It should be noted that moisture meter readings (General Electric 'Aquant' Protimeter) are relative and these instruments are affected by many factors other than moisture and that percussion soundings interpretations and pyrometer (Master-Tool Infrared Digital Thermometer W/Laser) readings (if applicable) are subjective.

Components requiring access with tools or by disassembly are not inspected. A vessel's systems and component parts have a limited useful life and are subject to deterioration over time. Some conditions affecting their useful life include original material specifications, fabrication techniques, environmental exposure and history of use. These system and component parts often give no readily detectable external indication of deterioration or failure. Cosmetic or comfort issues may be addressed where there is a significant effect on the value of the vessel. Electronic and electrical equipment may be tested by 'powering up' only when power is already connected. A complete analysis of the vessels electrical system would require the services of a qualified marine electrician. Only the external visual condition of conductors, connections and panels is reported. This surveyor recommends that a qualified marine mechanic inspect all engines, generators, V-drives, transmissions, sail drives, and/or stern drives and make this part of a complete ongoing maintenance program. Loose gear and accessories are neither inventoried or inspected. This survey is an opinion of the surveyor based on his knowledge and experience. Within these parameters this surveyor will report on the hull, deck, vessel systems, running gear, cosmetic condition and may provide a valuation based on the foregoing. This surveyor cannot predict how the vessel or its systems will perform over time and therefore this report is valid only at the time of survey.

Survey fees are based on L.O.A. - Specifications of the surveyed vessel.

STRUCTURAL

The internal and external structural elements (where accessible) were visually inspected and tested by percussive sounding and/or moisture meter. Moisture levels where measured were taken with a GE-Aquant Protimeter capacitance type digital meter. Relative meter readings are interpreted as follows: 0 – 150 'Low', 151- 225 'Slightly elevated', 226 – 375 'Elevated, 376 + high.

HULL

General Construction:	The hull is fabricated from fiber reinforced resin (referred to as FRP throughout this survey and taken from a female mold). The deck is FRP with plywood core. The hull and deck shells are supported by longitudinal stringers and transverse plywood bulkheads attached to the hull with FRP tabbing. All bonding appears secure where accessible with no sign of fracture or separation. Engine bed transverse support checks secure with no indication of moisture intrusion or delamination. The vessel is in need of a general cleaning and washdown.
Structural Changes:	No structural changes were noticed.
Hull/Deck Joint:	The inward flange type joint is joined internally by FRP tape but not visually accessible for inspection. A vinyl rub rail caps the external hull joint. Rub rails are well secured.
Topsides:	Topsides are 'sighted' fair and sound with moisture readings in the low to slightly elevated range with no more than scuffs and abrasions. Spray chines check sound.
Transom:	Transom is FRP with plywood core sandwich construction. Moisture meter readings and percussive sounding indicates no unusual issues.
Bottom:	The bottom is painted with a black ablative type anti-fouling paint in good condition. The bottom anti-fouling was dry. This vessel was inspected while on its trailer. Although the forward third and the aft third of this vessel's bottom was accessible for inspection, the center third of the bottom - sitting on its low slung bunks, prevented access for inspection. Moisture readings in accessible sections indicate no unusual issues. Percussion sounding did not indicate soft delamination. Accessible bottom surfaces were free of blisters. NOTE: A scrape, approximately 4" long, showing raw fiberglass cloth, was found on the port side hull approximately 2' aft of the port side bows (See Comments 1).
Deck / Superstructure:	The decks and superstructure were tested by percussive sounding and moisture meter readings. The work deck tested sound. The bow deck indicated delamination issues in need of repair (See Comments 2). The port side deck, where the cabin side meets the side deck indicates soft wood in need of repair (See Comments 3). Additionally, a circular area (2") on the starboard workdeck cap rail inspects soft and needs repair. The deck house checks sound. Findings were discussed with client. NOTE: The plywood sections of the interior pilot house show cracked paint due to expansion/contraction and requires sealing and painting.
Deck Scuppers:	Work deck has two 2" scuppers port/starboard.

DECK EQUIPMENT

Stainless steel stanchions with tube safety rail surround the aft 2/3rds of the work deck and are secure. The bow is fitted with a small chain/rope locker with hatch. The deck house cabin sides have aluminum framed, rubber gasketed portlightss with dual aluminum framed, rubber gasketed windshields that are secure and sound. A sliding FRP companionway door is secure.

RUNNING GEAR

- Helm: The helm station has wheel steering. Engine ignition and dash panel includes temperature gauge, oil pressure gauge, volt meter, trim gauges, fuel gauge and engine hour meters (Port meter reads 1009-hrs - Starboard engine meter reads 988-hrs.). NOTE: Unknown if meters are accurate.
- Steering: Steering is free moving.
- Propellers: Propellers check secure and in good order (13-1/2 RH 21) and secured to shaft with castellated nut, cotter pin and lock nut.
- Shaft System: MerCruiser 'alpha' - Outdrive unit.
- Bellows: Good condition.
- Trim Tabs: Yes. Secure and free of visible fluid leakage.



PROPULSION-ENGINE

The engine compartment is in a relatively clean and dry condition with all associated systems secure. It is suggested that a proper engine survey by a qualified marine diesel mechanic be undertaken to fully evaluate the internal and operational functions of this engine.

Engine Mounts: Steel mounts with flexible bushings bolted to brackets and through bolted to encapsulated stringer/beds. Secure and in good condition.

Drip Pan: None fitted.

Cooling System: Heat exchanger with raw water exhaust cooling.

Ventilation: **See Comments 4.** Powered exhaust blower ventilation in engine compartment. Two 3" inch blower exhaust ports (135cu/ft/m @ 12volt). USCG-183.410 ignition protected compliant when repaired. Three inch clam shell exhaust port vents to work deck/overboard.

Exhaust System: Cast manifolds to type approved (SAE J2006) exhaust hose.

Engine:	Twinn	Gas/Diesel:	Gasoline
Manufacturer:	Mercruiser 470	Type:	Naturally Aspirated
Engine Size:	3.7 litre	H.P.	170-hp each
Reduction Gear:	Alpha Outdrives	Flame Arrestor:	Yes - Both engines.

FUEL SYSTEM

The fuel system including tanks, fuel fill hose, bonding system, fuel hose, vent hose, and other related equipment *within* the fuel tank compartment (not accessible for inspection) are reported by owner as new. However, fuel tank compartment was sealed and inaccessible for inspection at time of survey. Code of Federal Regulations, Title 33 Part 183 subpart J – Fuel Systems, should be consulted. Danger due to the explosive nature of gasoline is a serious issue. Inspection of the entire engine/fuel system by a qualified ABYC marine engine mechanic is strongly recommended.

Diesel/Gas: Gasoline.

Fuel Tank: Reported by owner to be new 180-gallons aluminum. Not accessible for inspection.

Fuel Fill: Metal Deck fill. Work deck.

Fuel Filters: Spin on type water separator/filter

Photos “Black Hole”



Fuel Lines: U.S.C.G. Approved 'A1-15'

OTHER FUELS

None.

SEA CONNECTIONS

There are three below the waterline hull fittings located on this vessel **(See Comments 5)** .

- 1. Bait tank inlet w/Rule pump. Gate valve type.
- 2. Washdown inlet. Gate valve type.
- 3. Capped thru- hull. Bronze thru-hull with galvanized cap.

BILGE PUMP(S)

A. Rule 500 automatic.

GROUND TACKLE

Small Danforth type anchor with chain leader and three-strand rode. Bagged ‘Drogue’ in bow.

NAVIGATION EQUIPMENT

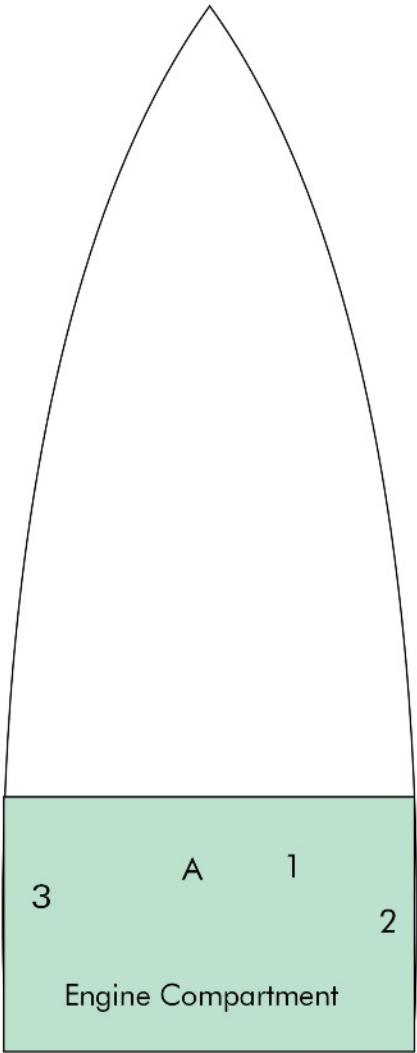
Navigation Lights: Meets USCG Part C Rule 20-31 & 72 COLREGS

Compass: None sighted. Not required on vessels >26’.

Radar: Raytheon R-21X Raster. ‘Powered Up’.

Chart Plotter: Furuno ‘Nav-Net, MFD-12. Serial #1366-0215.
‘Powered up’.

GPS: Furuno GP-36. ‘Powered Up’.



Marine Radios: (2) VHF - w/Distress. 'Powered up'.

Entertainment: None.

Autopilot: Yes. Control at helm.

Windshield Wipers: Yes.

DC ELECTRICAL SYSTEM

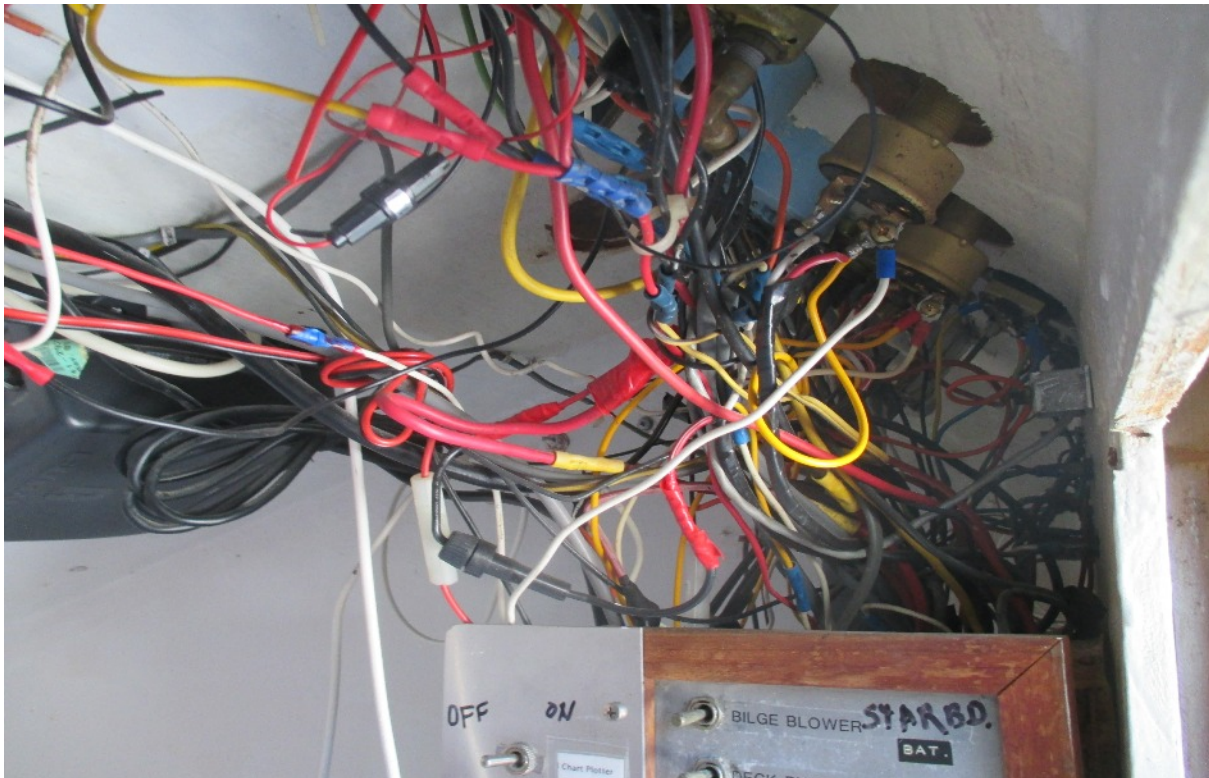
It is recommended that a qualified ABYC marine electrician inspect and organize the electrical system as the wiring at the vessel's electrical panel is disorganized. No wiring schematics were available.

DC Panel: 'Stainless toggle switch type' - circuit breaker main panel.

Master Switch: (2) Three position.

Conductors: Marine quality. NOTE: Organization of conductors at panel is recommended.

Batteries: Two sealed type wet cell 12-volt 'Centennial' group 27 wet cells. One group 27, 12-volt wet cell 'Trojen' spare. **NOTE: Batteries require housing in enclosed battery cases with tie-downs.**



Battery Switch: Yes – three position.

Anodes: Cathodic protection system for outdrives.

Bonding: No bonding .

SAFETY EQUIPMENT

Safety equipment that is not integral to the vessel or permanently installed has not been inventoried or inspected by this surveyor. ***Such equipment as required by law is the responsibility of the owner. The U.S.C.G. 'Safety Boating Guide' lists safety equipment required on this vessel and should be consulted.***

Fire Fighting System: 2 - B-1 Portable extinguishers.

EMERGENCY/SAFETY EQUIPMENT

Life Jacket- PFD's: One approved Type I, II or III PFD for each person on board ; and one throwable Type IV device (Type-4 Life Ring sighted onboard) (A type V PFD may be used in lieu of any wearable PFD if approved for the activity in which the boat is being used. A TYPE V HYBRID MUST be worn to be legal.) Required for every person onboard. None sighted aboard. Four Type-2 PFD's sighted.

Signaling Devices: Must carry approved visual distress signals for both daytime and night-time use. Four 'Orion' signal flares and one flare pistol (no flares for pistol) (all expire on 7/2015. Check USCG web sight for suggested/required safety equipment.

STANDARD USED

Standards used are the most current editions and may not have been in place when this vessel was built. ABYC standards are voluntary but generally accepted throughout the marine pleasure craft industry and courts as “the standard”. Compliance with 'Collision Regulations' (COLREGS) is mandatory. NFPA 302 is a voluntary standard. Standards quoted may have been paraphrased in the interest of brevity. A 100% accurate survey to the aforementioned standards would require complete disassembly of the vessel and inspection by several specialists and is not within the scope of this survey.

American Boat and Yacht Council, Standards and Technical Information Reports
for Small Craft'.

National Fire Protection Association, NFPA302 “Fire Protection Standards for Pleasure and Commercial Motor Craft”.

Nigel Calder, “Boatowner’s Mechanical and Electrical Manual” Second Edition, Copyright 1996, McGraw Hill.
Best Boat Practices.

Federal EPA: Small Boat Sanitation Requirements.

Sea Trial Summary

A Sea Trial of “Black Hole” was conducted after the initial inspection of this vessel. The owner of the vessel, the client (buyer) and this surveyor participated. The vessel was trailered into the water at the the Morro Bay launch ramp at 4:30pm. The weather was clear and breezy with a 6+ sea running outside the harbor entrance. The vessel motored easily within the harbor with no unusual issues. Once outside the breakwater the vessel was brought up to speed and handled the 6+ foot swell well. Engine data showed no unusual issues. Down swell steering, with roundhouse turns to port and starboard proved smooth and comfortable. Overall, “Black Hole” handled well with no unusual issues. Sea Trial conducted over a one hour period.

End of Summary

USCG RECALLS

A search of the 'USCG Recall Notice' database revealed no issues with this model.

BOAT-US CONSUMER COMPLAINT DATABASE

A search of the BoatUS 'Consumer Complaint' database revealed no issues with this model.

COMMENTS

Comments based on a specific authority are cited as such. Other comments are based on the opinion of the surveyor as being of '*good marine practice*'.

A: Issues in need of immediate attention:

4. Repair port and starboard engine room blowers.

B: Issues that may enhance safety and/or value of vessel

2. Repair forward deck delamination problems - As discussed.
3. Repair port side deck soft wood issues - As discussed.
5. Replace engine room gatevalves with marine grade seacocks or ball valves.

C: Issues suggested as maintenance or upgrade

1. Repair Scrape on forward port hull.

Overall Condition:

Based on the general evaluation of the subject vessel by the undersigned marine surveyor using non- invasive techniques and without removals to expose concealed parts except for opening standard access hatches, it is the opinion of the attending surveyor that the 1979 21' Radon Craft is in **“Fair”** condition as accessible for examination.

“Current Fair Market Value” is the price, in terms of currency or its equivalent, that a willing seller will accept for property from a willing buyer, neither part being under undue pressure to act in the matter. The assigned value assumes that any components, systems or equipment not inspected during the survey are in serviceable condition commensurate with age.

In arriving at the approximate *Fair Market Value* of the subject vessel, the approach of comparing market quotations of similar vessels listed in regional marine vessel sale magazines as well as online brokerages and private online sources along with the BUC Value Pro (Boaters Blue-book), NADA and other resource material were used, were applicable, in determining the *Fair market Value* of this vessel.

Consideration of the current economic climate, vessel location, the vessels age, all anomalies noted at the time of the survey, whether minor or major listed under 'Comments' or “Notes” have been taken into consideration when attempting to evaluate the *'Fair Market Value'* of the vessel and her fitness for the intended service – ***Near Shore Recreation.***

This valuation opinion is intended for insurance and financing purposes only and is not intended to influence the purchase price of the subject vessel. The surveyor has no interest in this vessel, financial or otherwise. It is the opinion of this surveyor that current *'Fair Market Value'* of this vessel is:

\$18,000. USD.

Eighteen Thousand Dollars

Sent Electronically

Prepared without prejudice.

Drew G Jacobson

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ECO Marine Services

United States Survey Association Certification # 11009J14

Seal Stamp