ROB SCANLAN, CMS/MMS/CACMS

ACCREDITED, CERTIFIED & REGISTERED MARINE SURVEYOR & ADJUSTER

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SURVEY REPORT NUMBER: OLD SAYBROOK POLICE BOAT-2015.4-SEA ARK-23

SCOPE OF THIS SURVEY REPORT: Structural Condition/Mechanical and Electrical Conditions.

PARTY REQUESTING THIS SURVEY: Old Saybrook Police Department

BUYER: Old Saybrook Police Department
ADDRESS: P.O. Box 301
CITY: Old Saybrook
STATE: CT
ZIP: 06475

NAME OF VESSEL: **
MODEL YEAR: 1993
DATE OF CERTIFICATION OR MANUFACTURE: June 1993
DOCUMENTATION/REGISTRATION NUMBER: **
HOME PORT: Old Saybrook, CT.
TYPE OF VESSEL: Utility Police Boat
CURRENT USE: Marine Law Enforcement
DATE OF SURVEY: 6 April 2015
DATE OF THIS REPORT: 13 May 2015
SURVEY LOCATION: Oak Leaf Marina in Old Saybrook, CT.
IN OR OUT OF WATER: Out of water on the trailer.

DESIGNER/BUILDER: Sea Ark Marine Inc; Monticello, AR 71657
MODEL: SEA ARK-23 CENTER CONSOL
BUILDERS HULL NUMBER: S A M A 0 4 3 5 F 3 9 3

HULL MATERIAL: Welded aluminum
HULL COLOR AND GRAPHICS: White hull with black bottom; blue and gold graphics and stripes.

USCG DOCUMENTATION QUERY ATTACHED: **
BOAT HISTORY REPORT ATTACHED: Yes
USCG LIEN SEARCH/ABSTRACT OF TITLE REQUESTED/ATTACHED **
LOA: 23.5
LWL: 21.2
BEAM: 8.8
DRAFT: 2.0
DEADRISE: 16-degree.
CAPACITY: 4500

Many of the mandatory standards promulgated by the United States Coast Guard (USCG), under the authority of Title 46 United States Code (USC); Title 33 and Title 46, Code of Federal Regulations (CFR), and the Voluntary Standards and Recommended Practices developed by the American Boat and Yacht Council (ABYC) and the National Fire Protection Association (NFPA) have been used as guidelines while conducting my surveys.

Key codes within the pages of this survey report reflect current condition with respect to the date of manufacture/build.
{VG=VERY GOOD} {GVG=GOOD TO VERY GOOD} {G=GOOD} {FG=FAIR TO GOOD} {F=FAIR} {P=POOR}

(*) notation in the recommendation/findings pages. (**) not on board/not available or not tested at this time

HULL: The hull is constructed with welded aluminum 5086 alloy plate over welded aluminum frame. Bottom plating is constructed with 3/16" aluminum stock; hull side plating @ 3/16"; chine plating @ 3/16"; bull nose plating @ 3/16"; cockpit deck plating @ 3/16".

Transverse bulkhead plating is 3/16" aluminum; transom plating @ 1/4" aluminum plating. Deep web longitudinal frames, transverse frames and half-frames @ 3/16". Flat bar aluminum longitudinals are 1/4" x 2" aluminum stock.

FLOATATION: There are four floatation chambers constructed with welded aluminum. Two on the port side fore and aft and two on the starboard side fore and aft. All appear intact where accessible and visible. (G).

DECK/COCKPIT: Welded aluminum plate. (*).

BILGES: Clean and dry. (GVG).

STRINGERS/TRANSVERSE FLOOR FRAME/MEMBERS: All appear intact; all welding appears tight.

TRANSVERSE BULKHEADS/PARTITIONS/FIBERGLASS TABBING/SECONDARY BONDING:

SHEER CLAMPS/DECK & HULL JOINT: This perimeter welded joint appears intact where accessible and visible. (*).

FITTINGS: Welded aluminum bow Sampson post; port and starboard aft mooring posts; stainless steel fore, aft, midship cleats. (G)(*).

OVERALL VISUAL INSPECTION: Many areas on the hull with significant corrosion, wasted aluminum plating and dimples in the aluminum hull plating noted. (*).

RUB RAILS/TOE RAILS: Commercial grade rigid PVC perimeter rub rail upper gunwales; port and starboard aft-quarters extending to the midships. These appear secured tight. (G).

HATCHES: The cockpit sole/deck has (1) aluminum hatch over the centerline fuel tank; (1) inspection hatch under the steering console aft; (1) welded aluminum engine compartment access hatch. (*).

VENTILATION: Hull vent-louvers aft provide forced and natural ventilation to the engine compartment and bilge area. (G).

BIMINI/DODGER/SUPPORT FRAME: Custom fabricated pipe welded aluminum frame with hard top and commercial series canvas with eisenglass curtains. The enclosure curtains and canvass appear intact. Broken welds and structural cracks in the pipe welded frame noted. (*).

TANK AND FUEL LINES

FUEL/TOTAL GALLONS: Gasoline.

TANK MATERIAL: (1) welded 5052 aluminum fuel tank. 85-gallons estimated. (*).

TANK CONDITION: Appearing intact where visible and accessible. Limited, confined and restricted inspection access.
LOCATION OF TANKS: Under the cockpit sole.

FILLER HOSE: USCG type A2 approved; SAE J1527 manufactured in 2004 and piped tight to the starboard filler plate. (G).
FUEL LINES: USCG type A1; SAE J1527. (*).
FUEL SEPARATORS/FILTERS: Mercury #35-802893T fuel water separator filter and (1) Mercury in-line secondary filter. (G).
FUEL SHUT-OFF VALVES: &&
OVERFLOW: USCG approved; SAE J1527. (GVG).

TANK GROUNDED TO THE DECK FILLER PLATE: Yes

MECHANICAL OR ELECTRICAL FUEL GAUGE: (1) fuel gauge at the helm instrumentation panel. (GVG)

FUEL TANK SECURED: Chocked/secured tight in place where accessible and visible. (GVG).

TANK FACTORY INSTALLED: Yes

FUEL TANK PRESSURE TESTED: No

NOTES: Although very limited, restricted and confined inspection access for the fuel tank(s) and related fuel systems, there were no gas fumes or leaks detected were accessible and visible.

MAIN ENGINE

ENGINE MANUFACTURER: Mercruiser MCMMX6.2MPI. Block casting #2M1008

YEAR: 2012 service year with documents reported.

CYLINDERS: V8

HP: 383 Magnum

ENGINE SERIAL NUMBER: 1G403024

ENGINE HOURS @ HELM METER: 1914.7

COMPUTER SCAN-TOOL HOUR READINGS: 857.8

OUTDRIVE MODEL NUMBER: Mercruiser Bravo-series

OUTDRIVE SERIAL NUMBER: 1A411528

OVERHAUL/REBUILD/MAINTENANCE PROGRAM: Records indicate considerable maintenance. Records also indicate the engine installed July, 2012.

EXHAUST: Wet overboard discharge through the lower unit. Reinforced rubber exhaust bellows secured tight with stainless steel clamps. (G).

ENGINE COOLING SYSTEM: Raw water.

DRIVE BELTS: Serpentine belt appearing tight.

ALTERNATOR: Marine vapor proof tested serviceable. (GVG).

ENGINE CONTROLS: Mercury single lever throttle and gear shift controls tested operational. (G)(*).

ENGINE IGNITION/EMERGENCY KILL SWITCHES: Tested. (GVG).

ENGINE NEUTRAL SAFETY SWITCH OVER RIDE TESTED: Tested. Engine does not start in gear. (GVG).

ENGINE INSTRUMENTATION: RPM/Volts/Oil/Temp/Fuel/Trim & Tilt. All tested operational. (GVG).

ENGINE ALARMS: Visual and audible. (GVG).

BREATHER/FLAME ARRESTOR: Mercruiser/SAE J1928. (GVG).

OIL FILTER: Mercury #35-858004K. (G).

OUTDRIVE GEAR OIL MONITOR: Tested. (GVG).

THROUGH HULL SEACOCKS/STRAINERS: Apollo Conbraco bronze ball valve for the engine intake tested by hand. (GVG).

ENGINE STRINGERS/BEDS: Welded aluminum engine bed with bushed engine mounts. The engine was shifted in and out of gear repeatedly and remained secure in the bed/mounts. (G).

PROPS: Three-bladed prop in need of reconditioning. (*).

STEERING SYSTEM: Teleflex hydraulic with stainless steel destroyer type helm-wheel tested. (G)(*).

BILGE PUMPS: (1) Rule 1500 with independent breaker and remote float switch aft tested. (G).

BILGE BLOWER(S): (1) Atwood Turbo-3000 tested. Vent hoses need replacing. (*).

FIRE EXTINGUISHER(S): (2) KIDDE 10-B:C indicating full-charged. (G).

FIXED FIRE SYSTEM: None.

NOTES: The engine appears to have been professionally maintained.

ENGINE OPERATIONAL READINGS TAKEN FROM THE HELM INSTRUMENTATION GAUGES

HOUR METER READING @ HELM PANEL: 1914.7
RPM'S @ IDLE: 650-675
WATER TEMPERATURE @ IDLE: 155-160
DRIVE OIL @ IDLE: normal
OIL PRESSURE @ IDLE: 40-45
VOLTS @ IDLE: 14.0

ACTUAL RUN DATA USING INDEPENDENT INSTRUMENTS / METERS / GAUGES

RPM'S @ IDLE: 639.7
WATER TEMPERATURE @ IDLE: 156.9
EXHAUST MANIFOLD TEMPERATURE @ IDLE: 112/117
EXHAUST RISER TEMPERATURE @ IDLE: 88/91
OIL FILTER TEMPERATURE @ IDLE: 129
OIL COOLER TEMPERATURE @ IDLE: **
TRANSMISSION COOLER TEMPERATURE @ IDLE: **
EXCHANGE TANK TEMPERATURE @ IDLE: **
DRIVE OIL TEMPERATURE @ IDLE: **
OIL PRESSURE @ IDLE: 46.3
VOLTS @ IDLE: 14.3
INJECTORS ON TIME @ IDLE: (GVG).
MANIFOLD PRESSURE: 8.1
MANIFOLD AIR TEMP: Normal
SPARK ADVANCE: 3.9
BLOCK PRESSURE: 1.7
FUEL PRESSURE: 38-43 PSI

EXHAUST MANIFOLD & RISER TEMPERATURE READINGS RECORDED ABOVE = PORT SIDE / STARBOARD SIDE

CYLINDER COMPRESSION READINGS

No. 1: 175	No. 2: 175
No. 3: 180	No. 4: 175
No. 5: 170	No. 6: 165
No. 7: 170	No. 8: 170

COMPUTER SCAN TOOL HOURS AND RUNNING TIME BREAKDOWN

TOTAL ENGINE HOURS RECORDED ON COMPUTER SCAN TOOL: 857.8

HOURS ENGINE HAS OPERATED BETWEEN 0 AND 749 RPM: 327.3

HOURS ENGINE HAS OPERATED BETWEEN 750 AND 1499 RPM: 426.0

HOURS ENGINE HAS OPERATED BETWEEN 1500 AND 2999 RPM: 58.5

HOURS ENGINE HAS OPERATED BETWEEN 3000 AND 3499 RPM: 23.3

HOURS ENGINE HAS OPERATED BETWEEN 3500 AND 3999 RPM: 15.1

HOURS ENGINE HAS OPERATED BETWEEN 4000 AND 4499 RPM: 4.6

HOURS ENGINE HAS OPERATED BETWEEN 4500 AND 4999 RPM: 2.5

HOURS ENGINE HAS OPERATED BETWEEN 5000 AND 5499 RPM: 0.2

HOURS ENGINE HAS OPERATED OVER 5500: 0.0

RATED WOT: 4800-5200

CYLINDER FIRING ORDER: 1 8 4 3 6 5 7 2

CODE SCAN RESULTS: NO CODES FOUND

NOTES: Compression test results were (GVG). Sea trials were not conducted.

ELECTRICAL SYSTEMS

DC WIRING: 12VDC wiring is marine grade color coded multi-stranded copper with thermal-insulated PVC covering. All wiring appears banded and routed properly where accessile and visible.

FUSES/BREAKERS: 50amp engine ignition breaker; (2) Blue Seas #7104 battery breakers; UPM-series 12 volt DC instrumentation marked and designaed breakers. (G).

BATTERY SELECTOR SWITCH/MASTER SWITCH: (1) marine grade vapor proof Guest three-way tested. (G)(*).

BATTERIES: (2) Interstate marine deep cycle 27M-XHD. (GVG).

BATTERY ELECTROLYTE CELL READINGS: Both load tested well. (GVG).

BATTERY PROTECTION: Molded polyethylene boxes with lids. Lid cracked on one.

WIRING PROGRAM: 12VDC with negative ground.

CIRCUIT PROTECTION: Fuses and breakers all tested serviceable. (GVG).

CONVERTER/CHARGER/INVERTER: Engine driven marine grade vapor proof alternator tested. (GVG).

ELECTRICAL SYSTEM DETAILS: Batteries are tested with the Midtronics Micro-400 Power Sensor digital battery analyzer/computer. Although dated, the DC wiring appears routed and banded properly where accessible and visible.

ELECTRONIC EQUIPMENT

VHF RADIO(S): (2) Motorola #XTL2500 tested. (G).

UHF/TWO-WAY RADIOS: (2) Motorola CDM1550-LS tested. (GVG).

RADIO INTERFACE David Clark #41021G-01 module. (GVG).

RADIO DIRECTION-FINDER: Simrad Taiyo #TD-L1550. (G).

INTERCOM: David Clark Marine. (GVG).

RADAR: Older Furuno 1622-RDP-125 with s/n #3393-4385. (*).

SATNAV: Older Garmin GPS-MAP 740S with s/n #1RV039725. (*).

DEPTH SOUNDING DEVICES/INDICATOR(S): Uniden #QT-206 digital tested. (G).

KNOT LOG: Integral with the elctronics.

SHIP'S COMPASS: Ritchie Powerdamp 2-1/2" card. (*).

SEARCH LIGHT: 12 volt DC electric Guest remote. (G).

NAVIGATION LIGHTS: International COLREGS tested. (G).

COCKPIT/DECK LIGHTS: 12VDC, LED-series cockpit spreader lights fore, aft and side. (G).

SIGNALING DEVICE: Integral with the electronics (YELP/SIRENE). (GVG).
UNDER WATER LIGHTS: **

ADDITIONAL EQUIPMENT/ELECTRONICS: External loud-hailer speakers; Law Enforcement-series light/strobe bar on an elevated aluminum arch; VHF, GPS,UHF antennas; radome; light distribution controls. (G).

HEATING/AIR CONDITIONING: (1) 110VAC electric heater for the engine compartment. (*).

ZINC ANODES & BONDING SYSTEM: MERCATHODE system installed. All bonding wire connections appear tight. All zinc anodes due for replacing.

ONBOARD ELECTRONICS NOTATION: All powered up and appear operational. Many are outdated.

ADDITIONAL GEAR/EQUIPMENT AND APPURTENANCES

Overhead electronics locker.

Consol leaning bolsters with integral locker.

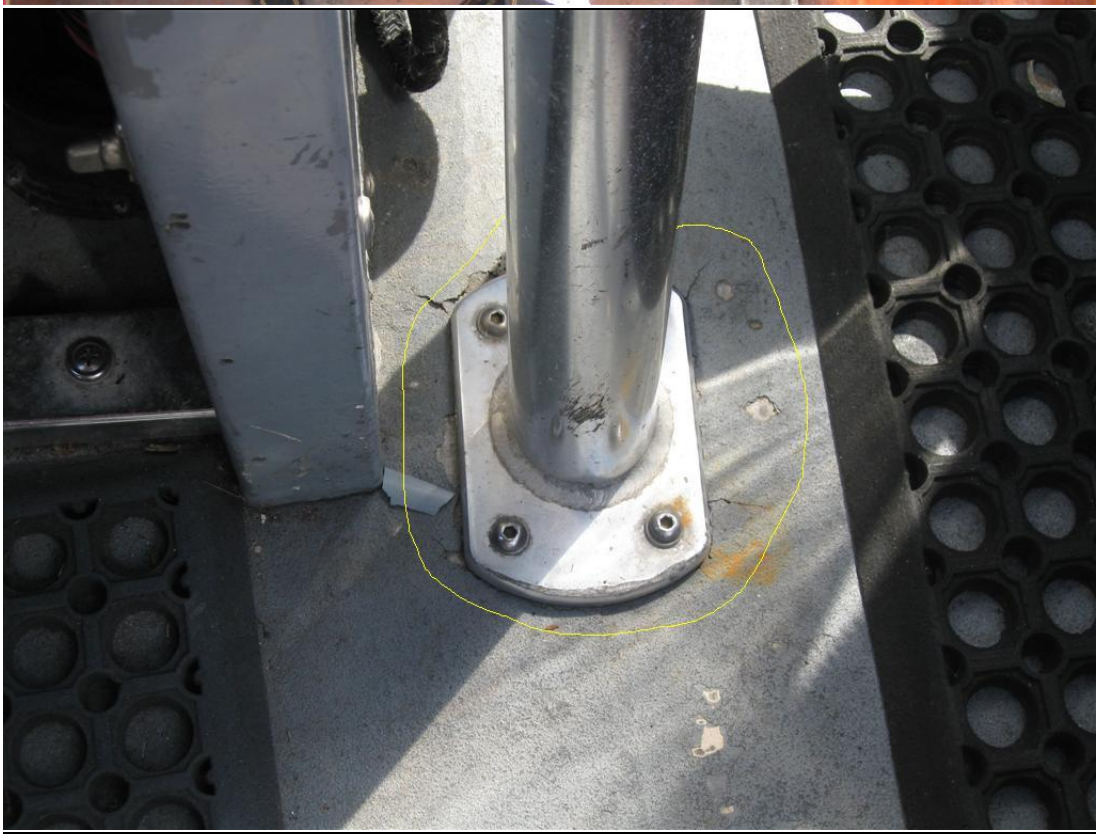
Welded aluminum engine box with sound & heat-insulated blankets.

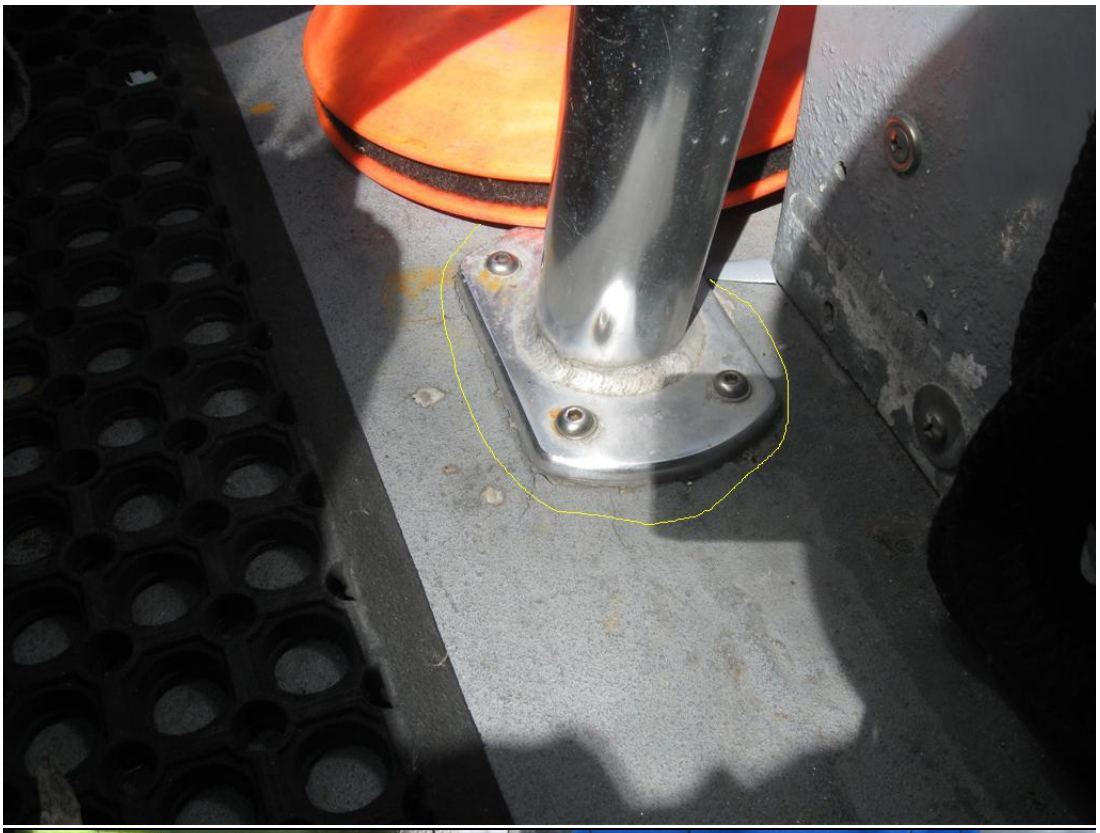
(2) type IV throwable devices.

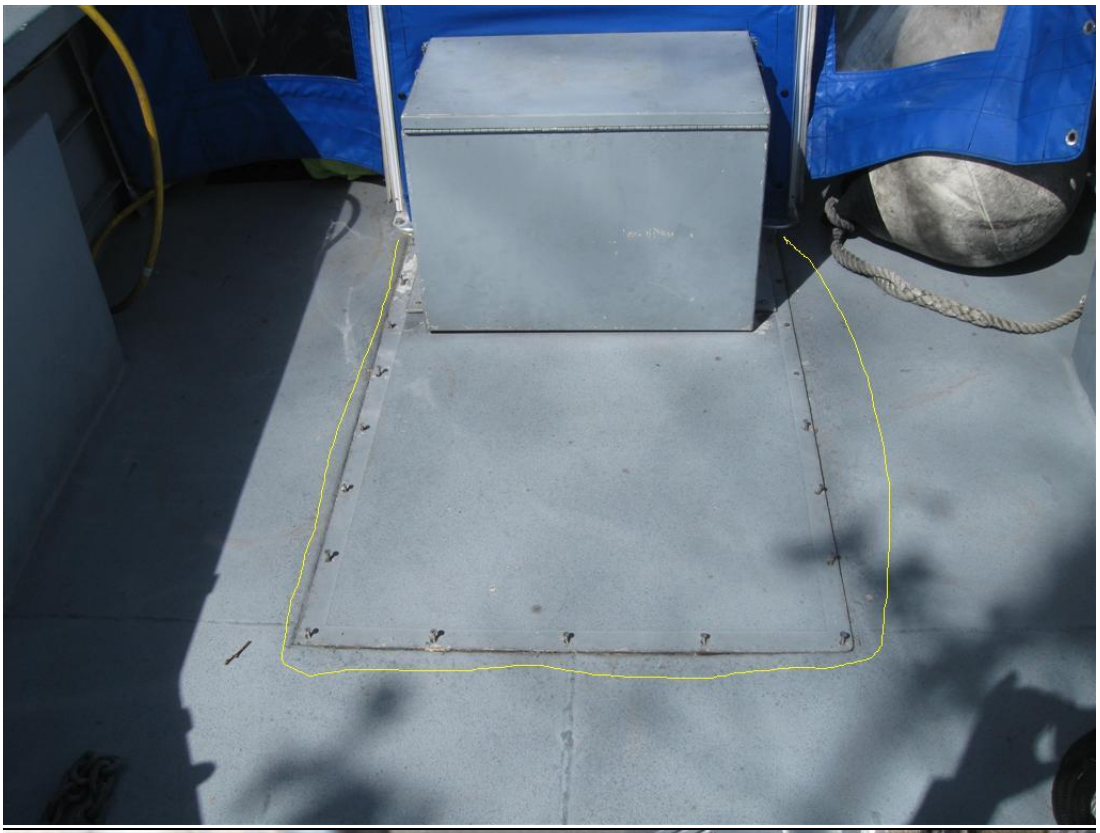
(6) nylon docklines.

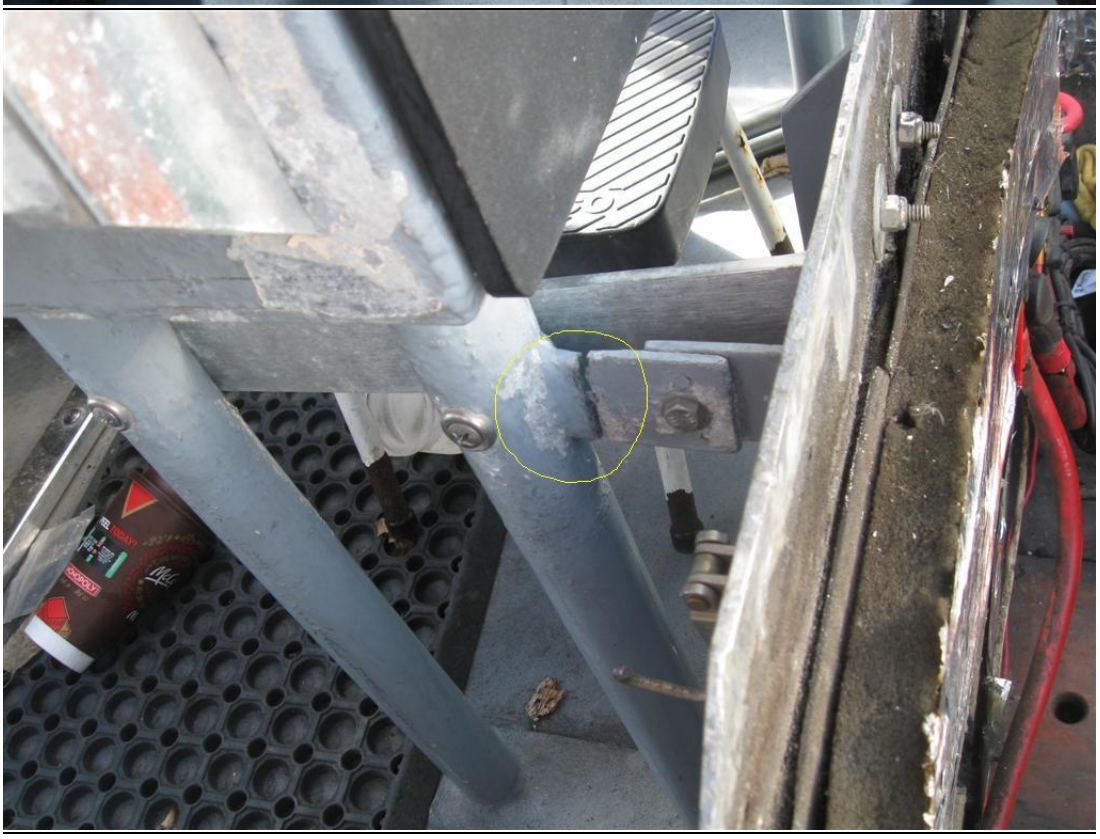
Anchor with chain and rode.

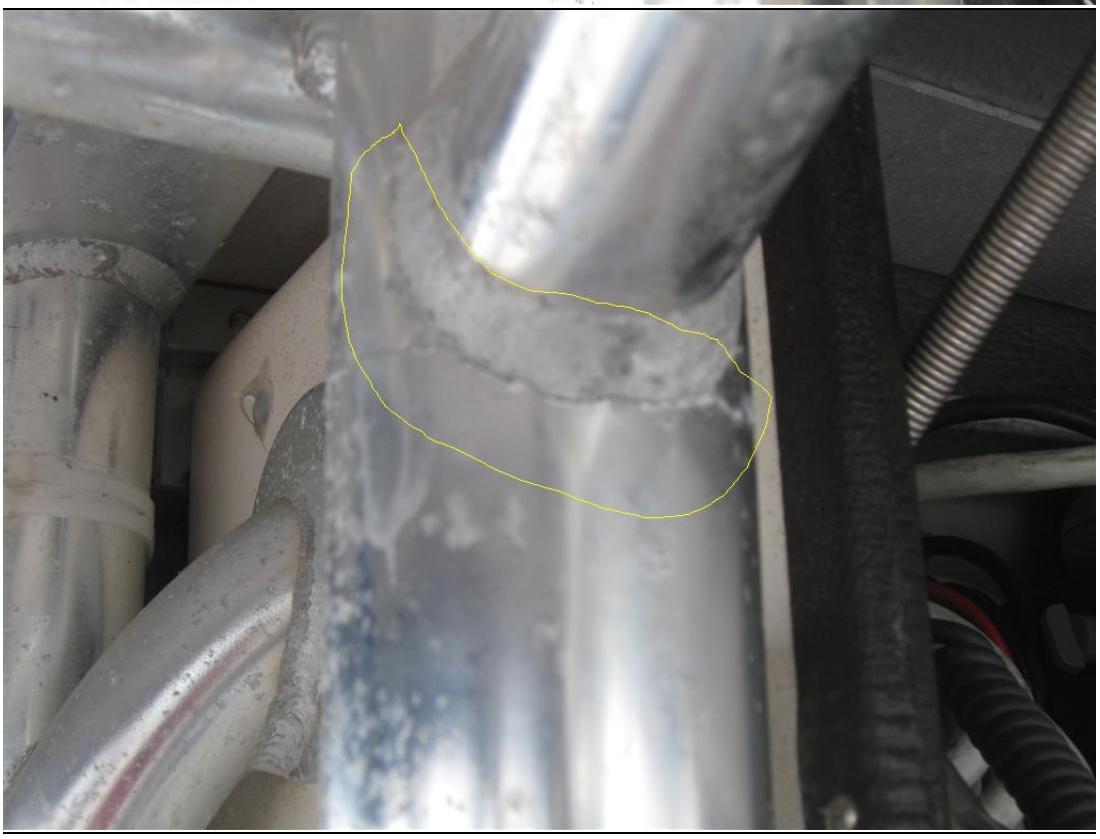
DIGITAL PHOTOS

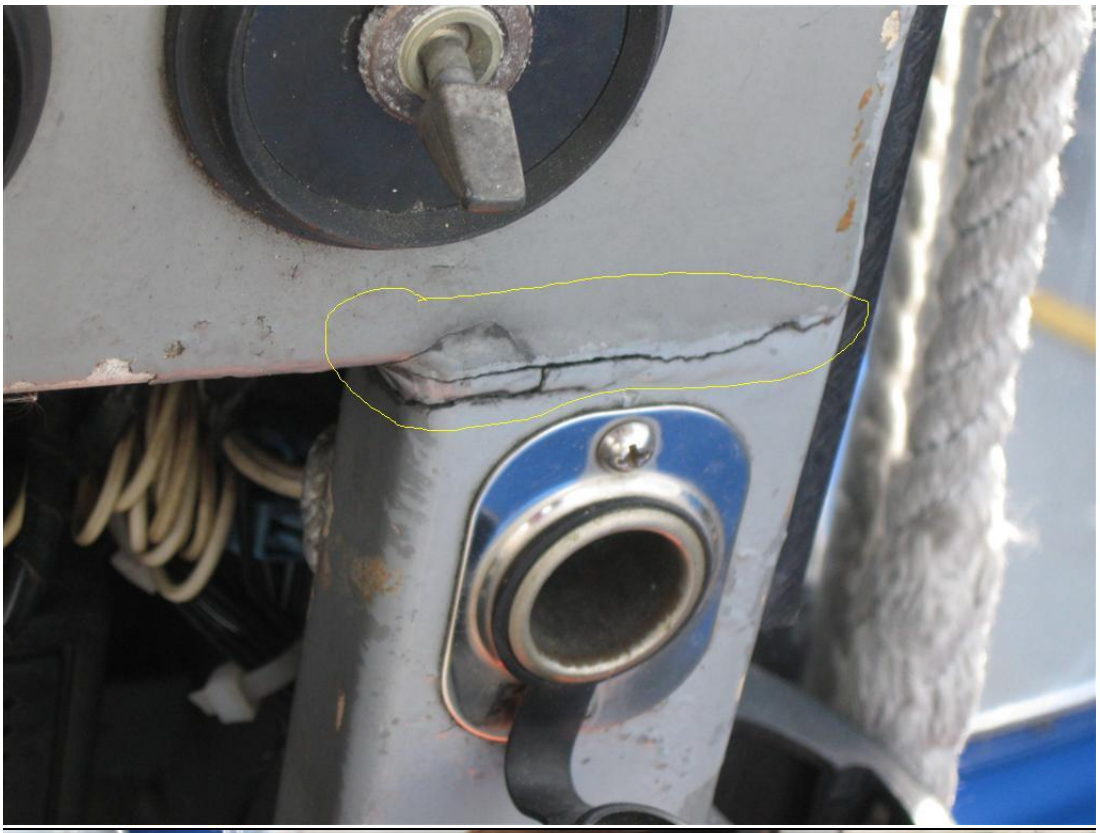













DC PO
BLOWER
RADAR
HAV/COM
UPM


170


176 3/16"


212


214 +3/16"

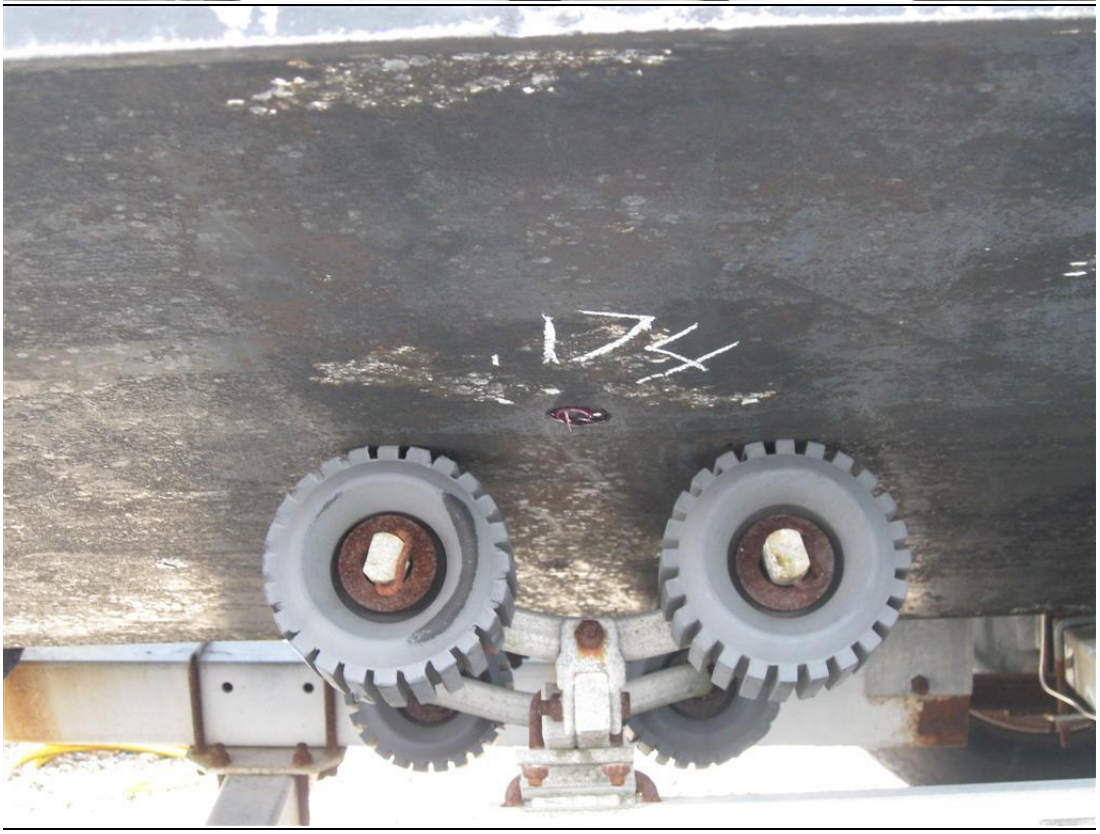

.260
+ 1/4"


SAMA0435-393


174 3/16"
178


214
174


↓ 176 = 3/16
176


174


204
176


-3116
17H
BOAT


OLICE


ybrook


202
+3/11"
202
3/16"


POLICE Old Say


POLIC


174 -3/16"


178 -3/16"


+3/16
.200


POLICE
Old Saybrook


SAMA0,43.5t3.93


Old Saybrook
POLICE
M6
.260
+ 1/4"
.282
+ 1/4"
.262


M6
brook
ICE
.232
.234
.230
.236
288 +1/4"


Old Saybrook
POLICE
Old Saybrook
POLICE


POLICE
POLICE Old Saybrook


POLICE
Old Saybrook POLICE

RECOMMENDATIONS/FINDINGS/CONCERNS

RED: Must be corrected/repaired prior to placing vessel in service. These are safety hazards and concerns that may in fact cause injury to the operator(s) or occupants of this vessel.

YELLOW: Recommended during this year while the vessel is in service.

GREEN: Not an immediate safety concern but needs to be addressed.

STRUCTURAL

Significant corrosion detected on the transom, port, starboard hull plating above the waterline as depicted in the attached digitals.

There are dimples in the hull plating below the waterline/bottom. No failed welded plate detected.

The transom was modified to accommodate the engine and outdrive assembly. The two-part epoxy program used for the transom assembly-plates is deteriorated. The outdrive; interior and exterior transom assembly will need to be removed to better-assess the overall integrity of the transom in this location.

Several areas of broken and cracked welding: console; welded frame; base of the consol at the cockpit deck.

Many areas on the perimeter gunwale with lifted paint and corroded aluminum plating.

The screw-fasteners for the cockpit deck hatch over the fuel tank will need to be replaced and the perimeter gasket replaced. These screw-fasteners were all loose and the entry-holes corroded.

Sampson-posts forward and aft are welded to the deck/gunwale-caps. The bases are starting to corrode.

With respect to the aluminum pipe-welded frame and hard top, this entire unit is acting as a “crow-bar” situation. This entire welded frame is not secured properly to the cockpit/deck sole. Depicted in the attached digitals, there are many areas showing broken welded frame-supports and transverse structural members that have broken welding. This frame has four-vertical supports that are not secured tight at the bases and it is in fact causing the cockpit sole/deck to flex during sea conditions.

There is a plastic through hull on the transom just below the gunwale that should be replaced.

The aft port floatation chamber on the aft cockpit deck/sole has been compromised. The bilge pump discharge hose enters this floatation chamber and holes have been drilled and fasteners installed to accommodate hardware at some point in the past.

My aluminum hull ultra-sound readings, as depicted in the digital photos, did show areas of acceptable aluminum plating with respect to hull integrity. What is most noted is the extent of the corroded hull plating as previously described above.

MECHANICAL

The lower unit/outdrive has been subjected to corrosion. Consideration should be given to replacing the outdrive.

The prop will need to be reconditioned given the extent of the corrosion.

All stainless steel hydraulic lines for the outdrive trim & tilt need to be replaced. All are worn.

The sound and heat insulation-blankets on the underside of the engine box are deteriorating and need to be replaced.

Lubricate the engine controls and related assemblies.

Top-off the hydraulic steering fluid.

Top-off the outdrive trim and tilt hydraulic fluid.

The fuel tank showed signs of corrosion. Best to have this tank pressure-tested for integrity.

All fuel feed lines should be replaced; all are starting to deteriorate.

RECOMMENDATIONS/FINDINGS/CONCERNS

ELECTRICAL

The engine compartment heater should have a dedicated AC-electrical breaker and a marine receptacle for the power cord.

Lubricate the battery switch to operate more easily.

Replace the broken bilge pump switch at the helm instrumentation panel.

Electronics are old and outdated. The molded plastic casing for the radar unit is cracked.

SAFETY

Replace the bilge blower and bilge vent hoses; all are deteriorated/crushed.

The compass will need adjusting/calibrating.

Recommendations/findings were discussed with the party requesting this survey. This initial survey report has been prepared and submitted in good faith. It is understood and agreed, that the services rendered by Rob Scanlan, Accredited, Certified and Registered Marine Surveyor were performed to the best of my ability.

Reports submitted, either oral or in writing, are accepted as my opinion and best judgment. These are not in any way intended as a representation or warranty as to the condition of the vessel or any of the equipment and appurtenances. It is further understood and agreed that I will not be held responsible for any loss or damages, direct or consequential, arising out of the condition of this vessel, or by any error or omission on my part as the attending Marine Surveyor. Payment and use of this initial and final survey report shall constitute acceptance of these conditions.

REMARKS: This SEA ARK-23 is in-service as a public safety first-responder unit. It is a law enforcement vessel on patrol round the clock, seven days per week throughout the year. The considerable cost to repair the many issues are not cost-effective. It is now at the end of the service-life.

I have agreed to stay on as consultant to the Old Saybrook Police Department and review any of my initial recommendations/findings.

I reserve the right to amend, extend and amplify the contents of this initial survey report in light of additional information or as circumstances warrant.

Thank you for your trust and your business.

ROB SCANLAN

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United States Coast Guard
U.S. Department of Homeland Security

UNITED STATES COAST GUARD TITLE 46 COMMERCIAL VESSEL EXAMINER
NAVTECH U.S. CAPTAINS / U.S. SURVEYORS ASSOCIATION
USSA MASTER #0121088/S