DIVPRODEVINST 3120.2D
6 MAY 2016

DIVISION OF PROFESSIONAL DEVELOPMENT INSTRUCTION 3120.2D

From: Deputy Commandant of Professional Development

Subj: STANDARD OPERATING PROCEDURES FOR YARD PATROL CRAFT AT USNA

Ref:
(a) WRNOTE 3140 - Heavy Weather Preparation and Response
(b) DIVPRODEVINST 3511 (series) - OIC/CM Qualification Instruction
(c) DIVPRODEVINST 3541 (series) - Main Space Fire Doctrine
(d) OPNAVINST 3120.32 (series) - SORM
(e) Watch Officers Guide
(f) Seamanship - Fundamentals for the Deck Officer
(g) OPNAVINST 3100.7 (series) - Preparing, Maintaining and Submitting the Ship's Deck Log
(h) SEANAVWFNOTE 3500
(i) Fundamentals for the Deck Officer
(j) Naval Shiphandler's Guide
(k) WRINST 3540 (series) - Engineering Department Organization
(l) WFINST 3501.2C - Tag Out Instruction
(m) DOD 2000.16 - DoD Antiterrorism (AT) Standards
(f) NTP 13B - Flags, Pennants, and Customs

Encl:
(1) Standard Operating Procedures for Yard Patrol Craft at USNA (YP SOP)

1. Purpose. To publish the policies and standard procedures for routine Yard Patrol craft (YP) operations. This instruction augments the guidance offered in references (a) through (f).

2. Background. YPs are used for a variety of training serials to support the professional development of midshipmen and the overall USNA mission. This instruction reissues regulations and procedures governing the conduct of all YP operations and is a substantial revision of previous documentation. The contents of this publication should be thoroughly reviewed by all personnel charged with the safe and routine operation of YPs at USNA.

3. Cancelation. DIVPRODEVINST 3120.2C.

4. Action. All personnel embarked onboard any YP will comply with the regulations and procedures outlined in this instruction. Unless otherwise directed, any departure from this instruction requires PRODEV approval.

5. Review. The instruction shall be reviewed annually by the Chairman, Seamanship and Navigation Department and Director, Waterfront Readiness Department.

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Distribution: (electronically)
All Seamanship and Navigation Department
All Waterfront Readiness Department

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STANDARD OPERATING PROCEDURES FOR YARD PATROL CRAFT AT USNA

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CHAPTER 1
Standing Orders

1-1 Command Philosophy

1-1.1 General. Being a successful mariner requires application and adherence to the following five principles. The degree to which you and your team succeed or struggle will be directly related to how you apply what is outlined below.

1. Preparation. How prepared are you for the period underway? This applies to not only the material readiness of ship's systems, but also the professional (navigation voyage plan) and personal measures (adequate rest, proper clothing, etc.) involved with working at sea. Regardless of your position onboard, have you reviewed the plan and sought answers to questions you may have before departure?

2. Discipline. Do you have the discipline to follow the established checklists and approved procedures for the craft in which you are embarked? To operate the YP in a safe and effective manner, the standard procedures contained in this document and other supporting references (to include Navigation Standards, MLOCs, EOCC, Serial Checklists, etc.) must be followed at all times. When deploying from the Annapolis Operating Area, the additional instructions and requirements detailed in the Operations Order (OPORD) must also be adhered to. When, for whatever reason, a departure from the authorized procedures is required the Officer in Tactical Command (OTC) must be informed immediately.

3. Teamwork. The proficiency of the watch team is essential to the safe operation of the craft and ensuring the training mission is effectively delivered to the embarked midshipmen. The senior leadership team of the Officer in Charge and Craftmaster must make an honest and continuous appraisal of the professional ability of each member of the team. Managing the available bridge Resources will enable the YP to be safely operated for a sustained period underway. The challenge in deploying away from the Annapolis OPAREA is markedly different from a routine lab period in the Severn River. The challenge should not be underestimated and advice sought from the most experienced personnel as early as possible.

4. Supervision. At all times when underway, an OIC, AOIC, or CM shall be in the Pilothouse to supervise the efforts of the watch team. The OIC is ultimately accountable for the safety of the craft and all embarked personnel. Providing adequate supervision of the assigned crew is also the responsibility of the OIC, AOIC, and CM.

5. Culture. The preparation effort, discipline, and teamwork will determine the professional culture onboard any YP. All operations must be conducted safely in an effective and professional manner, reflecting the highest standards of the naval service. Personnel must

always be adequately prepared for the challenge, trained, and ready to meet any realistic scenario head-on.

1-2 Safe Seamanship

1-2.1 General. Prudent seamanship is the mark of a Professional Mariner. Always ensure you know the amount of safe and navigable water you have available. An understanding of the distance and time to the nearest hazard will enable you to make well-informed decisions when maneuvering the craft.

1-2.2 YP Seamanship Procedures

1. When piloting through restricted waters an OIC, AOIC, or CM will remain in the Pilothouse at all times. When maneuvering near any pier or conducting an anchorage, towing exercise or close approach to another YP, an additional fully qualified officer or CM will stay with the panish controls. Any order from a midshipmen Conning Officer may be modified, delayed, or vetoed by the OIC, AOIC, or CM to maintain the safety of the craft.

2. Whenever possible avoid pointing the bow at shoal water with any forward way on the ship.

3. Always know the direction towards safe water.

4. Check your quarters before giving any rudder order, maintaining a good lookout throughout.

5. Check the rudder angle indicator after giving an order. Is the action taken by the helmsman correct? Additionally, is the heading changing as expected? If not, amend the order as required.

6. Use the rudder when mooring and undocking. This teaches best practice in a 676 class and is essential in a 703 class, especially when operating in challenging weather conditions.

7. Ensure engine and helm orders are properly acknowledged and executed.

8. Pass the word over the 1MC *“standby for heavy rolls”* when heavy motion is expected to ensure the general safety of the crew.

9. Formation Steaming. Though the YP may be steaming in an ordered formation, it does not relieve you from responsibility for contact avoidance and navigating independently. Should the lead YP or OTC establish passing arrangements with another vessel, each YP must monitor the effectiveness of the action until risk of collision has passed. Do not hesitate to maneuver independently if necessary to avoid danger.

1-2.3 Shiphandling Guidelines

1. Safe Speed. Always maintain a constant appraisal of safe speed. Factors to consider include traffic density, prevailing weather conditions, engine states and limitations, the performance of your navigation sensors and ECDIS, the proximity of shoal water, and accuracy of the navigation chart in use.

2. When in any doubt, slow or stop the craft. Before doing so, consider any vessels directly astern of you. Additionally, remember the dangers associated with operating in an area with significant tidal stream. The currents will have a far greater effect the slower the craft moves through the water.

3. Momentum and basic ship Dynamics. Where possible, try to keep wash over the rudder when maneuvering the craft. The handling characteristics will be markedly improved if you do. When operating the 703 class, remember it is important to sustain the momentum of the craft when maneuvering at slow speeds. This includes both forward motion and turn rate when trying to turn the craft. In marginal conditions and with a strong offsetting wind, it will prove difficult to approach the pier. Always consider the prevailing forces of wind and currents to determine where you will be set against the extent of safe water.

1-3 Contact Management

1-3.1 General. The OIC and CM must always ensure the craft is *safe for navigation* and *safe for shipping*.

1-3.2 Contact Management Tools

1. Bearing Drift. The most effective way to determine if risk of collision exists is simply to take a bearing of the contact and monitor the bearing drift over a period of at least one minute. Little or no bearing drift is an indication risk of collision exists.

2. Radar. Both the S and X-Band radars fitted to either class of YP have Automated Radar Plotting Aid (ARPA) capabilities. Properly configuring the display with Relative Vectors will show how targets will move relative to the YP. True trials will accurately show any alternation of the contact and easily allow the operator to determine if the target is following a set channel or traffic route.

3. Maneuvering Boards (MOBOARDS). To the extent plotting a MOBOARD solution does not distract from the primary focus of safe navigation, a manual surface contact plot should be maintained by the midshipmen on watch for all contacts with an estimated CPA of 3,000 yards or less. The ergonomics of the 703 class CIC compartment support this training opportunity to a far greater extent than the 676 class.

1-3.3 Contact Management Guidelines

1. Maneuver in accordance with the Rules of the Road, maintaining a safe speed at all times and take proper and effective, seamanlike action to avoid collision.

2. Take early action and make your intentions clear to other vessels. Transmit AIS throughout and make effective use of VHF radio to resolve any concerns. Where appropriate, make proper use of sound signals with the ship's whistle.

3. Avoid crossing ahead of another vessel at close quarters.

4. If you find yourself in such close quarters with another vessel and risk of collision exists consider the following actions:

a. Turn away from the other vessel, preferably to starboard if the situation permits.

b. Slow down, reducing the relative closure rate.

c. Stop the craft.

1-3.4 Contact Reporting. The Officer of the Deck (OOD) is to report all surface contacts with a CPA of 4,000 yards or less to the OIC/AOIC or CM on-watch before they reach 6,000 yards using the standard reporting format shown below. The OIC is to be informed of any contact with a CPA of less than 2,000 yards even if below.

YP Contact Report Format

"OIC/AOIC/CM, this is the OOD. The time is _____.
I have a Contact Report.

The Contact bears _____ degrees relative at range _____.
Contact has been identified as a _____.

Target Angle is _____ degrees.
Contact has slow/fast - left/right bearing drift.

The Contact will CPA my port/starboard Beam/Bow in
_____ minutes at a range of _____.

I intend to Maintain/Alter course and speed to _____."

1-3.5 Merchant Vessel (MV) Contact Avoidance Guidance

1. Large MVs often operate with reduced manning on the bridge. Merchant Mariners are experienced deck officers who routinely manage CPAs considerably closer than a YP would wish to have with a training crew of midshipmen embarked. Early communication can resolve such

situations. Make best use of all of your navigation sensors including AIS and Radar. When possible, use the Vessel's name over VHF radio rather than just a geographical position.

2. For large less maneuverable contacts such as super tankers, VLCCs or Aircraft Carriers, avoid crossing less than 6,000 yards ahead. Remember such vessels often have a considerable shadow zone and although their bridge enjoys a significant height of eye advantage, they will often fail to see a small contact up to 4,000 yards ahead of the bow.

1-4 Weather

1-4.1 General. A thorough understanding of both the actual and forecasted weather and tidal conditions is vital to the safe operation of the craft when underway. The OPORD for any given Out of Area Deployment will specifically detail the supporting weather products made available to all OICs, AOICs, and CMs. The following online and open source resources should be consulted prior to routine operations in the Annapolis OPAREA.

Website	URL/Hyperlink
NOAA Tides and Currents	http://tidesandcurrents.noaa.gov/
NOAA Weather	http://forecast.weather.gov/
Fleet Weather Center	http://www.usno.navy.mil/NOOC/fwc-n
USCG Navigation Center	http://www.navcen.uscg.gov/

1-4.2 Weather Factors. The normal atmospheric pressure at sea level is 29.92 inHg (1113.25 milibars). Knowing what the ambient pressure reading is prior to getting underway is essential if you hope to notice any change. Dew point reading (available in the 703 class only) is an indicator of potential fog formation. Risk of fog is elevated when the air temperature is within 4°F of the dew point.

1-4.3 Heavy Weather. Heavy weather is defined as:

1. Sustained winds of 20 knots or greater.

2. Gusting winds of 25 knots or greater.

3. Seas with a mean wave height greater than 3 feet.

4. Any condition reducing visibility to less than 2,000 yards.

1-4.4 Weather Tools

1. Barometer. Onboard a YP, the barometer measures atmospheric pressure at sea level. When accurately calibrated, observed pressure tendency can forecast short-term changes in the weather conditions.

2. HF Weather Fax. The weather fax, when correctly configured, will provide a graphical representation of a series of surface pressure charts at regular intervals throughout the day. The correct tuning frequently will be detailed in the OPORD.

3. VHF Weather Reports. When operating inshore, listen for the local USCG weather reports every four hours. Refer to the List of Radio Signals and Coast Pilot for further information.

4. Daily FLEWEACEN Weather Forecast. Further details will be provided in the OPORD. Prior to deployment, SEANAV-OPS will request a daily forecast product from the Fleet Weather Center at NAVSTA NORFOLK.

1-4.5 Actions

1. Inport

a. When inport in the local Annapolis OPAREA, personnel shall adhere to reference (a).

b. When inport outside of the local OPAREA, the following shall apply:

Wind Speed	Action
Greater than 15 knots (Sustained)	OOD shall inform the OIC and CM.
20 knots (Sustained), and/or 25 knots (Gusting)	OOD shall inform the OIC and CM. Double up on all mooring lines.
25 knots (Gusting)	Suspend the use of all brows.

c. The Duty Sections shall be briefed on the weather forecast for the following 24 hours. When in **any** doubt, call the OTC for further guidance.

2. Underway in the Annapolis OPAREA. At a minimum, the following information will be reported to the OIC/CM every 4 hours and logged in the deck log:

a. Vessel’s course and speed.

b. True wind speed and direction.

c. Ambient air pressure and temperature.

d. Wave height and direction.

3. Underway Out of Area. The information detailed above is to be reported and recorded in the deck log every 4 hours. Where possible, observations are to be passed to the Fleet Weather Center. The contact details will be included in the Communications Annex of the OPORD. Additionally, the OOD shall report to the OIC/CM when any of the following occur:

a. Sustained wind speed changes 10 knots or more and/or a change in direction of 30 degrees or more in one hour.

b. Visible changes in sea height and direction.

c. Barometric pressure at or below 29.7 inches, with a change in barometric pressure of 0.04 inches in one hour or 0.10 inches in a four hour period.

d. Dew point is within 5°F of dry bulb temperature (YP 703 class only).

1-4.6 YP Operational Limits. The table below details the maximum weather limitations for the safe operation of the craft.

Operational Limits		
Wind	**676**	**703**
Sustained	25 knots	20 knots
Gusting	32 knots	25 knots

Table 1.1

The OTC, OICs, and CMs always have the full authority to suspend training in lesser conditions based on contributing factors such as material state of the craft or longer range forecast.

Due to the markedly different vessel characteristics including increased freeboard, superstructure size and beam to length ratio, special consideration should be given when operating 703 class craft with wind speeds greater than 20 knots.

When sustained wind speeds are greater than 15 knots, a fully qualified OIC or CM should routinely conduct the pier landing using the panish controls.

Any person under training may only operate the panish controls and make the pier approach in these conditions with direct supervision from a qualified OIC/CM.

1-5 Required Reports

1. General. The following is a list of required reports to be made to the OIC/AOIC or CM who is on-watch at any given time:

a. **Routine**

(1) All occurrences the OOD feels are worthy of note, especially those with implications on the safety of the YP and embarked personnel.

(2) Any failure to properly decode tactical signals or intentions passed by any other craft steaming in Formation.

b. **Emergencies**

(1) When in **any** doubt or when a possible emergency situation is developing.

(2) When you take necessary action in an emergency to avoid collision, grounding or other danger. Pass a Flash Report to the OTC as quickly as possible once the immediate action has been taken. Request assistance and await further instruction as appropriate.

(3) On sighting any other vessel or craft in distress, or on receipt of a radio distress call.

(4) On being informed of any accidents or injury to embarked personnel.

(5) Any potentially dangerous, unusual or important sighting such as breakers, unlighted or derelict vessels or floating debris, discolored water, audible or visible emergency/distress signals, waterspouts and any occurrence you deem out of the ordinary.

c. **Navigation**. All reports in accordance with YP Navigation Standards.

d. **Equipment and Material Status**. Report on any degradations or loss of equipment which may affect the safety of the YP or could have an adverse effect on the planned operational and training objectives. Additionally, on anticipated changes to ship’s systems affecting the habitability of the crew.

e. **Summary of Reports to the OIC**

(1) Vessel **Contact Reports** (CPA < 2000 yards).

(2) Receipt of any **Tactical Signal**.

(3) Sighting any **Warship**, Auxiliary or Military Aircraft.

(4) On observing a marked change in the **Weather**, or on receipt of any weather warning.

(5) Receipt of any **Distress Call**.

(6) Major change of **engineering plant status**.

(7) On any change of **watch team readiness**.

(8) On any marked increase in **traffic density.**

(9) If entering a period of **restricted visibility**.

(10) If **dragging Anchor**.

(11) If unable to maintain **assigned Station**.

(12) **Sunset**.

(13) On **making landfall**, or on failure to sight land as expected.

(14) If **unable to fix** the position of the craft, or on loss of GPS or ECDIS/VMS.

(15) If unable to maintain track (XTD > 2000 yards) and required PIM.

(16) Any change in **Watertight Integrity**, including operation of single valve to sea systems.

(17) Any **Emergency** onboard the craft or other vessels in company.

(18) When in **any** doubt.

1-6 Conduct of the Watch

1. General. Ensuring effective bridge Resource Management and sustaining the proficiency of the watch team is the responsibility of the senior personnel in the Pilothouse (OIC/AOIC/CM).

2. Safety

a. Whenever you consider it dangerous for personnel to go topside (Weather, Signal decks, or Fantail), the OIC shall restrict such access or traffic with announcements over the 1MC every half hour. When it is imperative to go topside, take all required and prudent precautions including but not limited to the following:

(1) Obtain permission from the OIC.

(2) Ensure the *“Buddy”* system is used.

(3) A serviceable life preserver and tended safety lines are used.

(4) If possible, alter course and speed to reduce the effect of the adverse conditions.

(5) Ensure competent supervision (Officer or Senior Enlisted).

(6) Conduct a tailored safety brief prior to execution.

b. Remember to give warnings over all 1MC circuits when you anticipate heavy rolls or heels.

c. Always have serviceable binoculars for the Lookouts, Conn, and OOD.

d. Always maintain professionalism on the bridge. Address one another by watch title.

3. Relationship with the Watch in Engineering Operating Station (EOS)

a. The EOS watch is responsible for the safe and proper operation of the craft’s propulsion, electrical, and auxiliary systems. This watch station operate the engineering plant in accordance with good engineering practices and strict adherence to specific operating procedures. The craft Engineer is required to report to the OIC and CM any changes in equipment condition or in the event of any casualty.

4. Prior to Relieving the Watch. The OIC, AOIC, CM, OOD, and CONN shall:

a. Have knowledge of the engineering plant state and any limitations in place. Know if any equipment is running near or outside of the set parameters or if any major equipment is out of commission and the estimated time of repair.

b. Study the **navigation plan** and review the track for the entire duration of the watch. This should include all speed requirements and any areas of particular caution, such as approaches to harbor limits, speed restrictions, reporting points, etc.

c. Review surface and **radar plot** with specific attention to any contacts being tracked including range, bearing, CPA, and TCPA.

d. Review the actual and forecasted **weather conditions** with the off-going OIC/CM.

e. Ensure all appropriate lights, shapes, and other signals are correctly displayed.

f. Review the **Schedule of Events** for the period of the watch.

g. Review the Tactical Signals Log. Consider which craft is acting as the Guide and who has been assigned as the OCE. Know what Formation or Screen are the YPs steaming in and what signals are awaiting execution.

h. **Communications**. Ensure all personnel are familiar with what radio circuits are in use and which call signs are in use.

i. Pattern of Relieving the Watch. Promptness in reporting to relieve a watch is required as a matter of simple professional courtesy. The actual time required to relieve will vary and be dependent on the prevailing operational circumstances, detailed in the SOE. Midshipmen must never allow themselves to take a watch until they are comfortable with the situation and have all the information required to conduct a safe watch. The watch shall not be relieved during complex maneuvers and the turnover time will be amended accordingly by the OIC.

Watches will be relieved in accordance with the following schedule:

EOS – 1/2 hour before the hour.

Midshipman Navigator – 15 minutes before the hour.

OOD – on the hour.

5. Relieving the Watch. When relieving the watch, you shall:

a. Make certain you are well rested, appropriately clothed, equipped for heavy weather (if required), and have adequate night vision to stand an alert watch.

b. Every watch stander shall have at least four hours of sleep prior to any watch from 0000 to 0600.

c. If you become ill, you must notify the OIC/CM immediately.

d. Any change to the watch standing assignments must be approved by the OIC.

6. Watch Relief Procedure. All personnel will follow the below watch relief procedure:

Relieving Officer: (Salute) “I am ready to relieve you, Sir/Ma’am.”

Conning Officer: (Return Salute) “I am ready to be relieved.”

Conduct Turnover Brief as detailed above.

Relieving Officer: (Salute) “I relieve you, Sir/Ma’am.”

Relieved Officer: (Return Salute) “I stand relieved. This is Midshipman XXX, Midshipman XXX has the Conn/Deck.”

Conning/Deck Officer: “This is Midshipman XXX, I have the Conn/Deck.”

CHAPTER 2
Standing Orders

2-1 Officers and Craftmasters

2-1.1 Officer in Tactical Command (OTC)

1. Any officer acting as OTC for a squadron or as the OIC of a single YP operating alone shall:

a. Have overall responsibility for the safety, training, and conduct of their respective squadron and all participating midshipmen and staff.

b. Monitor and assess the navigational position of all vessels within the squadron, communicating with vessels early if a maneuver or position appears erroneous or unsafe.

c. Ensure their squadron follows the approved training schedule and SOE detailed in the Operations Order. The OTC is authorized to make changes to the SOE if operational necessity dictates but should normally communicate such changes to the SEANAV Chairman via OPS.

d. Review all navigation charts and digital voyage plans of each pennant, ensuring all OICs within the squadron formally approve and sign all charts for their individual craft.

e. Ensure a transit brief is conducted with all OICs and CMs in accordance with PRODEV Navigation Standards no less than 24 hours prior to proceeding underway.

f. Liaise with OPS to ensure the USNA Chain of Command remains informed throughout the underway period.

g. Seek advice from SEANAV when in **any** doubt and additionally as detailed below:

(1) Provide a daily SITREP while underway, to be routed via the Operations Officer.

(2) In the event of any casualty to equipment or personnel, the OTC is to attempt to contact SEANAV via cellular or satellite telephone. If there is no coverage at the time of the emergency, make use of VHF and HF radio circuits to relay an urgent message via the U.S. Coast Guard.

h. The OTC shall read and abide by all instructions for exercise as detailed in the OPORD.

2-1.2 Officer in Charge (OIC)

1. The OIC shall:

a. Verify the navigational position of the YP by at least **two** means while underway (visual, radar, GPS). **The OIC is ultimately charged with the responsibility of being the Navigator of the craft once embarked.**

b. Be responsible for the safety, training, and conduct of all midshipmen assigned to their pennant.

c. Adhere to and enforce the required navigation standards.

d. Formally assume responsibility for their YP by a notation in the deck log.

e. Review, approve, and sign all charts for their individual pennant. Digital charts and setup shall also be reviewed and approved by each OIC.

f. Make reports to the OTC on any issues regarding the material state of vessel, conduct offences, issues affecting ability to train midshipmen, or when in **any** doubt about safety or what other action is required of their craft.

g. If the safe navigation of the YP is in question, the OIC is to immediately take control of the YP and suspend training. Once the situation has been resolved and training conducted, the OIC may resume training.

h. When embarking a YP for any underway period, verify the Engineering Master Pre-Light off Checklist (MLOC) is complete and properly annotated in the deck log. If MLOCs are not complete, the underway period will be postponed until the checks are correctly completed.

i. OIC shall read and abide by all instructions in this SOP and the published Operations Order

j. Take control of the YP’s engines and rudder as required if the actions of the midshipmen watch team are not sufficient to prevent entering dangerous waters.

2-1.3 Assistant Officer in Charge (AOIC)

1. The AOIC shall:

a. Support the OIC and CM to ensure the YP position is known at all times by utilizing at least two sources of positioning information (visual, radar, GPS).

b. If the safe navigation of the YP is in question, the AOIC is to immediately take control of the YP and suspend training. Call the OIC to the bridge immediately and receive his permission to resume training.

c. Support the OIC in the training of midshipmen and ensure they are able to sustain safe navigation.

d. Take control of the YP's engines and rudder as required if the actions of the midshipmen watch team are not sufficient to prevent entering dangerous waters.

2-1.4 Craftmasters (CM)

1. The CM shall:

a. Work side-by-side with the OIC to ensure the YP's position is known at all times by utilizing at least two sources of positioning information.

b. If the safe navigation of the YP is in question, the CM is to immediately take control of the YP and suspend training. Call the OIC to the bridge immediately and receive his permission to resume training.

c. Take control of the YP's engines and rudder as required if the actions of the midshipmen watch team are not sufficient to prevent entering dangerous waters.

d. Supervise the training of midshipmen.

e. In addition to the OTC's daily SITREP, the CM shall liaise directly with the WFR Duty Officer to arrange any additional engineering support and provide an update on consumables, liquid states, and any emerging personnel issues.

f. If at any time an OIC is not embarked while underway, the CM shall assume the full responsibility for the safety of the YP and all embarked personnel.

2-1.5 Relationships

1. Upon embarking, officers shall inform the CM of the qualification level held and the CM shall brief any existing material discrepancies and Temporary Standing Orders (TSOs). Officers qualified as an OIC shall assume responsibility for the vessel and ensure a proper deck log entry is made.

2. All OICs shall give due regard to the advice and recommendations of the CM. The CM's acquired rank, rating, and qualifications are further enhanced by the experience of daily handling of the YP. CMs

shall provide forceful back up to the OIC whenever they believe the vessel is in danger. If the OIC does not concur with the recommendation, the CM may enter it into the deck log. Any such conflict must immediately be brought to the attention of the OTC.

3. Prior to commencing any serial, the OIC shall brief the CM regarding training intentions and equipment requirements. The CM and crew shall assist in the conduct of the serial as directed by the OIC, but shall be permitted to conduct routine ship's work if not required.

2-2 Midshipmen Billets. Midshipmen may be assigned to any of the following roles when the YP is deployed out of the Annapolis OPAREA, during summer training, or for any YPRON MO.

2-2.1 Midshipman Commanding Officer (MCO)

1. The MCO shall act as the CO of the YP Pennant, in the execution of any planned training serial.

2. Any midshipman who has demonstrated outstanding performance during LANTPAT or routine YPRON Operations may pursue the award of the midshipmen OIC pin. Further detail is included in reference (b).

2-2.2 Executive Officer (MXO)

1. The MXO shall be responsible under the MCO for the following tasks:

a. The cleanliness of the YP, which is subject to daily inspections.

b. Preparation, distribution, and coordination of the Schedule of Events (SOE) and Plan of the Day (POD).

c. Food preparation and oversight of galley operations.

2-3 Underway Watch Organization. Watch team proficiency is one of the key elements of the OOA Assessment required before departing the Annapolis OPAREA. To maximize the training benefit to all personnel, the OIC does have permission to rotate midshipmen through each watch position. In the event of a marked increase in traffic or on entering pilotage waters, personnel should be employed in the position they were assessed.

2-3.1 Watchstanders

1. Officer Conducting Exercise (OCE). The OTC may choose to assign an OIC as the OCE for the duration of a pre-planned serial such as DIVTACS.

2. Officer of the Deck (OOD). The OOD underway is the midshipman who has been designated by the OIC to be in charge all personnel on watch.

3. Conning Officer (Conn). The Conn, under the supervision of the OOD, is charged with issuing the necessary orders to both helm and lee helm to steer the ship as required. A good working relationship with the Navigation Team is essential.

4. Assistant Navigator (ANAV). The ANAV is responsible for fixing the ship at the required interval under the supervision of the OIC/CM. They are to use all means available to accurately predict the future movement of the craft and provide timely reports to the Conning Team.

5. Plotter. The Plotter will work under the supervision of the ANAV to accomplish the following tasks:

a. Plot each visual, radar, or GPS fix using the appropriate symbol and label with 4-digit time. Immediately notify the ANAV if unable to plot a fix for whatever reason.

b. Calculate an accurate DR position to twice the duration of the fix interval.

c. When able, calculate set and drift.

d. Determine how far off track the ship is and calculate distance and time to the next turn.

e. Always check the sounding against every fix position.

6. Bearing Book (BB) Recorder. This midshipman will assist the ANAV as detailed below:

a. Maintain communications with the bridge wing Bearing Takers.

b. Relay timely information to the Plotter as directed.

c. Maintain the Bearing Book with the following information.

(1) Time of each fix.

(2) Bearings to visual navigation aids.

(3) Ranges to radar navigation aids.

(4) Any GPS position plotted.

(5) Soundings at each fix.

d. Act as the timekeeper, prompting each bearing taker for a fix.

7. Bearing Taker/Lookout(s). These midshipmen are to assist the BB Recorder as detailed below.

a. Maintain a good lookout at all times for other shipping contacts and any opening navigations aids.

b. Report bearings to the BB Recorder and advise when available navigation aids have been gained and lost.

c. Report to the BB Recorder when passing significant navigation aids such as buoys or beacons at close range.

8. Radar Operator. This midshipman will provide the following service to the Navigation Team.

a. Obtain accurate radar ranges to navigation aids designated by the Navigator using the S/X-Band radar.

b. To support the OOD and the Collision Avoidance effort, track all surface contacts using ARPA having a CPA on less than 2,000 yards.

9. Helmsman and Lee Helmsmen. This midshipman will be nominated on the approved watchbill and must have the basic proficiency required to operate the respective controls.

10. Engineering Operating Station (EOS) Watch. Under the close supervision of the YP Engineer, this midshipman shall complete the following duties:

a. Ensure all orders received from the OOD are promptly acknowledged and executed (when EOT is in use).

b. Immediately report any equipment casualty to the bridge. To avoid confusion, the YP Engineer is to perform this role in the event of loss of propulsion, loss of steering, or when any fire danger exists.

c. Ensure access to the engine room is controlled.

d. Ensure all required instrumentation readings are recorded as directed by the YP Engineer.

11. Digital Navigation Procedures. When approval is given to operate the 703 class with a paperless Navigation Team, the BB Recorder and Plotter are no longer required. Should a catastrophic loss of GPS and/or ECDIS occur, the watch team is to revert to the legacy procedures required for paper charting. When operating ECDIS, the ANAV will position themselves by the aft terminal and provide the necessary formal reports to the OIC/CM and Conning Team. The Voyage Data Recorder (VDR) is to be checked by the OIC. If functioning correctly, the Bearing Book and Position Logs are not required. The

ANAV can communicate directly with the lookouts and radar to mark visual bearings or ranges to fix the ship. A minimum of one fix is required on each leg of the navigation track, even with a stable GPS positioning source, the standard navigation report should be made as required by the intervals stated in Chapter 24 of this document.

2-4 Inport Duty Sections

1. The qualified officers and enlisted personnel deployed with the YP are charged with ensuring the safety of the craft and embarked personnel when inport. The following personnel requirements shall be met at all times, allowing the OIC/CM to ability deal with any realistic emergency that may occur:

a. Either **one** fully type qualified OIC **or** CM shall be onboard **each YP** at all times. If two or more YPs are deployed together, one craft shall have a CM onboard and the other(s) an OIC. At the OTC's discretion, this may be relaxed to one CM or OIC per nest.

b. **One** fully type qualified Engineer is required if the craft is not connected to stable shore power and the auxiliary generator is running. At the OTC's discretion, this may be relaxed to one Engineer per grouping (or nest) of craft.

c. **Two** other persons (to include officers or enlisted crew who may be U/I) who are able to support the OIC/CM and Engineer, bringing the minimum number onboard at any one time to **three**. These two additional personnel can be drawn from junior enlisted Sailors assigned to the craft from WFR, or any senior enlisted or officer trainee embarked.

2. The inport duty sections are to be detailed in the OPORD.

3. Midshipmen shall primarily maintain an alongside duty section for training. The following positions are to be assigned by the OIC:

a. Midshipman Command Duty Officer (MCDO), to assist the OIC/CM as directed.

b. Officer of the Deck (Inport OOD). To maintain the quarterdeck watch and control access over the gangway. The post should be rotated at least every four hours and adequate provision made during periods of extreme weather.

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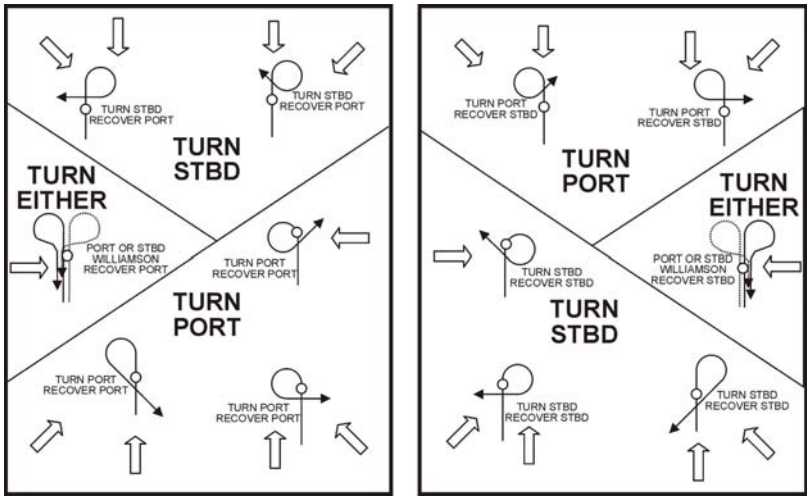
CHAPTER 3
Emergency Procedures

3-1 Emergency Situations. The OIC, AOIC, and CM must be constantly alert for the unforeseen occurrence of emergencies. Proper adherence to procedures will limit the risk of an emergency developing. However, should any emergency occur, the initial actions should be in accordance with direction and guidance presented in this chapter. On every occasion, the embarked Command Team must use their best judgment remembering the safety of life is paramount at all times.

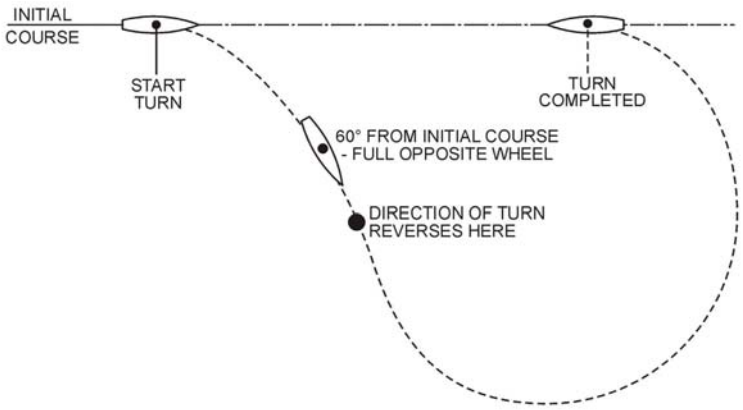
3-2 Man Overboard (MOB) Checklist. In the event of a MOB, the OIC/CM is to ensure actions are completed in a timely manner in accordance with the checklist in Appendix A.

3-2.1 YP Man Overboard General Information. A man can fall overboard at any moment and the OIC/CM should be especially vigilant to ensure all appropriate precautions are taken for personnel working topside in inclement weather conditions. If such a situation were to arise, take immediate action to recover the person. Do not lose sight of the proximity to shoal water or other vessels. FLASH a SITREP to the OTC and await further instructions. During the winter months, it is important to recover the man overboard as quickly as possible. In cold conditions often found in the Northern Chesapeake Bay, survival times can be as little as three minutes.

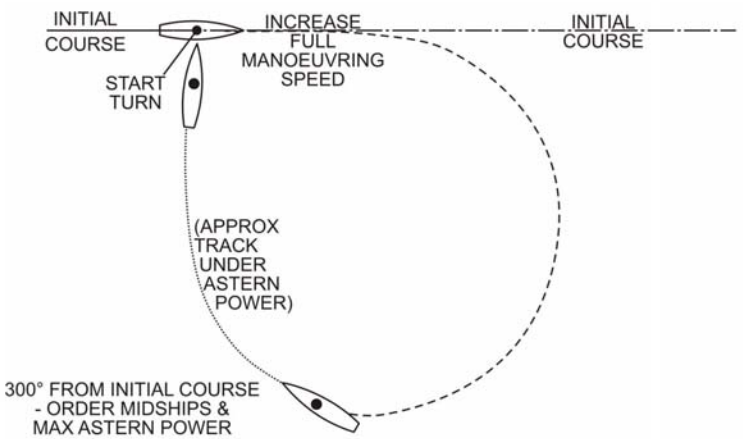
3-2.2 Methods of Man Overboard Recovery



Maneuvering Options for recovering a Man Overboard



A **Williamson Turn** is often used a night, or if the man fell overboard at an underdetermined time. This allows the vessel to re-cover the previous track over ground.



A conventional recovery, initially **increasing speed** and conducting a **tight turn** to stop adjacent to the man overboard.

3-3 YP General Fire Fighting Procedures

1. Any smoke detector alarm or suspected fire must be investigated immediately. On confirming the location and type of fire, the following steps must be followed to ensure the fire is successfully extinguished.

a. Emergency stop ventilation, shut all internal doors.

b. Sound the general alarm; pass a muster point over the 1MC. This should be a safe location, well clear of the scene of the fire.

c. If at sea – First Responders/Emergency Party - Maintain a continuous and aggressive attack against the seat of the fire. For

small incidents such as trash can fires, this action will prevent the situation escalating.

d. Account for all personnel.

e. Ensure the compartment has been mechanically and electrically isolated and effective containment has been established.

f. Where appropriate (Main Space Fires), establish a boundary cooling effort on adjacent bulkheads. The 703 class YP is fitted with multiple AS60 and AS90 fire bulkheads. These locations do not require immediate boundary cooling.

g. Once the fire has been extinguished, maintain a vigilant watch on the compartment by placing a fire sentry. This individual must have the means to refight a fire in the event of a re-flash.

h. So far as possible, the OIC/CM is to identify a Smoke Clearance Plan. A YP does not have the damage control resources of a Warship. Do not commit personnel to re-entry of a compartment if there is any danger of atmosphere being out of breathable limits.

i. As soon as possible, pass a FLASH report to the OTC and await assistance. If the sea and weather conditions permit it, transfer non-essential personnel to another YP.

j. If in the Annapolis OPAREA, immediately report to the closest pier. Inform Annapolis Harbor Control (VHF Channel 12) and disembark personnel as quickly as possible.

2. The CM will ordinarily go below to the scene of the incident to direct the damage control effort, leaving the OIC on the bridge in Command.

3-3.1 Fire Fighting Check List. See Appendix B for actions to be completed by the OIC/CM.

3-4 Main Space Fire Fighting Procedures. All class BRAVO Main Space fires will be fought IAW reference (c).

3-5 Machinery Breakdown

1. When a machinery breakdown occurs, such as a loss of steering or propulsion, it is essential the other ships in company be immediately informed so as to take avoiding action.

2. The system specific immediate controlling actions are detailed in the EOSS documentation and are to be followed line by line. The following steps are also required:

a. By day, hoist the FIVE flag. By night, display two all around red lights arranged vertically. Side and stern lights should be illuminated if underway.

b. Ensure the safety of the craft by maneuvering clear of shoal water or other vessels as best you can.

c. Pass a FLASH SITREP to the OTC. Continue to progress initial casualty actions and request assistance if required. When available, pass an Estimated Time to Repair (ETR).

d. If the circumstances require, prepare to conduct an emergency anchorage.

3-6 Emergency Steering

3-6.1 676 class craft

1. In the event of the loss of electrical supply to the hydraulic power unit or following the loss of pumping capability, the bridge helm unit will automatically revert to the manual hydraulic pump. This reversionary line-up does provide full steering capabilities, although at a much slower speed and higher effort at the wheel. The panish control lever will be rendered inoperable.

2. In the event the Pilothouse control units are rendered inoperable due to any mechanical malfunction, steering control must be transferred to the lazarette helm unit following the procedures detailed in the EOCC documentation. This is accomplished by closing the valves tagged (1), (2), (3), and (4) and opening valves tagged (5), (6), and (7) located on the steering actuator. Failure to do so will drain the lazarette expansion tank after a few revolutions of the wheel, resulting in an inoperable system.

3-6.2 703 class craft

1. In the event emergency steering is needed, the rudders may be centered using the auxiliary steering pump (hand wheel) located in the after steering compartment. In order to configure emergency steering from the manual helm unit aft, the following steps need be taken:

a. Switch the pump controller from auto mode to hand mode on both the port and starboard pump controllers (located on the fwd bulkhead).

b. Close the port and starboard supply line valves A1, A2, B1, and B2.

c. Open the port and starboard emergency supply line valves L1, L2, K1, and K2.

d. Steering can now be controlled by turning the manual helm pump located near the escape hatch of the engine room.

3-7 Collision. The International Rules for the Prevention of Collision at Sea (IRPCS) and the U.S. Coast Guard Inland Rules should be followed at all times to reduce the risk of collision with any other vessel. Any action to avoid collision should be timely, positive, and seamanlike were possible.

3-7.1 Action by Ships in a Potential Collision Situation

1. Any collision broad on the beam will incur the most damage. Therefore, as far as possible and if collision cannot be avoided, take such close quarters action that will reduce the angle and relative velocity of impact. Given the construction of the YPs, the engineering section and quarters are the weakest frames of the craft. The following actions are to be taken in the event of an unavoidable collision:

a. A collision may cause structural damage and flooding.

(1) **Flooding**. Water ingress may be caused by single or multiple penetrations to the hull or damaged valve(s). A continuous and aggressive attack must be sustained against any flooding incident until contained or the crew are either beaten back and the OIC decides to abandon ship.

(2) Small openings can be plugged with rags, Oakum (expands when exposed to water), or small plugs. The most effective method is using several plugs together to stem the water flow in one location. Larger openings may be plugged in the same manner using more or larger materials. Sizeable openings are best plugged with items such as mattresses or a mess deck table which is shored into place.

(3) Underwater openings must be plugged first. Thereafter make efforts to plug above waterline holes on the leeward then the windward sides.

(4) As soon as possible, commence dewatering operations to clear the compartment of floodwater. The OIC/CM must maintain an appraisal of the ship’s stability.

(5) If the flooding is uncontrollable, the OIC is to drive the craft aground to avoid sinking.

(6) **Structural Damage** on a 676 class YP is rare because of the wooden construction of the craft. When it does occur, the affected bulkheads and decks should be shored as soon as possible.

2. The damage control equipment carried onboard both classes of YPs is listed in Chapter 16.

3-8 Grounding

1. USNA YPs must be operated in accordance with Navigation Standards at all times as outlined in Chapter 24. This requires at least two independent positioning sources or fixes, with an accurate assessment made of the future movement of the craft and proximity to shoal water.

2. Actions will be taken in accordance to the checklist in Appendix D.

3. The damage control equipment carried onboard both classes of YPs is listed in Chapter 16.

3-9 Abandoning Ship. If catastrophic damage occurs, remaining onboard might endanger the safety of embarked personnel and the OIC may give the order to abandon ship. Ensure all stations receive the word as quickly as possible. Actions to be taken as detailed in Appendix E.

3-10 Emergency Service. Certain emergencies may arise which do not directly threaten the safety of the YP but which, nevertheless, require immediate response because danger to human life or serious health risks exist. Such situations develop quickly and require positive, quick actions in order to provide the appropriate degree of emergency service. Those occurrences are most likely to include serious injury or illness of personnel embarked in a YP or another craft.

3-10.1 Serious Personnel Injury or Illness

1. Action to be taken by the OIC/CM

a. Supervise first aid efforts.

b. If in company with other ships, pass a FLASH report to the OTC by any means. Awaiting further instructions. Expect to transfer a Corpsman to tend to the casualty if one is deployed with the Squadron. Otherwise, prepare to make best possible speed to the nearest port.

c. Stabilize the casualty as best as possible. Follow medical advice that may be passed via SATCOM. Disembark the casualty ashore to EMS personnel as quickly as if safely possible.

d. Ensure an accurate narrative of events in maintained in the deck log.

3-10.2 Providing Assistance to another craft

1. Action to be taken for assisting other craft

a. Always be alert for distress signals on other craft.

b. If an incident is significant, relay the distress call to the nearest Coast Guard Sector. Render assistance as directed by the OTC, without endangering the YP.

c. In case of minor distress where no danger to human life exists, call Annapolis Harbor Control (VHF Channel 12) or the nearest Coast Guard Sector.

3-11 MSD/CHT Spill Procedures

1. Upon discovering any suspected or confirmed spill, **IMMEDIATELY** secure all pumping operations and determine the cause of the incident in accordance with EOSS Procedures.

2. Contain the spill by any means. A deployed YP will carry a spill kit.

3. Contact the following authorities:

a. While at USNA, notify the local Fire Department (Tel: 3-3333, or (410) 293-5677), HAZMIN (Tel: (410) 293-9313), and Annapolis Harbor Control (VHF Channel 12).

b. In any commercial port or NAVSTA outside of the Annapolis OPAREA, comply with local instructions.

4. Ensure all personnel involved with the spill containment effort are wearing protective clothing to include protective coveralls, rubber gloves, boots, and face shield.

5. Rope off area keeping personnel not involved clear of contamination.

6. Clean up and disinfect using brooms, swabs, and buckets. Disinfect using a strong solution of water and HTH (chlorine) or a stock detergent.

7. If a spill occurs in a berthing space or heads, disinfect with Germicidal Fungicidal and Fungicidal Concentrate (Phenolic Type) NSN 6505-00-754-0374.

8. No eating, drinking, or smoking until the cleanup has been completed.

9. Contaminated materials will be double plastic bagged and disposed of in a proper Hazardous Material (HAZMAT) waste container ashore.

3-12 Oil Spill Procedures

1. For any oil or fuel spill inside the Annapolis OPAREA, the OIC/CM immediately contact Annapolis Harbor Control on VHF Channel 12.

2. For a spill outside the Annapolis OPAREA, the OTC/OIC will immediately call the National Response Center (NRC) at (800)424-8802. The NRC will then contact the nearest Coast Guard Station to assist with the control and clean up action. The Coast Guard will liaise with the nearest Marine Safety Office (MSO) as required.

3. Ensure the Senior CM notifies the Waterfront Readiness Duty Officer (WRDO). The OTC will notify SEANAV. WFR will be responsible for drafting the Unit SITREP for PRODEV release.

4. Record the following information:

Action	**Notes**
Time Spill Discovered.	
Time Spill Isolated/Contained.	
Position (Latitude and Longitude – WGS84)	
Type of Liquid.	
Approximate Amount (gallons).	
Approximate Size of Visible Sheen.	
Time local port Authority Notified.	
Is any assistance required for containment?	
Cause of Spill (Suspected/Confirmed).	
How was the spill discovered?	
Time of first report to USNA.	
Important Additional Information.	

CHAPTER 4
Routine Procedures

4-1 Anchoring

4-1.1 Planning

1. Always fully consider the navigation plan, prevailing and forecasted conditions, including but not limited to:

a. Bottom Characteristics – is it good holding ground?

b. Depth of water – deep or shallow water anchorage?

c. Shelter from prevailing seas and weather.

d. Aids to Navigation – are sufficient conspicuous marks available for visual and radar pilotage? Do not rely on VMS/ECDIS alone.

e. Proximity to shoal water, obstructions, traffic routes or any other hazards.

2. On a 676 class YP, one “shot” is 15 feet.

3. On a 703 class YP, one “shot” is 90 feet.

4-1.2 Procedures

1. It is important that all appropriate safety precautions be taken when conducting any seamanship evolution. When anchoring, all personnel directly involved with the evolution must wear the essential protective equipment.

2. Prior to anchoring the OIC and CM will determine a suitable location and approach track. *Seamanship Fundamentals for the Deck Officer* (Chapter 6) and *Dutton’s* (Chapter 14) provide further reference material.

3. The Anchoring Evolution Checklists are in appendixes H and I.

4. Anchoring in Shallow Water.

a. The following steps are to be followed for anchoring in shallow water:

(1) Complete an operational test of anchor windlass.

(2) Verify the brake is set and engage the wildcat. **(CAUTION: DO NOT STRADDLE OR STEP OVER THE ANCHOR CHAIN AT ANY TIME)**. Remove the riding stopper.

(3) Disengage the wildcat. The clutch shifter should be in the inboard position and the lock pin should be secured in the handle.

(4) Notify the bridge that the anchor is ready for letting go.

(5) When the command *“stand by the port/starboard anchor”* is received, verify the brake is set and release the housing stopper.

(6) When the command *“let go the port/starboard anchor”* is given, the brake is released and the anchor will pay out under its own weight.

(7) When the anchor is let go, colors are shifted and the appropriate day shape or light is displayed.

(8) Veer out the chain in accordance with the instructions from the bridge. Once enough chain is out, set the brake by turning the brake wheel fully clockwise so that the anchor can be set.

(9) Once the anchor is set, release the brake and veer out the chain to the final desired scope.

(10) Set the brake, pass the housing and riding stoppers, and engage the wildcat.

(11) Set the anchor watch as directed by the OIC/CM.

5. Letting go anchor in deep water.

a. If the anchor is going to be let go in deep water *(48 feet or greater for a YP)* then it is best to use the windlass to mechanically lower the anchor rather than allowing the anchor to free fall to the bottom. The steps listed below are to be followed for anchoring in deep water:

(1) Engage the wildcat by moving the clutch shifter to the outboard position and then set the lock pin back in place.

(2) Jog the motor by pushing the lower button momentarily. This will allow the teeth of the wildcat to mesh with the teeth of the motor shaft.

(3) Remove both the housing and riding chain stoppers.

(4) Release the brake fully by slowly turning the brake wheel counter-clockwise.

(5) Push the “lower” button on the pushbutton station. This will mechanically lower the anchor at a constant speed.

(6) When the anchor is within 20 to 25 feet of the bottom, push the “stop” button.

(7) Set the brake. After this is done, disengage the wildcat following the same procedures as stated for shallow anchoring. **(CAUTION: Do not disengage or engage the wildcat before the motor is stopped and the brake and stop are set).**

(8) Thereafter, allow the anchor to free fall to the bottom following the procedures listed above for *Shallow Water Anchoring*.

6. Weighing Anchor.

a. The steps listed below are to be followed for weighing anchor:

(1) Engage the wildcat by putting the clutch shifter in the outboard position and replacing the lock pin into its hole.

(2) Jog the motor by pushing momentarily the hoist button for the motor shaft teeth to mesh with the wildcat teeth.

(3) Release the riding and housing stoppers from the anchor chain.

(4) Release the brake by turning the brake wheel <u>counter-clockwise</u> (The wildcat will turn slightly until the teeth engage).

(5) Push the “hoist” button.

(6) Using the 1.5-inch fire hose, direct a stream of water onto the chain as it comes up through the hawse pipe.

(7) House the anchor in the hawse pipe. The anchor is housed when the shank of the anchor is inside the hawse pipe and the anchor chain is taut, but not under heavy strain.

(8) After the anchor is housed in the hawse pipe, pass the chain stops back into the chain and set the brake as previously described.

7. When anchoring, the following communications should be made between the bridge and forecastle.

a. By the bridge: Depth of the water, type of bottom, scope of chain, and range to anchorage.

b. By the Foc’sle: The anchor conditions (holding or dragging, how the anchor is tending – “9 o’clock”, “12 o’clock”, etc.), and what sort of tension is on the anchor chain.

8. When weighing anchor, the following communications are to be made:

a. By the Foc'sle: The number of shots of chain that have reached the deck, whether the anchor is at *short stay*, *up and down*, or *aweigh* and whether the anchor is *clear, foul,* or *shod*.

4-2 Towing Procedures

1. There are two methods by which a YP may tow or be towed by another, the *alongside* or *astern*.

a. **Alongside**. This method is often referred to as *"towing by the hip"* or *"hip tow"* and offers the greatest level of control. It is ideal for towing in channels or congested waterways. The towing vessel will make an approach alongside the vessel to be towed and use a four-line configuration to secure the casualty craft. This consists of a bowline, stern line, forward, and after spring lines. The three-inch double braided mooring lines can be utilized to rig this configuration. Fenders shall be rigged between the two vessels to prevent damage to the vessels during the towing evolution.

b. **Astern**. This configuration is less likely to result in any physical damage due to the movement of both craft while secured as described above. Each YP is equipped with a 235-foot long towing hawser of 4 1/2 inch plaited nylon line for use when towing astern and two 55-foot long 4 1/2 inch plaited lines which are to be used as bridles when being towed. The end of the towing hawser with the hard eye *(thimble)* must be passed from the towing vessel to the disabled vessel by use of a heaving line and messenger. After the towing hawser has been passed, there are two means by which it may be secured to the towed vessel depending on whether the towing duration will be long or short.

(1) **Short Duration Tow**. When the tow is expected to be of a short duration (less than five hours or thereabouts), the soft eye of the towing hawser is placed over the towing bitt on the towing vessel. The hard eye is passed to the towed vessel and attached to the bridle by a 1 1/2 inch safety shackle.

(2) **Long Duration Tow**. When the tow is expected to be greater than five hours, the towed vessel will shackle its towing hawser into the bridle and will shackle the soft eye with the hard eye of the towing ship's hawser. The towing ship will rig the towing hawser the same as for a short duration tow. This doubles the length of the tow providing a safe distance for a longer duration tow.

2. **Caution**. When a strain is taken on the towline, there will be no catenary and the entire rig will ride out of the water at about the level of the foc'sle. This situation is potentially **very hazardous** due to the increased chance of parting the rig. If the rig parts under heavy strain, the pendant will recoil onto and sweep the foc'sle of the towed vessel. **Extreme care must be taken when towing with this rig and safety must not be compromised for speed**. Consideration may

need to be given to facilitating an adjustment to the length of the tow.

3. Further reference material is available in the publication *Naval Shiphandling,* Chapter 9.

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CHAPTER 5
Standards of Conduct

5-1 Objectives

1. USNA YPs are used to train midshipmen underway in a dynamic and realistic maritime environment. These craft, using routine SEANAV classes, allow our personnel to enhance the key maritime skills of seamanship, navigation, and leadership.

2. The highest standards of professional behavior are required at all times. Although the primary mission is to train midshipmen, the YPs allow junior officers to regularly be entrusted with sea command for an extended period underway.

3. Personnel should remain vigilant and make best use of their professional experience when tackling any problem or situation encountered underway.

4. Every opportunity should be taken to develop the student’s proficiency with all aspects of navigation, engineering, and deck operations.

5-2 Standards of Professionalism

1. The military bearing, conduct, and standards of seamanship practiced aboard YPs shall at all times reflect the pride and professionalism expected of the U.S. Navy.

2. The following general standards of smartness will be complied with by instructors, midshipmen, and enlisted personnel when onboard.

a. All personnel will be in the uniform of the day, detailed in the OPORD. NWUs or coveralls may be worn underway.

b. All hands onboard a YP may wear a regulation blue baseball cap in lieu of a combination cover. These caps may be either of USNA/NSAA issue or from a previous Navy command.

c. During periods of inclement weather instructors are authorized to wear foul weather jackets supplied by SEANAV.

d. Midshipmen will use their issued foul weather gear during inclement weather.

e. The class Section Leader shall board the YP upon the completion of the pier side muster and report the number of students present to the OIC and CM.

f. Morning colors will be executed by the enlisted crew during the regular semester and midshipmen when deployed. Three personnel will be required to handle the jack, the ensign, and prep.

g. Colors will be shifted in a smart, military manner when getting underway, anchoring, or when mooring. The OIC/CM may raise the Ensign early if the wind conditions pose a snagging hazard with the radar antenna.

h. Standard commands and timely, accurate reports are to be used at all times. Standard RT procedures are to be used when communicating over any circuit.

5-3 Operational Standards

1. When conducting man-overboard drills, the proper visual signals and whistle signals are to be used.

2. Appropriate honors will be passed in accordance with the guidance detailed in Chapter 7. Personnel shall remain alert to ships and other boats that may require such protocol.

3. All equipment aboard YPs shall be properly used, maintained, and protected. Signal flags, binoculars, voice tubes, and other equipment will be stowed at the end of each class unless otherwise directed.

4. The cleanliness of all compartments is to be maintained. The CM is to ensure all sections are fully secured for sea when getting underway.

CHAPTER 6
Watch Team Manning and Conditions of Readiness

6-1 Introduction. This chapter provides the minimum manning requirements for all conditions of YP operations.

6-2 When Midshipmen are Embarked

6-2.1 Sea and Anchor Manning

1. The YP Sea and Anchor Detail will consist of the following watch standers:

    a. One of the following personnel – OIC, AOIC, or CM

    b. Officer of the Deck (OOD)

    c. Conning Officer (Conn)

    d. Assistant Navigator (ANAV)

    e. Plotter

    f. Bridge Wing Bearing Takers/Lookouts (2)

    g. Radar Operator

    h. Helmsman

    i. Lee Helmsman

    j. YP Engineer

2. When a 703 class YP has been authorized to navigate using digital procedures, the Plotter is not required. The ANAV will operate the aft ECDIS terminal and provide the necessary reports to the OIC/CM and Conning Team.

6-2.2 Condition 3 Manning

1. The YP Condition 3 Manning will consist of the following required watch standers:

    a. OIC, AOIC, or CM

    b. Officer of the Deck (OOD)

    c. Conning Officer (Conn)

    d. Assistant Navigator (ANAV)

    e. Lookout

f. Helmsman

g. Lee helmsman (in a 703 class, the engine controls may be operated by the helmsman at OIC/CM discretion)

h. One YP enlisted crewmember

i. The YP Engineer does not need to be on station in the engine room, but must be immediately available to investigate any alarm.

6-2.3 Out of Area Operations

1. The following additional personnel are required for Out of Area Operations; any deviation from this list requires PRODEV approval. On each craft:

a. An Assistant Officer in Charge (AOIC)

b. An additional YP Engineer, to ensure that an “on watch” Engineer is always available.

2. Within the Squadron, if in company of two or more ships:

a. An Electronic Technician (ET)

b. An Electrician’s Mate (EM)

c. A Corpsman (HM) (LANTPAT ONLY)

3. For transits less than 24 hours, only 1 OIC and 1 CM are required per craft.

4. If these requirements cannot be met, for whatever reason, SEANAV, WFR, and PRODEV are to be informed.

6-3 When no Midshipmen are embarked

6-3.1 Local Area Operations in the Severn River and Approaches

1. The following personnel are required when operating in the local area:

a. A Craftmaster (CM)

b. Two YP enlisted crewmembers

c. A YP Engineer

6-3.2 <u>Out Of Area Operations</u>

1. Administrative movement of craft or an emergency sortie. Unusual circumstances, such as emergent maintenance or weather avoidance, may require that a YP be moved outside the Annapolis OPAREA without a midshipmen crew embarked. When conducting such movements, YPs should normally travel in a group of at least two craft. The absolute minimum manning requirements are as follows: (should be augmented where possible)

a. A transit of less than four hours duration:

(1) One fully qualified OIC **or** CM, who has responsibility for navigation **and** ship control

(2) Two YP enlisted crewmembers

(3) A YP Engineer

b. A transit of greater than four hours duration:

(1) Three qualified OICs/CMs in **any** combination. When transiting through restricted waters, two of the three personnel shall be on the bridge with one formally assigned responsibility for ship control and the other for navigation.

(2) Two YP enlisted crewmembers

(3) One YP Engineer

(4) An Electronic Technician (ET)

(5) An Electrician’s Mate (EM)

(6) As directed by PRODEV – A Corpsman

2. When conducting such movements, the OIC/CM shall conduct a full navigation brief prior to departure.

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CHAPTER 7
Honors and Ceremonies

7-1 General. The honors and ceremonies prescribed in this chapter are selected from several sources. Further information may be found in references (d), (e), and (f).

7-2 Display of the National Ensign

7-2.1 Underway. The national ensign shall be displayed from the gaff of a YP at all times while underway unless otherwise ordered by the OTC.

7-2.2 Not Underway. When not underway the national ensign and the First Navy Jack shall be displayed from 0800 until sunset from the flagstaff and the jackstaff respectively.

7-2.3 Shifting Colors

1. When preparing to anchor or moor, personnel shall be stationed at the flagstaff, jackstaff, and signal deck as necessary to effect the proper change in the display of the national ensign. As the first mooring line is secured or the anchor is let go, the OOD shall announce shift colors over the 1MC. At this signal, the national ensign shall be lowered smartly from the gaff at the same time the national ensign and union jack shall be hoisted smartly on the flagstaff and jackstaff respectively.

2. When getting underway the same procedure shall be used to shift the display of the national ensign to the gaff. Other underway flag displays such as call signs and guide flags shall be hoisted immediately after the national ensign that always takes priority over any other flag.

7-2.4 Dipping

1. When any private ship, either under United States registry or under the registry of a nation formally recognized by the government of the United States, salutes a ship of the U.S. Navy by dipping her ensign, it is answered *"dip for dip"*. The specific procedure is as follows: When the other ship has dipped her colors, the YP shall haul its national ensign approximately one-half way down; pause for a brief moment and then re-hoist it smartly.

2. Private ships render dips at various hours and sometimes at considerable distances. The OOD must therefore be alert for these occasions. If the national ensign is not already displayed, it is hoisted especially for answering the dip; the dip is returned, and, after a suitable interval, the ensign is hauled down.

3. **No U.S. Navy Warship shall ever initiate a dip of the national ensign.** The ensign is only dipped in return for such a compliment by another ship.

7-2.5 Half-Masting. When half-masting the national ensign, it is first hoisted to the peak and then lowered slowly to the half–mast position. Before lowering from half-mast the ensign is first hoisted to the full peak position and then lowered. When the national ensign is half-masted, the union jack is likewise half-masted and in the same manner as prescribed above.

7-3 Honors to the National Ensign

7-3.1 Salutes on Reporting Aboard and Departing

1. Each person in the naval service, upon coming on board a ship of the U.S. Navy, shall salute the national ensign.

a. Procedure for boarding a YP follows:

(1) Stop on reaching the quarterdeck area of the YP, face the national ensign, and render the salute.

(2) Face and salute the OOD.

(3) Say, “Request permission to come aboard, Sir/Ma’am”.

b. Upon departing, the YP the procedure is reversed:

(1) Salute the OOD.

(2) Say, “Request permission to go ashore, Sir/Ma’am”.

(3) Salute the national ensign.

7-3.2 Morning and Evening Colors

1. The ceremonial hoisting of the national ensign in port at 0800 is known as “morning colors” and lowering at sunset as “evening colors”. Such ceremonies shall be carried out on the outboard YP when deployed out of area or when moored at the USNA seawall.

a. All ships follow the motions of the Senior Officer Present Afloat (SOPA) in carrying out morning and evening colors.

b. Five minutes before ceremony, ‘*first call to colors’*, the SOPA closes up PREP at the yardarm and the signal is repeated by all ships present.

c. At 0800 or sunset, PREP is dipped and *“attention”* is sounded by one drawn-out blast on a hand whistle. All hands on deck will face

the national ensign and salute. If in ranks, only the man-in-charge shall render the salute.

d. At morning colors, the ensign shall be raised starting at *"attention"* and hoisted smartly. At evening colors, the ensign shall be lowered ceremoniously.

e. At the completion of the raising/lowering of the ensign, PREP is hauled down and *"carry-on"* is sounded by three short blasts on a hand whistle.

f. The energizing of anchor lights is usually considered a part of the evening colors ceremony and should be accomplished at the last note of *"carry-on".*

7-4 Quarterdeck Honors. When in port, the primary watch station is shifted from the bridge to the quarterdeck. The quarterdeck is the ceremonial entrance and exit point of the ship, manned 24 hours a day by the inport Officer of the Deck. The inport OOD is responsible for the safety and security of the ship and it is their duty to greet every person who is boarding or leaving the ship.

7-4.1 Rendering Honors to visiting Officials/Officers. Normally, flag officers and senior officers in command are "rung aboard" U.S. Navy vessels in accordance with NTP 13B; however, most YPs do not have a quarterdeck mounted bell or 1MC. As such, when an officer rating announcement is scheduled onboard the YP, a watch will be posted in the pilothouse to make the 1MC announcement for that officer's arrival. If an officer makes an unscheduled visit to the YP, every effort will be made to make the 1MC announcement as soon as possible following their arrival.

7-5 Passing Honors

1. Passing honors are those actions, other than gun salutes, which are rendered on occasions when Navy or Coast Guard ships or embarked officials or officers pass, or are passed close aboard.

2. United States ships, allied and foreign Warships of nations diplomatically recognized by the U.S. Government also engage in passing honors. The term "close aboard" is defined as a distance of six hundred yards for ships and four hundred for boats in accordance with NTP 13B. Passing honors consist of sounding *"attention"* and rendering the hand salute by all persons in view on deck (not in ranks).

3. Notably, while in the Annapolis OPAREA, YPs will not render honors to each other. However, when the Superintendent's Barge (C/S **WOLVERINE**) is underway and flying a blue flag with three white stars, passing honors will be rendered in accordance with the procedure detailed below. If WOLVERINE is underway not flying the

aforementioned flag, the Admiral is not embarked and honors need not be rendered.

7-5.1 Passing Honors between Ships

1. Passing honors between ships will be exchanged only when both ships are underway. In situations where the ships are proceeding in opposite directions, passing honors are conducted when the bow of the junior ship passes the bow of the senior ship. Due to the size of the YPs, the sequence will probably need to be initiated sooner in order to complete the evolution when both are beam to beam. In an overtaking situation, honors are initiated when the bow of the overtaking ship passes the stern of the overtaken ship. Procedures for rendering passing honors are as follows:

a. Sound *"Attention"* (to port or starboard as appropriate) on a whistle over the 1MC. (two or one short, respectively).

b. Sound *"Hand salute"* on a whistle (1 short blast) over the 1MC.

c. When the senior returns the salute and after the senior cuts the salute, sound *"Ready, to"* (two short blasts).

d. Sound *"Carry on"* on the whistle, after the senior has issued *"Carry on"* (3 short blasts).

7-5.2 Passing Honors to Officials and Officers Embarked in Boats

1. When a boat in which a senior officer is embarked passes a YP close aboard or a YP passes a senior reviewing party, passing honors shall be rendered and all exposed personnel will respond. This procedure is valid whether or not your YP is underway. The correct procedure is as follows:

a. Sound *"Attention"* (to port or starboard as appropriate) on a whistle over the 1MC (two or one short, respectively).

b. Sound *"Hand salute"* on a whistle (1 short blast) over the 1MC.

c. When the senior returns the salute and after the senior cuts the salute, sound *"Ready, to"* (two short blasts).

d. Sound *"Carry on"* on the whistle, after the senior has issued *"Carry on"* (3 short blasts).

7-5.3 Dispensing With Passing Honors

1. Passing honors will not be rendered after sunset or before 0800.

2. Passing honors will not routinely be exchanged between YPs unless they are a specified part of a drill plan. However, the OOD shall be alert to render honors to ships or boats that are not engaged in

drills, especially the Superintendent’s barge or the gigs and barges of other senior officers.

3. The SOPA may direct the passing of honors be dispensed with in whole or part.

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CHAPTER 8
Logs and Records

8-1 Logs and Records

1. It is essential reliable records of the actions taken aboard a ship in times of combat, danger, or precise navigation be maintained for various legal reasons. Of less obvious importance is the recording of everyday routines and employment of the ship. It is possible this material will someday be of historical significance. The following are the log keeping requirements for operations onboard USNA Yard Patrol craft.

2. Log requirements:

a. All U.S. Navy ships shall maintain a ship's Deck Log (DL) at all times as required by reference (g). Although YPs are not commissioned vessels, watchstanders onboard YPs will adhere to the requirements of reference (g) with the following exceptions:

(1) If the CM is the sole watchstander on the bridge then course, speed, engine, and rudder orders will not be logged. Where available, the Voyage Data Recorder (VDR) should be enabled.

(2) If the YP is being operated within the limits of the Annapolis OPAREA for the purposes of an academic class then course, speed, engine, and rudder orders will not be logged.

b. The Bearing Book (BB) will be maintained by the Navigator whenever YPs operate beyond the limits of the Annapolis OPAREA. While in the OPAREA and conducting a lab or other period of training, the BB shall be maintained so far as practicable.

c. The Engineer's Log shall be maintained by the enlisted Engineer and assigned midshipmen assistants whenever engineering equipment is being operated. The Bell Book is a chronological record of orders pertaining to the speed of the propulsion engines and will be maintained by the EOS watch when practicable to do so.

d. The Position Log will be maintained by the Plotter on the bridge whenever YPs operate beyond the limits of the OPAREA.

3. 703 class specifics. When operating the craft's VDR and navigating using digital procedures with a fully serviceable ECDIS, only the ship's Log is required to be maintained.

8-2 The Craft's Deck Logs

1. The craft's deck log is the official daily record of the craft, by each watch. The craft's deck log describes every circumstance and occurrence of importance or interest that concerns the crew, the operation, and safety of the ship. The DL shall be a chronological

record of those events occurring during the watch permitting an accurate reconstruction of events to be made.

2. When kept, the ship’s deck log must maintain a record of all the events of the day particularly:

a. Every injury, accident, or casualty, however slight.

b. All accidents resulting in a loss or damage of any kind.

c. Any important actions taken. Enter a full reconstruction of the event, detailing every occurrence and remarkable incident.

d. All peculiar or extraordinary appearances of the sea, weather, or atmosphere, following sudden changes of wind, heavy squalls of wind or sudden gales. Also the tidal conditions, any sighting of discolored water, extraordinary luminescence or other unexpected phenomenon.

e. The names of all passengers.

f. Any soundings, the record of which is important, with character of the bottom. Report any significant depth anomaly to the OIC and OTC immediately.

g. After anchoring, record bearings and ranges to fix the exact position of the ship.

h. When at anchor in heavy weather, the strain upon the anchor chain or cable, and other unusual conditions.

i. The summary of the orders under which the vessel moves, quoting the authority for those orders. In general, this entry should show the character of the exercise in which the ship is engaged and the reasons for her movements.

j. The time of reporting to, or detachment from, any tactical unit.

k. The time when any particular evolution, exercise, or other service was performed, preparing to enter port or to anchor, anchorage, getting underway, securing anchors, preparing the ship for heavy weather, etc.

l. All course (degrees true) and speed (knots) changes.

m. All unexplained or unauthorized absentees, with indication of time, occurrence, and first knowledge of absence. Surrounding circumstances and time of later whereabouts or fate.

n. The arrival and departure of the OTC/OIC/AOIC/CM from the bridge while underway.

3. If the CM is the sole watchstander on the bridge then course, speed, engine, and rudder orders will not be logged. Where available, the Voyage Data Recorder (VDR) should be enabled.

4. If the YP is being operated in the Annapolis OPAREA for an academic class then course, speed, engine, and rudder orders will not be logged. The OIC should ensure VMS/ECDIS is correctly configured to record ship's position while underway.

5. The ship's deck log shall be signed out by the watchstander maintaining it at the end of each watch or whenever responsibility is transferred. Under all circumstances, the ship's deck log shall be signed out by the person maintaining it following the mooring entry. The name of the OIC and/or CM shall be printed beneath the signature. It is important to brief the requirements of the log when getting underway and to review the deck log's contents on a periodic basis.

6. Reference (g) contains sample entries.

a. Abbreviations in the ship's deck log shall be limited to those commonly recognized in official publications and those accepted throughout the Navy because of continued usage. Obscure or uncommon abbreviations shall not be used. The following is a partial listing of the more commonly used abbreviations (others can be found in OPNAVINST 3100.7B):

Abbrev	Meaning
Bkw	Breakwater
Bld	Boulder
B.M.	Bench Mark
Bn.	Beacon
BR	Bridge
C/C	Changed Course
C/S	Changed Speed
CPA	Closest Point of Approach
Cswy.	Causeway
Elev.	Elevation
OOD	Officer of the Deck
OTC	Officer in Tactical Command
Ra.	Radar Station
R.Bn	Radio Beacon

Abbrev	Meaning
Entr.	Entrance
F	Fixed (Light)
FFl	Fixed and Flashing Lights
FGpFl	Fixed and Group Flashing Lights
GpFl	Group Flashing
GpOcc	Group Occulting
Ht.	Height
Lt.H	Light House
Occ	Occulting Light
OCE	Officer Conducting Exercise
Tk.	Tank
TR.	Tower
Wk.	Wreck
UA	Unauthorized absence

8-3 Bearing Book

1. The Bearing Book (BB) is an official navigation record of the ship as required by reference (d). This record shall be maintained whenever the YPs are operating outside the Annapolis OPAREA. A 703 class, when authorized to navigate using digital procedures, does not require completing the BB as long as the VDR is fully functional.

a. Bearings are recorded in the appropriate columns corresponding to the recorded time. All visual bearings are by gyrocompass unless otherwise indicated.

b. All soundings are recorded as depth under the keel (in feet) by fathometer unless otherwise indicated.

c. If magnetic bearings are used, annotations should indicate so and include the compass error (deviation and variation) of the magnetic compass platform, for the particular heading at the time of the observation.

d. The OIC, AOIC, or CM shall sign their name following the last entry of the watch to verify the accuracy of the recorded navigation information.

8-4 Engineer's Log. The Engineering Log is a chronological narrative similar to the deck log but instead describes the circumstances and occurrences of concerning the operation and safety of the engineering plant and auxiliary systems. The log shall indicate the times and specific changes to the plant status. Equipment status and problems relating to the mechanical condition of the different components are of particular interest. This will act as the YPs primary engineering record book.

8-5 Position Log. The Position Log shall be a complete record of the vessel's position while operating outside of the Annapolis OPAREA. After each fix (visual, radar, or GNSS) the vessel's position shall be logged in latitude/longitude format (WGS84). The registered fathometer reading at the time of the fix shall also be recorded in the Position Log. As in paragraph 8.2.1, a 703 class when authorized to navigate using digital procedures does not require to complete this log as long as the VDR is fully functional.

8-6 Corrections to Deck and Engineering Logs

1. An entry into either official log shall not be erased. When a mistake is made, a single line shall be drawn through the original entry so the text remains legible. The corrected entry shall then be made in the log. Corrections shall be initialed in the right margin by the person who is required to sign the log, OIC, AOIC, or CM.

2. No changes shall be made after the log is signed.

8-7 Retention Requirements. Copies of the deck log, Position Log, Bearing Book, and Engineering Log shall be retained for one year by the CM assigned to the applicable YP. The SEANAV Operations Officer shall remain the VDR files for any OOA deployment indefinitely.

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CHAPTER 9
Out of Area Operations and Certification

9-1 Purpose. This text provides the certification guidelines for YPs leaving the Annapolis OPAREA to conduct any extended period of underway training. This certification process will ensure the OIC/CM and midshipmen teams have the requisite qualifications and experience to operate safely with the additional challenges that arise when deployed away from USNA. It is essential both the **watch team proficiency** and **material readiness** of the craft be assessed before any approved departure of the OPAREA, regardless of the planned duration of the voyage.

9-2 Requirements for Leaving Annapolis OPAREA. The Annapolis OPAREA is defined in Chapter 24. YPs conducting training for midshipmen outside this area or desiring to make a port visit shall first complete an Out of Area (OOA) assessment. This includes but is not limited to YP Squadron Movement Orders and summer Atlantic Professional Afloat Training (LANTPAT).

9-2.1 Watchbill

1. Each YP will have a watchbill approved and signed by the YP OIC for all required watch stations based upon operational requirements such as sea and anchor detail and condition 3 steaming. For the assessment, all stations will be manned per the approved watchbill. The Assessing Officer will critique the performance of each position and ensure the watch turnover is thorough and conducted in a timely and professional manner.

2. Approved Charts and Navigation Brief. Each YP will have all required charting (both paper and digital) on board and corrected through the latest edition of Notice to Mariners. All charts will be reviewed by the AOIC and CM and approved by the OIC. The Navigation Brief will be the first part of the OOA assessment serial. Following the navigation brief and prior to departure, the Assessing Officer will review the material status of the craft.

3. Assessing Officers. Officers nominated to conduct OOA assessments will be detailed in reference (h). In addition to PRODEV, the SEANAV Chairman and WFR Director have standing authorization to conduct OOA assessments.

4. Minimum Equipment and Training. Prior to commencing the OOA certification, each OIC will submit appendix S, Readiness for Sea Report, to the Squadron OTC. This report will state the current equipment readiness and level of training for the vessel. Upon completion of the OOA assessment, the OTC will complete appendix T and submit the documentation to SEANAV prior to conducting the Squadron Navigation Brief.

9-3 Out of Area Assessment

1. Goal. To ensure a YP is ready in all respects to deploy. In addition to an assessment of watch team ability and the material status of the craft, the ability of the OIC, AOIC, and CM to effectively supervise midshipmen personnel and deliver the training mission underway will be considered.

2. Assessment. The OOA Assessment Checklist is provided in appendix U for use by the Assessing Officer (AO). The OIC and midshipmen CO should meet the AO on arrival and escort him/her to the Navigation Brief in the CIC. Following the brief, the AO will walk the craft to make a material assessment of all key compartments, essential ship's systems, survival, and damage control equipment. Upon completion of the material inspection, the craft will conduct an underway transit to include simulated casualties and watch turnover. Any modifications of the OOA must be submitted and approved by PRODEV.

9-4 Post Assessment Action

1. Certification. On completion of the assessment, an initial debrief will be provided to the OIC and CM. After that, a more comprehensive debrief shall take place in the CIC for all midshipmen. The grading criteria are as follows: Effective, Partially Effective, and Not Effective. Any YP assessed as "effective" is cleared OOA operations without further action. A "partially effective" YP may be subject to a further reassessment as directed by the AO.

2. Failure to Certify. A YP assessed as "not effective" does not meet the required standard and will not be permitted to leave the local OPAREA without an additional period of training and further assessment.

3. Results. The AO is to provide a verbal report to SEANAV with the outcome of the serial, including key strengths and identified shortcomings of the period underway.

CHAPTER 10
Equipment Requirements

10-1 Definitions

1. Fully Mission Capable (FMC) - Navigation, propulsion, habitability, and safety equipment is fully functional and supports Out of Area Operations (OOA).

2. Partially Mission Capable 1 (PMC-1) – Degradation of navigation, propulsion, habitability, safety, or equipment that prevents OOA operations but supports midshipman training.

3. Partially Mission Capable 2 (PMC-2) – Degradation of navigation, propulsion, habitability, safety, or equipment that prevents OOA operations but supports limited OIC/CM training and other events without midshipmen embarked.

4. Not Mission Capable (NMC) – Major casualty to one or more systems that prevents the craft from being operated safely.

10-2 Navigational Requirements

1. Paper Charting. As a minimum for local operations one copy of charts for the Severn River and adjoining Chesapeake Bay are to be carried onboard.

Chart Number	Title
12283	Annapolis Harbor
12282	Chesapeake Bay, Severn, and Magothy Rivers
H1708225	DNC Coverage of the USNA OPAREA

2. These charts are to have been prepared in accordance with the Chart Preparation Checklist in Appendix K to include an appropriate track with adequate visual and radar safety plotted. Shoal water is to be clearly marked and the Notice to Mariners (NTM) checked weekly and updated as required. Any track entered to VMS/ECDIS should be identical to the track plotted on the paper chart.

3. Digital File Naming Conventions. The following naming convention is to be used to ensure correct voyage plans and navigation routes are in use at the appropriate time: YYMMDD-DEPARTURE PORT to DESTINATION. For example: 140122-USNA to Baltimore.

4. Digital Charting. Unless specifically detailed in any OPORD, the NGA-supplied Digital Navigation Charts (DNC) are to be installed from Base Disk 17. This disk is issued quarterly. Vector Data Updates (VDUs) are to be updated weekly or monthly when published by NGA. NOAA-supplied S57 Electronic Navigation Cells (ENC) or Raster BSB format charts may be used to augment the DNCs during Out of Area Operations. Further advice may be sought from SEANAV-OPS.

5. Equipment, Logs, and Stationary. Each of the following items are to be held onboard for the craft to be assessed as FMC:

a. Maneuvering board paper (at least 30 sheets).

b. Tactical communications logs.

c. Ship’s deck and compass bearing logs.

d. Tide, current, and sight reduction forms.

e. Sufficient consumable stationary items such as pens, pencils, and erasers.

f. Navigation bearing/record books.

g. Navigation report template.

h. Contact report template.

i. One Stadimeter.

j. Two flashlights with red lenses.

k. Compasses (sat-compass (pseudo gyro) and magnetic).

l. Navigation lights.

m. Air horn.

n. Calibrated fathometer and speed sensors.

o. Anemometer.

p. Global Navigation Satellite System (GNSS) receiver.

q. Fully serviceable ECDIS (703 class) and VMS v9.1 (676 class).

r. S/X-Band marine navigation radar.

s. Three binoculars.

t. Two telescopic alidades.

u. One parallel motion protractor (PMP arm) in a good state of repair (676 class only).

v. One azimuth circle.

w. Embarkation ladder.

x. Three sets sound powered phones in good repair.

7. Navigation and Bridge System Setup. All bridge equipment is to be configured in accordance with PRODEV Navigation Standards. Unless specifically directed otherwise by the OTC, the safety depth, and shallow contour is to be established at a depth of 12 feet. The deep contour is to be set at 36 feet.

8. Equipment Requirements Matrix. The tables in appendix V and W should be used to determine the suitably of any one craft for operations across each of the four possible classifications of FMC, PMC-1/2, and NMC. If a YP is to be operated for any particular task, yet falls short of the required material standard, then SEANAV, WFR, and PRODEV are to be informed.

9. Operating with Equipment Defects or Shortfalls. When any YP does not meet the minimum equipment requirements for its intended task or mission (defined as FMC, PMC-1, and PMC-2), approval for use of the craft must be obtained from PRODEV prior to execution. When conducting a material assessment, each system or item of equipment is to be checked that it is fully operational, in-date for calibration (as required), and any associated instrumentation or alarms are not operating in cut-off mode or silenced.

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CHAPTER 11
YP Characteristics and Tactical Data

11-1 YP 676 Class General Characteristics

Length overall (LOA)	108 feet
Beam	22 feet 9 inches
Hawespipe to Pelorus	33 feet
Navigation Draft	12 feet
Actual Draft (Full/Light)	8 feet/7 feet
Displacement (Full Load)	172 Tons
Masthead Height	48 feet
Yardarm (from boot top)	42 feet
Height of Eye (bridge, 6ft)	22 feet
Max Crew Capacity	30
Rudders	2, directly aft of FPPs
Fixed Pitch Propellers	2 x 3 blades
Propellers Diameter	36 inches

Main Diesel Engines	2 x Diesel (MDE) General Motors Series 12V71
Shaft Horsepower	437 shp
Generators	2 x Diesel (SSDG) GM Series 3L71
Output	440V, 3 Phase AC
Rated Power	50 kW

Fuel Capacity	6,550 gallons (100%)
Fuel Capacity	6,222 gallons (95%)
Fuel Consumption	10 knots (2 MDE, 1 SSDG) 12 gallon/hour
Fuel Consumption	13 knots (2 MDE, 1 SSDG) 45 gallon/hour
SSDG Only - Fuel Consumption	6.33 gallon/hour (full load)
Endurance at 10 knots (50% fuel)	2,450 nm
Lubricating Oil Capacity	40/32 gallons (storage/waste)
Fresh Water Capacity	1,532 gallons (total) 1,133 gallons (Fwd Tank) 399 gallons (Aft Tank)

11-2 Tactical Data

11-2.1 Engine Order Telegraph (EOT) Settings

Setting	RPM	Speed
Starboard/Port Engine Ahead 1/3	500	3 knots
All Engines Ahead 1/3	500	4 - 5 knots
All Engines Ahead 2/3	970	7 knots
All Engines Ahead Standard	1,300	9 knots
All Engines Ahead Full	1,650	11 knots

Setting	RPM	Speed
All Engines Ahead Flank	2,060	12 – 13 knots
All Engines Back 1/3	900	3 knots
All Engines Back 2/3	1,200	5 – 6 knots
All Engines Back Full	1,500	Approx. 7 knots
Engines orders over 1,800 RPM should not routinely be used and requires OIC/CM permission.		

11-2.2 Turning Data

1. Rudder Angles

Order	Tactical Diameter (TD)	Rudder Angle
Standard	150 yards	15°
Full	80 yards	25°
Hard	Approx. 70 yards	35°

2. Advance and Transfer Table (676 class)

Speed	Rudder Angle	Size of Turn	Advance	Transfer	TD
6 knots	15°	45°	117 yards	55 yards	170 yards
6 knots	15°	90°	135 yards	85 yards	
6 knots	25°	45°	67 yards	40 yards	120 yards
6 knots	25°	90°	55 yards	55 yards	
10 knots	15°	45°	80 yards	45 yards	150 yards
10 knots	15°	90°	125 yards	80 yards	
10 knots	25°	45°	45 yards	30 yards	80 yards
10 knots	25°	90°	75 yards	50 yards	
13 knots	15°	45°	125 yards	85 yards	180 yards
13 knots	15°	90°	150 yards	125 yards	
13 knots	25°	45°	100 yards	75 yards	130 yards
13 knots	25°	90°	80 yards	55 yards	

11-2.3 Acceleration and Deceleration

1. Acceleration and Time

Acceleration	Time
0 – 7 knots	20 seconds
7 – 10 knots	14 seconds

2. Acceleration and deceleration within the range of normal operating speeds results in approximately 16 yards traveled per knot of speed change.

11-2.4 Tactical Speeds, Diameter, and Distances

1. The speeds, distances, and tactical diameters contained in this section are applicable to all YP exercises unless otherwise specified.

The handling characteristics do markedly change based on the prevailing wind and tidal conditions. Note should also be made of the craft's liquid state and draught marks.

Operational Speed	8 – 10 knots
Stationing Speed	11 knots
Maximum Speed Available	13(.25) knots
Standard Distance	500 yards
Replenishment (waiting station)	100 yards
Standard Tactical Diameter	150 yards
Reduced Tactical Diameter	80 yards

11-3 YP 703 Class General Characteristics

Length overall (LOA)	119 feet
Beam	27 feet 9 inches
Hawespipe to Pelorus	37 feet
Navigation Draft	12 feet
Actual Draft	7 feet 5 inches
Displacement (full load)	219.4 tons
Masthead Height	49 feet
Yardarm (from boot top)	47.5 feet
Height of Eye (bridge, 6ft)	23 feet
Max Crew Capacity	40
Rudders	2 direct aft of FPPs
Fixed Pitch Propellers	2 x 4 blades
Propeller Diameter	52 inches

Main Diesel Engines	2 (MDE) Caterpillar
Shaft Horsepower	715 BHP at 1200 RPM
Generators	3 Diesel (SSDG)
Output	480V, 60Hz, 99KW, 3 Phase AC
Emergency Generator	480V, 60 Hz, 45 KW, 3 Phase AC

Fuel Capacity (98%)	6,718 gallons
Fuel Consumption	10 knots (2 MDE, 1 SSDG) 32 gallon/hour
Fuel Consumption	13 knots (2 MDE, 1 SSDG) 45 gallon/hour
SSDG – Fuel Consumption	10 gallon/hour (full load)
Endurance at 10 knots (50% fuel)	2,450 NM
Lubricating Oil Capacity	52/158 gallons (storage/waste)
Fresh Water Capacity	2,641 gallons (total) 857 gallons (fwd tank) 1,784 gallons (aft tank)

11-4 Tactical Data

11-4.1 EOT Settings

Setting	RPM	Speed
Starboard/Port Engine Ahead 1/3	750	3.5 knots

Setting	RPM	Speed
All Engines Ahead 1/3	800	5 knots
All Engines Ahead 2/3	1,200	7.5 knots
All Engines Ahead Standard	1,600	9 knots
All Engines Ahead Full	1,800	11.5 knots
All Engines Ahead Flank	2,100	13 knots
All Engines Back 1/3	600	3 knots
All Engines Back 2/3	1,200	5 – 6 knots
All Engines Back Full	1,400	7 – 8 knots
Engines orders over 2,000 RPM should not routinely be used and requires OIC/CM permission.		

11-4.2 Turning Data

1. Rudder Angles

Order	Tactical Diameter (TD)	Rudder Angle
Standard	165 yards	15°
Full	90 yards	25°
Hard	Approx. 75 yards	35°

2. Advance and Transfer will be plotted using the data found in 11-2.2 paragraph 2.

11-4.4 Acceleration and Deceleration

1. Acceleration and Time

Acceleration	Time
0 – 7 knots	20 seconds
7 – 10 knots	14 seconds

2. Acceleration or deceleration within the range of normal operating speeds results in approximately 20 yards traveled per knot of speed change.

11-4.5 Tactical Speeds, Diameter, and Distances. The speeds, distance, and tactical diameters contained in this section are applicable to all YP operations unless otherwise specified by the OTC.

Operational Speed	8 – 10 knots
Stationing Speed	11 knots
Maximum Speed Available	13(.25) knots
Standard Distance	500 yards
Replenishment (waiting station)	100 yards
Standard Tactical Diameter	150 yards
Reduced Tactical Diameter	80 yards

CHAPTER 12
Standard Commands

12-1 Introduction

1. The use of standard phraseology for giving commands to the lee helmsman and helmsman will ensure that the response will be immediate because of their familiarity with the format of the commands. It is essential the Conning Officers be precise with their use of standard commands and reports. Reference (e) is an excellent resource for studying standardized commands and all bridge watchstanders should be familiar with its contents.

2. Standard commands given on the bridge of a ship follow the strictest sequence at all times. The Conning Officer will give the command to the helmsman or lee helmsman in the proper format. This order is then repeated back to the Conning Officer by the watchstander. When the command has been carried out the watchstander reports the completion of the action to the Conning Officer. The Conning Officer then acknowledges the completion of the order by responding *"Very Well"*.

12-2 Commands to the Lee Helmsman

1. Format of Command

a. The desired engine followed by the direction the engine is to be engaged and the speed to be ordered.

ENGINE:	*"Port Engine", "Starboard Engine", "All Engines".*
DIRECTION:	*"Ahead", "Back".*
SPEED:	*"One-third", "Two-thirds", "Standard", "Full".* May be followed by: "Indicate ____ Revolutions for ___ knots" (ahead speeds); "One-third", "Two-thirds", "Full" (astern speeds, there are no evolutions given for astern speeds).

b. When shifting an engine's direction, the engine should first be ordered to *"Stop"* and then ordered to the desired direction.

2. Examples of this voice procedure are available within the NS101 course materials.

12-3 Commands to the Helmsman

1. Before executing any rudder order, the Conning Officer must look in the direction of the intended turn to verify that it is safe to make the turn. The Radar Operator can also assess whether or not the new course is clear of shipping or any other hazard. Once a rudder order is executed, the Conning Officer must monitor the situation by

checking the rudder angle indicator to ensure that the rudder was put over in the correct direction to make certain the command is correctly carried out. If the heading fails to change as expected, the order should be modified.

2. Format of command

a. Commands to the helmsman are always given in the same format: The desired direction for the rudders to be put over followed by the amount of rudder to be ordered.

DIRECTION: *"Left", "Right".*

AMOUNT: *"Number of degrees", "Standard", or "Full".*

b. A course to steer is normally given following the rudder command to the helmsman.

c. Example, showing the sequence of standard commands and responses:

Conning Officer: *"Right 10 degrees rudder, steady on course 150."*

Helmsman: *"Right 10 degrees rudder steady on course 150, aye, Sir."*

Helmsman: (when the rudder is right 10 degrees) *"My rudder is right 10 degrees, coming to course 150, Sir."*

Conning Officer: *"Very Well."*

Helmsman: *"Steady on course 150, Sir."*

Conning Officer: *"Very Well."*

d. Standard commands to the Helmsman:

COMMAND	**MEANING**
"Left (Right) ___ Degrees Rudder."	Put on the amount of rudder ordered.
"Left (Right) Standard Rudder."	Put on the amount of rudder required to turn the ship in standard tactical diameter (This is 15 degrees on a YP).

COMMAND	**MEANING**
“Left (Right) Full Rudder.”	Put on the amount of rudder required to turn the ship in reduced tactical diameter (This is 25 degrees on a YP).
“Hard Left (Right) Rudder.”	Use maximum rudder. (Reserved for emergencies, 35 degrees on a YP) Note: does not follow the usual format as “hard” comes before direction of the rudder.
“Steady on course ___.”	Steady on course ___ using the amount of rudder previously ordered.
“Shift your Rudder.”	Change from left to right rudder (or vice-versa) an equal amount. Example: Shifting from right standard to left standard rudder.
“Rudder amidships.”	Put the rudder amidships; a rudder angle of zero degrees.
“Come right (left) steer course ___.”	Used when the ordered course change is less than 10 degrees.
“Meet Her.”	Use rudder as necessary to check the swing of the YP without steadying on a specific course. Must be immediately followed by an order to steady on a specific course.
“Steady as she goes.”	Steer the course on which the ship is heading when the command is received. The helmsman’s reply is “Steady as she goes, course ___, aye Sir”.
‘Mind your helm.”	Steer more carefully. Used to reprimand the helmsman for inattentiveness.
“Steer nothing to the left/right of __.”	Do not steer anything to the left/right of the heading specified.
“How is your rudder?”	Report the rudder’s position.

COMMAND	MEANING
"Mark your head."	Report the ship's heading.
"Ease your rudder to Left/ Right __ degrees."	Decrease the rudder angle ___ degrees.
"Increase your rudder to Left/Right ___ degrees."	Increase the rudder angle to ___ degrees.
"Orders to the helm/lee helm."	Given when the (lee) helmsman does not understand the Conn's orders.

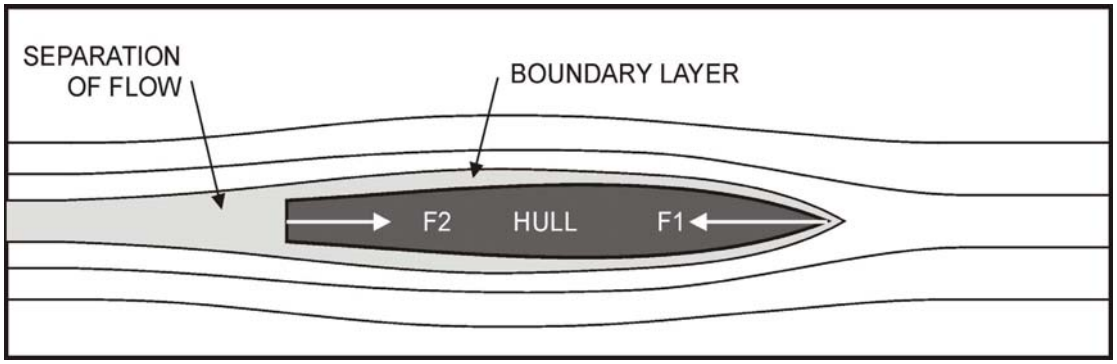
12-4 Commands to Line Handlers

1. Reference (e) also addresses the standard line handling commands. Some commands routinely used are shown below.

COMMAND	MEANING
"Take in the (stern Line)."	Retrieve the stern line from the pier or the other ship.
"Cast off the (stern line)."	A command to those tending the mooring lines on the pier or ship alongside to disengage and throw off your lines.
"Slack (bowline)."	Pay out the bowline, allowing it to form an easy bight, thus removing all tension from the line.
"Check (bowline)."	Put heavy tension on the bow-line but not to the breaking point, permitting the line to slip on the cleat as necessary.
"Hold (bowline)."	Take enough turns so that the bowline will not slip, parting the line if necessary. (It is up to the Conning Officer to prevent such a heavy strain as would part the line.)
"Over (bowline)."	Pass the bowline to the pier. Place the eye over the bollard or cleat, but do not take a strain.

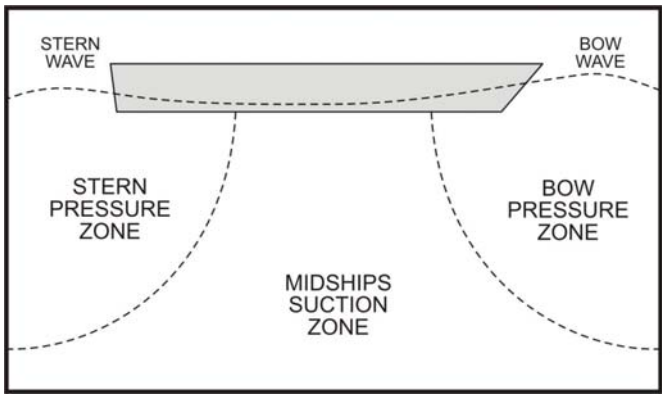
CHAPTER 13
Shiphandling

13-1 Introduction. Safe and effective maneuvering of a YP requires an understanding of basic hydrodynamic principles and a period of experience to master the craft. Often, low speed evolutions such as pier landings prove to be the most challenging as the prevailing ephemeral effects of wind and current have a far greater influence on the movement of the YP over ground. References (e), (i), and (j) offer advice on how to best tackle various naval shiphandling scenarios.



The flow of water around any ship creates a boundary layer and two significant forces of thrust (F2) and drag (F1).

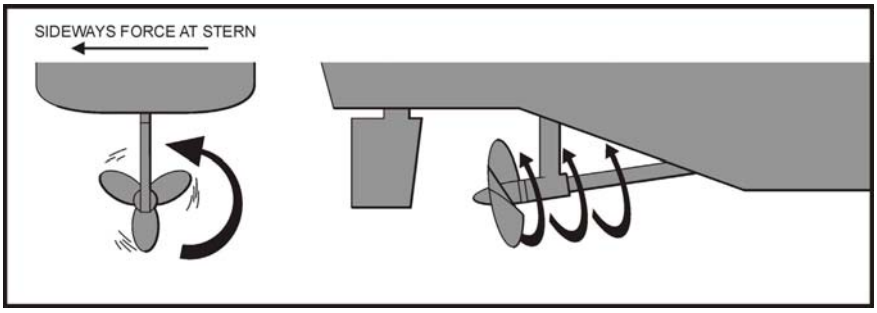
13-2 Shiphandling Forces. When piloting a vessel of any type, a mariner must consider both the **controllable** and **uncontrollable** forces affecting the ship. Controllable forces can be created by the use of propellers, rudder(s), mooring lines, anchors, or any attached tug or other boat. Uncontrollable forces are created by the prevailing velocity and direction of both wind and tidal stream or current.



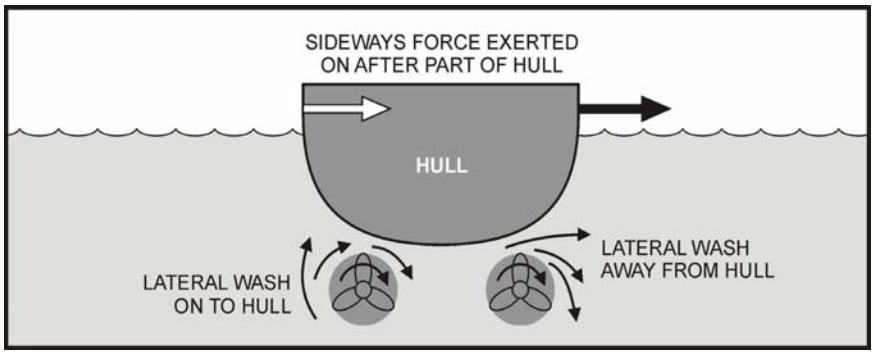
As the craft moves through the water, two pressure zones are created as shown above.

13-2.1 Propeller Effects

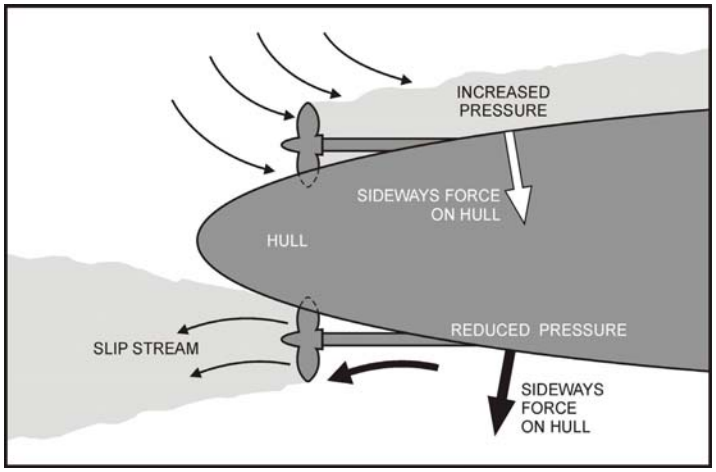
1. Both classes of YP use twin fixed-pitch propellers (FPPs) located at the stern of the craft; offset either side of the centerline. FPPs turn outward when going ahead; this maximizes the dynamic efficiency of the lateral turning forces created. Both the blades and boss of a FPP are made as one solid unit and the blades are set at a fixed angle of attack.



Paddlewheel Effect created by a single propeller rotating.



An example of lateral wash due to flow of water acting against the stern of the craft.



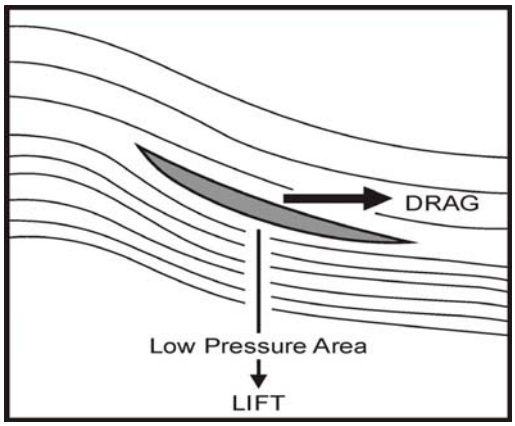
Pressure and suction causing the stern to move in a given direction.

2. As it is not possible to alter the pitch of the blade, the propeller must rotate in the opposite direction when astern thrust is required. Astern thrust is achieved using a reserving gearbox. In a

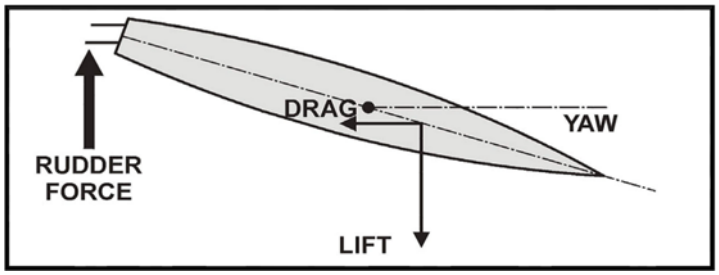
direct drive system, the engine has to be physically stopped and restarted in the opposite direction causing a considerable delay when thrust is required. To alter the amount of thrust generated by an FFP, the speed of rotation is either increased or decreased.

13-2.2 Rudder Effects

1. A rudder is used to generate a yawing moment that is a function of the velocity as the craft is traveling through the water. When stationary, the rudder can also be used as the propeller discharge will strike the surface of the rudder causing many of the effects shown on the page above.



How a rudder works – generating lift as a function of the velocity of the water flow.



As the rudder generates lift in one direction, drag is induced reducing the speed of the vessel through the water.

2. The direction of wheel that should be applied to turn the ship depends on the direction of travel. When moving ahead, using **left** rudder will cause the ship to turn to **port**, while **right** rudder will cause a turn to **starboard**. When the ship is moving astern, using left rudder will cause the **stern** to turn to port while right rudder will cause the stern to turn to the starboard.

3. When maneuvering in a channel or during a landing approach, the amount of rudder to use depends upon the rate of heading change desired. Remember for a given rate of heading change, the slower the ship’s speed, the greater the rudder angle required to generate the required effect.

4. The YP can be “twisted” in position by going ahead with one engine and astern on the other engine. Using the rudder in the direction of the astern engine will significantly increase the rate of turn.

13.1.3 Pivot Point

1. As a ship turns, the torque produced by the propellers, in combination with the generated side forces produced by the propellers and the rudder, pivots the ship about a point along the centerline. This is called the *“pivot point”.* The location of the pivot point will change as the ship gathers headway, sternway, or becomes stationary the water. An understanding on the location of the pivot point is essential for safely maneuvering the craft at low speed, especially when approaching a pier. The various locations of the pivot point are summarized below:

a. When the YP is stationary in the water, the pivot point is located at the aft part of the pilothouse.

b. When the YP is moving ahead, the pivot point moves forward to approximately the position of the centerline pelorus. In a 703 class, it is approximately the location of the bridge ladderwell.

c. When the YP is moving astern, the pivot point moves to a position approximately forward of the fantail.

13-2.4 Mooring Lines. Mooring lines can be used to great effect by generating a mechanical lever influencing the movement of the craft when secured to the seawall. When working such lines, the OIC/CM must always be aware of the potential dangers of putting a significant strain on any line attached to the pier. Personnel must not stand in the line of recoil and good communications between the OIC/CM and line handlers are essential. Routinely, a YP will only use bow and stern lines. Additionally, spring and breast lines may be attached to stop the craft surging back and forth along the pier when moored for an extend duration. Consideration should also be made of the rise and fall of the tide during the expected period alongside.

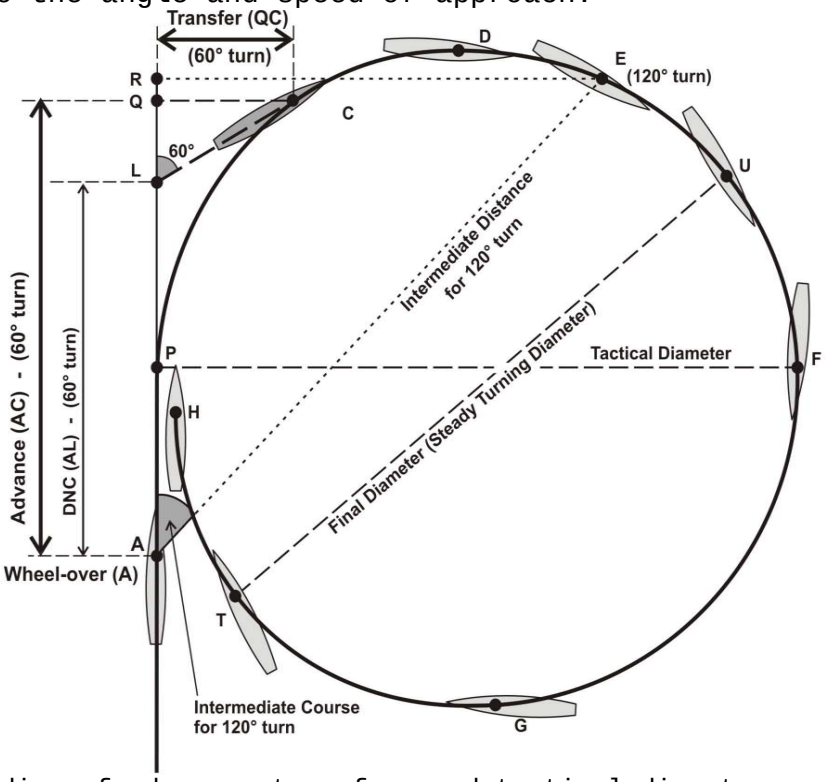
13-2.5 Current and Wind Effects

1. Any ship operates in two fluids, water and air. Movement of either will result in movement of the vessel with respect to the ground unless it is counteracted by some other force. The density of air is significantly less than of water, therefore approximately 10 – 15 knots of sustained wind has roughly the same effect of 1 knot of current. While wind and current cannot be controlled, their effects must be carefully considered and compensated for with the safe maneuvering of the craft. Often, on setting winds can be used to your advantage when conducting a pier landing.

2. In the absence of all other forces, a ship will be bodily set in the direction of the current and if allowed to drift without

propulsion, will turn until the greatest area of vertical underway body is presented to the current. Ultimately, the vessel will lay perpendicular to the current.

3. Wind considerations. Any ship will be set by the wind. The angle that the vessel will finally present to the wind will depend on the comparative fore and aft distribution of the sail area. This will prove to be very significant when operating a 703 class YP given the considerably larger superstructure. No wind effect will be felt when the vessel is in the lee of obstacles on the shore. A cautious approach should be made when a large building is close to the final mooring position as the conditions may change markedly requiring an alteration to the angle and speed of approach.



An understanding of advance, transfer, and tactical diameter are essential, especially when navigating near shoal water or in company with other vessels. Wind and current will have a **significant effect** of these values.

13-3 Shiphandling Evolutions

13-3.1 Safety. Safety of the craft and all embarked personnel takes primacy over any operational imperatives at all times. As conditions change, the OIC/CM must be able to take timely and positive corrective action to ensure the craft remains safe. At any time, the OIC/CM may modify, delay, or veto the orders passed by a midshipman Conning Officer. When operating close to any hazard such as the pier or another vessel, the OIC or CM should be beside the panish controls ready to take immediate action. The other individual is then free to continue the training effort by coaching a Conning Officer on the bridge Wing.

13-3.2 Getting Underway from a Pier

1. The Conning Officer should complete the following before getting underway:

a. Aid the OOD in completing the Underway Checklist.

b. Ensure the outboard side and stern are clear and the craft is free to maneuver.

c. Assess the direction and velocity of both the wind and current. Under supervision of the OIC/CM, determine how this will affect the YP as the lines are taken in and the craft leaves her mooring.

2. If the YP is being set off the pier, the following method has been found to be effective:

a. Take in all lines and drift away from the pier. The bow or stern line could be held as necessary to control the rate of drift.

b. When clear, back out astern or if desired move ahead. If you move ahead, you must be careful to ensure the stern is not endangered by the pier or another moored craft.

3. If the YP is being set onto the pier or in a condition of slack water with light winds, the following method has been found to be effective:

a. Take in the stern line and twist the stern away from the pier (to approximately 30° from the line of the jetty).

b. Release the bowline and back away from the pier with a 1/3 bell.

4. Although several examples have been highlighted above, the method of departure will depend on the prevailing conditions. The OIC/CM must agree on the departure plan before getting underway.

13-3.3 Making a Landing

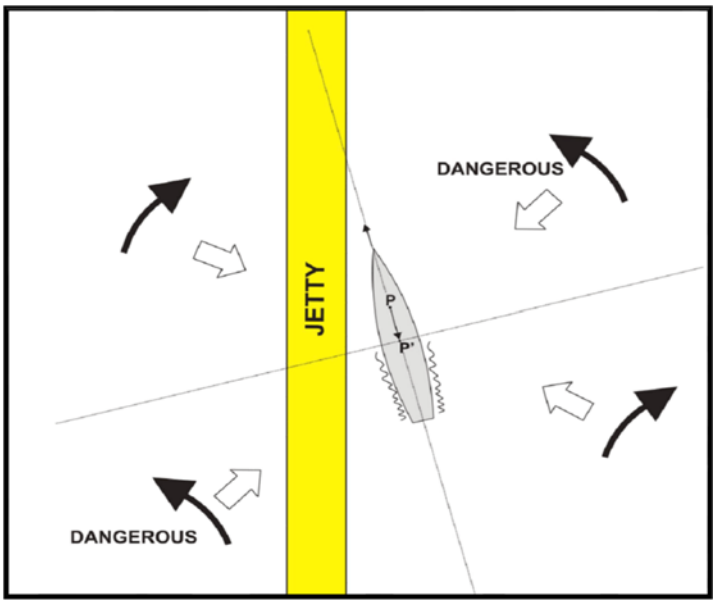
1. Considerations. To achieve a safe and controlled pier landing an accurate appraisal of the prevailing environmental conditions (wind, current) and proximity of adjacent ships or other hazards must be made. The angle of approach to the pier may then be adjusted as required. While the expected current and forecasted wind strength and direction will have been considered at the navigation brief, particular attention should be paid to the **actual** conditions. A variety of sensors are available within the pilothouse to assist the navigation team, but simply looking out of the bridge windows towards the nearest tethered buoy or flag mast will prove most useful. The

construction of the jetty will also influence the tidal conditions on approach to the seawall.

2. Making the approach

a. It is important to remember your heading may not be an accurate measure of the course made good due to the effects of wind and significant currents. At slower speeds, the environmental forces will exert a greater influence on your movement over ground. Identify conspicuous marks (such as streetlights) on the shore will allow you to easily determine the rate of movement and you approach the pier.

b. Once you are near the berth, you must position the ship so all lines can be put over and the craft can be safely brought alongside the pier. For a YP, this usually means physically driving the bow up alongside the bollard or the other ship you are coming alongside so the lines can easily be put over. In general, putting the bowline over first will allow the Conning Officer to use this line as a spring to keep the bow near the pier and twist the stern in. Once the lines are over, the Conning Officer can put on a twist to bring the YP into position alongside the pier. Always ensure you control the rate of turn during a twist and do not allow the stern to strike the pier, as this will cause significant risk of damage to engineering equipment.



Recognizing the change in the position of the Pivot Point is essential when approaching the pier to avoid a dangerous sheer of bow or stern.

3. Each pier landing will be different as the conditions are always changing. This section will describe basic principles for making landings in benign conditions of slack water and light winds. More information regarding landings can be found in the sources listed at the beginning of this chapter.

a. No set conditions. The YP should commence its approach **at least** 200 yards from the berth and should head for the center of the

berth with an angle of between 10-15° with the heading of the pier. Speed should initially be 4-5 knots. As the YP nears the berth, speed should be reducing by backing the outboard engine that will also aid turning the bow to parallel the jetty. Final adjustments should be made to arrive in position to put over all lines.

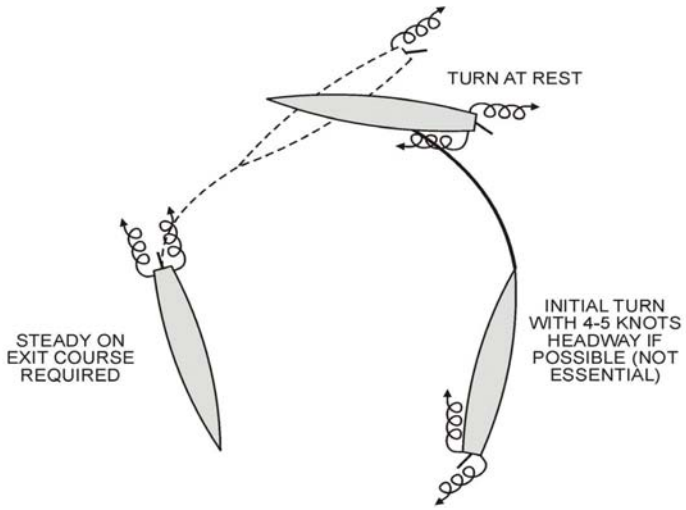
b. Offsetting conditions. The YP should head for the near end of the berth with a slightly greater angle of approach (15-20°). As way is taken off the ship, the offset effect will become greater so the Conning Officer must correct for this. Fine control of the engines will be required to hold the bow in the correct position to allow the lines to be passed. Remember an offsetting wind will also reduce the forward speed on the final approach to the pier.

c. On setting conditions. The Conning Officer must aim for a spot further along the jetty than the final destination, as the craft will be set towards the pier.

13-3.5 Confined Turns

1. Both classes of YP enjoy a considerable thrust to weight ratio and can easily be turned within a confined space. When onboard a 703 class YP, an assessment of the direction and strength of the prevailing wind is essential to determine the drift rate you will be subject to during the turning maneuver.

2. A diagram illustrating the procedure is shown below.



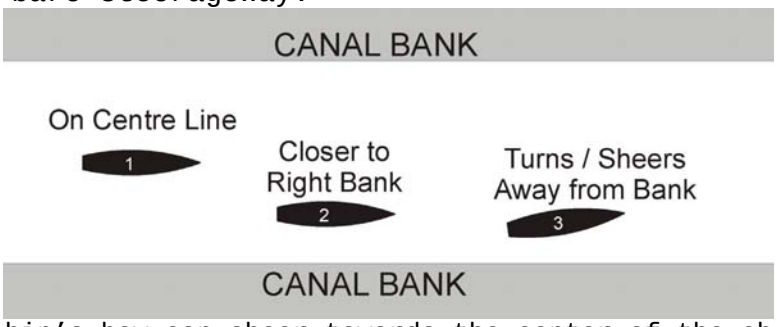
Conducting a confined turn with a Twin-screw FPP ship such as a YP.

13-3.6 Navigating through Narrow Channel, Canals, and Tidal Rivers

1. USNA YPs will often be required to transit through canals on passage to destinations such as Philadelphia (Chesapeake and Delaware Canal) or Boston (Cape Cod Canal).

2. Although it is easy to determine position within the limits of a canal, the OIC/CM must remember to allow for the potential dangers of

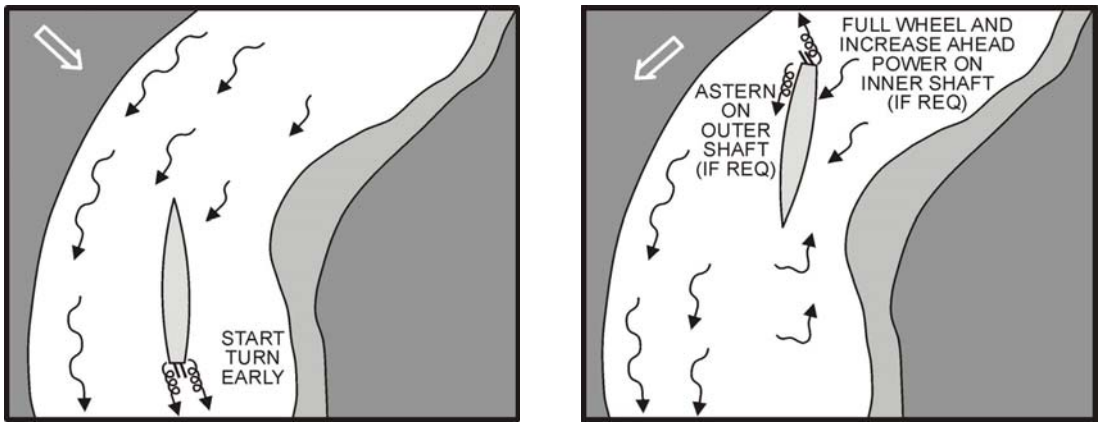
sheering towards oncoming vessels. The magnitude of any sheer will be a function of the speed the craft is moving. If in any doubt, reduce your speed to bare steerageway.



The ship's bow can sheer towards the center of the channel by navigating too close to the canal bank at speed.

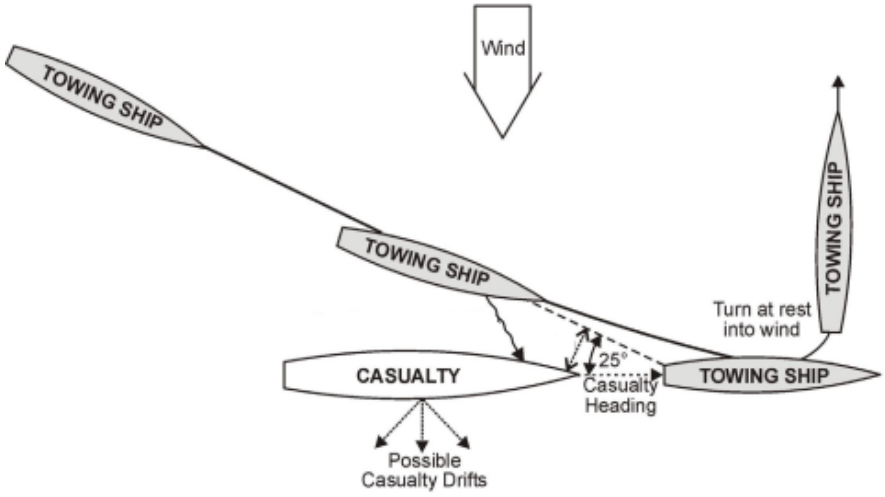
3. Many yacht havens and other moorings enforce a strict "no wake" policy to reduce the likelihood of damage by passing vessels. A good lookout should be kept for any such areas. The appropriate Coastal Pilot will provide further guidance.

4. When faced with the challenge of navigating in a river with significant tidal streams, the OIC/CM must be aware of how the prevailing current will affect the ship during any alteration of course. The diagram below shows two examples of how rudder and propulsion can be used to counter the effects of strong currents.

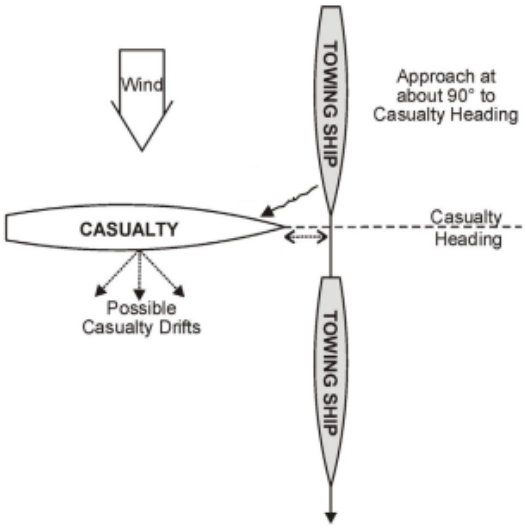


When navigating upstream, starting a turn early will be required. When the tidal is astern of the craft, the rudder will be less effective and backing an engine may be required to alter the ship's Heading.

13-3.8 <u>Towing</u>. The procedures for rigging a tow are detailed in Chapter 3. The guidance for making an approach to a casualty ship is summarized below. To offer the greatest level of control during the slow speed maneuver, an upwind approach is required. This will ensure the towing craft is not set away from the casualty YP as the speed is reduced. The OIC/CM must ensure sufficient sea room is maintained, so the YPs do not collide.



Option 1. Making a shallow approach from the Quarter.



Option 2. Crossing the 'T'. This approach ensures the danger of being set onto the casualty ship is minimized.

13-3.9 <u>Heavy Weather</u>

1. The safe operating limits for each class of YP are detailed below.

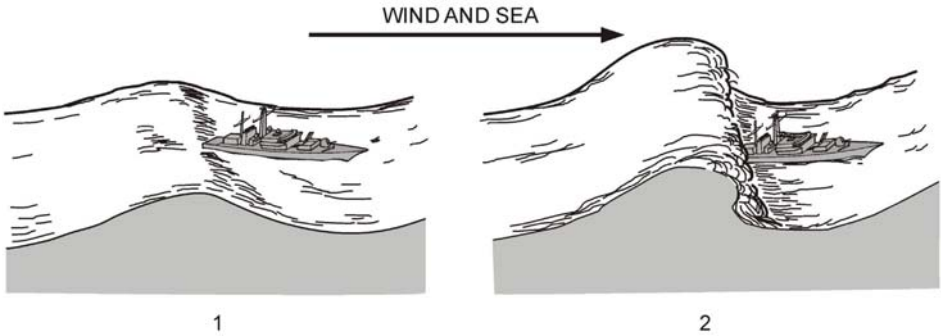
Operational Limits		
Wind	**676**	**703**
Sustained	25 knots	20 knots
Gusting	32 knots	25 knots

The OTC, OICs, and CMs always have the full authority to suspend training in lesser conditions based on contributing factors such as the material state of the craft or longer range forecast.

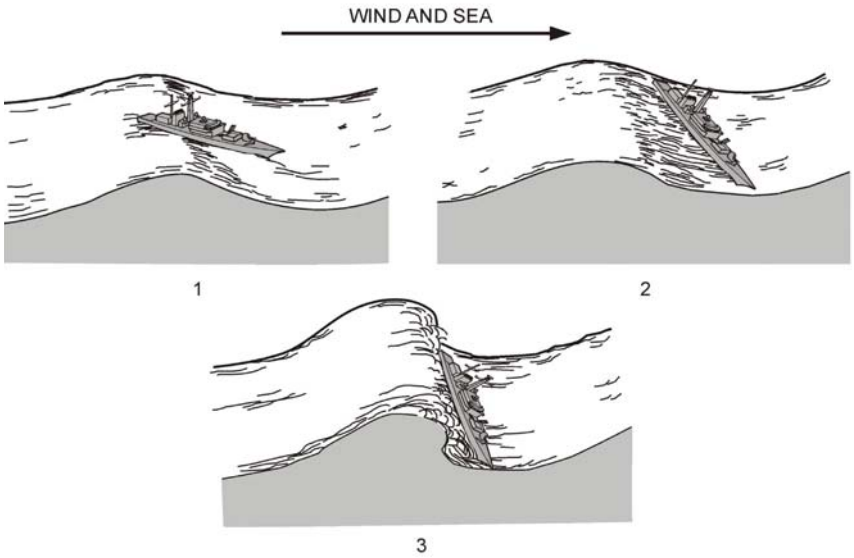
Due to the markedly different vessel characteristics including increased freeboard, superstructure size, and beam to length ratio, special consideration should be given when operating 703 class craft with wind speeds greater than 20 knots.

When the sustained wind speeds are greater than 15 knots, only a fully qualified OICs or CMs should conduct a pier landing from the panish controls. Any individual under training may only do so with direct supervision of a qualified OIC/CM at all times.

2. Illustrations of the dangers associated with broaching and pooping are shown in the diagrams below. Each member of the Command Team must be aware of the forecasted conditions out to the next 24 hours. This will allow a well-informed decision to be made if the YP is to be detached from planned tasking and transit at best possible speed to a safe haven inshore.

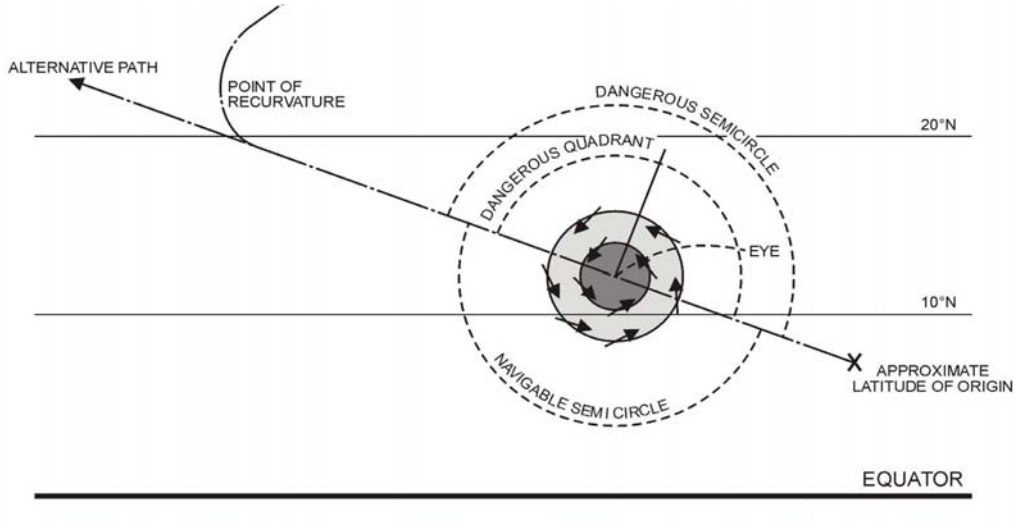


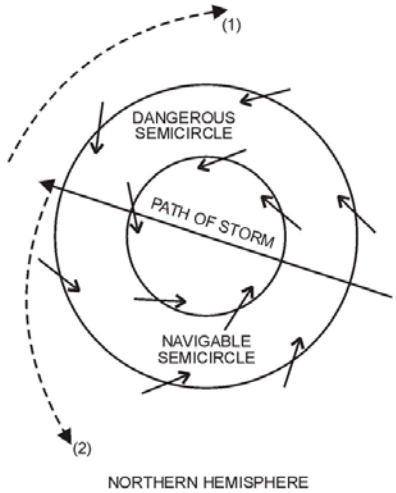
Broaching and *pooping* both present a significant hazard to small craft like a YP when offshore. The direction of the prevailing seas must be considered when altering course.



3. **Hurricane Avoidance**. To aid the OTC and OIC/CM in any possible situation whereby the YP is caught offshore in the face of a

significant weather event, the diagram below clearly shows the likely path of the hurricane in the Northern Hemisphere. This allows a selection of courses to ensure the vessel remains in the 'Navigable' Semicircle at all times.





13-4 Shiphandling in Formation, Fleetwork, and Division Tactics (DIVTACS)

1. Factors to consider when shiphandling in any formation are as outlined below:

a. **The safety of the ship is paramount when operating at close quarters with other vessels**.

b. A comprehensive understanding of the tactical maneuvering publications (MTP Vol. 1 and Pub 102) and the in-force Operations Order are **essential**.

c. Maintaining spatial awareness of the relative motion between ships in company is vital to safely completing any maneuver.

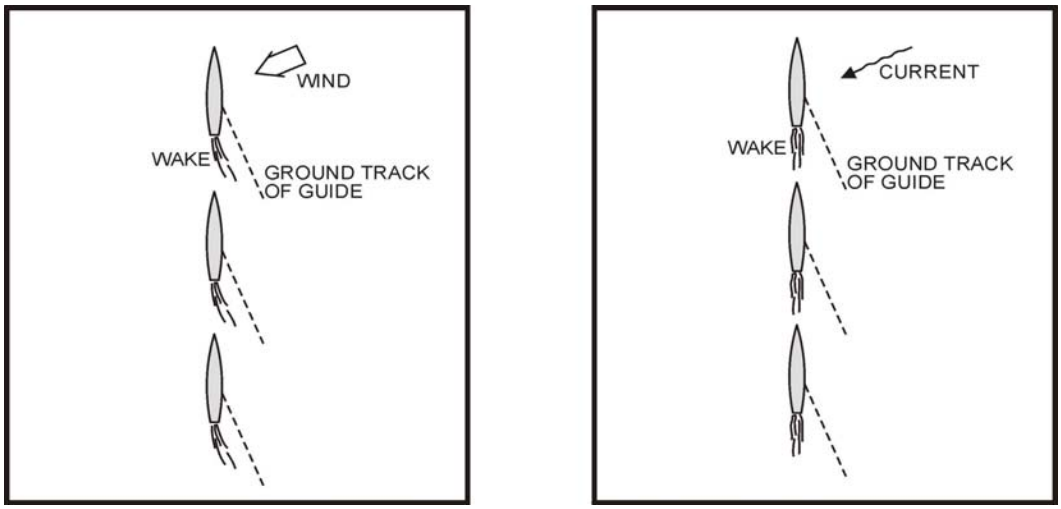
d. At all times, ships in company are to **independently navigate** in accordance with PRODEV Navigation Standards, even when directed to follow over the same ground as the guide.

2. The guide is never out of station and maintains base course (corrected for gyro error) and speed.

3. Always know the ordered base course and speed. The range and bearing to the guide should constantly be monitored to ensure the craft remains in Station.

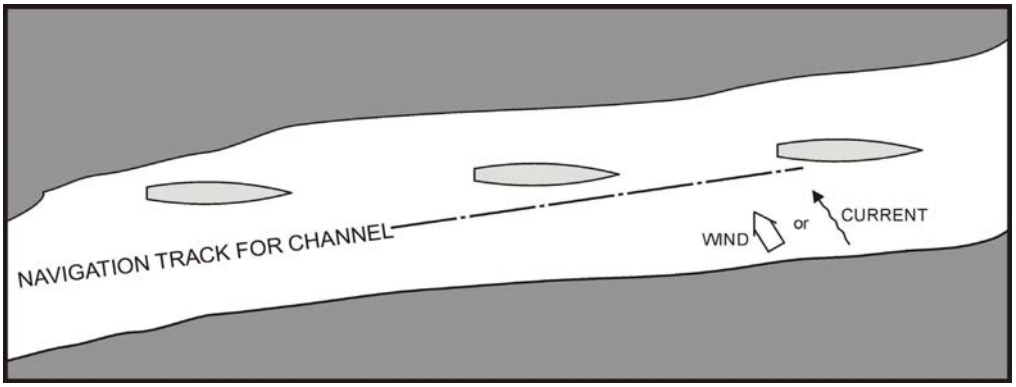
4. Plan all independent maneuvers using standard rudder (15°). This will permit the turn to be eased or tightened as may become necessary.

5. When a signal is executed, immediately begin to move to the designated station. If no better information is available, use seaman’s eye. As soon as the direction to turn is known, order the required rudder and change speed as appropriate. Course and speed can always be adjusted as the station solution is refined.



Observed wake of the guide and ground track with significant wind and current.

6. Always check that your new course is clear visually and by radar before committing to a maneuver. Maintain a constant appraisal of the relative distance and movement of other vessels. Are they behaving as expected?



The extent of shoal water must be considered by the OCE when directing other ships to maintaining a true bearing to the guide in constrained waters such as a narrow channel.

7. Line Formations

a. When executing a wheel while in column, a ship turning inside of the guide may adjust course to regain proper position but a ship turning outside of the guide may not steer in until the next ship astern has completed the wheel.

b. As the rudder is put over it creates a visible disturbance in the water that is called a “knuckle”. This knuckle can be used by a ship astern of the guide to determine when to put over the rudder after a wheel signal has been executed.

c. In a column, do not forget the next ship astern; stay on station!

d. When falling into an ordered station astern of another ship and you are both turning in the same direction, ensure your bow is never inside her stern as you turn.

8. Formations and Screens

a. When a signal is received which may affect the ship’s station, the OIC/CM must determine the following:

(1) New station number.

(2) Range and bearing to the guide when on station.

(3) Direction to turn.

(4) The course at stationing speed to get into station.

b. Never turn toward ships in company. Make large turns away from the formation in the interest of safety. Keep well clear of all large, less maneuverable ships and make your intentions clear.

c. The DESIG pennant is used to indicate the station to which you are proceeding. It is not used in line formations because ships do not have “station” assignments but are rather positioned in an ordered “sequence”. The DESIG pennant with appropriate numeral flags is used as detailed in MTP 1.

9. Station Keeping

a. Make every effort to maintain an accurate station while in formation, frequently checking the bearing and range of the guide. *(+/- 3° for bearing, +/- 10% for range*)

b. Maintain station by making appropriate changes in course and speed. If the bearing and range of the guide are frequently checked, only small course and speed changes will be necessary to keep the ship on station.

c. When in column, remember which number your ship is in the sequence. In the event of an emergency procedure, even numbered ships turn to port and odd numbered ships turn to starboard.

d. As a change of base course is executed, an error in station keeping can be easily corrected by adjusting the timing of your turn and the amount of rudder used.

e. Radar can be a useful tool to aid with the task of maintaining station, ensure it is properly configured for optimum performance.

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CHAPTER 14
Deck Equipment and Information

14-1 Shipboard Responsibility. The CM is responsible for all deck evolutions including anchoring, line handling, towing, and fender details. A qualified safety observer (AOIC or CM) will be on deck for all such evolutions while the OIC is in overall Command. The bridge is always to be informed if the status of any deck equipment changes.

14-2 Deck Equipment

14-2.1 Ground Tackle

1. A summary of equipment installed on the 676 class is shown below:

a. **676 class** YPs have USN lightweight *Danforth* anchors weighing 300 pounds each that are housed in their respective port and starboard hawse pipes on the foc’sle.

b. Each anchor is provided with 70 fathoms (420 feet) of one half inch chain. The chain is marked in 15-foot shots with fleet standard markings. These markings are painted on the detachable links of the anchor chain in **red (R)**, white (W), and **blue (B)** as follows. The entire “next to last” shot (15 feet) of chain is painted **yellow** while the entire last shot of chain is painted **red**.

c. The anchor windlass (Model X-1866) is motor driven and reversible in direction. Its function is to raise, lower, and stow the anchor and chain. By using the gypsy head, the windlass can also be used to assist with handling heavy mooring lines. The windlass has five major components: the wildcat, the gypsy head, the brake, the motor, and the pushbutton station.

(1) The **Wildcat** is sized for one-half inch stud-linked chain and can pull the 300-pound anchor and 70 fathoms of chain (approximately 3,400 pounds) at a rate of 34 feet per minute.

(2) There are two **Gypsy Heads** that are located on the outboard sides of the windlass and are used for line handling. Each head is nine inches in diameter and electrically controlled from the pushbutton station. The motor can pull a maximum weight of 2,700 pounds at a rate of 44 feet per second. To operate the gypsy, wrap the line to be handled around the head two or three times. Be sure the lines are not crossed or tangled around the head before proceeding. Make sure the clutch handle is disengaged from the motor shaft and pinned to the inboard position by the clutch lock pin. This position will allow the motor shaft and gypsy head to rotate without the wildcat. Push the “hoist” or “lower” button, depending on the desired direction of heaving on the line. To keep the line from slipping around the gypsy head, tension must be put on the line. This tension is brought about by applying a slight, hand-tended strain.

Strain should be applied to the part of the line where the motion is away from the gypsy head.

(3) The **Brake** is a mechanically operated disc-type brake with a rating of 15 pound-feet. The brake tension is regulated by turning the brake wheel to allow for the desired shaft rotation.

(4) The **Motor**, which is located on the main deck, is a 440 volt, 60 Hz, 3-phase unit. The rating for this motor is 5 HP. The motor is operated at one speed only but in two directions. Its direction is controlled from the pushbutton station.

(5) The **Pushbutton Station** is located in the center of the rear side of the windlass. There are two buttons located on the box. The hoist and lower buttons control the direction of rotation. These switches are known as *deadman's switches*, in other words, the switch must be continuously pressed to operate or the shaft will stop rotating as soon as released.

2. A summary of the equipment installed in a 703 class is shown below:

a. **703 class YPs** have two 350-pound *HP Talon* balanced fluke anchors that are housed in separate hawse pipes on the Foc'sle.

b. The anchors are attached to a three-quarter inch chain. The port chain has three 15-fathom shots (270 feet) and the starboard is made up of seven 15-fathom shots (630 feet). Shots are painted in 15-fathom sections with standard markings.

c. The Windless is a Coastal Marine Equipment Inc. (Model 2W07531-136-00). By using the gypsy head, the windlass can also be used to assist with handling heavy mooring lines. The windlass has five major components: the Wildcat, the Gypsy Head, the Brake, the Motor, and the Pushbutton Station.

(1) The **Wildcat** is sized for three quarter inch chain and can pull the 350-pound anchor and 630 feet of chain at approximately 33 feet per minute.

(2) There are two 10-inch diameter **Gypsy Heads** located outboard each side of the windless with a maximum pulling weight of 3,590 pounds.

(3) The **Brake** is a mechanically operated disc-type brake with a rating of 30,600 pounds.

(4) The **Windless** motor is rated at 7.5 HP with a 480V, 60 Hz, 3 Phase electrical supply. There is a **Pushbutton controller** located on the port side just aft of the windlass.

(5) Four chain stoppers (two for each anchor chain) are installed just forward of the anchor windlass.

14-2.2 Deck Gear

1. The following deck equipment is normally carried on YPs:

Equipment	Quantity
Heaving Lines	2
Lead Line	1
Grapnel Hook	1
Jacobs Ladder	1
Boot Hook (12 foot long)	1

2. Mooring & Towing Fittings

a. The **676 class YP** has six sets of bitts and eight chocks installed on the main deck, port, and starboard sides. One bullnose chock is installed on each side of the bow and three stern chocks are installed aft. A towing bitt is also installed on the fantail.

b. The **703 class YP** has eight sets of bitts and eight chocks installed on the main deck, port, and starboard sides. There is one bullnose chock on the bow and three stern chocks aft. There is a towing bitt on forward side of the Foc’sle and aft on the fantail.

c. Six 3-inch double braided nylon mooring lines are carried on board each YP. One 4.5-inch plaited towing hawser 235 feet long and two 4.5-inch plaited towing bridles 55 feet long are available. These lines are of a predetermined length and should not be cut except in an emergency. There are two portable pneumatic fenders carried on board each YP.

14-2.3 Lifesaving Equipment

1. Life jackets (50 sterns inherently buoyant type) are stowed in life jacket lockers on the 01 level.

2. Two 24 inch life rings with strobe-type marker lights are located on the main deck amidships, one on each side. An additional two life rings are located on the 01 level.

3. Two 25-person Mark 6 (676 class) or four 25-person Mark 7 (703 class), self-contained life rafts are provided on the port and starboard sides. These life rafts are equipped with a release device for both manual and automatic hydrostatic release of the life rafts. The hydrostatic release will trigger at an approximate depth of 10 feet so the unit does not inadvertently release in heavy weather. The device is stowed with the manual release plunger facing outboard.

4. To initiate manual release of the life raft, reach around the securing strap and depress the plunger fully with the palm of the hand. The life rafts may be inflated by pulling on the sea painter

(length-100ft) which extends through an opening in the container. This step should only be accomplished after the container has been launched.

5. The end of the sea painter should be tied securely to the stowage rack. As the painter has a predetermined breaking strength that is less than the buoyancy of the craft, it will break free once the compressed air inflation system has operated.

6. Each life raft is fitted with the following safety equipment:

a. Floatable knife

b. Boarding light

c. Paddles

d. Sea Anchor

e. 2 x Hand Pumps

f. Bailer

g. Flashlight

h. Signal Mirror

i. First Aid Kit

j. Signal Whistle

k. Fishing Tackle

l. Radar Reflector

m. Sea Marker

n. 50 sealed cans of drinking water

o. Five de-salter kits

CHAPTER 15
Engineering

15-1 Shipboard Responsibility. The enlisted engineer (second class petty officer or above) is responsible to the OIC/CM for the complete readiness, maintenance, and operation of all engineering systems onboard. This includes propulsion, electrical generation, ventilation, and all other hotel services including MSD/CHT. When deployed out of the USNA OPAREA, additional specialist personnel (such as an ET) will be carried as required.

15-2 676 Class Engineering Equipment

15-2.1 Main Engines

1. Main propulsion of the 676 class YP is supplied by Detroit Diesels 12V71 series diesel engines. Each unit is a 12-cylinder diesel engine coupled to transfer gear by hydraulically operated clutches. These are nonreversible, injection 2-cycle engines, with associated fuel, lube oil and water cooling systems and mechanical governor. Each engine produces up to 437 SHP. A summary of the cooling systems is shown below.

a. Fresh Water (FW) Cooling. The cooling of the main propulsion unit consists of one closed loop FW system on each engine and a split open loop salt water system that is used to cool the fresh water within the heat exchangers. The salt water is later mixed with the exhaust and discharged overboard. The closed FW system has a 32-quart capacity of fresh water (and antifreeze when required). The coolant is drawn by a centrifugal pump from the bottom of the engine lube oil cooler. Circulation is first through the transmission/reverse gear oil cooler then the engine oil cooler and finally through the engine. After passing through the centrifugal pump, the water is circulated through the cylinder block and head. Upon leaving the cylinder head, the coolant flows through the water manifold into the thermostat housing; from there the coolant either flows down through the tubes of the heat exchanger, through the oil coolers (and back again to the water pump), or the coolant bypasses the heat exchanger, goes through the oil coolers, and returns to the water pump. Bypassing the heat depends upon the coolant temperature. Below 160°F, the spring operated thermostat valve is closed and the coolant completely bypasses the heat exchanger on its way to the oil coolers. At 160°F, the valve begins to open, allowing coolant to flow through the heat exchanger and opens further as the coolant temperature increases. At 185°F, the valve is fully open allowing maximum flow through the heat exchanger. The FW pump can pump at a rate of 109 gallons each minute when the engines are operating at 2,100 RPM.

b. 175°F is the normal operating temperature and reading above 195°F necessitates an immediate investigation.

c. Salt Water (SW) Cooling. Salt water enters the system through a seacock located aft of the engines and passes through a duplex strainer to the SW circulation pump. These are positive displacement pumps, which pump at a rate of approximately 74 gallons per minute when the engines are operating at 2100 RPM. Care should be taken to avoid the loss of SW suction (due to ice, floating debris, etc.) because this will cause the neoprene impellers of the pump to overheat and cause the hard rubber to deform. Salt water flows from these pumps to the fuel/oil cooler then to the stern tube packing and heat exchanger where it will cool fresh water entering from the manifold at approximately 160-185°F. Salt water is discharged from the heat exchanger and then flows overboard through the V-1 valves and to the engine exhaust pipes were it cools the exhaust.

d. Lube Oil (LO) System. The lubricating oil is circulated by a gear-type pressure pump from the rear of the crankshaft. The gear train is lubricated by the overflow of oil from the camshaft pocket spilling into the gear train compartment and by splash from the oil pan. The blower drive gear bearing is lubricated through an external pipe from the blower rear end plate to the blower drive support. The valve and injector operating mechanism are lubricated from a longitudinal oil passage on the camshaft side of each cylinder head, which connects to the main oil gallery in the cylinder block. The oil passes through a duplex full flow oil filter to remove solid contaminants.

15-2.2 Generators

1. Ship’s electrical power is provided by two in line 3-71 Detroit Diesel generators producing 450V, 3 phase at 60Hz, 50KW and 80 amps for all onboard systems. The cooling systems associated with the electrical generators are markedly similar to the main engines.

a. Cooling Systems. The FW pump on the SSDG can pump at a rate of 84 gallons per minute when operating at 1,800 RPM. The SW pump can pump at a rate of 57 gallons per minute.

b. Lube Oil (LO) System. The flow of lube oil through the SSDG is again almost identical to the main engine, with two minor differences. Firstly, the lube oil passes through a simplex rather than a duplex filter. Secondly, the oil pan for the main engine is tilted while the SSDG oil pan is flat. Otherwise, the lube oil pump is driven by the crankshaft and is attached to the same place on the crankshaft as the oil pump for the MPDE.

c. Lube Oil Transfer and Storage System. The LO is stored in the lube oil storage tank located on the port bulkhead in the engine room. This tank has a capacity of 40 gallons and is filled from piping leading from the main deck fill at frame 40, port side amidships.

d. The purpose of the drain system is to provide rapid lubrication oil change capability for the MPDEs and the reduction

gears. The portable oil evacuation pump's suction is attached to the main engine's quick connecting attachment. The suction hose takes suction on the sump. The portable evacuation pump then discharges the lube oil to the lube oil waste tank that is located next to the lube storage tank on the port bulkhead of the engine room. The lube oil waste tank has a capacity of 32 gallons. The generator has a six-gallon capacity to hold lube oil.

15-2.3 Gyrocompass

1. The gyrocompass system indicates the heading of the craft. The system consists of the Sperry Marine, NAVISTAR satellite compass, gyrocompass unit, and ship's course indicators (gyro repeaters). The power supply is 115V for the synchro distribution system. An automatic transfer switch between the converter and the gyro provides emergency 24V DC power from the ship's batteries. The gyrocompass is also connected to the S-Band radar and VMS computer.

2. The master gyrocompass is located on the pilothouse helmsman Station. Five more gyro repeaters that indicate heading are located throughout the craft.

15-2.4 Circuits/Alarms

1. The following circuits and alarms are found in engineering spaces.

a. Circuit "E" Sound Powered Telephone Call Bell System. This system provides for calls between stations on the sound powered telephone 1 JV circuit. Power supply for buzzer and bell is 115V AC fed from the IC panel.

b. Circuit 1EC Lubrication Oil Pressure Alarm System. This system is installed on the two MPDEs and SSDGs for indicating a loss of pressure in the lubricating oil system. The alarm panel is located on the front side of the control console. Loss of pressure (less than 10 PSI) will cause the alarm panel to sound. The power supply is 24V DC.

c. Circuit 1EW Circulating Water High Temperature Alarm System. A thermostat switch is located in each of the MPDEs and SSDGs circulating systems. An excessive temperature rise (greater than 195°F) will cause the alarm buzzer to sound. The power supply is 24V DC.

d. Circuit KM Engine Revolution Indicator System. This system provides an indication of the RPM of the MPDEs. The system consists of a tachometer generator installed on each engine and a radial indicator located in the pilothouse at the panish controls.

e. Circuit MB, Engine Order Telegraph System (Mechanical). This system is no longer operable in any craft.

f. Circuit DW. Wrong Direction Alarm System. This system is no longer operable in any craft.

15-2.5 Engine Order Telegraph System. The engines in the 676 class YP are routinely operated in bridge control and the EOT system is no longer operable.

15-2.6 Panish Controls

1. 676 class YPs are fitted with a set of panish controls for remote operation of the engines from the bridge. The system consists of two control levers (one for each MPDE). When starting the main engines, control shall remain in the engine room.

2. When using panish controls, the engine room will remain manned at all times when operating at sea detail, making landings or operating in proximity to other craft.

15-3 676 Class Engineering Systems

15-3.1 Electrical Distribution System

1. AC electrical system is used to energize the ship's lighting system, communications, and navigation systems, electric motors, and other equipment.

a. The system includes two 3L71 diesel engines that generate power at 450V, 50KW, 80A, three-phase at 60 Hz. Routinely, one SSDG will be online with the other serving as a backup. For shore power, a 75-foot long cable is located forward on the main deck in the center of the superstructure. This is used to supply 450V from ashore when available.

b. 450V AC. The SSDGs are connected to 450V panel, which is located on the aft bulkhead of the EOS. The power flows from the Electric Plant panel to the 450V Bus Transfer panel located on the starboard side of the EOS. From this panel the power flows to the transformers located on the main deck on the starboard side of the passageway between the officer berthing and CIC. Power then flows to the 450V non-vital power distribution panel that is located on the starboard side of the divider between the two MPDEs. From here, the electricity is supplied to the non-essential systems such as the brominator, the desalinator, and the air conditioning seawater pump.

c. 115V AC. The three transformers mentioned above convert the 450V, 3 Phase, 60 Hz power and supply it to the seven power distribution panels located throughout the craft. The vital IC distribution panel located on the starboard aft bulkhead in the pilothouse provides power to the essential internal communications, such as the 1MC and 21MC. The isolated receptacle circuit distribution panel located amidships on the forward bulkhead of the same passageway provides power to the critical receptacles located in

the pilothouse, CIC, and engine room. The vital distribution panel amidships on the forward bulkhead in the engine room provides power to the fuel transfer pumps, MSD compressor, battery charger, and other vital ships systems. The non-vital power distribution panel located on the forward wall of the galley, supplies power to the less critical ships systems which include the dishwasher, refrigerator, toaster, ice maker, and trash compactor. The vital light distribution panel, located on the forward bulkhead in forward passageway, provides power to the lights, such as searchlights. The vital auxiliary power panel located on the forward wall of the passageway between the officer stateroom and CIC, just forward of the ladder to midshipmen berthing provides power to the necessary auxiliary systems, such as the air replenishment system, the berthing exhaust system, the defogger, and the sump pump.

d. 24V DC. The AC system also provides 24V DC using the rectifier located on the forward bulkhead of the engine room. This rectifier is supplied by 115V AC and transforms it to 24V DC. The DC system is also supplied by the craft’s emergency batteries.

2. DC electrical system is used to provide a 24V supply for starting the MPDEs, SSDGs, and the emergency power panel. The main components of the DC system are the charging rectifier, batteries, paralleling circuit, the selector switch, and the DC emergency power distribution panel in the pilothouse.

a. Batteries. The charging rectifiers are located in the engine room. On the forward bulkhead across from the starboard MPDE. They automatically convert the 115V AC from the vital distribution panel to 24V DC. This power is fed into 24V battery banks and two 12V batteries in series used for the generators. The batteries are located in the engine room, directly in front of the EOS. There are two banks of batteries, each bank consisting of eight cells that provide a total of 24V in each. The two banks of batteries provide power to start the MPDEs.

b. The batteries are automatically charged by the charging rectifiers. The charging rectifiers are usually kept on, even when the engines and generator are off. If the batteries were to drop substantially below 24V DC, the charger would immediately be put into operation and begin to charge the batteries at the rated output to a predetermined voltage.

c. The paralleling circuit is located on the console in EOS for the MPDEs. When batteries are operated in parallel, they produce more power. The parallel switch for the SSDG’s is located on the switchboard.

d. The 24V DC distribution panel is located in the pilothouse across from the ladder leading to CIC. It provides power to the following systems even if the AC electrical system were to fail.

(1) Navigation Light panel.

(2) Rudder Angle Indicator and Underwater Log.

(3) Sperry Marine NAVISTAR Satellite Gyro Compass.

(4) HF Radio Transceiver.

(5) UHF Radio Transceiver.

(6) FM 200 System.

(7) VHF Radio.

(8) E-Call System (Internal Communications).

(9) Pilothouse Console Dimmer/Lighting.

(10) Windshield Wipers.

(11) HD/HE Circuits (Wind Direction and Speed Indicator System).

(12) Emergency Lighting System.

e. Electrical load reductions should be in-force when operating on only the 24V DC system.

3. There are certain precautions to be taken when working with or around the battery systems.

a. Keep all naked lights well clear.

b. Never charge a battery at a higher finishing rate than given on its nameplate.

c. Lower the charging rate as soon as battery water temperature reaches 125°F.

d. Do not make repairs to battery connections when current is flowing.

e. When using tools around a battery, be careful not to short circuit battery terminals.

f. Always pour acid slowly into water and **never** water into acid. Guard skin and eyes against splashes of acid using the appropriate protective equipment.

g. Exercise proper care in handling acid.

h. Do not add acid of greater specific gravity then 1.350 to a battery.

i. Do not store sulfuric acid in places exposed to freezing temperatures.

j. Keep electrolyte level above tops of separators.

k. Add only pure distilled water to a battery.

l. Do not, except in an emergency, discharge battery below the given low voltage limit.

m. Never allow the battery to stand in a completely discharged condition for more than 24 hours.

n. Do not operate any battery above 125°F.

o. Do not discard battery in a fire because it may explode.

15-3.2 Fuel Oil System

1. The purpose of the fuel oil system is to provide fuel for the operation of the diesel MPDEs and SSDGs. It is composed of two onboard storage tanks, associated piping, and the equipment necessary for filling, venting, sounding, stripping, supply, return, and transfer of fuel.

2. Equipment Location. There are two 3,401-gallon fuel tanks, one port and starboard, located in the fuel tank compartment 2-30-0-T. The tanks are filled through two fill connections located at frame 34 on the main deck. The fuel tanks have all the connections necessary for supply, return, transfer, fill vent, sounding, filtering, and stripping the fuel. There are remote indicating gauges located at the EOS to monitor the amount of fuel left in each tank. These gauges are graduated in 100-gallon increments with numerical increments every 500 gallons. There are combination vent and sounding caps located port and starboard at frame 33 on the main deck. These serve the dual purpose of venting the tanks and providing the capability to sound each of the tanks.

a. Located between the two fuel tanks is a 25 gallon stripping tank and pump. The rotary hand pump draws fuel out of the tank and through associated piping and valves to the stripping tank. A sight glass allows the operator to view the fuel being stripped and to see when all the water has been removed from the tank. The stripping tank has a drain valve in the bottom allowing it to be drained into a portable container. Once the stripping tank is full, it overflows into the starboard fuel oil tank. This allows usable fuel to be returned to the system for consumption.

b. As the fuel leaves the fuel tanks, it is strained and filtered with a knife-edge strainer located in each tank between the fuel cutoff valve and the fuel service manifold. This allows removing any contamination or sediment that found its way into the tanks. These are the primary strainers.

c. From the fuel oil service manifold on its way to the engines the fuel passes through fuel/water separators. These will remove any remaining water from the fuel before entering the engines and/or diesel generators. The fuel/water separators provide servicing clearance to drain entrapped water into a bucket. They are located on the suction side of each propulsion and generator engine. Return fuel from the engines is piped to the top of each fuel tank.

d. There is an electrically driven transfer pump located in the engine room along the centerline on the forward bulkhead. The transfer pump is provided for diesel engine priming, fuel transfer from tank to tank, and offloading the tanks to the main deck offloading connection located at frame 38 on the starboard side.

e. An important element in the fuel oil system is the emergency fuel shutoff valve. This is used to shutoff all supply lines where fuel flows from the tanks to the engines. These shutoff valves are located at the fuel discharge pipe of each tank and can be remotely operated with T-bar handles located in the CIC forward bulkhead. Either or both tanks can be selected for shutoff. This is provided in case of fire or other engine room emergency.

15-3.3 Hydraulic Steering System

1. The hydraulic steering system is a mechanical hydraulic full follow-up power steering system. The system provides steering power using a basic manual hydraulic system to control the rudders. The system consists of nine basic components including the helm, jog lever, emergency wheel, rudders, pumps, hydraulic fluid, actuator, tie-bar, and follow-up sub-system.

a. Helm. The main helm is a large steering wheel located in the center of the pilothouse. Rotation of the helm in a clockwise direction causes the rudder to turn towards the right, while rotation of the helm in the counter-clockwise direction causes the rudder to turn towards the left. The helm can be used with or without the electric hydraulic pumps.

b. Jog lever. The jog lever is a single *“stick-shift”* device used to control the rudder angle and steer the craft when both a helmsman and a lee-helmsman are not available. It is clearly marked and located on the port side of the pilothouse. As opposed to the helm, which employs rotational motion to control the rudders, the jog lever employs simple lateral motion to affect the same result. Unlike the helm, which has little or no lag time upon being turned, the jog lever has an approximate two second delay from being placed in a

direction and the rudders actual turning. The jog lever will override the helm.

c. Emergency wheel. The emergency wheel is a helm used to control the rudders in the event of a loss of electrical power or casualty of the actuator or pumps. It is located on the forward bulkhead, port side of the lazarette. This helm should be used only in the event of a casualty or emergency because accurate control of the rudders becomes much more difficult.

d. Pumps. Any hydraulic steering system requires the flow of fluid, under high pressure, to be pumped throughout the system. Two Reughler 3 HP, 1,800-RPM pumps provide the necessary pressure for the hydraulic system onboard. They are vane pumps located amidships in the lazarette. Although two pumps are installed, only one is necessary for full steering capability. Because of this, only one pump should be used at any time. There is an additional, smaller pump located in the pilothouse console. This pump provides the pressure necessary to position the telemotor cylinder, which is explained below.

e. A follow-up transmitter is installed on the telemotor cylinder piston rod. This transmitter provides feedback to monitor the position of the rudder. It compares the actual position of the rudder to the ordered position of the rudder and corrects it as necessary.

2. Casualties. In the event of a casualty resulting in the loss of electrical power to the hydraulic actuator or the loss of pumping ability by the electric motor driven pumps, the steering control located at the bridge helm will automatically revert to a manual hydraulic pump. This pump can provide full steering capabilities, but rudder response will occur much more slowly and much more effort will be required. In normal wheel steering, four revolutions of the helm provide a full range of motion for the rudder. This is accomplished in approximately eight seconds. In manual mode, twelve revolutions of the helm are required for a full range of motion of the rudder. This is accomplished in approximately 15 seconds. When normal wheel steering is lost, the jog lever will become inoperable.

a. Should the pilothouse control unit become inoperable due to a damaged hose, damaged pipe, or other mechanical malfunction, steering control must be executed from the emergency wheel steering unit in the lazarette. Before this unit becomes operable, valves tagged (1), (2), (3), and (4) must be **closed** and valves tagged (5), (6), and (7) must be **opened**. These valves are located on the steering actuator and are clearly marked. Failure to properly align these valves will quickly drain the hydraulic fluid storage tank, causing the entire steering system to become inoperable.

b. A double relief valve has been installed to act as a shock absorber in the event the rudder strikes a solid object causing structural damage. This valve allows hydraulic fluid to spill from

the high-pressure side of the T-ram to the low-pressure side and thus relieve some of the stress on the system.

15-3.4 Ventilation System

1. This system operates by making use of both natural and mechanical supply and exhaust. Natural supply and exhaust is obtained by windows or vents directly open to the outside. Mechanical supply and exhaust is obtained by inducting fresh air into the ship and dispel stale air by natural circulation.

15-3.5 Potable Water System

1. Potable water is supplied by a fresh water system that distributes fresh water throughout the craft. There are numerous outlets located onboard for obtaining fresh water for drinking, showering, dishwashing, ice making, and deck washing. A majority of the main components of the potable water system are located in the engine room below the main deck between frames 36 and 50. Other main components are located throughout the vessel in the galley, mess room, and bilges. The main components are desalinator, potable water storage tanks, recirculating bromine feeder, water pressure system, and electric water heater tanks.

a. The water pressure system allows water to be distributed throughout the vessel. The system consists of two tanks, a water pump, an automatic switch, a filter assembly, and a pressure gauge. The system is located on the port side, aft in the engine room. The pressure tank contains a seamless bag filled with air. The water pump automatically will pump water into the tank around the bag. The water is supplied to the pressure tank by the potable water storage tanks through the water pump. Before the water enters the tank, it first passes through an activated carbon filter. This process makes the water more pleasant to drink. When the pressure reaches 40 PSI, the water pump will automatically shut off. The water in the tank can now be sent throughout the ship to the other various systems. As water is used throughout the vessel, the pressure will drop. When the pressure drops to about 25 PSI, the water pump will activate and repressurize the tank.

b. The potable water storage tanks contain the ready supply of fresh water for the various uses throughout the vessel. The forward potable water storage tank is located in the engine room bilge (just aft of frame 36) and has a capacity of 1,133 gallons. The aft potable water storage tank is located in the mess room bilge (between frames 50 and 56) and has a capacity of 399 gallons. The water level for each tank can be monitored by two gauges located in the EOS. The water level gauges are graduated in 25-gallon increments with numerical readings in 100-gallon increments. To operate the gauges, pump the plunger underneath each gauge four or five times to activate the gauge. These gauges must be monitored when filling the potable water storage tanks. The tanks can be filled from a shore

installation (normally) or another vessel. The potable water storage tanks should be filled before every out of area deployment.

c. The electric water heater is a tank receiving its water from the potable water system and raises the temperature electrically through a heater element to a desired amount. The hot water is used for showers, dish washing, etc. There are two water heater tanks onboard. The port tank is located in the forward port corner of the engine room. It has a capacity of 50 gallons. The starboard tank is located in the forward starboard corner of the engine room, with a capacity of 80 gallons. These tanks are filled automatically by the potable water pressure system. The water pressure is also maintained by the potable water pressure system. The outputs of each of these tanks are connected and routed from the engine room to outlets throughout the vessel.

d. The bromine feeder is a dispenser that sends a predetermined amount of bromine to the potable water storage tanks. It is located in the engine room above the deck over the forward potable water storage tank. The chemical ensures the water in the potable water storage tanks remains safe for consumption. For a detailed description of operation and maintenance, refer to NAVSEA TECHNICAL MANUAL 59533-AK-MMO-010. This system uses cartridges not to be stored onboard the vessel.

e. The sump tanks contain water that has been used in showers, sinks, and drinking fountains. There are two 30-gallon tanks onboard. The forward 30-gallon tank is located in the bilge between frames 24 and 26 and the aft 30-gallon tank is located in the bilge between frames 59 and 61. Each tank is fitted with a removable cover for periodic cleaning and a 35 GPM at 35-PSI discharge pump for draining overboard. The officers washroom drains and the galley sinks can be drained directly overboard. Tank vents are located 18 inches above the main deck at frames 23 port and 56 aft. The tanks are designed to automatically discharge overboard when an 80% level has been reached. The tanks can be manually operated by a switch located in the space roughly above each tank. The positions of the switch are AUTO-MAN-OFF. The switch should be kept in the AUTO position at all times. System are located in the engine room below the main deck between frames 36 and 50. Other main components are located throughout the vessel in the galley, mess room, and bilges. The main deckhouse procedure is the same as connecting a garden hose to an angle valve and turning it on.

f. Deck Wash-down. The outside deck can be washed using the fresh water from the potable water system. A hose can be connected to a deck wash-down connection located forward or aft of the craft.

15-3.6 Marine Sanitation Device (MSD)

1. This system collects sanitary waste from reduced volume-flush water closets and holds the sewage in the 302-gallon holding tank.

The tank, located in the bilge between frames 17 and 22, is provided with a discharge pump and deck connections for pumping the tank sewage to proper shore sanitation facilities. Seawater drawn from a seacock by the flushing pump provides the water for flushing operations. The flushing pump is actuated by a switch connected to the water closet flushing linkage.

a. The pump is automatically controlled by the timing circuit control and is turned on each time the heads are flushed.

b. The pump transports the waste and slurry to the sewage holding tank. The pump continues to run for a preset period. A check valve located at the pump outlet prevents any backflow of wastes after pump shutoff.

c. The transfer pump is supplied with a magnetic starter that has an exterior manual override switch allowing the pump to be operated to clear or check it. This switch is also used to start the discharge pump for sewage holding tank pump-out.

15-4 Propulsion System Emergency Safeties and Shutdowns

1. The propulsion system consists of two diesel engines. In case of an emergency, these engines have been equipped with safeties, such as lights and alarms meant to warn personnel of malfunction. These engines are also equipped with emergency cutoffs that will shutdown the engines. Additionally, there are cutoffs for the port and starboard generators, along with shutdowns for the port and starboard fuel oil supplies. The Engine Operating Station (EOS) is equipped with controls for these cutoffs, safety controls, and alarms.

2. Emergency Engine Shutdown. The cutoffs for the port and starboard fuel oil supplies are controlled by two T-handles in the CIC. When these T-handles are pulled, all fuel flow to the system is stopped. This cutoff is needed in case of a ruptured fuel line. Although cutting the fuel supply will not shut down the system immediately, the fuel would stop leaking from the line. The engine will continue to burn the fuel already supplied to it, and will shut down after this fuel has been completely used.

a. There are T-handles that cut the air off to the MPDEs and SSDGs located in EOS and the aft passageway forward of the entrance to the mess deck. These are used when the engine must be shut down immediately.

b These T-handles are labeled by space name. Two further T-handles are dedicated to the operation of the FM 200 system.

3. Alarms. There are safety alarms for both the MPDEs and SSDGs for which a buzzer will sound and an indicator light will go on in the EOS if there is low oil pressure or high water temperature. The

parameters for these malfunctions are 10-PSI oil pressure for MPDEs, 20-PSI oil pressure for SSDGs, and 205°F for temperature.

a. The alarms in the EOS are located on the port side of the control console.

b. If one of these alarms sounds, an operator cannot tell whether the malfunction is low oil pressure or high temperature. The gauges on the engine must be checked to confirm which malfunction has occurred. There are also lights, but no buzzers located in the pilothouse, for each of these malfunctions.

c. When any of these alarms are activated, the procedures outlined in Engineering Operational Casualty Control (EOCC), are to be followed.

15-5 703 Class Engineering Systems

15-5.1 Main Engines

1. The propulsion plant consists of two, EPA Tier II, diesel marine propulsion engines. These are Caterpillar model C18 533 bkW (715 BHP) 2100 RPM, driving one fixed pitch propeller through an attached ZF W2350 vertical offset reverse reduction gearbox with a 4:1 ratio. The coupling is directly mounted to the engine. A Caterpillar power display for each engine is located on the Pilothouse Control Console (PHCC) by the helm. There are also Local Operating Controls (LOC) located on each engine. The plant is fitted with an integrated control and monitoring system. The engines are cooled by heat exchangers and ingest combustion air directly from the atmosphere in the compartment.

a. Cooling Systems

(1) The Freshwater (FW) or “jacket water” system is used to cool each main diesel engine. The closed-loop jacket water cooling system has a 12-gallon capacity of freshwater and antifreeze mix. Make-up for the engine cooling systems is from the craft’s FW system. Each diesel engine jacket water cooling system consists of an engine driven circulating pump, necessary piping and valves, and jacket water to seawater shell and tube type heat exchanger. A thermostat will divert jacket water around the cooler when required. When the valve is fully open all jacket water will pass through the cooler.

(2) A saltwater (SW) cooling system is provided to remove heat from each main engine, reduction gear, and generator engine’s heat exchanger. Saltwater enters through a 12-inch sea chest located between frames 20 and 21, passes through a 6-inch simplex strainer to a motor driven centrifugal seawater pump, through an intercooler, to jacket water cooler then branches to

stern tube cooling, transmission oil cooler and overboard. SW supply to main engine heat exchangers and reduction gears comes from the main sea chests. Although SW supply to all engines comes from individual sea chests, the system can also be crossed connected. For example, the port main engine can be supplied with seawater from the starboard main engine sea chest.

b. Lube Oil (LO) System

(1) A gear driven pump draws suction from a sump, through a strainer. After the pump, the oil will pass through a duplex filter (with a full flow emergency bypass). The oil then will go through molded 10-11 passages throughout the engine to lubricate major components, such as pistons, crankshaft, camshaft, valves, and other various components. The oil will then pass through a plate type cooler (cooled by jacket water), before returning to the sump.

(2) The LO system is installed onboard to store and supply clean lube oil to the main engines and generator engines. Both the main engines and generators use the same type of lube oil.

(3) Clean lube oil can be embarked onboard from a deck connection at main deck (frame 25+, port side) into a 52-gallon lube oil tank installed in the engine room (frame 24+, port side). A sight glass is installed on the tank to indicate tank level contents. Lube oil is supplied to the engines by operating a rotary hand pump and a hose. The hose is stored in the engine room on a reel and is extended to reach each engine.

15-5.2 Generators

1. Two Caterpillar C4.4 ship’s Service Diesel Generators (SSDG) providing electrical power, each rated at 99 kW providing 450V, 60 Hz supply. The SSDGs are each capable of meeting the YPs entire electric load. For additional redundancy, they can also be configured for automatic parallel operation. One additional Caterpillar C4.4 emergency diesel generator rated at 40kW providing 450V, 60 Hz supply is located on the 01 deck level aft of the pilothouse.

a. Freshwater (FW) and Lube Oil (LO) Cooling. The FW and LO cooling systems are very similar to the cooling system on the main engines.

b. Saltwater (SW) Cooling. The SW cooling system is also similar to the cooling system on the main engines. Auxiliary

sea chests supply seawater to the generator set heat exchangers. The generator set SW cooling system also has a cross-connection capability.

15-5.3 Gyrocompass and Navigation Sensors

1. There are two gyro compass systems installed on the craft. Heading information is distributed around the Raytheon integrated bridge systems that includes two ECDIS Multi-Function Consoles (MFCs) and three ChartRadar MFCs. A centerline pelorus and both bridge wing repeaters are also supplied by the master gyro. Gyro control panels are located on the PHCC by the helm.

2. A summary of other key navigation sensors is shown below. Respective technical manuals for each system are carried onboard.

Device	Type
DGPS	FURUNO GP-37
Doppler Speed Log	JLN-205
NAVTEX Receiver	FURUNO NX-700A/B
Automatic Identification System	FURUNO UAIS/FA-150
Fathometer / Echo Sounder	L3 Communications LAZ-1500
Wind Sensor	RM Young – 05106R
X-Band Radar	Raytheon Anschutz – NSC25/24
ECDIS	Raytheon Anschutz – Pathfinder Mk2

15-5.4 Alarms

1. The Alarm, Control, and Monitoring (ACM) system is divided into four principle sections with local I/O units, programmable logic controllers, PC units, and user interfaces. Instrumentation from various systems around the craft provides sensor data to user interfaces in six different locations. The *Alarms Viewer* page allows the OIC/CM or engineer to determine what action may be required in the event of any audible alarm sounding. Personnel should always be vigilant to properly investigate each alarm, mindful that several may occur at once and alarms that are more urgent may be missed by spurious messages.

15-5.5 Engine Order Telegraph System (EOT)

1. The EOT is located on the PHCC and the secondary unit is in the MCC. As the main engines are routinely operated in bridge control, this system is rarely used outside of pre-planned training serials or engineering casualty drills.

15-6 YP 703 Class Engineering Systems

15-6.1 Electrical Distribution System

1. The AC electrical system is primarily used to energize ship's lighting, communications, navigation system, electric motors, and other equipment.

a. 120V AC Power Distribution Systems. The 120V, 3 phase, 60 Hz power is supplied by a 120V switchboard located in the EOS (via four distribution panels located throughout the craft) and through the 120V emergency panel connected to the emergency switchboard. This switchboard receives power from two 450V/120V transformers located in EOS (connected to the main switchboard).

b. 450V AC Power Distribution System. The main switchboard, located at the forward EOS bulkhead, distributes 450V AC, 3 phase, 60 Hz power to MCC #1 (P401 port), MCC #2 (P401 starboard) and other 450V services. Both MCC #1 and MCC #2 are also located in EOS.

c. The MCC #1 supplies power to RO plant, AC cooling pump, ER supply fan #1, ER exhaust fan #1, fuel oil transfer pump #1, MSD back wash pump, steering compartment supply fan, ER/steering compartment, immersion heaters, oily water pump, electric hot water heater and anchor windlass.

d. The MCC #2 supplies power to fire pump #2, chilled/hot water circ. pump, ER supply fan #2, ER exhaust fan #2, sewage collection system, graywater discharge pump, electric hot water heater, range/oven and sewage collection system. Main switchboard port and starboard distribution panels are located in MCC and supply 450V power as follows:

(1) Port Panel. Steering pump #2, cathodic protection, HVAC immersion heater (accommodations), transformer #1.

(2) Starboard Panel. A/C chill water, transformer #2 and EVAC system. Emergency switchboard 450V distribution section is located in the emergency generator room and supplies power to fire pump #1, bilge pump and steering gear hydraulic pump #1.

e. The emergency switchboard also supplies power to the emergency 120V power panel, through a transformer also located in the emergency generator room. The emergency power panel directly supplies both emergency lighting and electronic systems.

2. DC Electrical System

a. 24V DC is provided by three power supplies serving three separate panels (two connected to 120V switchboard, one connected to 120V emergency panel). All DC panels have an individual battery backup.

b. The 24V DC communication and navigation aid panel is located in CIC, forward of frame 19 inside the WTD. Two batteries are provided for backup power.

c. The 24V DC engine room panel is located within the engine room, starboard side on frame 24. It has one set of two batteries for backup power. The panel has a 225A battery disconnect.

d. The emergency 24V DC panel is located in CIC, forward of frame 19 inside the WTD. It has one set of two batteries for backup power. The panel has a 225A battery disconnect.

15-6.2 Fuel Oil System

1. Action should be taken by the OIC, CM, and YP Engineer to ensure the fuel level in the service tanks is maintained above 60% when operating underway.

2. The onboard fuel system is comprised of two systems. They are a fuel oil transfer system and a fuel oil supply and return system.

a. The purpose of fuel oil transfer system is to transfer fuel between storage tanks, fuel oil service tanks, and from storage and service tanks to the waste oil tank. The fuel oil transfer system is also used to embark and disembark fuel. Fuel embarkation/ disembarkation points are located at main deck (frame 27, port, and starboard). An emergency fuel shutdown is located at frame 19 starboard side next to the ventilation shutdown. This push button closes six motorized valves in the engine room, port and starboard main engine fuel supply valves, port and starboard generator diesel engine fuel supply valve, mid-fuel oil tank cut off valve, and the lube oil transfer valve. This is the ONLY remote fuel oil shutdown outside of the engine room. This will starve the main engines and cause them to shut down and stop the craft. However, this is done only in an emergency, as it will also shut down diesel generators supplying power. The emergency diesel generator will then supply a reduced electrical load to the craft.

b. The fuel oil supply and return system supplies clean diesel fuel to the main engines and the generator engines. Main engines and generator engine supply lines are installed with duplex fuel oil filter separators. The emergency diesel generator has its own fuel oil system. Emergency generator fuel oil is supplied from its own fuel oil tank, on the 01 level, which is filled by fuel oil transfer system. Duplex filter separator is fitted in emergency diesel supply line.

c. All fuel tanks are constructed with adequate vents, fill lines, baffles, and supply/return lines. The fuel carrying capacity of craft at full capacity (98%) is 6,718 gallons. A gate valve is installed before each fuel tank in the fill line from the main deck. Remotely operated valve actuators are installed in all tank supply

lines for emergency shut-off of the fuel supply. Two fuel oil supply stop valves are located upstream of each engine, one at the tank and the other before the strainer. There are check valves installed on all return lines.

15-6.3 Hydraulic Steering System

1. Operation

a. Directional control of the craft is accomplished by rudders controlled from the PHCC or the Craftmaster Control Station (CMCS) in the pilothouse, the MCC in the engine room, or the manual helm in the steering gear compartment. Three electronic controls, one each on the CMCS and the PHCC are installed in the pilothouse and linked to the autopilot and the third is located on the MCC console in the engine room. Hydraulic controls are installed on the Hydraulic Power Unit (HPU) in the steering gear room. The pilothouse allows for simultaneous operations of the two rudders. Rudder commands are entered into the system by the operator’s movement of a lever, wheel, or knob to generate an electrical signal, which is used to energize the solenoid valves located at the hydraulic power unit. The solenoid valves control the flow of hydraulic fluid from the pump into and out of hydraulic cylinders or rams, which are attached, at one end, to the rudder tiller arms and, at the other end, to the vessel’s structure.

b. The selected motor driven pumps on the hydraulic power unit supplies hydraulic oil to the solenoid operated, directional control valves (4-way valves) and the divert/unloading valves. Electrical signals from one of the rudder command input devices (e.g. follow-up wheel/amp, non-follow-up lever, or autopilot) are used to energize the left or right solenoid of the directional control valves. Hydraulic oil, which would otherwise be returned to the reservoir, is ported to the hydraulic steering cylinders to position the rudder.

2. Hydraulic Power Unit (HPU)

a. The hydraulic oil system is an integral part of the steering gear system where two HPU’s (port and starboard hydraulic power units) maintains their own supply of hydraulic oil (conforming to MIL-L-17672, symbol 2110TH or any hydraulic oil having a viscosity of 150 SUS at 100°F). Each HPU holds about 20 gallons of hydraulic oil. The port and starboard units both have a hydraulic cylinder on each rudderpost supplied by a separate piping system from each HPU. This system allows continued use of the hydraulic system in the event of piping failure of either the main steering gear system or auxiliary steering gear system. For emergency use, an emergency steering hand pump is installed to steer the craft.

b. The major components of the HPU are the hydraulic vane pump, a 5-HP electric motor, dual fluid reservoir, four solenoid operated directional control valves, and two relief valves.

c. The dual pump unit and associated components convert electrical rudder orders into a hydraulic fluid flow that moves and holds the rudders at an ordered angle. Variable displacement hydraulic vane pumps are provided. Each vane pump is driven by a 3 horsepower, 1,800 revolutions per minute, electric motor. The electrical power source is the ships 440V AC, 3 phase, 60Hz distribution system. The directional control valve ports hydraulic fluid from the pumps to the proper ram or cylinder ports upon receipt of electrical commands. In normal steering condition with no electrical commands, the entire fluid flow from the pump is returned to the reservoir via the 4-way valve. When the directional control valve receives a rudder command, it will port the fluid from the pump out to the cylinders or the rams. The hydraulic cylinders are used to directly position the rudder. The body of each hydraulic cylinder is attached, on one end, to the structure of the vessel. The piston rod extending from the other opposite end of the hydraulic cylinder is attached to the rudder tiller arm. Hydraulic fluid, under pressure, flows into one end of the hydraulic cylinder and out of the other end forcing the piston within the cylinder to move either into or out of the cylinder. The piston is attached to the piston rod, and thus when the piston is forced to move, the piston rod also moves and causes the rudder to move also. When fluid is not flowing into or out of the hydraulic cylinder, the piston, and piston rod the rudder cannot move. The flow of hydraulic fluid into and out of the hydraulic cylinders is provided by the dual hydraulic power unit under the control of the solenoid valves.

d. The feedback unit is located in a casing. The transmitter shaft is mechanically connected with the rudderstock or with the positioning element of the steering gear. The actual or desired position of the rudder blade is picked off by an additional precision potentiometer, which is connected via a cable to the amplifier. The rudder movement imported to the drive shaft of the feedback unit by coupling, lever, or sprocket wheel is passed on by the drive spur gear in the feedback unit to the precision potentiometer for the rudder angle indicator equipment. This potentiometer receives an approx. 10V DC power supply from the amplifier and produces a voltage dependent on the rudder angle and is fed to the amplifier.

15-6.4 <u>Ventilation System</u>

1. This system operates by making use of both natural and mechanical supply and exhaust. Natural supply and exhaust is obtained by windows or vents directly open to the outside. Mechanical supply and exhaust is obtained by inducting fresh air into the ship and dispel stale air by natural circulation.

a. On both the port and starboard sides, the engine room has two supply fans (4800 CFM each) and two exhaust fans (3000 CFM each). The controllers are located at the upper level of the engine room. Both fans are two speeds of operation. Individual fan speed may be selected to suit ambient conditions. In cold weather, low speed may

be selected to maintain the correct temperature. Both the main engines and generators ingest air from the compartment. Both the supply and exhaust vents are fitted with automatic closures. In the event of a fire in the engine room, the ventilation can be secured from three locations outside of the space; pilothouse, fantail at the FM-200 space, and main deck starboard side at frame 20.

b. The emergency generator compartment has no forced supply or exhaust ventilation. The ventilation openings are fitted with automatic closures. In the event of a fire in the space, the closures can be activated from outside of the space and the pilothouse.

c. Steering compartment has one supply fan (500 CFM) and a natural exhaust duct.

d. Solid waste stowage compartment has natural supply louver and an exhaust fan (50 CFM) installed at frame 13 1/2 on the port side.

e. Ventilation for the Heads is provided by three exhaust fans. They are installed at main deck, (frame 8 portside) and at tank top level (frames 2 and 9 starboard side).

15-6.5 Potable Water System

1. The potable water system produces, stores, and distributes cold and hot fresh water onboard. The craft has two separate potable water tanks. Potable water can be produced onboard by using the Reverse Osmosis (RO) unit located in the steering compartment and is rated at 1,056 gallons per 24 hours. The RO unit forces sea or brackish water at high pressure through a semi-permeable membrane thereby producing potable water. The water is purified through a proportioning bromine feeder. The bromine feeder is located on the aft bulkhead in the steering compartment. This system is not often used and careful management of potable water consumption is required for long periods underway.

2. Potable water can be embarked onboard from a shore connection into two separate tanks, through the main deck filling connections located at frame 21 on both port and starboard sides. The forward potable water tank 3-4-0-W, located at frame 4, has a 98% capacity of 857 gallons. The aft potable water tank, 2-29-0-E located at frame 29, has a 98% capacity of 2,855 gallons. Potable water is distributed by FW pressure at approximately 50-60 PSI and 15 GPM.

3. The hot water demands are met by two 50-gallon hot water tanks located in the steering compartment where water is heated and then distributed by a five GPM circulation pump. The hot water temperature can be adjusted from 120°F to 180°F. Each tank is equipped with a 100-PSI relief valve.

4. Non-potable water requirements, window wiper/washer, sanitary spaces, engine room, and eyewash stations are also supplied by the

potable water system. A non-return valve is installed in the non-potable water system to prevent contamination of the potable water.

5. Routine wash-down of the main deck is accomplished with pressurized water supplied by the potable water system. The deck wash-down connections are located port side aft of frame 5 (main deck) aft of frame 9 (01 deck). A non-return valve, located in the steering compartment (2-30-0-E), is installed in the system to prevent contamination of the potable water. Wash-down the deck as follows as detailed below:

a. Connect a wash-down hose to the spigot, on the main deck located aft of frame 5, or on the 01 deck aft of frame 9, port side.

b. Connect hose and open deck wash-down spigot. Conduct wash-down operation, minimizing the use of FW if underway. After the deck wash-down is completed, shut deck spigot off.

15-6.6 Marine Sanitation Device (MSD)

1. This system is comprised of independent sewage and graywater systems with their own piping, equipment, and tanks. Flushing water is supplied from the FW system.

a. All sink and washer drains are connected to the graywater (GW) tank. Graywater is collected directly and is transferred by GW transfer pumps (117 GPM) into a stainless steel holding tank (1,817 gallons at 100% capacity). The contents of GW holding tank can then be transferred ashore through deck connections (port and starboard) by a GW discharge pump.

b. The blackwater (BW) from all onboard heads is transferred into a BW tank (361 gallons at 100% capacity) by two skid-mounted vacuum pumps. A BW transfer pump (3.8 GPM) can be used to transfer tank contents to shore or the Marine Sanitation Device (MSD). The MSD sanitizes BW and then discharges it overboard. A backwash pump is installed for cleaning and flushing the MSD system. A 3/4 inch FW flushing connection, with a non-return valve, is installed to flush the BW storage tank.

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CHAPTER 16
Damage Control Information

16-1 676 Class Damage Control

1. The YP is a wooden vessel, a characteristic that makes it imperative any casualty, especially fire, be dealt with quickly and effectively. A thorough knowledge of how to use all damage control equipment carried onboard is essential.

2. The frame spacing on a 676 class YP is 18 inches.

3. Compartment check-off lists (CCOL) are provided for all spaces.

4. Compartment labels (black letter on yellow back are posted in each space showing compartment numbers, noun names of the compartment, the forward and after frames in the space, and the division responsible for cleaning the space.

16-2 676 Class Damage Control Equipment

1. Damage control equipment is stowed in the large canvas bag and bins of the 676 class YPs DC locker. Damage control equipment on YPs will consist of the following:

Equipment	Quantity
Shoring (8′ Length/4″x4″)	2
Shoring (8′ Length/2″x4″)	2
Fire Axe	2
Claw Hammer	2
Carpenter Square	1
AFFF (9 gallon cans)	6 Cans (Aft P-Way) 3 Cans (DC Locker)
Hatchet	1
SCBA	4 (and 4 spares)
NPU Nozzle	2
Rubber Sheet	1
Marine 200′	1
Oakum	5 lbs
DC Plugs (Small)	4
DC Plugs (Medium)	4
DC Plugs (Large)	4
DC Wedge (Small)	4
DC Wedge (Medium)	4
DC Wedge (Large)	4
Hack Saw (with 7 Blades)	2
Mauls	2
Perijet Educator	1
Y-Gate	1

Equipment	Quantity
Flash Gear	4
Fire Fighting Ensemble	2
Fire Fighting Helmets	2
Fire Fighting Gloves	2
Fire Fighting Boots	2
1-1/2″ Hose (50′)	2
2-1/2″ Hose (50′)	2
4″ Hose (50′)	1
Hand Held Battle Lanterns	3

2. Three (3) fire stations are located onboard each YP. Each consists of a fire main outlet, 1-1/2 inch fire hoses, a vari-nozzle, an in-line eductor, and two (2) spanner wrenches. Fire stations are located as detailed below.

Location	Fire Hose
Foc’sle	2 x 50 foot
Fantail	2 x 50 foot
Engine Room	1 x 25 foot

3. Six (6) PKP fire extinguishers are carried onboard each YP.

Location	Number
Lazarette	1
Galley	2
Forward Passageway	3
Aft Passageway	4
Engine Room	5
EOS	6

4. At least eleven (11) 15-pound portable C02 fire extinguishers are carried onboard each YP.

Location	Quantity
OIC/CM Stateroom and Passageway	1
Engine Room	1
EOS	1
Location	**Quantity**
Galley	1
Pilothouse	1 (2-YP683 onwards)
CIC	2
Mess Deck	1
Berthing/Forward Passageway	2
Aft Passageway	1

5. At least twenty-nine (29) battle lanterns are carried on board each YP.

Location	Quantity
Bosun Locker	1 (Handheld)
Forward Passageway/Berthing	2 (Handheld), 2 (Relay)
Aft Passageway	2 (Handheld)
Midshipmen Berthing (Fwd)	1 (Handheld), 1 (Relay)
Midshipmen Berthing (port and starboard)	1 (Handheld), 1 (Relay)
Galley	2 (Handheld)
Crew’s Compartment	1 (Handheld)
Pilothouse	2 (Handheld)
CIC	2 (Handheld)
Mess Deck	1 (Handheld), 1 (Relay)
Lazarette	1 (Relay)
Engine Room	2 (Handheld), 1 (Relay)
Fuel Room	1 (Handheld)
EOS	1 (Handheld), 1 (Relay)

16-2.1 Fire and Bilge System

1. The firemain is a single in-line loop system consisting of piping extending fore and aft through the compartments on the second deck, terminating at the forward fire station on the front of the deckhouse and at the after fire station of the aft side of the deckhouse. Seawater is supplied to the main by a single fire pump, which takes suction from the sea through a seacock located under the engine room deck plates forward of starboard MPDE. The fire pump is main engine-driven by the starboard MPDE. Activating the pump is accomplished by idling the starboard main engine and disengaging the shaft by using the manual clutch interlock. The fire pump is then engaged locally at the main engine. The RPM of the main engine is then increased as necessary to give the required fire main pressure (2,100 RPM for 100 psi). Pressure will drop to 80 PSI with one fire hose in use and 60 PSI with two hoses in use.

2. The fire pump operates 180 GPM/100 PSI at 2,100 RPMs. Should the bilge pump fail, the fire pump may be used by cross connecting it to the bilge system. When used as a bilge pump, the fire pump should not be operated above idle, 700 RPM. To use the fire pump as a bilge pump, the following steps should be followed:

a. Light off fire pump in normal mode in accordance with EOSS.

b. Open desired suction valve on bilge system manifold.

c. Close main riser valve and bilge pump discharge valve.

d. Open bilge/fire main cross-connect valve (C), close fire pump sea suction valve (B) and the fire pump discharge recirculation valve (D). These valves must be opened/closed in this order to prevent the fire pump from losing suction and becoming air locked.

3. The bilge system consists of nine separate lines, each serving a separate compartment. All lines converge at a manifold located in the engine room control booth. The manifold the bilge is drawn off and discharged overboard. The bilge system is the only installed dewatering system onboard on a YP. The bilge manifold is provided with a 1-1/2 hose connection for drawing water from any location not served by the installed bilge suction system. The bilge pumping system consists of an electric driven centrifugal pump and a mechanically driven centrifugal pump that is powered by the port MPDE. Both have the capacity of 35 gallons per minute at 35 PSI and take suction on the bilge manifold. Drawing off the bilge is accomplished by opening the suction valve located on the manifold that leads to the compartment to be pumped. The only space not served by bilge suction directly is the Bosun Store Room forward of the main berthing. To clear water from this space a drain valve must be opened in forward midshipmen berthing space allowing the space to drain into the bilges below forward berthing where the bilge system can take suction. **Caution:** Priming this pump is necessary and is accomplished by using the ship service generator cooling with a backup supply available from the MSD flushing pump. When operating the bilge pump, always keep the prime valve open.

16-2.2 Fire Fighting Pump (P-100)

1. The P-100 pump is diesel driven and designed for use in firefighting, drawing water from the sea or other source and pumping it through suitable hoses and nozzles at high pressure. For dewatering, they are used to draw large volumes of water from flooded compartments by use of a suction hose or attached peri-jet eductor.

2. The P-100 has a capacity of 95-125 gallons per minute for 1-1/2 inch nozzles and is hand primed to a suction lift of 10 to 20 feet. The pump is equipped with a portable fuel tank, three inch hard rubber suction hose (10 feet) with a combination foot valve and strainer, 2-1/2 inch wye-gate assembly with an in-line AFFF eductor and 1-1/2 inch hose (50ft), a 4.5 inch exhaust hose (10 feet). The pump is located on the aft port side of the main deck. Additionally, there are two firemain system risers (port and starboard) which allow discharge of the P-100 to be connected into and provide pressure for the firemain system.

16-2.3 Fire Detection and Extinguishing System (FM-200)

1. System Description. A fixed FM-200 fire extinguishing system is provided in the engine room and fuel tank compartment. The system is capable of flooding the spaces with a concentration of a compound of carbon, fluorine, and hydrogen (CF3CHFC3) without affecting available oxygen within approximately 10 seconds. The FM-200 system is interlocked with the blower trips for all engines in the event FM-200 is released, it will close the blowers on all engines to shut them down and protect the engines from further damage. The FM-200 release system is interlocked with the supply fans for the engine room so the

fans will be shutdown. The supply fans can also be isolated by electrical switches located in the EOS and main deck. The electrical solenoid release valve has provision for mechanical release in the event of electrical failure. The electrical control circuit has provision for automatic release mode of operation, a system off mode, and a system test capability. Audible alarms are connected to the control panel in the event the discharge of FM-200 activates an alarm in the EOS, pilothouse, fwd p-way, and engine room.

2. Safety precautions. All FM-200 shipboard machinery space applications use a design concentration of CF3CHFC3. All FM-200 systems are installed with alarms to warn personnel to evacuate the space. The following information defines the safety risks associated with the use of shipboard FM-200 fire extinguishing systems. This guidance is provided for use onboard ship and should be included as a part of all training documents.

a. Hazards to Personnel. FM-200 may be discharged in a fire situation or may be inadvertently released where no fire exists. In both cases, potential hazards exist. Where no fire exists, the following personnel hazards may arise upon FM-200 discharges:

(1) Noise. Discharge of a system is noisy enough to be startling.

(2) Turbulence. High velocity discharge from nozzles may be sufficient to move unsecured paper and light objects.

(3) Cold Temperature. Direct contact with vaporizing liquid being discharged from an FM-200 system may have a strong chilling effect on objects and can cause frostbite burns to the skin. The liquid phase vaporizes rapidly when mixed with air and thus limits the hazard at the immediate vicinity of the nozzle.

b. Where a fire exists, additional personnel hazards may arise upon FM-200 discharge as follows:

(1) Extinguishment of fire by FM-200 results in the generation of non-toxic by-products.

(2) The main decomposition products are Hydrogen Fluoride, Carbon Monoxide, and Carbon Dioxide when exposed to temperatures above 1,300°F. When extinguishing discharge is 10 seconds or less, causing rapid extinguishment of flames, the amount of by-products formed is minimal. Exposure to the agent is generally of less concern than the decomposition product. As with all compartment fires, personnel outside the space should avoid fire gases and decomposition products discharges from ventilation exhausts and stacks.

3. System Operation. To initiate a discharge, the valve is opened directly or indirectly by the control system, which vents the top chamber of the valve allowing the valve piston to be displaced. FM-

200 is activated one of two ways. Either by remotely (outside the space) or locally (in the space) by a pull handle or operating lever on the bottle. Both the fuel tank room and the engine room have the primary bottles installed with the secondary on standby but not attached.

a. FM-200 system contains of two 350lb pressure cylinders (one primary and one backup not attached to the system) and a valve assembly comprising of cylinder valve, safety cap, level indicators. The check valve is installed in the main system configuration. Inlet and outlet connections are two inch female NPT. The check valve is mounted in a vertical orientation with the outlet at the top. The check valve prevents back flow from the manifold in the event the system is discharged when cylinders are disconnected, such as when weighting or during general servicing.

b. Two Nitrogen pilot cylinders each having a capacity of 108 cubic inch (1,770 cm3) cylinder pressurized to 1,800 PSIG (124 BAR), of steel body painted in black color, each coming with brass adapters, have been provided in the system. One cylinder is having a control head of pressure/lever operated and the second cylinder having a control head of cable operated type.

c. The one-step system activation pull box, with glass, is located in the aft passageway and the fwd passageway. The FM-200 system is installed with a 30-second delay to allow the evacuation of personnel from the space. The FM-200 system equipment is designed for operating within an ambient temperature range of 32°F (minimum) and 130°F (maximum). The cylinder storage temperatures shall not exceed or be less than the manufacturers listed limits. The system is designed based upon the discharge of the minimum required quantity of FM-200 agent (liquid phase) into the space protected in a nominal 10 seconds. The cylinder pressure is 360 PSI at 70°F. The safety relief device on the FM-200 cylinders is set to release pressure at 810 to 900 PSI.

16-3 676 Class Fire Fighting Procedures

16-3.1 Classification of Fires

1. Fires are classified as one of three types: A, B, C or some combination of the three. All fires require fuel, oxygen, and heat to burn. Removal of any one of these three elements will result in suppression of the fire.

2. Class A fires result from the burning of paper, rags, and similar combustible material. They are most likely to occur in the crew’s quarters, mess decks, lazarette, chain, and bosun’s locker. These fires may be fought with water, aqueous film forming foam (AFFF), PKP, and CO_2. The type used depends on availability of gear, accessibility of the compartment, and the composition of the burning material.

a. Onboard a YP, any Class A fires will usually involve gear such as mattresses, line, etc., which will smolder long after the surface blaze has been put out. For this reason, it is best to use water to fight the fire and thoroughly soak the burning material. Remember all water used to fight the fire drains into the bilge and must be pumped out. While it is in the bilges, it decreases the reserve buoyancy of the ship.

3. Class B fires involve burning of gas, oil, and similar fluids. They occur most often in the engineering spaces. These fires may be fought with either AFFF, PKP, FM-200, CO_2, or a combination of these. Which is used will depend on the availability of equipment, the extent of the fire, and temperature of the compartment.

a. In the early stages of a Class B fire and on other small fires, PKP, FM-200, or CO_2 may be sufficient. If the fire has grown, or has time to heat up the surrounding compartment, it will be necessary to use AFFF. The AFFF will spread into a blanket that will preclude most re-flash incidents. AFFF should be applied as a smoldering agent and should be 1-2 inches deep using the installed AFFF hose reel. AFFF should be left in the bilges until all fire hazards have been pumped over the side. AFFF will reseal if separated. AFFF used to smother the fire should be washed into the drain and dewatering operations commenced. Fires seeming to be out may start again from a smoldering fragment or through vapor ignition. Therefore, the final step in fighting a fire is to set up a re-flash watch for at least an hour after the fire is out. This sentry will not be stood down without OIC permission.

4. Class C fires are electrical. They are most likely to occur in the pilothouse, CIC, or Galley. These fires are fought with CO_2 or PKP. PKP may cause extensive damage to electrical equipment within the compartment.

5. Multiple Class fires are those resulting when one class of fire causes another. Any Class A fire burning through electrical insulation is likely to cause a subsequent Class C fire. A Class C fire that ignites a pool of oil or other fluid will cause a Class B fire.

6. In combating these types of fires, use the gear required for the higher class of fire. **Do not use water on a Class C fire because you are likely to electrocute yourself.**

16-4 703 Class Damage Control

1. The frame spacing on a YP is 16 inches.

2. Compartment check-off lists (CCOL) are provided for all spaces.

3. Compartment labels (black letter on yellow back are posted in each space showing compartment numbers, noun names of the compartment, the

forward and after frames in the space and the division responsible for cleaning the space.

16-5 <u>703 Class Damage Control Equipment</u>

1. Damage control equipment is stowed in the large canvas bags in the YPs DC locker, classroom and on the fantail. Damage control equipment held onboard includes the following:

Equipment	Quantity
Fire Axe	1
Claw Hammer	2
Hand Saw	2
Hatchet	2
Rubber Sheeting (Roll)	1
Marlin	200’
Oakum	5 lbs
DC Plug (Large)	2
DC Plugs (Medium)	2
DC Plugs (Small)	2
DC Wedges (Large)	2
DC Wedges (Medium)	2
DC Wedges (Small)	2
Hacksaw	2
Hacksaw Blades	10
2 1/2” Firehose (50’)	2
1 1/2” Firehose (50’)	2
1 1/2” Firehose (25’)	1
Spanner Wrenches	4
Mauls	2
Portable Flood Lights	2
Halligan Tool	1
Perijet Eductor 2 1/2”	1
Fog Nozzle 1 1/2”	1
In-Line AFFF Eductor	1
Hose Clamps (boxes)	5
Gaskets (packets)	1
Safety Glasses	3
Y-Gates	1

Classroom Equipment	
Equipment	**Quantity**
Fire Fighting Ensemble	6
Fire Fighting Helmets	4
Fire Fighting Gloves	6
Flash Gear Gloves	6
Flash Gear Hoods	6
Fire Fighting Boots	5
Metal Shoring (6’ to 11’)	2
SCBA Face Mask (Medium)	4

Classroom Equipment	
Equipment	**Quantity**
Amplifiers For SCBA	4
AFFF Cans	4

Fantail Equipment	
Equipment	**Quantity**
SCBA	4
SCBA Spare Bottles	4
1 1/2” Firehose (100’)	1
Y-Gates	1
Spanner Wrenches	2

2. Six fire stations are located on board each YP. Each fire station consists of a fire main outlet, 1-1/2 inch fire hose, a vari-nozzle, and two (2) spanner wrenches. Fire stations are located in the following compartments:

a. Aft main deck port (1 length of 50 foot hose).

b. Forward main deck (1 length of 50 foot hose).

c. Main deck passageway (1 length of 50 foot hose).

d. Engine room access (1 length of 50 foot hose).

e. Engine room (1 length of 50 foot hose).

f. Aft steering (1 length of 50 foot hose).

g. Classroom (AFFF primary, fire station secondary). (1 length of 50 foot hose)

3. Portable fire fighting appliances vary between each 703 class YP. CO_2, PKP, or commercial ABC type extinguishers are located in the following:

Location	Number
Pilothouse	2
CIC	1
Emergency Generator Room	1
Main Deck Passageway	1
Galley	1
Forward Midshipmen Berthing	1
FWD Port Midshipmen Berthing	1
AFT Port Midshipmen Berthing	1
Starboard Midshipmen Berthing	1
Berthing Passageway	1
Engine Room	2
Aft Steering	1

4. Fifteen emergency floodlights are onboard each YP, located throughout all key spaces and compartments including the pilothouse, CIC, engine room, mess decks, and berthing.

16-5.1 Fire and Bilge System

1. The firemain is a single in-line loop system consisting of piping extending fore and aft through the compartments on the second deck, terminating at the forward fire station on the foc’sle and at the after fire station on the port main deck. Seawater is supplied to the firemain by one of two pumps that take suction from the sea through the aft or forward sea chest located in the engine room. The fire pumps are electrically operated and can be started or stopped by a push button. Number 1 fire pump (primary) is located in aft steering and can be started locally or on the Craftmaster Control Console (CMCC) in the pilothouse. Number 2 fire pump (secondary) is located in the engine room and may only be started locally. To operate Number 2 fire pump, the cross connect valve in the engine room must be OPEN. Expected fire main discharge pressure is 87 PSI. This pressure will drop to approximately 76 PSI with 1 fire hose in use and 60 PSI with 2 hoses in use.

2. The fire pumps operate at 66 GPM at 87 PSI. In addition, should the bilge pump fail, Number 1 fire pump may be used as a bilge pump by using the inline emergency firemain eductor. The emergency eductor can only pump out aft steering, aft, and port sides of the engine room. In order to use the emergency eductor, the following steps should be followed.

a. START Number 1 fire pump in normal mode in accordance with EOSS.

b. OPEN the eductor discharge valve.

c. CLOSE aft main deck escape scuttle drain valve.

d. OPEN eductor fire main supply valve.

e. OPEN desired space suction valve.

3. The bilge system consists of seven separate lines, each serving a different compartment. All lines converge at a manifold located in the engine room. The manifold the bilge is drawn off and discharged overboard. The bilge system is one of the installed dewatering systems onboard on a YP. The bilge pumping system consists of an electric driven centrifugal pump (primary) and the air conditioning (a/c) seawater cooling pump (backup). The electric bilge pump is rated at 66 gallons per minute and the A/C seawater pump is rated at 145 gallons per minute. Both draw from the same bilge system manifold. This is accomplished by opening the suction valve located on the manifold that leads to the compartment to be pumped. All spaces can be pumped using the electric bilge or A/C cooling pump.

16-5.2 Fire Detection and Extinguishing System (FM-200)

1. System description. A fixed FM-200 fire extinguishing system is provided in the engine room and the emergency generator room. The system is capable of flooding the spaces with a concentration of a compound of carbon, fluorine, and hydrogen (CF3CHFC3) without affecting available oxygen within approximately 10 seconds. The electrical solenoid release valve has provision for mechanical release in the event of electrical failure. The electrical control circuit has provision for automatic release made of operation, a system off mode, and a system test capability. Audible alarms are connected to the control panel so that the discharge of FM-200 activates an alarm on the touchscreens located in the engine room, main control, and in the pilothouse. It will also send a signal to the Integrated Fire Detection System (IFDS) and sound the siren on the mast.

2. Safety precautions. All FM-200 shipboard machinery space applications use a design concentration of CF3CHFC3. All FM-200 systems are installed with alarms to warn personnel to evacuate the affected space. **Section 16-2.3.2** (of this Chapter) defines the safety risks associated with the use of shipboard FM-200 fire extinguishing systems.

3. System Operation. To initiate a discharge, the valve is opened directly or indirectly by the control system, which vents the top chamber of the valve allowing the valve piston to be displaced. FM-200 is activated one of two ways. Either by remotely (outside the space) or locally (in the space) by a pull handle or operating lever on the bottle. Both the engine room and the emergency generator room are protected by a FM-200. Each compartment has an independent fire suppression system. The engine room has two supply bottles and the emergency generator room only one bottle and no backup.

a. The FM-200 system contains two 350lb pressure cylinders (one primary and one reserve) and a valve assembly comprising of cylinder valve, safety cap, and level indicators. The check valve is installed in both main and the reserve system configurations. Inlet and outlet connections are 2″ female NPT. The check valve is mounted in a vertical orientation with the outlet at the top. In this twin cylinder installation, the check valve prevents back flow from the manifold in the event the system is discharged when one or more cylinders are disconnected, such as when weighting or during general servicing. The system being designed with a main and reserve configuration, the check provided in each cylinder, prevents the actuation of the reserve system from the manifold pressure.

b. Two Nitrogen pilot cylinders each having a capacity of 108 cubic inch (1,770 cm3) cylinder pressurized to 1,800 PSI (124 BAR), of steel body painted in black color, each coming with brass adapters, have been provided in the system. One cylinder is having a control head of pressure/lever operated and the second cylinder having a control head of cable operated type.

c. The two-step system activation pull boxes, with glass, are located by the access to the engine room, the pilothouse, and the FM-200 locker. The FM-200 system is installed with a 30-second delay to allow the evacuation of personnel from the affected compartment. The FM-200 system equipment is designed for operating within an ambient temperature range of 32°F (minimum) and 130°F (maximum). The system is designed based upon the discharge of the minimum required quantity of FM-200 agent (liquid phase) into the compartment protected in a nominal 10 seconds. The cylinder pressure is 360 PSI at 70°F. The safety relief device on the FM-200 cylinders is set to release pressure at 810 to 900 PSI.

d. There is an additional FM-200 system protecting the emergency generator compartment, located in the classroom. The system is composed of one forty pound bottle with sensors and is manually activated. Activation pull boxes are located directly outside on the compartment on the 01 deck and in the pilothouse.

CHAPTER 17
Communications Procedures

17-1 Communications Equipment

17-1.1 YP 676 Internal Communication Equipment

1. The sound powered telephone system provides interior voice communications and call bells to various stations throughout the YP. The *E-call* system provides a means of signaling between sound powered telephone stations of the 1JV circuit only. The *E-call* system consists of push buttons and audible signaling devices. The tables below provide a sound powered telephone circuit description and identifies which circuits and stations are located throughout each 676 class YP.

a. Sound Powered Telephone Circuits (Common to all U.S. Navy Warships)

Circuit	Purpose
JV	Maneuvering, Docking, and Catapult Control
JW	Ship Control and Navigation
JS	Sonar Control
JX	Radio and Signals
1MC	General Announcing
6MC	Boat Control
21MC	Captain’s Command Circuit

b. Sound Powered Telephone, 6 MC, and 21 MC Stations

Station	Circuit					
	1JV	JW1	JW2	21JS	6MC	21MC
Pilothouse	1(E)	1	3		1	1
EOS	1(E)			2(TB)	1	
Bridge (port)	1(E)	1	1			
Bridge (Center)	1(E)	1	1			1
Bridge (starboard)	1(E)	1	1			
Mess Deck				1(TB)		
RAS	1					
Instructor S/R	1(E)			1(TB)		
Quarterdeck	1(E)			1(TB)		
Lazarette	1				1(TB)	
Fuel Station	2					
Signal/Flag bridge	JX					1
CIC	2(E)	1	1	2	1	

NOTE 1: (E) indicates E-call position.
NOTE 2: (TB) indicates Talk Back position.

2. The patch panel located in CIC permits use of the following outlets with any circuit (JA, JW, 21JS):

Outlet	Location
JX1, JXX2	CIC (Fwd Chart Table)
JX3, JX4	CIC (Aft Chart Table)
JX5	Pilothouse (Chart Table)
JX6	Signal bridge

a. If the switch on the patch panel is in the horizontal position, the outlet is patched into that particular circuit.

3. The 1MC/6MC is primarily used for ship-wide announcements and communicating from the bridge to the selected areas of the craft. The 6MC is the talkback subsystem of the 1MC. The main control for the 1MC is on the aft bulkhead of the pilothouse. There are speakers located throughout the craft for the 1MC and in addition, special speaker and microphone 6MC units as detailed in the tables above.

a. To use the 1MC/6MC system first place all of the switches in the “OFF” position. Then the power switch should be placed in the “ON” position. This places the console in standby and the activation of any “Group” or “Talkback” switch or pushbutton will automatically energize the console. The power light will indicate power is being supplied to the console. The group select switches allow an operator to select speakers in a designated area in order to address the whole space at once. The selector switch must be positioned to indicate the station to be paged from the main console. When the console is not in use, this switch should remain in the “OFF” position. The talkback positions on the selector switch allow that location to talk directly into the speaker because the circuit is set up as a microphone.

b. If one of the talkback stations needs to communicate with the bridge, the operator must push the button at the station and wait for the answer from the bridge. When the button is pushed, it signals the bridge by lighting the red signal light associated with the calling station on the control panel and activates an attention buzzer. If the talkback station is an interior station, the person must continue to push the button while he/she speaks. At the fantail and EOS stations, the button no longer needs to be pushed for the speaker to be heard after the initial buzz is answered. This allows the hands to be free to perform other tasks.

4. The 21MC intercommunication system is used for speedy communication between stations when a sound powered phone watch is not needed or desired and especially for infrequent station-to-station communication. This system is powered by 24 VDC.

17-1.2 YP 676 External Communications Equipment

1. High Frequency (MF/HF). The MT-4883/URC-94(V) unit is the HF transceiver used to provide long-range communication capability to augment portable Satellite Communications (SATCOM) that may be carried onboard. An overview of the unit's characteristics is shown below.

Transmission Power	50 – 100 Watts (RMS)
Frequency Bandwidth (AM, LSB, CW)	1.5 – 29.999 MHz
Frequency Bandwidth (FM)	30.0 – 79.999 MHz
Electrical Supply	115V DC
Unit Locations	Bridge, Remote Speakers in CIC

2. Very High Frequency (VHF). The Mariner-90 transceiver is located in the pilothouse and is the primarily means of bridge-to-bridge communications. Powered by ship's 24V DC, the unit can scan up to 20 channels simultaneously.

3. Ultra High Frequency (UHF). The AN/ARC 154(V) unit is the UHF transceiver used for line-of-sight communications.

Transmission Power	9 Watts (RMS)
Frequency Bandwidth	225 – 400 MHz
Electrical Supply	24V DC
Unit Locations	Bridge, Remote Speakers in CIC

4. Signal flags are located in the cabinet stowage behind the pilothouse.

17-1.3 YP 703 Internal Communication Equipment

1. Both the VSP-M sound powered telephone and ACM telephone exchange provide internal communications to 15 different stations throughout the YP.

2. The general announcing system (1MC) is located on the Craftmaster Control Console (CMCC) on the port side of the pilothouse. This allows one-way communication to all main speaker systems around the craft. These groups include topside, the fantail, forecastle, main deck, and engineering spaces.

3. The command talkback system is a two-way intercommunication system allowing the bridge to communicate with 15 different stations throughout the craft utilizing a push button call up and speaker system.

17-1.4 YP 703 External Communications Equipment

1. Medium/High Frequency (MF/HF). The FS-1503 unit is the HF transceiver used to provide long-range communication capability to

augment portable Satellite Communications (SATCOM). An overview of the unit's characteristics is shown below.

Transmission Power	150 Watts (RMS)
Transmission Frequency	1.6 – 27.5 MHz
Receive Frequency	0.1 - 29.9 MHz
Electrical Supply	12V DC
Unit Locations	Bridge, CIC

2. Very High Frequency (VHF). The JHS NCM-1770 is a VHF transceiver connected to the GMDSS suite.

Transmission Power	25 Watts (RMS)
Transmit/Receive Frequency	155 – 163.50 MHz
Electrical Supply	12V DC
Unit Locations	Bridge (2), CIC (2)

3. Additionally, a Furuno VHF (BTB) set is located in the pilothouse by the CMSS and is used for routine ship-to-ship communications. The unit is supplied by 24V DC and can scan up to 20 VHF channels at once. Portable handheld VHF radios are also carried.

4. Very/Ultra High Frequency. The URC-200 unit is the UHF transceiver used for line-of-sight communications. While not covered with cryptographic keying, personnel should consider this circuit more secure and less likely to unwanted monitoring than VHF or HF.

Transmission Power	10 Watts (RMS)
Transmit/Receive Frequency	115 – 399.9950 MHz
Electrical Supply	28V DC
Unit Locations	Bridge (by ECDIS), CIC

5. Signal Flags are located in the cabinet stowage above the pilothouse at the base of the mainmast.

17-2 YP Communications. This section contains information regarding the communications procedures to be used by USNA YPs. Flaghoists and the radiotelephone are the primary methods of external communication. Use of other methods of communications such especially flashing light (when fitted) is encouraged. Sound powered phone procedures are also covered in this section.

17-2.1 Applicable Publications

1. The following publications are to be carried onboard in hardcopy:

a. USNA version of *Multinational Maritime Tactical Signal and Maneuvering Book* (MTP) 1(D), Volume 2. This document is marked UNCLASSIFIED-FOUO. The following information is contained within this document:

(1) Detailed instructions on tactical signaling procedures.

(2) Single flag and pennant signals.

(3) Emergency alarm and emergency action signals.

(4) Maneuvering signals utilizing a special pennant (FORM, STATION, TURN, CORPEN, and SPEED).

(5) The main signal vocabulary (two letter signals and tables) which consists of operational and administrative signals arranged alphabetically under appropriate headings.

(6) A signal index to assist in finding the desired groups when encoding signals.

b. *International Code of Signals* (Pub 102). The International Code of Signals (ICS) is for the use of all mariners, regardless of their nationality. A naval ship precedes a signal obtained from this publication with the ANSWER (CODE) pennant. This document includes:

(1) Detailed instructions for use.

(2) Single letter signals, usually in common use or urgent. Those marked with an asterisk (*) can be sent by flashing light.

(3) Two-letter signals, mostly used for distress and maneuvering.

(4) Three-letter signals, used for the remaining words, phrases, and sentences.

(5) Four-letter signals, used for geographic locations.

17-2.2 Message Format

1. The standard naval message has three parts: heading, text, and ending. This applies to all methods of communications except the flaghoist, which has only a heading and a text.

2. Procedures

a. A tackline, transmitted and spoken TACK, is used:

(1) To avoid ambiguity. It separates signals or groups of numerals that, if not separated, could convey a different meaning from those intended.

(2) When the instructions order a tackline *to* be used for a given signal.

b. When ANSWER separates two numerals it is used as the decimal point and when it is the last character it means one-half, i.e., 12 ANS 6 means “12.6” and 12 ANS means “12.5”.

c. When appropriate, DESIG followed by letters and/or numerals must be used to indicate that such a group is to be interpreted literally and not as a code group. Some signals require a plain number be used to complete the meaning of a signal. Words may be spelled out within the text of a signal to complete or modify the meaning. Plan indicators, points, numbers, berths, etc. may also be signaled without conflicting with signal groups.

d. Any signal preceded by EMERGENCY is to be acted upon (and hoisted closed up) as soon as it is understood. Six short blasts are to be made on the whistle by the originator.

17-2.3 Communications Log. Always record signals on a log sheet. Scraps of paper generally cannot be found when most needed. The log sheets provided for drills contain instructions for their use.

17-2.4 International Call Signs. International call signs are four letter call signs assigned to each YP. They are hoisted on the outboard port halyard when entering and leaving port. A ship hoists its call sign smartly as it gets underway and hauls it down smartly as it moors alongside.

YP	ICS
676	NAEF
677	NMGZ
680	NHMO
681	NNZE
682	NABP
683	NTGE
684	NPAX
686	NBDR
687	NZHO

YP	ICS
688	NILA
689	NVGW
690	NCLH
691	NRKJ
692	NJLQ
694	NGFO
695	NKLF
698	NDPR
700	NUCS

YP	ICS
703	NCRI
704	NFQA
705	NFEC
706	NFED
707	NFEE
708	NFEF

17-3 Radio Telephone (RT) Procedures

1. Adherence to prescribed procedures are mandatory and avoids unnecessary confusion that can lead to an unsafe situation.

2. When it is necessary to identify any letter of the alphabet, the standard phonetic alphabet is used. Numbers are transmitted digit by digit except that exact multiples of hundreds and thousands may be spoken as such.

3. PROWORDS are pronounceable words or phrases, which have been assigned meanings for expediting message handling on circuits where radiotelephone procedures are employed. A list of standard PROWORDS can be found in Appendix Y.

4. Compliance with signals. The intent of a signal is carried out upon receipt of a signal unless the instructions contained within specify otherwise. When it is desired all addressees of a signal take action at the same instant (as with most tactical signals), the originator must use the executive method.

5. Signals are executed as follows:

a. Non-Executive Method. The signal is transmitted without the PROWORD "EXECUTE". The intent of the signal is carried out upon receipt or as soon as the signal is understood. In an emergency, the signal is preceded by "EMERGENCY" to attract attention and to ensure the signal will be carried out as soon as it is understood. The non-executive method does not indicate the exact moment at which the signal is to be executed and implies no degree of urgency unless "EMERGENCY" precedes the signal.

b. Executive Method. The intent of the signal is carried out at the instant the PROWORD "EXECUTE" is received.

6. Explanation of methods. The non-executive method is self-explanatory. In an emergency, it is a sound practice to repeat the signal. There are two types of executive methods.

a. Delayed Executive. The message is sent *"execute to follow"* and the desired receipts are obtained. At the time of execution, another transmission is made carrying the signal *"execute"*. Repetition of the signal from the first transmission is not required in the second unless it is included for the sake of clarity, a period of time has elapsed since the first transmission, or two or more signals awaiting execution. All or a portion of the signal may be executed in the originator's second transmission. The delayed executive method is the preferred method for transmission of tactical signals.

b. Immediate Executive. In a single transmission, the signal is spoken, repeated, and then executed. In respect to the immediate executive method, it should be noted:

(1) It does not allow stations to obtain verifications, repetitions, acknowledgments, or cancelations before the message is executed.

(2) Signals made by this method should be in plain language or should be limited to basic TURN, CORPEN, and SPEED signals.

(3) *“Immediate execute”* is used in the place of *“execute to follow”* which is used in the delayed executive method.

(4) The signal is repeated, separated by the PROWORD *“I say again”.*

(5) It is advisable to pause (2-4 seconds) between *“STANDBY”* and *“EXECUTE”* in order to give any station which may have missed a portion of the signal an opportunity to request a repeat prior to execution.

7. Communications are established and/or checked as follows:

(Called Station Call Sign), THIS IS (DE) *(Calling Station Call Sign),* OVER.

THIS IS *(Called Station Call Sign)*, OVER

THIS IS *(Calling Station Call Sign)*, ROGER, OUT.

(Communications are loud and clear unless otherwise specified)

8. Time checks are conducted as follows:

“On my mark, the time will be X-X-X-X. 15 seconds, standby. 10 seconds. 4-3-2-1, mark. On my mark, the time was X-X-X-X.”

9. In reply to *“OVER”*, stations respond in alphanumerical order to voice calls. Each station allows the preceding station five seconds to respond. A station missing its turn must wait and follow the last station.

10. Avoid using the phrase *“Your last transmission”* without providing further clarification.

11. If for whatever reason, the YP loses the ability to transmit then hoist the appropriate signal and acknowledge radiotelephone signals with the ANSWER pennant.

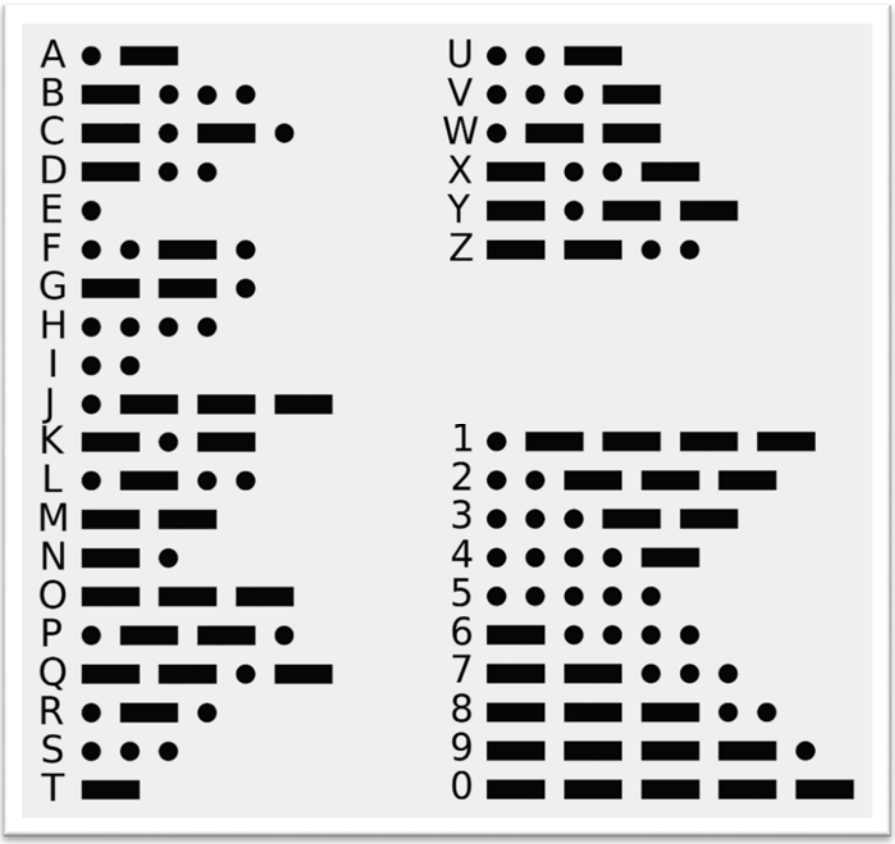
17.2.1. <u>Radio Frequency Plan (RFP)</u>

1. The following RFP is in-force for the routine operations. Additional circuits will be detailed in an OPORD issues for any MO or summer training. All AIS transponders will operate in an OVERT posture and clearly state the YP hull number, type (vessel engaged in military operations) and port of destination with ETA.

Frequency	Emission Type	Use and Designation	Guarded By	Call Signs Used
285.0 MHz	6A3	PRITAC	All YPs	Assigned C/S
304.2 MHz	6A3	SECTAC	All YPs	Assigned C/S
277.8 MHz	6A3	Fleet Tactical/ Warning	All USN ships	Pennant Number
243.0 MHz	6A3	Military Air Distress	Warships, Air Stations	Pennant Number
2720 KHz	2.83A3J	Annapolis Harbor	Annapolis Harbor Control	Pennant Number
2182 KHz	2.83A3J	International Air Distress	USCG stations	Pennant Number
2670 KHz	2.8A3J	Coast Guard Working	USCG stations	Pennant Number
Channel 13 (156.65 MHz)	16F3	Vessel Bridge-to-Bridge	All ships	Pennant Number
Channel 16 (156.80 MHz)	16F3	Distress, Safety, and Calling	All ships	Pennant Number

17-3.2 Voice Call Signs. Voice call signs for specific YP will be promulgated in the OPORD. The OTC may wish to employ daily changing call signs expiring at 2359 daily. Hull numbers should be used when communicating over BTB (VHF) channels to avoid confusion with civilian mariners operating in the area. If called by means of a collective call sign, units shall answer in order called or by pennant numbers as appropriate. When communicating with other naval Warships, merchant vessels, or U.S. Coast Guard stations, units shall use the call sign *"U.S. Naval Academy Yard Patrol craft (hull number)."*

17-3.3 Morse Code. Morse code still has a wide variety of practical applications even with modern signaling equipment. It is widely used with visual signal lanterns in NATO Warships and within the amateur radio community. A decode for Morse signals is shown below.



17-4 <u>YP Emergency Communications</u>

1. If the regular communications equipment becomes inoperative for whatever reasons, the following emergency equipment is provided for use:

a. The VHF radio transceiver operates from the emergency DC power bus bar on a YP and can be used to hail the Coast Guard or other vessels on channel 16. In an emergency, use the HIGH gain setting.

b. The Emergency Position Indicating Radio Beacon (EPIRB) is a battery-operated device that transmitted a distress hail with position at 406 MHZ directly to a satellite. When operating out of the USNA OPAREA, each YP must have a minimum of one in-date and serviceable EPIRB. When a single YP deploys on its own, two EPIRBs should be carried.

c. Pyrotechnics. The MK5 signal pistol uses a shotgun type red, white, or green cartridge and shall be carried for OOA operations.

17-5 <u>Sound Powered Telephone</u>

1. The principle means of internal communications onboard a YP is a system of sound powered phone circuits. A 703 class has an internal

telephone exchange to augment the sound-powered system. When using a handset the button must be fully depressed to transmit and released to receive.

2. The key to successful communication using sound-powered circuits is brevity and clarity. This is best accomplished by adhering to proper calling and acknowledging procedures with standard phraseology.

a. Call-ups and answering procedures. When calling a station the following format should be used:

"Called station(s), calling station, message."

"Called station, aye."

(1) Once communications have been established by conducting a "phone check", the calling station may pass his message right along with the call-up, the called station need only reply once.

(2) Example Phone Check (JW circuit).

"All stations, Navigator, phone check."
"Port pelorus, aye."
"Starboard pelorus aye."
"Radar, aye."
"Fathometer, aye."

(3) Example Phone Message (1JV circuit).

"EOS, pilothouse, Indicate 1800 RPM both engines."
"EOS, aye."

(4) When a station joins a circuit or comes on the line, he should check in by using the following format:

"All stations, (Calling station), on the line."
"(Each station on circuit), aye."

(5) After a long period of silence on a circuit or following any significant event, the primary control station should conduct a phone check with all stations.

(6) When permission is given to secure a circuit or for an individual station to go off the line, each securing station should announce:

"All stations, this is (Securing station) going offline."

17-6 <u>1MC (Internal Ship's Main Broadcast)</u>. The 1MC system is the most important internal communications circuit in the ship and is controlled by the OOD. Any message, particularly those required by emergencies or in critical situations, should be as clear as possible.

A list of example “pipes” for use over the 1MC are listed in Appendix X.

17-7 Visual Communications. For training purpose, YPs may utilize signal flags and pennants for administrative or operational communications.

17-7.1 Visual Call signs. Numeral pennants are used primarily for visual calls. The sighting of a numeral pennant is a cue the several flags comprise a visual call.

Call	Meaning
SQUAD	This squadron
DIV	This division
YP (#)	YP whose visual call is (#)
P1	All ships under my Command
P2	All ships
P3	Main body
P4	Screen

17-7.2 Speed Flags

1. “Speed flags” (one or two numeral flags at the dip without the SPEED pennant) are general information signals used by individual ships to keep nearby vessels informed of the speed at which they are proceeding while in restricted waters. “Speed signals” (the speed pennant and numeral flags) are action signals used by the OTC to signal the speed at which the guide is to proceed.

2. Speed flags are normally used when standing into or out of a channel, when getting underway in formation, or when in the vicinity of other ships. They must be accurate if they are to be of any value.

3. The speed flags are displayed at the dip on an outboard signal halyard. The ZERO flag is used when the ship is stopped, otherwise two numeral flags (one numeral flag preceded by a ZERO flag is appropriate) are used to indicate speed at which the ship is proceeding.

17-7.3 Flaghoist Procedures

1. Flaghoist headings

a. The heading precedes the text and usually consists of only action addressees.

b. Visual call signs may be used for the following purposes in connection with signals from the *Allied Naval Signal Book*:

(1) To address ships or other units, in which case they precede the signal.

(2) To indicate or denote ships or units, for which case they follow the signal.

(3) To complete, amplify, or vary the meaning of a signal, in which case they are used in conjunction with the signal concerned.

c. The heading of a flag signal may be modified by use of the *substitute pennants* as follows:

(1) SECOND SUBSTITUTE alone in the heading means *"for general information; no specific address; no answer required."*

(2) THIRD SUBSTITUTE preceding the address of a flaghoist indicates the signal, in addition to being addressed to certain ships for action, is for general information and is to be relayed and answered as an "all ship" signal.

d. The heading may be omitted under the following circumstances:

(1) By the OTC for signals addressed to all ships (the usual case on YP drills).

(2) By ships or commands on emergency signals addressed to the OTC.

2. The text of a flaghoist consists of such prescribed signals, operational signals (not used in drills) and/or plain language as may be necessary to convey the meaning of the originator.

3. Hoisting flag signals

a. A flaghoist is CLOSE-UP when its top is touching the block at the point of hoist. The originator hoists a signal *close-up*.

b. A flaghoist is AT THE DIP or DIPPED when hoisted three-fourths of the way up towards the point of the hoist. Hoists are dipped until *"understood"* by the OOD and properly acknowledged.

c. A flaghoist is HAULED DOWN when it is returned to the signal deck. The moment of hauling down is the moment of execution unless the time of execution is indicated or the emergency pennant is used.

d. Ships repeating the OTC's signals do so with halyards corresponding to those of the OTC. Flags must be kept clear. If there is not enough wind to blow the flags out so they can be read easily, the hoists should be kept on the move.

e. Any two signals using SPEED, STATION, CORPEN, FORMATION, or TURN pennants should be displayed on separate halyards so they can be individually executed.

4. The order of reading flag signals is as follows

a. Signal flags of a single hoist are read from top to bottom.

b. Adjacent hoists are read down, from outboard to inboard and from forward to aft.

5. Answering and acknowledging flag signals

a. Flaghoists are answered by addressees repeating the entire hoist at the dip. Lacking any of the flags of the hoist, it is answered by use of the ANSWER pennant alone.

b. A senior officer may answer a subordinate’s flaghoist by hoisting ANSWER at the dip, either alone or below the originator’s call.

c. Acknowledgment is affected by hoisting the signal (or ANSWER, if appropriate) closed-up. Signals are hoisted closed-up when understood by the OOD and by repeating stations when all addressees for whom they are responsible have acknowledged.

5. When an addressee cannot determine the meaning of a hoist or desires to question the meaning, the signal (or ANSWER, if appropriate) is hoisted at the dip and the INTERROGATIVE pennant hoisted close-up on an adjacent halyard.

6. Executing Flag Signals

a. Unless otherwise indicated a flag signal is executed when the originator hauls down the hoist.

b. Certain signals are executed at some time other than when the originator hauls them down, as indicated in the meaning of the signal.

c. All addressees haul down with the originator.

d. The first execute received will govern the time of execution when a signal is executed by more than one means (e.g., radiotelephone and flaghoist).

7. Canceling Flag Signals

a. Flaghoist signals are canceled by the following use of the NEGATIVE pennant:

(1) When only one flag signal is flying, NEGATIVE hoisted on an adjacent halyard cancels the signal.

(2) When two or more flag signals are flying under the same call, NEGATIVE hoisted on an adjacent halyard cancels all signals

flying. If only one signal is to be canceled, it must be repeated, preceded by NEGATIVE.

b. Visual responsibility is exercised with the NEGATIVE pennant. Only NEGATIVE is closed-up. The signal being cancelled remains at the dip until hauled down (which is done from the dip position).

c. A flaghoist signal may be corrected as follows:

(1) The originating ship cancels the signal, and then hoists the correct signal.

(2) Any repeating ship hoists the signal meaning *"signal is repeated incorrectly"* on an adjacent halyard, then hauls down both signals. The correct signal is then hoisted.

8. Substitute pennants are not used with international calls or with high-speed flags.

9. Procedures applicable to YPs only

a. Numeral flags and pennants may be interchanged when necessary.

b. The ANSWER pennant is used to indicate receipt of radio telephone signals in case of a transmitter casualty.

c. The outboard halyard should not be used. This assures a superior position being available should one be desired.

d. The numeral pennants displayed by the YPs are visual calls rather than digits of a ship's hull number as is the practice in the Fleet. Generally, YP visual call sign numbers are the same as sequence numbers.

17-8 International Code of Signals. An extract of common signals and meaning is included below for reference.

Flag Name	Meaning
Alfa	I have a diver down, keep well clear at slow speed.
Bravo	I am carrying dangerous cargo.
Charlie	Yes or Affirmative.
Delta	I am maneuvering with difficulty, keep well clear.
Echo	I am directing my course to starboard.
Foxtrot	I am disabled, communicate with me. Alternatively; flight operations underway.
Golf	I require a pilot.
Hotel	I have a pilot onboard.
India	Coming Alongside.
Juliet	I am on fire and have dangerous cargo, keep clear.
Kilo	I wish to communicate with you.
Lima	You should stop your vessel immediately.

Flag Name	Meaning
Mike	My vessel is stopped, making no way.
November	No, or negative.
Oscar	Man Overboard.
Papa	All personnel return to the ship, proceeding to sea.
Quebec	Boat recall, all boats return to the ship.
Romeo	Preparing to Replenish.
Sierra	Conducting flaghoist drill.
Tango	Do not pass ahead of me.
Uniform	You are running into danger.
Victor	I require assistance.
Whiskey	I require medical assistance.
X-ray	Stop carrying out your intentions, await my signals.
Yankee	Ship has visual communications duty. Alternatively, I am dragging anchor.
Zulu	I require a tug.

Pennant Name	Meaning
Code or Answer	Flag(s) that follows is from the ICS. Message is understood.
First Substitute	Absence of Flag Officer or Unit Commander.
Second Substitute	Absence of Chief of Staff.
Third Substitute	Absence of Commanding Officer.
Fourth Substitute	Absence of civil or military official whose flag is flying in this ship.

CHAPTER 18
Craft's Bills

18-1 Craft's Bills

1. A ship's bill establishes assignment of personnel to duties and stations for the purpose of executing specific evolutions or accomplishing certain functions. Those evolutions for which assignments are made on the Watch, Quarter, and Station Bill are arbitrarily called "ship's bills". Ship's bills as contained in this chapter will be used on YPs during training cruises.

2. The ship's bills contained in this chapter are constructed for a YP engaged in its basic mission of training, with a crew consisting of officers, enlisted personnel, and midshipmen with varied levels of experience. Specific assignment of responsibilities for individuals, therefore, must be completed by the OIC prior to getting underway.

3. All approved watch bills are to be posted in the pilothouse prior to departure and signed by the OIC, AOIC, and CM.

18-2 Administrative Bills

18-2.1 Daily Routine

1. The standard daily UNDERWAY and INPORT routine onboard YPs can be found in appendix Z. Further detail will be provided in the SOE included with the OPORD.

18-2.2 Darken Ship Bill

1. The midshipmen MCS watch and enlisted Engineer are responsible for the maintenance and accuracy of this bill.

2. When darken ship is ordered, there will be no smoking, portable lights, or open flame permitted in any area where the light will shine out of the ship. To ensure the YP is dark, the enlisted crew shall ensure all assigned spaces are effectively darkened.

3. Five minutes prior to the time for darkening ship, the word is passed, *"Prepare to darken ship".* When darken ship is ordered, the word, *"Darken ship. The smoking lamp is out on all-weather decks"*, is passed. Navigation lights will never be turned off during periods of darken ship.

18-2.3 Mess Cooks

1. The MXO will coordinate with the MCO in preparing this bill.

2. The MXO will appoint, on a daily basis, a duty mess cook, and a duty mess attendant from each watch section. Once assigned, those

personnel will assist the MXO in carrying out the duties for meal preparation, setting up for meals, and clean up when the meal secures.

3. The mess cooking assignments will be published by the MXO (posted on the mess deck's bulletin board) prior to all underway evolutions. The MXO will ensure assignments do not affect the underway watch rotation. The off-duty watch section will be responsible for preparing and serving meals. They will then relieve the watch and the responsibility for clean up will shift to the two midshipmen who have just been relieved from the underway watch.

4. Meal hours are as follows:

Meal	Time
Breakfast	0630 - 0730
Lunch	1130 - 1230
Supper	1715 - 1815

5. All midshipmen, with the exception of the MCO and MXO, are eligible for assignment to this duty.

18-2.4 <u>Cleaning Bill</u>

1. The Midshipmen Executive Officer (MXO) is responsible for the maintenance and accuracy of this bill. He/she will promulgate a bill assigning every compartment of the YP, including topside, to a particular department.

2. 1/C midshipmen shall ensure a high state of cleanliness is maintained in all spaces.

3. All hands are responsible for making up their bunks prior to quarters.

18.1.5 <u>Berthing</u>

1. The MCO/OIC will approve all berthing assignments.

2. No person shall:

a. Sleep, rest, or lie down in any bunk or berth other than that assigned.

b. Smoke in any berthing space or habitability space.

c. Fail to turn out of his/her bunk at reveille except when he is on the binnacle list or authorized as a late sleeper.

18-3 Operational Bills

18-3.1 Special Sea Detail Watch Bill

1. The purpose of the Special Sea Detail Watch Bill is to establish a framework for assignment of personnel to stations and duties during periods when the ship is being handled in restricted waters, and to provide uniformity of procedures in preparation for getting underway or entering port.

2. The OIC is responsible for the assignment of billets and the execution of this watch bill and executing the evolution IAW the checklists in appendixes F, G, H AND I.

18-3.2 Towing Bill

1. Towing procedures will be followed as outlined in chapter 4.

2. The purpose of this bill is to establish policies for assignment of personnel to stations and duties, designate material which would normally be employed and promulgate the procedures to be followed when the YP craft is either towing or being towed.

3. The OIC shall be responsible for the execution of this bill. Towing gear will be provided on each YP by Waterfront Readiness Department. The OIC of the towing YP will be in charge of all rigging of the two and the subsequent towing until completion of the serial.

4. During the course of YP operations, the possibility of a disabling propulsion casualty is ever present. In such an instance, a towing operation would be required in order to get the disabled craft into a Naval Station or some other repair facility for defect rectification. For this reason, towing gear will be carried on the YPs and the OIC must be sufficiently competent in towing procedures to direct a safe and successful towing operation.

5. Prior to the summer deployment, a consolidated period of towing and underway transfer training will be scheduled for all OIC/CMs.

18-3.3 Heavy Weather Bill

1. The purpose of this bill is to establish those preparations to be made and procedures to be used when heavy weather is anticipated or encountered in a YP.

2. Securing a vessel properly for heavy weather is essentially a matter of foresight. The OIC must use their best judgment in anticipating bad weather so proper precautions may be taken as early as possible. In a vessel as small as a YP, the simplest tasks may become most difficult in heavy weather.

3. Weather decks subject to the seas should be kept clear of all personnel except those who must be there for urgent duties. No one should venture out on the weather decks during such conditions alone or without a Kapok life jacket. It is also advisable whenever possible such personnel wear a lifeline tended from within the superstructure.

4. All loose equipment must be secured for sea to reduce the possibility of damage or loss of the equipment, damage to the vessel, or personnel injury. Life jackets, foul weather gear, extra lines, padding, or other equipment needed from the lazarette or fantail storage lockers should be broken out early and moved within the superstructure before the seas make the fantail untenable. The galley and mess decks should be secured and stowed. The ship should be checked for watertight integrity and topside vent covers and hatches should be secured to prevent flooding.

18-3.4 <u>Inport Refueling Bill</u>

1. YPs will ordinarily be refueled to 80% to support training tasks throughout the academic year. Any craft scheduled to depart the USNA OPAREA for summer training will be refueled to 85%.

2. The enlisted engineer shall be responsible to the OIC for the execution of this bill. All hands shall have the authority to stop fueling operations for any reason, particularly safety, at any time.

3. Before starting the actual evolution of receiving diesel oil from a barge, truck, or pier, the following will be completed before permission to commence pumping is obtained from the OIC:

a. The smoking lamp is out and flag *“Bravo”* is flying.

b. Two PKP bottles are to be ready at the refueling station.

c. Scuppers will be plugged with clean rags or water-filled plastic bags. Any spill of oil will not be allowed to drain overboard. The oil spill kit will be on hand at the refueling station.

d. Valve alignment will be verified by the enlisted engineer and CM.

4. Stations to be manned:

a. Engine room (1JV).

b. Fueling Station/Overflow (1JV).

c. Pumping Station.

d. Intermediate Station.

e. The Intermediate Station will ensure proper communications are maintained between the pumping and fueling station.

f. A maximum rate of 100 gallons per minute will be maintained while refueling. 10, five and one-minute standby calls will be signaled by the engine room watch monitoring the fuel tank gauge glass. At the five-minute standby, the pumping rate will be reduced to four gallons per minute.

18.2.5 <u>Equipment Tag Out Bill</u>

1. Reference (l) provides a standard means of indicating equipment status by use of red danger tags and yellow caution tags, as well as the procedure to be followed in marking these indications. This instruction is included as a permanent part of the Equipment Tag-Out Log onboard each YP. Reference (l) provides a list of personnel assigned to specific billets are appointed as “Authorizing Officers” for tag-outs onboard the designated Yard Patrol craft and other small boats.

2. Any midshipman with questions concerning tagged-out equipment or inoperative equipment should consult the CM, enlisted Engineer, or OIC. No midshipman will clear any existing tags. Tags will never be affixed or removed without prior consent of the OIC.

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CHAPTER 19
Pollution Control

19-1 Introduction. Waste management is an environmental concern and in response to these concerns, the U.S. Navy has set forth rigid guidelines for the proper disposal of the various types of waste found aboard ships.

"The Navy's ability to accomplish its mission requires daily operations in the land, sea, and air environments. The Navy is committed to operating in a manner compatible with the environment. Therefore, an important part of the Navy's mission is to prevent pollution, protect the environment, and protect natural, historic, and cultural resources. In order to accomplish this mission element, personnel must be aware of the environmental and natural resources laws and regulations which have been established by Federal, State, and local governments." **OPNAVINST 5090.1B**

19-2 Definitions

1. **Navigable Waters**. The territorial water (belt of sea measured from low-water baseline extending seaward three nautical miles) of the United States and the inland waterways, including the U.S. portion of the Great Lakes and St. Lawrence Seaway.

2. **Sewage**. Human body waste and the waste from toilets and other receptacles intended to receive and retain body waste. Also known as *"Blackwater".*

3. **Wastewater.** Discarded water from ship's interior deck drains, lavatories, showers, dishwashers, laundries, and garbage grinders. Also known as *"graywater".*

4. **Oily Waste**. Any liquid petroleum product mixed with wastewater and/or oil in any amount that, if discharged overboard, would cause or show a sheen on the water.

5. **Plastic Waste**. Any waste item containing plastic or plastic compound to include bags, containers, and Styrofoam.

19-3 Action

MATERIAL	PROHIBITED DISCHARGE ZONE
Sewage and pulped food waste	Discharge prohibited out to three (3) nautical miles (NM) from the low water baseline of shore.

MATERIAL	PROHIBITED DISCHARGE ZONE
Unpulped food and pulped trash	Discharge prohibited out to 12 nautical miles (NM) from low water (containers, wrappers, packaging) baseline from shore.
Plastics	All plastics should be retained onboard and properly disposed of once alongside.

CHAPTER 20
Safety

20-1 Purpose

1. To promulgate safety precautions applicable to Yard Patrol craft operations. The guidance offered below is general in nature, more detailed and specific information can be found in relevant chapters of this SOP and the following U.S. Navy publications:

a. Naval Ships Technical Manual

b. OPNAVINST 5100.19 (series)

c. Appropriate technical and operating manuals

d. Planned Maintenance System (PMS) cards

2. Establishing and maintaining a safe training environment is the first and foremost concern of all onboard. It is essential all personnel are familiar with the contents of this chapter and those in a position of responsibility continuously review the controlling measures that are put in place ensure safe practices at all times.

20-2 Responsibilities

1. The Officer in Tactical Command (OTC) shall have overall responsibility for the safe and proper operation of the deployed YP Squadron. Before assuming the responsibility of the squadron, he shall require all OICs and CMs to provide a comprehensive report across all aspects of manpower, equipment, training, and sustainability. Particular attention must be paid to damage control and survival equipment.

2. The OIC shall have overall responsibility for the safe and proper operation of his YP. Before assuming charge of the craft, the OIC shall require the CM to provide a comprehensive status report of the material condition of the craft and summary of all enlisted crewmembers embarked.

3. The CM shall ensure all safety precautions are adhered to and shall train his/her subordinates in all areas for the safe operation of the vessel. The CM is responsible for the timely completion of all related PMS routine and ensuring he has proper inventories of all safety, damage control, and survival equipment embarked. Such items are to be in good working order.

4. Midshipmen and Crew. Safety of personnel and equipment is the responsibility of all hands. Anyone witnessing an unsafe act must take appropriate action to rectify the problem and report the incident to the OIC/CM as quickly as possible.

20-3 Basic Safety

1. **Use of Life Jackets**. In accordance with OPNAVINST 5100.19A, life jackets must be worn by personnel under conditions where the possibility exists personnel will slip, fall, be thrown, or carried into the water. Life jackets shall be worn when performing the following evolutions:

a. Personnel working over the side of the boat, both inport and underway.

b. Personnel handling lines or other deck equipment shall wear life jackets and helmets during such evolutions as transfer between ships, towing, and all anchoring evolutions.

c. Personnel on the weather decks during heavy weather. The OIC shall ensure the word is passed over the 1MC to all hands the weather decks are secured due to heavy weather.

2. Working with lines and rigging. To avoid injury to personnel and damage to equipment, the following precautions should be observed when working with lines or rigging:

a. Lines or rigging under heavy strain should be eased to prevent overstress or parting, unless specifically ordered otherwise by the OIC.

b. Handling of lines and rigging requires personnel take care to avoid getting hands, feet, or clothing caught in bights and blocks.

c. Lines not in use should be carefully made up and stowed clear of walkways and passageways.

d. All line handling by midshipmen should be supervised by a qualified line handler.

3. Nighttime Operations. The OTC assigned to a squadron of YPs will limit evening tactical maneuvers to the extent that the risk of collision is limited.

4. Safety Precautions

a. Do not sit or lean on lifelines.

b. Thorough shipboard training of the midshipmen and crew is mandatory prior to getting underway. This requirement can be met, for the midshipmen, in the classroom prior to getting underway for labs and refresher classroom training prior to getting underway for operations out of the local OPAREA. During LANTPAT, a Fast Cruise serial has be included in the SOE.

c. **DO NOT** operate any machinery with a red danger tag.

d. Single hearing protection shall be worn when entering the engineering space when main engines and/or the ships generators are in operation.

20-4 Safety Equipment

1. Emergency Escape Breathing Device (EEBD). All midshipmen shall be instructed in the proper use and donning procedures of the EEBD. Prior to getting underway outside the local OPAREA, a familiarization tour should be conducted to show the midshipmen where EEBDs are located and an emergency egress drill should be conducted.

2. Kapok Lifejackets. During familiarization tours, the midshipmen shall be instructed on the proper donning procedures of the Kapok lifejacket.

3. First Aid Procedures. All first aid should be conducted by either the duty corpsman or a qualified individual. Every injury must be reported to the OIC and he/she shall ensure the event is properly recorded in the deck log. DO NOT attempt to administer first aid or come in physical contact with an electric shock victim before the power is shut off, or, if the power cannot be shut off immediately, before the victim has been removed from the live conductor.

20-5 Maritime Sanitary Discharge (MSD) System Pumping Procedures

1. Personnel engaged in sewage transfer hose operations shall not connect or disconnect hoses used for potable water.

2. Personnel engaged in handling sewage hose shall wear protective rubber gloves, rubber boots, and coveralls.

3. The sewage hose connection and the hose exterior shall be washed down with hot potable water, containing a stock detergent, and hose down with seawater or fresh water any time the sewage hose is disconnected after transfer operations and any time a sewage spill occurs.

4. Personnel involved in the transfer shall use hand held radios or sound powered phones whenever voice communication is impeded.

5. Strict adherence to EOSS Sewage Disposal System will be followed. The CM must verify the system alignment prior to pumping operations.

6. The following documents will be followed when pumping Collection Holding and Transfer (CHT) waste inport and in the event of an MSD spill while underway or inport.

a. NSTM S9086-T8-STM-010/CH-593 Section 4

b. NSTM Chapter 997

c. CP. NO.SDS

d. EOSS S.D. NO. DCHT

7. All applicable instructions in S9086-T8-STM-010/CH-593 and NSTM CH-593 shall be followed.

20-6 Summary. The importance of safety cannot be over stated. As a general principle, if any doubt exists during an evolution where safety is being jeopardized then the action should be stopped immediately. Any OPORD for an OOA deployment must include a suitable allocation of time for safety training by qualified personnel prior to getting underway in order reduce the risk of injury.

CHAPTER 21
Force Protection

21-1 Introduction

1. Force Protection is designed to protect personnel, facilities, and equipment under all situations and in any location. The YPs both at USNA and when deployed are a part of a Navy-wide plan.

2. There are **many** differences between a front line Destroyer and an unarmed training craft but many of the same concepts still apply and when used correctly, will assist in protection from terrorist attack. The measures outlined below do not account for all situations and the OTC should, prior to arrival, consult with NCIS with respect to these plans and any local threats.

3. The four threat levels from lowest to highest are, low, moderate, significant, and high.

a. **Low**. No terrorist group are detected or the group activity is non-threatening.

b. **Moderate**. Terrorist groups are present but there is no indication of anti-U.S. activity. The operating environment favors the Host Nation/U.S.

c. **Significant**. An anti-U.S. terrorist group is operationally active and attacks personnel as their preferred method of operation, or a group uses large casualty producing attacks as their preferred method and has limited operational activity. The operating environment is neutral.

d. **High**. An anti-U.S. terrorist group is operationally active and uses large casualty producing attacks as their preferred method of operation. There is a substantial DOD presence and the operating environment favors the terrorist.

21-2 Force Protection Conditions (FPCON)

1. The FPCONs outlined below describe the progressive level of countermeasures in response to a terrorist threat to U.S. military facilities and personnel under reference (m). The terminology and definitions are recommended security measures designed to ease inter-service coordination and support of U.S. military antiterrorism activities. Each unit or installation must adapt these measures for their site-specific circumstances accounting for, as a minimum, Geographic Commander/Service requirements, local laws, and Status of Forces Agreements.

2. The FPCON system is the principal means through which a commander applies an operational decision on how to guard against a threat. It is designed for accessibility and easy dissemination of appropriate

information. The elevation or reduction of a force protection condition remains the exclusive responsibility of the commanders specified in the order.

3. There are five (5) different FPCONs.

a. **Normal**. When a general global threat of possible terrorist activity exists and warrants a routine security posture.

b. **Alpha**. When there is an increased general threat of possible terrorist activity against personnel or facilities, the nature, and extent of which are unpredictable.

c. **Bravo**. When an increased or more predictable threat of terrorist activity exists. Operational capability and relations with the local authorities may be impacted during prolonged periods of Bravo FPCON.

d. **Charlie**. When an incident occurs or intelligence is received indicating some form of terrorist action or targeting against personnel or facilities is likely. Activities of the unit and its personnel will be greatly affected by Charlie FPCON.

e. **Delta**. In the immediate area where a terrorist attack has occurred or when intelligence has been received that terrorist action against a specific location or person is imminent. Normally this FPCON is declared as a localized condition.

4. At increased levels of FPCON actions by YPs are outlined in the following section 21-3.

21-3 General Physical Security Procedures

FPCON Level	Public Tours	Liberty	Watch Requirements	Personnel Recall	YP Movement
Normal/A	Unrestricted	Unrestricted, Buddy policy	Manned QD Watch	No	Unrestricted
B	At OTC discretion	At OTC discretion, Buddy policy	Manned QD Watch	No	PRODEV approval for non-military Controlled ports
C	Secured	Secured	Manned QD Watch	Yes	Note 1
D	Secured	Secured	Manned QD Watch	Yes	Note 1

Note 1: Any YP in a non-military controlled port will recall personnel and get underway as soon as possible. If moored alongside in a military controlled port, a personnel recall will be conducted. YPs will remain in the military controlled port until directed by PRODEV to get U/W and return to USNA. YPs will not enter into a non-military controlled port under FPCON Charlie and Delta levels.

1. Anyone with reason to believe the YP is in danger of sabotage or terrorist attack shall immediately notify the OTC and Duty OIC/CM.

2. At increased FPCON levels, the OTC will contact local law enforcement and if available USCG assets to request increased patrols in the vicinity of the YPs.

3. Vigilance is the key to anti-terrorist operations and all personnel shall remain alert for suspicious activity and any attempts to board the vessel at locations other than the brow.

4. Any person who desires to visit the craft shall be denied access until cleared by the Duty OIC/CM.

5. High levels of activity, both onboard and on the pier side, must not be allowed to degrade security. Those personnel standing quarterdeck watches shall not take part in other activities allowing them to remain alert to any immediate threat.

6. The Duty Watch will be comprised of personnel standing quarterdeck watch who will check identification of all squadron personnel when departing or arriving, monitor the YPs and surrounding area for suspicious or threatening activity, and pass the alarm in the event of an emergency.

21-4 Alongside Security (Non-USNA)

1. The OTC is to obtain, prior to departure from USNA, the updated threat assessment from NCIS. This assessment is to be briefed to both midshipmen and the crew and is to include security precautions and recall procedures.

2. The OTC is to ensure duty personnel have a direct line of communication to the security authorities ashore. Prior to arrival, in a non-Navy port, the OTC will contact local authorities to inform them of their arrival and get up to date crime information.

3. Recall procedures are vitally important. The safest course of action to an increased terrorist threat is likely to include getting underway. The midshipman CDO is to retain an updated recall roster at all times. The crew and midshipmen must be able to return to the ship and get underway within four hours. All midshipmen must use the *“buddy system”* when ashore.

21-5 Improvised Explosive Device (IED) Threat

1. On receipt of a bomb threat, the person receiving the threat is to immediately inform the OTC, OIC, and the CM. Their immediate reaction is to clear the craft of all personnel, muster in a designated area ashore, and clear of any hazards while informing the local authorities as quickly as possible.

2. All crewmembers will conduct a quick cursory search of their spaces for suspicious items prior to disembarking.

3. Turn off **all** radios and office equipment.

4. If feasible, portals and hatches should be left open to help dissipate the shockwave from any explosion.

5. Cabinets and drawers will be left **unlocked**.

6. Re-entry should **not** be made until authorized by the local authorities.

CHAPTER 22
Safety Flares and Low-Yield Pyrotechnics Instructions for Stowage, Loading, and Launching

22-1 General Instructions and Stowage. Each YP deployed from the USNA OPAREA will carry **one** ORION Flare Pack including the following items:

Quantity	Item
6	12 Gauge Red Aerial Signals
1	Launcher (with bandolier)
5	Red Handheld Signals
1	Orange Handheld Smoke Signal
1	Volare Floating Storage Bag

22-2 Pre-Planned Use for Training. Throughout the summer period, several flares will be expended in support of underway training serials. Prior to any demonstration serial, permission is to be sought from PRODEV for the in-area planned operation of any signal flare. A Local Notice to Mariners (LNTM) is to be issued, alongside warning calls over VHF Channels 16 and 12. The Annapolis Coast Guard Station is also to be informed.

22-3 Accountability of Pyrotechnics. The OTC is to keep account of all pyro consumables and ensure they are secured onboard each craft. When alongside in harbor, the flare pack is to be kept under the supervision of the Duty OIC/CM. At sea, it is to be kept in the pilothouse ready for use.

22-4 Operation

1. In any emergency, the OIC or CM will direct the use of the appropriate flare signal or smoke. A radio message should be passed via VHF/PRITAC to all ships in company prior to operating any flare. When in close company, only one signal should be used at a time to preserve the pyro stockpile and only after sighting a potential rescue vessel or aircraft.

2. Flare Gun. Break open the launcher barrel and insert (only) one ORION 12-Gauge HP aerial flare. Close launcher. If the barrel does not fully close, **do not** force it. Remove the signal flare and insert another, ensuring the barrel in free of any debris or other obstructions. Point the flare gun in a safe direction and discharge the flare.

3. Hand-held Red Signal Flares and Orange Smoke Signals. Remove the black lid on the red cap. Twist the red cap clockwise and remove. Firmly grasp the bottom of the flare holding below the line clearly marked on the label. Point away from face and body, ensuring it is held downwind. Light the flare by running the red plastic cap

across the black button with pressure down and away from the user's body. Do not waive the signal over your head. Hold it over the side of the craft in the downwind direction.

22-5 Long Term Storage. On return to USNA and prior to the next OOA deployment, all signal flare packs will be returned to SEANAV-OPS for secure storage. The shelf life of each flare pack is clearly annotated on the side of the orange bag.

CHAPTER 23
Operating With Rotary Wing Aircraft

23-1 General Overview. Naval Warships routinely operate with Rotary Wing (RW) aircraft in a wide range of challenging missions from VERTREP to ASW action. Although the YPs are not able to embark an aircraft of any type, there is considerable training value in practicing ship-Aircraft communications drills, general preparations for flying operations and MEDEVAC winching drills.

23-2 Permission to Land Aircraft at USNA. Alternatively, with permission from USNA Air Ops (email: pkcampbe@usna.edu - NLT one week in advance) the AC may be able to land and shutdown for the purpose of providing a static display and in-person briefing before commencing the training underway.

23-3 Scheduling. USCG H-65 Dauphin Operations are currently scheduled from Atlantic City, NJ and can be reached by telephone at (609) 677-2110.

23-4 Preparations. All actions are to be completed prior to COMEX for any flying serial following the checklist in Appendix J.

23-4.1 Pre-Exercise Briefing

1. The OTC is responsible for coordinating a comprehensive briefing for participating personnel prior to commencing any exercise with a live aircraft (AC). The briefing will consider all aspects of ship and aircraft safety to include (but not limited to) the following:

a. Weather Forecast.

b. SOE and geographical limits of the OPAREA.

c. COMPLAN with frequencies and call signs.

d. RADHAZ, FOD, other preparations for Flying.

e. Shoal water and all hazards to marine navigation including the expected density of shipping.

f. Escape Courses.

g. Command Aim for the Exercise.

h. SOA required for Next Serial.

2. CGSTA Annapolis may be able to provide additional assistance with presentation of the Safety Brief to include specific information on USCG hoisting procedures. Their telephone number is (410) 267-8107.

23-4.2 Communication Plan

1. The following frequencies are to be monitored by all YPs participating in a procedural FLYEX with U.S. Coast Guard Aircraft.

Air Guard	
Channel/Use	**Frequency (MHz)**
International Air Distress (IAD)	121.5
Military Air Distress (MAD)	243.0

Other VHF Communications	
21A (Ship – AC Communications)	157.050
81A (Ship – AC Communications)	157.125

2. Communications between the Bridge and Fantail. Should the OTC/OIC/CM need to relay any message to personnel on the fantail during the FLYEX, a Messenger dressed in the appropriate PPE will walk to the stern of the vessel to pass the word. This will take up to two minutes, as personnel will need to re-enter the YP (Training Room or CIC) to be heard over the noise of the AC if within 100 yards. Handheld radios currently held in stock will prove ineffective, as they are not compatible with available hearing protection.

23-4.3 Personal Protective Equipment (PPE)

1. All personnel working on the upper deck when the helicopter is within 500 yards on the ship **must** be wearing the following PPE:

a. NWU/Coveralls

b. Boots

c. Life Jacket

d. Properly fitting helmet with serviceable Chinstrap

e. Ear Defenders

f. Eye Goggles for protection from FOD and spray

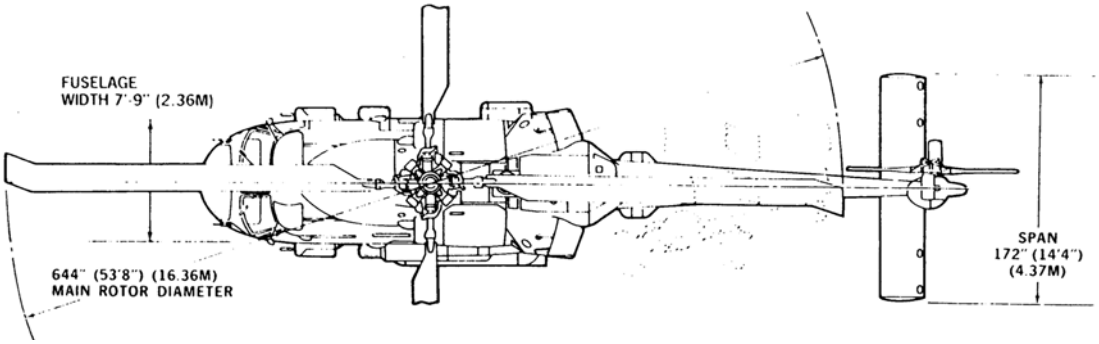
23-4.4 Barometer Use. The digital barometer installed in the 703 class YP is **not** calibrated to military aeronautical standards. While it is good practice to observe the reading, this information should **not** be passed to the Aircrew as an accurate surface pressure measurement.

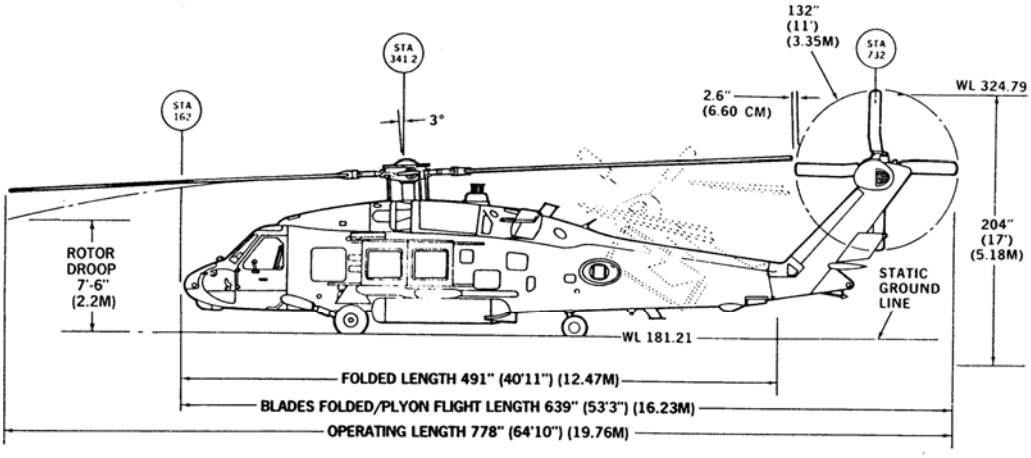
23-4.5 Ship's Helicopter Operating Limits (SHOLs). The following limits are only to be adhered to during a prearranged exercise serial. In the event of a genuine shipboard emergency, the decision to commence winching operations rests exclusively with the Aircraft Commander.

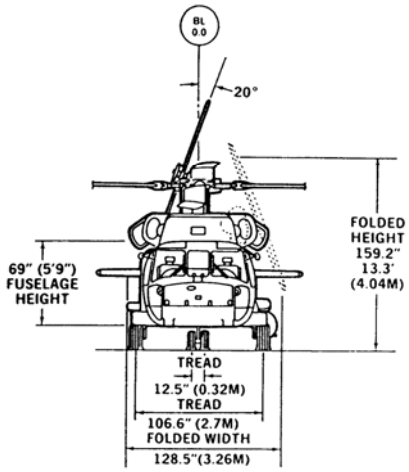
Constraint	Limit
Pitch	+/-3°
Roll	+/-5°
Minimum Safe Distance from other ships	500 yards
Minimum Safe Distance from Shoal Water	1,000 yards

23-5 Aircraft Characteristics

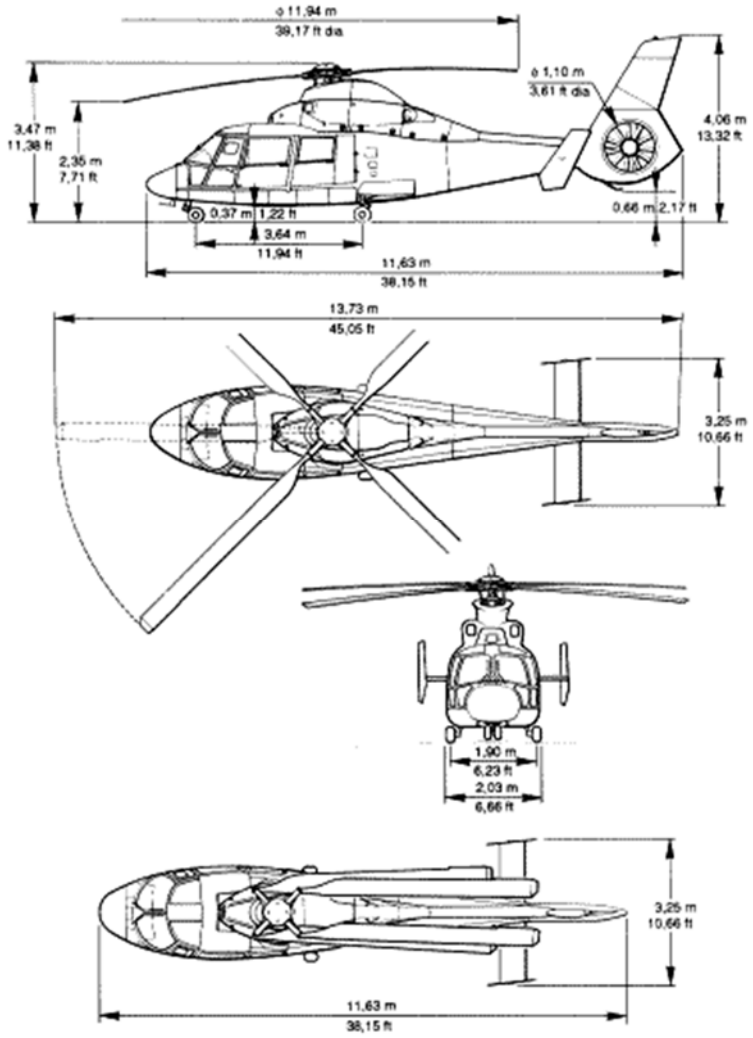
1. A graphical summary of the USCG H-60 *'Jayhawk'* helicopter is presented below.







2. A graphical summary of the USCG H-65 *'Dauphin'* helicopter is presented below.



23-6 <u>Medical Emergency</u>. Refer to Chapter 3 for further information on immediate actions required in the event of a genuine medical emergency.

23-7 <u>Basket Handling</u>

1. <u>Trail Line Handling</u>. Once the weight bag is at a safe height, grab it and forcefully pull downwards to guide the basket or rescue swimmer to the deck. Personnel must be alert to potential snagging hazards with the various deck fittings. In the event of the line or equipment becoming snagged, the evolution will be suspended and the AC will remain in the hover until the obstruction is cleared.

2. <u>Basket Safety</u>. While the trial line **does not** pose a static discharge threat, the metal basket does. Personnel must allow the basket or device to touch the deck first, automatically "grounding out" prior to handling it. YPs are not currently fitted with any AC

grounding equipment. If in any doubt, step away from the basket until the aircrew has lowered it to the deck.

3. Hoisting while the YP is DIW. If the craft is fully stopped in the water with no propulsion, it is highly likely the YP will begin to spin due to downwash from the AC. Do not attempt to correct this yaw rate; the Pilots will maneuver the AC as required to counter the movement of the YP. DIW serials will be limited given the marked increase in fuel used when compared to underway winching.

23-8 Flying Operations with Multiple YPs. Given the transit distance for the AC and coupled with the fuel burn rate and power limitations while conducting DIW hoisting operations, the OTC is responsible for ensuring each YP is stationed in an appropriate position to immediately commence training once the AC is ready to move on to the next craft. Also, note the AC will routinely request observed wind speed and direction in addition to asking the YPs to steer a **magnetic** course.

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CHAPTER 24
YP Navigation Standards

24-1 Background. Yard Patrol (YP) craft are highly effective platforms for training and educating midshipmen in the fundamentals of seamanship and navigation. Safe and effective training requires the Officer in Charge (OIC), Assistant Officer in Charge (AOIC), and Craftmaster (CM) always maintain an accurate navigation picture. If you have any doubt about the craft's position with respect to shoal water, immediately slow down or stop. If a situation does not look right, it probably is not!

1. Conducting navigation training in a YP is very different and in many ways more challenging than navigating a Navy warship. Significant differences include:

a. An **inexperienced** and **unqualified** midshipman watch team.

b. The absence of a secondary plot to provide back up to the navigation plot on the bridge.

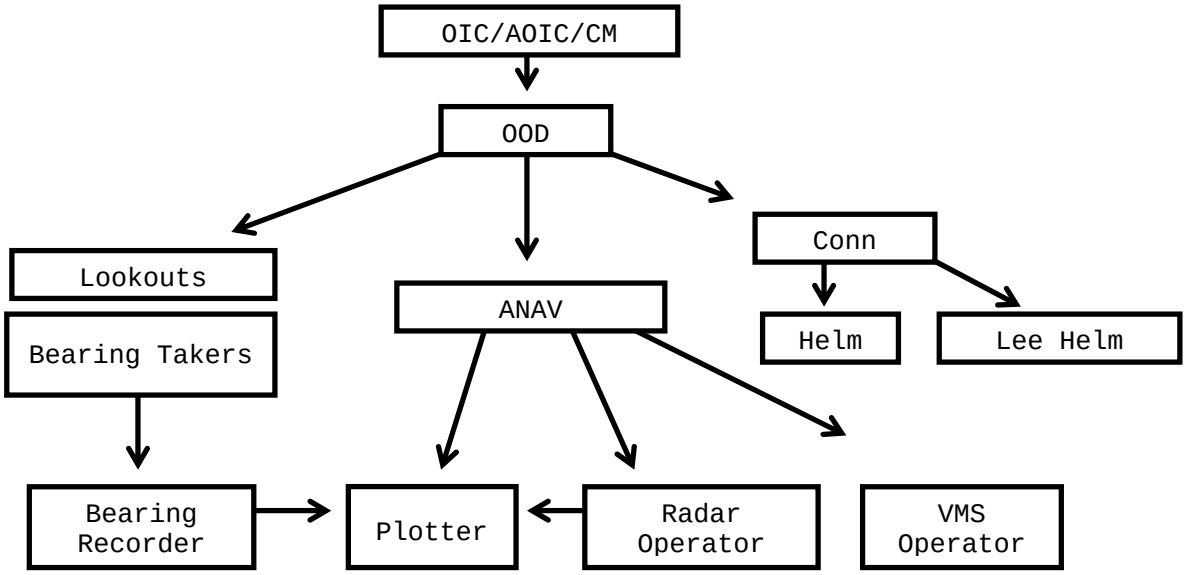
c. The need to conduct realistic training while constantly ensuring the safety of the YP when underway.

2. These risks are mitigated by the vigilant efforts of the OIC/AOIC/CM team in maintaining constant situational awareness at all times.

24-2 Personnel. The OIC/AOIC/CM must organize the navigation team in an appropriate manner allowing them to meet the demands and complexities of the mission, while maintaining an environment that accounts for the status of midshipmen as trainees. The organization of the navigation team will be dependent on the mission of the YP if the craft will deploy out of area (OOA).

23-2.1 Responsibilities. Responsibilities of each member of the navigation team are described in Chapter 2.

24-2.2 Navigation Team Organization. The Yard Patrol craft navigation team will consist of the following watch standers as shown below.



1. The composition of the YP navigation team during OOA operations is determined by the craft's distance in nautical miles (nm) from the nearest navigational hazard as shown below.

Distance from Shoal Water	**Restricted Waters**	**All other**
	Less than 1NM	1 – 10 NM
OIC	Note 1	Note 1
CM	Note 1	Note 1
AOIC	Note 1	Note 1
Plotter	Yes	Yes
Bearing Recorder	Yes	No
Radar Operator	Yes	Yes
Port Bearing Taker	Yes	No
Starboard Bearing Taker	Yes	No
Lookout	Yes	Yes

Note 1: IAW Chapter 6

2. As directed by the OIC, all watch stations subordinate to the ANAV may be secured to accomplish any training objectives in the USNA OPAREA such as man overboard drills or when conducting pier landings. This does not remove the requirement for the OIC and CM to maintain situational awareness and an accurate navigation plot at all times.

3. Administrative movement of craft/emergency sortie. Unusual circumstances to accomplish emergent maintenance (dry dock) or emergency sorties (weather avoidance) may require a YP be moved outside the OPAREA without a midshipmen crew embarked. The minimum ship control manning for a YP transiting outside the OPAREA without midshipmen embarked shall be as follows:

a. Passage of less than four hours duration: One qualified OIC and CM, who shall have responsibility for navigation and ship control.

b. Passage of greater than four hours duration: Three qualified CM or qualified OICs in any combination. When transiting restricted waters, two of the three personnel shall be on the bridge and one shall be formally assigned responsibility for ship control and the other for navigation.

c. When deploying in such circumstances, the OIC/CM shall conduct a full navigation brief prior to departure. The absence of a midshipmen crew does not modify in any way the requirement to know the position of the craft and predicted future movement using two independent sources of information.

24-3 Standard Policies, Requirements, and Procedures

24-3.1 General. This chapter provides guidance on all standard policies, requirements, and procedures to be enforced when underway.

1. The characteristics of both 676 and 703 class YPs are shown in Chapter 11. The 12-foot contour is to be used as the minimum (shallow) navigation safety contour at all times.

2. Calibration of Navigation Sensors. All navigation equipment is to be properly configured and calibrated prior to OOA operations. This includes gyros and alidades, speed sensors, fathometer, radar and GPS antenna offsets. Any shortcomings will be captured in the OTC's SITREP. Record and address equipment casualties IAW reference (k).

24-3.2 Training. Maintaining proficiency of basic navigation skills is critical to safe navigation. Additionally, a thorough understanding of the principles of operation, capabilities, and limitations of all installed equipment is essential to maintaining safe navigation. SEANAV training programs must provide for accurate assessment and the necessary training to educate, qualify, evaluate, and periodically re-qualify assigned personnel. All OICs/AOICs/CMs will gain qualification and remain proficient as detailed in reference (b).

24-3.3 Policy

1. The OIC/AOIC/CM (as applicable) shall maintain awareness of the position of the YP at all times using at least two independent sources of fixing the position.

2. Types of fix include the following:

a. Electronic fix, annotated on the chart using a triangle around the plotted position.

b. Visual fix, annotated on the chart using a circle around the plotted position.

c. Composite fix, a combination of visual and electronic data annotated by a triangle on the chart.

d. Bathymetric fix, the contour line used should be clearly marked in bold and the triangle annotation used for a composite fix is to be applied.

e. Seaman's eye (estimated position relative to positively identified aids to navigation and prominent landmarks such as bridges, structures, or geographic features). Preplanned head or stern bearings at known ranges allow an accurate appraisal of where the craft is relative to the planned track. The disposition of the buoy field should not be relied upon unless the positions of the buoys and other marks have been checked to be in the correctly charted positions.

f. Parallel indexing and a constant watch of the fathometer will allow the OIC/CM to accurately determine the distance of track and proximity to shoal water, but neither is to be considered an independent positioning source.

g. Electronic navigation. When underway, all YP OICs, AOICs, and CMs shall consider VMS/ECDIS an approved source of positioning information to be used in conjunction with other sources as outlined in this chapter.

3. The appropriate combination of these sources is dependent on the operating area, prevailing weather, visibility, the mission, and the proximity to navigation hazards. It is the responsibility of the OIC and CM to determine and supervise the navigation team in the correct use of fix sources at all times. At no time should the navigation team rely solely on a single source of information. Multiple positioning sources should be used when available to determine the most accurate navigation picture.

4. Anytime the OIC/CM has fewer than two independent sources of information confirming the position of the YP or if available information sources conflict as to the YP's current position, the OIC/CM shall assume the YP is in possible danger. Take all way off (as wind, tidal stream, and traffic conditions permit), suspend training, and focus on regaining an accurate navigation picture before proceeding.

Note: If the midshipmen navigation team is unable to fix the YP's position for two consecutive fix intervals, the OIC/CM will immediately plot a GPS fix on the chart to verify position.

24-3.4 Requirements. The navigation team must satisfy the following requirements while the ship is underway.

1. Fix Interval. While using paper charts as the primary plot and for determining VMS/ECDIS settings the table below outlines the navigation standards for fix intervals onboard a Yard Patrol craft:

Area	Distance from Land/Shoal Water	Required Fix Interval
Restricted Waters	less than 1nm (2,000 yards)	3 minutes
Piloting Waters	1 – 10nm	6 minutes
Coastal Waters	10 – 20nm	10 minutes
Open Ocean	greater than 20nm	15 minutes

2. When conducting operations involving midshipmen with a fully functional and updated VMS/ECDIS the paper plot will be maintained by the midshipmen navigation team for training purposes. In order to allow the students the opportunity to maintain a complete and accurate plot they will use the following fix intervals:

Area	Distance from Land/Shoal Water	Required Fix Interval
Restricted Waters	Less than 1nm (2,000 yards)	6 minutes
Piloting Waters	1 – 10nm	12 minutes
Coastal Waters	10 – 20nm	15 minutes
Open Ocean	Greater than 20nm	30 minutes

a. The relaxed fix interval for paper charts will be annotated in the deck log.

b. The navigation team will continue to provide full navigation reports on the standard fix interval using the approved electronic navigation source.

c. This will not impact the fix interval used to determine VMS/ECDIS settings.

d. If there is a degradation to the VMS/ECDIS system the paper plot will remain on standard fix intervals.

3. Dead Reckoning (DR). DR is the process of determining the future position of a craft by plotting the ordered course and speed from the last fix. It does not consider any influencing factors such as tidal stream or wind. A DR plot must be maintained and plotted using the six rules below.

a. At every course change.

b. At every speed change.

c. When obtaining a fix or running fix.

d. When obtaining a single Line of Position (LOP).

e. Plot and label a DR position with course, speed, and time along with a new course line from each fix or running fix. This should be plotted whether the craft is on track or not. The DR plot will show the next two fix intervals.

f. Plot a position at least every hour, on the hour.

4. Set and Drift. Set and drift shall be calculated at least every third fix interval and more frequently when the plotter's proficiency and work rate permit. Check both course and speed made good to ensure it is what is intended and compensate as required. When using VMS/ECDIS, frequent comparison of heading, course over ground, and speed over ground shall be made and appropriate compensation applied.

5. The nearest hazards to navigation must be known at all times.

6. The direction towards open/safe water along the track must be known at all times.

24-3.5 Use of VMS and ECDIS. For operations involving midshipmen, paper charts shall continue to be used to deliver the training mission and are to be considered the primary means of navigation. However, VMS (676 class) and Raytheon Pathfinder ECDIS (703 class) is to be used to validate and support the midshipman's navigation reports as well as providing improved situational awareness to the supervisory personnel.

1. VMS/ECDIS Configuration. A properly configured VMS or Raytheon Pathfinder ECDIS is required prior to getting underway using the settings found in Appendix O and P. Not properly configuring the system will introduce hazards to the craft and give rise to safety critical issues. Upon completion of the checklist, the OIC/CM should annotate it in the deck log.

2. VMS/ECDIS fix intervals. Using VMS or ECDIS, the ship's vector shall be selected to indicate a period of at least two fix intervals (e.g. six minutes when in waters requiring a three-minute fix). Track history shall be enabled to show at least the previous 90 minutes of the craft's movement.

3. Positioning. VMS/ECDIS will display the position, course, and speed from the selected GPS source at an update rate of approximately 10 Hz. Each fix or on passing a conspicuous navigation aid, VMs/ECDIS should be fixed to ensure the accuracy of the navigation report.

4. Provision for digital navigation. With PRODEV approval, the 703 class YPs may use the Raytheon ECDIS system as the primary means of navigation. A fully comprehensive and corrected paper chart folio will, however, be embarked and ready for use at all times. Permission to navigate "digitally" will be included in the operations order (navigation annex) that is published for any given OOA Movement Order.

Unless specifically directed, paper charts are to be considered the primary means of navigation when operating in the Annapolis OPAREA.

24-3.6 Requirements Prior to Conducting Local Operations. The following must be completed and verified by the OIC/CM prior to the YP departing the pier for any underway in the local OPAREA.

1. All YPs shall have at least two copies each of the charts for the Severn River and adjoining Chesapeake Bay (Charts 12283 and 12282). On at least one set of these charts, harbor entrance/departure courses and danger bearings shall be labeled and used by the conning officer. NGA-supplied DNCs H1708225 and A1708225 must be displayed on VMS/ECDIS with the latest Vector Data Updates (VDUs) applied.

2. For SEANAV labs, midshipmen will utilize Chart 12283 provided by the instructor. All OICs are responsible for updating the chart through the current *Notice to Mariner* prior to use underway.

3. Charts to be used must be prepared in accordance with the Chart Preparation Checklist in Appendix K. They will be signed by the instructor or OIC responsible for the period underway.

4. A navigation brief shall be conducted pier side to include the following at a minimum:

a. Area of operation (geographical limits).

b. Intended track.

c. Tide and current calculations and how this will affect the planned base courses.

d. Weather forecast and actual conditions on departure.

e. Status of navigation systems and engineering equipment, including all TSOs.

f. Emergency procedures.

g. Key lessons learned from previous classes, as appropriate.

5. The OIC/CM must verify VMS/ECDIS is fully mission capable prior to departure from the pier. A YP shall not get underway without this mission essential equipment.

6. OIC/CM shall verify the YP meets ready for sea standards and has the minimum equipment onboard in accordance with the YP SOP prior to departure.

24-3.6 Requirements Prior to Departing the Annapolis Operation Area

1. The geographical limits of the Annapolis OPAREA are defined as the Severn River (north to the Naval Academy bridge), Chesapeake Bay - north to 39° 18’N and south to Kent Point.

2. Two different types of briefs are required prior to OOA Operations. A transit brief is a “strategic-level” voyage overview of the speed – time – distance challenge to include every restricted water transit during the passage. A navigation brief covers a specific restricted water transit being conducted within the following 24 hours.

3. The departure transit brief must be presented to the Deputy Commandant of Professional Development and/or Chairman of the Department of Seamanship and Navigation no more than 72 hours prior to any underway outside the Annapolis operating area. When preparing to return to Annapolis, the transit brief will be presented to the Officer in Tactical Command.

4. All restricted area transits will be discussed with a formal navigation brief within 24 hours of the transit. The navigation brief, in contrast to the transit brief, will be the watch team’s opportunity to focus on track data in detail for the specific area that is to be navigated. This brief will be presented to the OIC/CM in port if it is prior to underway or at least 24 hours prior to an expected evolution if currently underway.

5. The following information shall be included in both the transit and navigation briefs and be made available to the bridge watch teams during the evolution:

a. Chart survey data.

b. Pictures of prominent navigation aids (as available).

c. Astronomical data (sun/moonrise and set).

d. Predicted tide and currents.

e. Weather forecast and prevailing conditions if immediately prior to departure.

f. Status of navigation and engineering equipment (including the implications and associated risk of TSOs).

g. Emergency procedures.

h. Operational risk management (risks and control measures put in place).

i. Lessons learned from previous periods underway

6. The personnel required to attend the transit and navigation briefs are detailed in Appendix N.

7. All personnel attending the navigation brief will sign a roster; an example is shown in Appendix N, indicating their name and watch station. This roster, along with both a hard and electronic copy of the navigation brief, will be retained by the SEANAV operations officer for a minimum of one year.

8. The OIC will review and approve the digital voyage plan in VMS/ECDIS in accordance with the VMS/ECDIS Preparation Checklists in Appendix O. Approval of a digital voyage plan includes:

a. Review and approval of the chart portfolio to ensure all relevant vector and raster charts are included and the most recent weekly or monthly update has been applied.

b. Validation of the track, ensuring all waypoints, and track legs, precisely match those marked on the paper charts.

c. At the completion of each out of area underway period, the OIC/CM is responsible for downloading the track data from VMS or ECDIS and returning the archived files to the SEANAV operations officer.

d. Charts to be used must be prepared in accordance with the Chart Preparation Checklist in Appendix K.

24-3.7 Requirements for Operations during Low Visibility. When visibility is reduced to 2,000 yards or less, the OIC/CM and assigned watch standers will execute the Low Visibility Checklist in Appendix R.

24-3.8 Midshipmen Standards of Navigation during Training

1. Having midshipmen embarked to conduct training shall not lessen navigation standards in any way. However, it must be kept in mind midshipmen are pre-commissioned officers under training. Therefore, midshipmen are always considered personnel under instruction.

2. The midshipmen navigation team will frequently lose track of their position. The OIC/CM must identify when such a situation exists and ensure a correct fix is plotted and no more than two fix intervals expire. If necessary, suspend training and slow or stop the craft to facilitate plotting a good fix.

3. If a midshipmen navigation team does not have a fix at the required interval, they shall immediately report, “navigation has no fix” even as they work to establish a fix. If you have doubt in your mind, immediately slow down or stop. If a situation does not look right, it probably is not.

4. The YP navigation team must satisfy the following requirements.

a. Ensure charts to be used are prepared in accordance with the Chart Preparation Checklist in Appendix K.

b. With OIC and CM assistance, prepare a navigation brief prior to every underway outside the Annapolis OPAREA and other underway evolutions as directed by the OIC/CM.

5. The midshipmen navigation team shall plot the YP's position utilizing no less than three visual or radar lines of position (LOP) or a combination of visual and radar LOPs and/or GPS as appropriate. The navigator will provide a navigation report in accordance with Appendix L to the OIC/CM, CO/XO, OOD, and CONN following every fix.

6. Plot a GPS fix when visual/radar fixes are unavailable or considered unreliable. Never hesitate to use GPS to verify or augment visual/radar fixes.

7. The navigation team will plot, label, and DR in accordance with the established "six rules of DR."

8. After plotting each fix and DR, a "safe water" or "danger" call must be made based on the results of the fix. Assess the YP's position and determine if the current course leads to waters not safe for navigation. If so, announce "Danger" ensuring the OIC, CM, OOD, and CONN all correctly acknowledge the report. If the current course leads to waters safe for navigation, announce "Safe Water" in accordance with the Navigation Report, Appendix L.

9. After completing the "Safe Water" or "Danger" report to the bridge team, the navigator should work to complete and give a full navigation report prior to the next fix using the template provided in Appendix a.

10. Calculate set and drift at each fix and compensate as required. Check course and speed made good to ensure it is what is intended.

11. Consistently review the track and always know the nearest hazards to navigation.

12. Always know the direction towards open/safe water along the track.

13. Ensure the OOD has energized all navigation lights between sunset and sunrise and during periods of reduced visibility.

14. Ensure the bearing book and ship's position log are accurate and up to date.

15. Remember that while training will focus on developing proficiency in plotting GPS fixes and visual and radar LOPs, the purpose of

navigation is to integrate all resources to fix your position as accurately as you can.

24-3.9 Incident Procedures. The primary responsibility of the OIC and CM following an incident is the safety of the midshipmen if embarked and the safety of the YP. In the event of any incident involving navigation (grounding, collision, etc.) on the YP while underway, the following steps should be taken by the OIC/CM:

1. After the incident, the OIC/CM shall take custody of the charts and all logs in use. If the chart is required for use, the OIC shall sign in the margin of the chart and the chart will continue to be used until it can be removed from the pilothouse. No changes to the data on the chart may be made to include erasures, changing course lines, correcting improper fixes, etc.

2. Watchbills, evolution briefs, checklists, and other pertinent documents shall be collected by the OIC.

3. All digital VMS/ECDIS voyage data shall be downloaded immediately and saved.

4. All materials will be maintained by the OIC until the Deputy Commandant of Professional Development has cleared them to be used or the assigned investigating officer has taken custody of the materials.

24-3.10 Records, Logs, and Equipment

1. Purpose. It is essential reliable records of the actions taken aboard a ship in times of combat, danger, or precise navigation be maintained for legal reasons.

2. Corrections. Erasures are strictly forbidden in all navigation logs. Neatly line out and initial an entry to make corrections. Ballpoint pen with non-water soluble black ink will be used.

3. Ship’s Deck Log. The ship’s deck log is the official daily record of the ship. The ship’s deck log shall be a chronological record of those events occurring during the watch.

a. The ship’s deck log must maintain a record of all the events of the day particularly:

(1) Every injury, accident, or casualty.

(2) Important actions taken. Enter a full reconstruction detailing every occurrence and remarkable incident.

(3) All peculiar or extraordinary appearances of the sea, weather, or atmosphere, following sudden changes of wind, heavy squalls of wind, or of heavy gales. Also tide rips, discolored water, extraordinary luminescence, or discoloration of the sea.

(4) After anchoring, record bearings and ranges such as to enable the exact position of the ship to be located on the chart.

(5) When at anchor in heavy weather, the strain upon the anchor chain or cables and other unusual conditions.

(6) The time when any particular evolution, exercise, or other service was performed, preparing to enter port, or to anchor, anchorage, getting underway, securing anchors, preparing the ship for heavy weather, etc.

(7) All course (degrees true) and speed (knots) changes.

(8) All unexplained or unauthorized absentees, with indication of time, occurrence, and first knowledge of absence.

(9) The arrival and departure of the OIC/AOIC/CM from the bridge while underway.

b. If the Craftmaster is the sole watch stander on the bridge, course, speed, engine, and rudder orders will not be logged. The VMS/ECDIS voyage data recorder will be used to provide a reconstruction of the craft’s track.

c. If the YP is being operated in the Annapolis operating area for the purposes of an academic class, course, speed, engine, and rudder orders will not be logged. The VMS/ECDIS voyage data recorder will be used to provide a reconstruction of the craft’s track.

d. The ship’s deck log shall be signed out by the OIC or CM maintaining it at the end of each watch or whenever responsibility is transferred. Under all circumstances, the ship’s deck log shall be signed out by the person maintaining it following the mooring entry. The name of the OIC or CM shall be printed beneath the signature. It is important to brief the requirements of the log when getting under way and to review the deck log’s contents on a periodic basis.

e. Reference (g) contains sample entries.

4. Ship’s Position Log. A record of positions and soundings from all sources used. In addition, fathometer soundings will be recorded. This log shall be maintained whenever the YPs are operating outside the Annapolis operating area.

a. When multiple positioning aids are available, the OIC will determine which is to be used as the Primary Positioning Source (PPS). It is this position that will be recorded in the log.

b. The ship’s position log may be secured with the concurrence of the OIC/CM whenever the standard bearing book is used in piloting waters. When entering restricted waters from the open sea, the initial piloting fix will be recorded in both the ship’s position log

and ship's bearing book. The same is true of the last piloting fix when leaving restricted waters.

c. Position data should also be recorded in VMS using the track history feature. At the conclusion of each underway out of the operating area, the information will be downloaded and remain with the ship's position log for the same time period.

d. Upon relief or when secured, the watch or bearing recorder will sign his/her name across columns 18-41.

5. Ships Bearing Book. This record shall be maintained whenever the YPs are operating outside the Annapolis operating area

a. Bearings are recorded in the appropriate columns corresponding to the recorded time. All bearings are visual by gyrocompass unless otherwise indicated.

b. Depths are recorded as depths under the keel by fathometer unless otherwise indicated.

c. The ship's bearing book may be secured with the concurrence of the OIC/CM whenever the position log is used in piloting waters. When entering restricted waters from the open sea, the initial piloting fix will be recorded in both the ship's position log and ship's bearing book. The same is true of the last piloting fix when leaving restricted waters.

d. The OIC/CM shall sign his name following the last entry of the watch and/or the day's operation.

24-3.11 Required Publications

1. All navigation publications required for OOA operations will be detailed in the operations order. For in-area operations, the latest corrected editions of the following items should be held onboard at all times:

a. *Nautical Almanac*.

b. *NOAA Tide Tables, East Coast of North and South America*.

c. The full suite of *Admiralty Digital Products* (TotalTide, List of Lights, and List of Radio Signals) is to be installed and readily available in each YP. This software will be supplied by the Seamanship and Navigation Department.

d. *Light List Volume 2, Toms River, NJ to Little River, SC*.

e. *Coast Pilot 3.*

f. List of Radio Signals.

g. *USCG Navigation Rules (Rules of the Road).*

h. *Chart Number 1, Nautical Chart Symbols.*

i. *Watch Officer's Guide.*

j. *USNA Multi-national Tactical Publication (MTP) 1D Vol 1.*

k. *USNA Multi-national Tactical Publication (MTP) 1D Vol 2.*

l. *YP Standard Operating Procedures.*

2. Navigational Safety Warning Messages. When transiting or conducting training outside of the Annapolis OPAREA, OIC/CMs should review posted safety warning messages daily. The following methods should be used:

a. The OIC/CM should use the Coast Guard website (www.navcen.uscg.gov) to view special warnings and advisories for the area they are operating in. Other useful government websites are provided by the National Oceanic and Atmospheric Administration (NOAA) including Tides and Currents (www.tidesandcurrents.noaa.gov) and the National Weather Service (www.weather.gov/forecastmaps).

b. Routinely, the SEANAV operations officer will collate navigation advisory notices and NTM and forward the appropriate information to the deployed OTC.

24-3.12 YP Navigation Report

1. After plotting each fix and DR, a "safe water" or "danger" call must be made based on the results of the fix. Assess the YP's position and predicted future movement. Determine if your course leads into shoal water within twice the fix interval. If so, announce *"Danger"*, ensuring the OIC, CM, OOD, and CONN all hear and properly acknowledge the report. If the current course leads to water safe for navigation, announce *"Safe Water."*

APPENDIX A
Man Overboard (MOB) Checklist

Step	Action	Complete
1	Initiate the Man Overboard Maneuver.	
2	Deploy a life ring on the appropriate side.	
3	Post a lookout to keep a constant watch.	
4	Mark the position in VMS/ECDIS. Start a stopwatch.	
5	Sound six short blasts.	
6	Pass the word over the 1MC: "Man overboard, man overboard! Port (starboard) side, this will be a fantail recovery. All personnel not on watch muster in the classroom (CIC). Senior person take charge, all reports to the OIC (CM) in the Pilothouse."	
7	Hoist Flag Oscar.	
8	Notify all adjacent ships on VHF Channel 16. If deployed in company, pass a FLASH report to the OTC. Carry out initial recovery actions and await further instructions.	
9	Ensure the ship is positioned 'up wind' of the man. Do not lose sight of proximity to shoal water or other ships.	
10	Once the MOB is recovered, conduct an initial assessment of his/her medical condition.	
11	If operating in the Severn River, return to USNA at best possible speed given the prevailing conditions. Ensure that a SITREP has been passed to Annapolis Harbor Control (Channel 12).	

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APPENDIX B
Fire Fighting Checklist

Step	Action	Complete
1	On discovering any fire, pass the word over the 1MC: *"Fire, Fire, Fire! Class (A/B/C) fire in (compartment), (location marking). Set mechanical and electrical isolation in (compartment). All midshipmen muster in (compartment – clear of incident). Section Leader take charge and account for all personnel. Pass all reports to the OIC on the bridge."*	
2	If in company, pass a FLASH report to the OTC by any means.	
3	Inform the nearest shore authority. (Either Annapolis Harbor Control or U.S. Coast Guard Sector)	
4	OIC takes the Deck and maneuvers the craft towards the nearest port or jetty. An assessment of the implications of system isolations must be made immediately. If necessary, stop the YP.	
5	CM will direct the firefighting effort and account for all enlisted personnel, maintaining constant communications with the OIC on the bridge.	
6	**The YP Engineer is to take all required controlling actions to isolate the compartment and fight the fire.** Any personnel entering a smoke-filled compartment must be tethered to a lifeline.	
7	Report to the bridge once all isolations have been made.	
8	All YP crewmembers are to prepare the necessary firefighting equipment as directed by the Engineer.	
9	Once all preparations are complete and a minimum of two crewmembers are dressed in PPE and ready in all respects – request permission of the OIC/CM to enter the compartment and fight the fire.	
10	Report once the fire has been extinguished or when personnel are beaten back.	
11	As directed – initiate fixed firefighting systems.	
12	Post a fire sentry.	
13	Determine a smoke clearance plan.	
14	Conduct damage assessment of the compartment and essential equipment.	
15	Maintain a continuous assessment of stability.	
16	So far as possible, re-commission essential equipment.	
17	Pass a FIRE REPORT to USNA by any means.	

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APPENDIX C
Collision Checklist

Step	Action	Complete
1	Sound the collision alarm and pass the word over the 1MC.	
2	Account for all personnel. Pass over the 1MC: *"All midshipmen muster in (compartment – clear of incident). Section Leader take charge and account for all personnel. Pass all reports to the OIC on the bridge."*	
3	Initiate damage control efforts to contain any flooding.	
4	Conduct a blanket search of all compartment for secondary damage.	
5	So far as possible, plug all hull penetrations below the waterline. The OIC should take command of the situation and remain on the bridge. The CM should proceed to the scene of the incident and direct the efforts of the YP crew.	
6	If in company, pass a FLASH SITREP to the OTC and request assistance. If possible, disembark non-essential personnel to another craft.	
7	If in the USNA OPAREA, return to the nearest pier and disembark personnel.	
8	Inform the nearest shore authority. (Annapolis Harbor Control or U.S. Coast Guard Sector)	
9	If possible, rig equipment to commence pumping operations.	
10	Maintain a constant appraisal of the craft's stability.	
11	If a major compartment is lost to uncontrolled flooding, make immediate preparations to abandon ship.	

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APPENDIX D
Grounding Checklist

Step	Action	Complete
1	Sound the collision alarm. Pass a SITREP over the 1MC.	
2	Stop all engines immediately and do not operate the rudder.	
3	If in company, pass a FLASH SITREP to the OTC and request assistance. Other ships will maintain minimum safe distance from shoal water.	
4	Fix the position of the ship.	
5	Order a full assessment of the situation. Conduct a blanket search of all compartments, making an initial assessment of any damage.	
6	Using a lead line, survey around the craft. Determine which section of the hull has grounded.	
7	Consider the rise and fall of the tide. Would de-ballasting operations of the fresh water and MSD systems reduce the draught sufficiently to allow you to float free?	
8	Direct the YP Engineer to assess all seawater inlets.	
9	When possible, contact USNA with a SITREP.	
10	If able to maneuver clear of the grounding site, proceed as directed to the nearest port or NAVSTA for damage assessment and repair. If appropriate, rig for a tow.	
11	If directed, prepare to anchor.	

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APPENDIX E
Abandon Ship Checklist

Step	Action	Complete
1	Pass the order to ‘Prepare to Abandon ship’ over the 1MC.	
2	Request immediate assistance of any craft nearby.	
3	Inform the nearest shore authority by signaling a ‘MAYDAY’ call.	
4	Use all possible means to attract attention, including flashing light, continuous sounding of the ship’s whistle, and flying the Ensign upside down.	
5	Order all hands to don life jackets.	
6	Account for all personnel, mustering in a safe location.	
7	Deploy the EPIRB.	
8	Deploy life rafts. So far as possible, enter the life rafts dry.	
9	Take the deck log from the bridge.	
10	Take all portable VHF radios from the craft.	
11	Make every attempt to keep personnel together.	

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APPENDIX F
Underway Checklist

Date: _____

Action	Responsibility	Initials
1. Conduct Navigation Brief within 24 hours of underway.	OIC/NAV	
2. Formally assume responsibility for craft by signing MLOCs and deck log. Notify OTC/SEANAV of discrepancies as required.	OIC/AOIC	
3. Muster all personnel; ensure that all hands are accounted for.	OIC/MXO	
4. Pass on the 1MC: *"Go to your stations, all of the special sea detail."*	OOD	
5. Ensure all personnel are at watch stations.	OOD	
6. Assume the deck. *"Attention in the Pilothouse this is MIDN XXX, I have the deck."*	OOD	
7. Pass on the 1MC: *"The Officer of the Deck is shifting the watch from the Quarter Deck to the Pilothouse."* **(OOA ONLY)**	OOD	
8. Assume the Conn. *"Attention in the Pilothouse, this is MIDN XXXX, I have the Conn."* Helm and lee helm will respond as appropriate.	CONN	
9. Make sure all sound powered telephones are on station. Conduct communication checks with all stations and the Bearing Book Recorder. **(703 class use handheld radios)**	BEARING TAKERS	
10. Tape chart(s) to chart tables, if required.	NAV	
11. Make sure PMP arm is correctly aligned. **(676 class ONLY)**	NAV	
12. Ensure gyro(s) energized and tested.	NAV/OOD	
13. Switch on fathometer and ensure readings displayed in feet.	NAV/OOD	
14. Ensure S/X-Band RADAR on and working properly. Correctly configure RADAR as directed by the OIC: RM(T), North Up with Range Rings.	OOD/RADAR OPERATOR	
15. Take a pier side fix by all means available. Determine gyro, gyro repeater, and RADAR errors by comparing sensors with chart fix.	NAV	
16. Ensure VMS/ECDIS operable and checklists complete.	OIC/NAV	

Action	Responsibility	Initials
17. Conduct test of bridge-to-bridge (BTB) radio by conducting communication checks with other vessels in company. On VHF Channel 12: "YP XXX this is YP XXX Channel One-Two, over?" "This is YP XXX, Roger over." "This is YP XXX, roger out." Maintain a scan of all working and distress radio channels.	OOD	
18. Conduct test of all installed alarms over the 1MC: *"The following is a test of the general, (chemical and collision) alarm(s) from the Pilothouse, disregard."* Test alarms. *"Test complete, regard all further alarms."*	OOD	
19. Pass on the 1MC: "The following is a test of the ship's whistle, (test) test complete."	OOD	
20. Pass on the 1MC: *"The following is a time check from the pilothouse. On my mark, the time will be XXXX. 30-second standby. 15-second standby. 10, 9, 8, 7, 6 - 4, 3, 2, 1. Mark. On my mark, the time was XXXX."* **(OOA ONLY)**	NAV/OOD	
21. Ensure that all shore connections have been secured on deck (other than mooring lines). **(OOA ONLY)**	CM	
22. Report when this checklist is complete and request permission to get underway from OTC/OIC.	OOD/MCO	
23. Under supervision of the CM, bring the propulsion plant online. Prior to starting password, *"Stand clear while starting main engines."*	CONN/LEE HELM	
24. Pass over the 1MC: *"Stand by your lines."*	OOD	
25. Prior to underway, transmit *Securite* call over VHF, as appropriate.	OOD	
26. Check AIS Transponder settings, switch from Moored to Underway display settings.	NAV	
27. Once underway, pass over the 1MC: *"Underway, shift colors"* or *"Underway."* Close-up Ensign on main mast.	OOD	
28. Sound one prolonged blast. (4-6 seconds)	OOD	
29. When backing away from the sea wall, sound three short blasts. (1 second each)	OOD	
30. Hoist International Call Sign on main mast, outboard port halyard, as directed by the OTC/OIC. **(OOA ONLY)**	OOD	
31. When clear of shoal water and directed by the OIC, adopt Condition Three manning, as per SOP. Pass over the 1MC: *"Now set the normal underway watch, on deck section XXX."* **(OOA ONLY)**	OOD	

APPENDIX G
Entering Port Checklist

Date: _____

Action	Responsibility	Initials
1. Within 24 Hours of arrival, conduct a Navigation Brief.	OIC	
2. On approach and within 3 hours of arrival, determine gyro and repeater errors.	OOD	
3. Not less than (NLT) 1 hour of arrival, pass the word on the 1MC: *"Make all preparations for entering port. The ship will anchor/moor port/starboard side to at _____."*	OOD	
4. Prepare all deck equipment and mooring lines.	OOD	
5. Set watch on all appropriate harbor control and/or VTS Channels (VHF).	OIC	
6. Check AIS Transponder settings.	OIC	
7. Call VTS as/when appropriate.	OIC	
8. Where possible, determine movements of other vessels in harbor by calling the port authority, using online resources or with AIS Surveillance.	OIC	
9. NLT 45 minutes prior, test ship's whistle and general alarms.	OIC	
10. Station the navigation detail as required by proximity to shoal water (PRODEV Navigation Standards). Set sea and anchor detail as directed by the OTC.	OIC	
11. Hoist international call sign when entering inland waters (port Outer Yardarm).	OOD	
12. Make anchor(s) ready for letting go.	OIC	
13. If anchoring, inform the anchor detail of depth of water at anchorage, type of bottom, ready anchor, and scope of chain to be used.	OOD	
14. Transmit *Securite* calls as appropriate.	OOD	
15. (As Required – refer to Coastal Pilot) Request permission to enter port from the appropriate authority.	OOD	
16. Station line handlers on deck.	OOD	
17. Once secured alongside and with OIC permission, finish with main engines and steering.	OOD	
18. Shutdown navigation sensors and secure ship's systems under the supervision of the OIC.	OOD	

Action	Responsibility	Initials
19. If anchored, obtain safety bearings and ranges then plot both swing and drag circles.	OOD	
20. When the ship is fully secured alongside and all systems are appropriately configured, shift watch to quarterdeck.	OOD	

APPENDIX H
Anchoring Checklist

Date: _____

Action	Responsibility	Initials
1. Station the anchor detail.	OOD	
2. Annotate the deck log that preparations are being made.	NAV	
3. Pass the word on the 1MC (OIC's discretion): "Set material condition Modified Zebra main deck and below."	OOD	
4. Ensure that Readiness Reports from bridge and Foc'sle are received.	OOD	
5. 1000 yards from anchorage, ready the anchor. Bridge: *"Make the anchor ready for letting go."* Foc'sle: *"Anchor ready for letting go."*	OOD	
6. 500 yards from anchorage direct the Foc'sle to make final equipment checks.	OOD	
7. 200 yards from anchorage, standby to let go the anchor. Bridge: *"Stand by."* Foc'sle: *"Standing by."*	OOD	
8. Navigation recommends when to let go the anchor.	NAV	
9. **OIC Only**: *"Let go the anchor."*	OIC	
10. Foc'sle commences reports to bridge: (Amount of chain and direction, strain, holding?)	Foc'sle	
11. Anchoring and Flag UNIFORM: Uniform at the **Dip** - Anchor Let Go. Uniform **Close Up** - Chain veered to required length. Uniform **Hauled Down** - Chain Secure.	OOD	
12. As the anchor is let go, fix the ship noting heading and depth of water.	NAV	
13. Plot the anchor fix, swing, and drag circles. (determine if the anchor is holding – 3 fixes)	NAV	
14. Direct the Foc'sle to secure break and stoppers.	OOD	
15. Secure from Anchor Detail.	OOD	
16. Annotate the deck log that the serial is complete.	NAV	

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APPENDIX I
Weighing Anchor Checklist

Date: _____

Action	Responsibility	Initials
1. Station the anchor detail.	OOD	
2. Annotate deck log that preparations are in-hand.	NAV	
3. Ensure that Readiness Reports from bridge and Foc'sle are received.	OOD	
4. Request permission from OIC to set the break and remove stoppers. Bridge: *"Set the brake and remove the stoppers."* Foc'sle: *"Brake set, stoppers removed."*	OOD/OIC	
5. Request permission from OIC to heave around and heave on in. Bridge: *"Heave around and heave on in."* Foc'sle: *"Heave around and heave on in, aye."*	OOD/OIC	
6. Weighing anchor and flag UNIFORM. At the **Dip** – Heaving in. **Closed up** - Anchor away. **Hauled down** - Ready to proceed.	OOD	
7. Foc'sle reports: "Anchor is at a short stay." "Anchor is up and down." "Anchor is away." "Anchor is in sight." "Anchor is at water's edge." "Anchor is (clear/shod/fouled)."	OOD	
8. Foc'sle sets the brake and requests permission to secure the stoppers.	OOD	
9. Once anchor is secured, pass on the 1MC: *"Secure from Anchor Detail."*	OOD	
10. Annotate the deck log.	NAV	

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APPENDIX J
Flight Operations Checklist

Step	Action	Completed
1	Flying brief completed for ALL personnel, to include procedures, timeline, communications, and all aspects of Operational Risk Management.	
2	Set Watch on required communications circuits.	
3	Ensure that FOD Walkdown is complete.	
4	Remove all non-essential personnel from the Upper Deck.	
5	Pass over the 1MC: *"Conducting Flying Operations, all personnel remain within the ship. Topside is secured until further notice."*	
6	Shut all topside doors.	
7	Determine true wind speed and direction and range of visibility.	
8	Determine surface pressure.	
9	Ensure that the full extent of safe water is known prior to COMEX.	
11	Secure all HF and radar transmissions.	
12	Check ships helicopter operating limits (pitch and roll).	
13	Ensure that all other craft are at minimum safe distance (500 yards).	
14	Check safe for shipping (minimum safe distance), safe for navigation.	
15	Check air lanes (port and starboard).	
16	Steady on course and speed (or stopped – as requested by AC).	
17	Pass RV position to AC.	
18	Establish OUTHOUSE (position, course, and speed).	
20	GREEN for flight operations.	
21	*"AC C/S DE YP XXX, ship ready in all respects. You are cleared to close."*	
22	Once the AC has cleared and the serial is complete, fallout from flying stations and permit access to the Upper Deck.	
23	Ensure that a comprehensive Narrative of Events are maintained in the deck log.	

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APPENDIX K
Chart Preparation Checklist

Step	Action	Complete
1	Identify chart and ensure latest edition using the Hydrographic Product Catalog, Notice to Mariners, and Local Notice to Mariners.	
2	Locate and apply all applicable Notice to Mariners (NTM) chart corrections via internet at: NTM: Http://msi.nga.mil/NGAPortal/MSI.portal?_nfpb=true&_pageLabel=msi_portal_page_61. Local NTM: http://www.navcen.uscg.gov/?pageName=lnmMain	
3	Correctly annotate NTM's using a correction tree located on the left margin of the chart. Tree shall have three columns: NTM/LNTM, Date, Initials. Date is day the change was made to chart and initials are the printed initials of person responsible for making the corrections. All NTM corrections shall be made with black, ballpoint pen or per NTM direction. All LNTM shall be in pencil.	
4	Highlight the Geodetic Datum in yellow. Highlight variation and annual change in each compass rose in yellow.	
5	Highlight the chart sounding datum (feet, fathom, or meters) in yellow and outline all shoal water on chart with a blue Sharpie marker, ultra-fine point. Outline shoal according to craft's navigational draft.	
6	Identify all navigation aids (NAVAID's) to be used. Visual aids shall be outlined by a black, ballpoint pen circle using a Staedtler Professional General Purpose Template 5/8". The circle shall be colored using a yellow highlighter and have a two-letter identifier starting with "V" for visual, for example (VA), written neatly in black, ballpoint pen to one side of the aid. RADAR aids shall be outlined by a black, ballpoint pen triangle using a Staedtler Professional General Purpose Template 5/8". The triangle shall be colored using a blue highlighter and have a two letter designator starting with "R" for RADAR, for example (RA), written neatly in black, ballpoint pen to one side of the aid.	
7	Plot the waypoints and track. Ink in black, ballpoint pen.	

Step	Action	Complete
8	All tracks shall be clearly labeled using track boxes with true and magnetic courses, speed of advance in knots, and distance in yards. Place the track box along the track at least once in an area that does not interfere with chart information and safe navigation. Distance is measured from waypoint to waypoint. Track boxes are to be parallel to the track in which they correspond to. The leading arrow of these junction boxes shall be in direction of the course. Ink the track boxes in black, ballpoint pen or use a printed a template.	
9	Calculate and plot advance and transfer for each turn based on speed, rudder, and degree of course change. Plot a slide bar using a Green sharpie.	
10	Determine a turn bearing (TB) and appropriate NAVAID for each turn. TB's will be labeled in both true and relative degrees. Using a dashed line, labeled as follows: TB "VA" xxx^{0}T/xxx^{0}R. Determine a turn range (TR) and appropriate NAVAID for each turn. Plot using a dotted arc, measure distance in yards, and label as follows: TR "RA" xxx yds. Plot 100-yard increments to the 1000 yard mark, then every 500 yards after in order to mark the distance to turn point. Trace over all TB's, TR's, and distance to turn marks in black, ballpoint pen.	
11	Label each turn "Turn(s) based on xx kts and xx rudder" as appropriate or one notation for all turns on the chart. Ink in black, ballpoint pen.	
12	Danger Bearings (DB) shall be used for appropriate visual aids along the track as required. Trace in black, ballpoint pen and label as: DB "VA" NMT/NLT xxx^{0}T	
13	Parallel Indexes (PI) shall be used for appropriate RADAR aids along the track as required. Trace in black, ballpoint pen and label as: PI "RA" xxx yds	
14	Label chart shift points where applicable with "Shift to Chart xxxxx." Ink with black, ballpoint pen.	
15	Highlight or label specific actions or places of note along the track as may be required. For example, "Crossing Line of Demarcation, Tug/Pilot Pick Up, Speed Limit Changes."	

Step	Action	Complete
16	Create a Command Review Block in the following format: Prepared by: _____ Reviewed by: _____ Approved by: _____ This block will be located in an area of the chart not used for navigation. The Review Block is to be traced in black, ballpoint pen. The chart preparer should sign and date under "Prepared by."	
17	Label and fold the chart in fourths. Label Chart Number and Name in legible 1" capital letters on the bottom right hand corner of the chart in black, ballpoint pen. If applicable, immediately above the chart number and name, write the number of the previous chart on the track and immediately below, write the next chart number on the track in 1/3" lettering. MIDN shall also label the chart with name and section number. For example: Name, Section 13224 13223 NARRAGANSETT BAY INCLUDING NEWPORT HARBOR 13218	
18	Anchoring Checklist – Identify and mark anchorage point on chart. Take into consideration when determining a suitable anchorage: depth of water, shelter from seas, bottom type, obstructions, swing circle radius, and available navigation aids for Head Bearing and Letting Go Bearing. Determine total amount of anchor chain needed using 5-7 times the depth of water (1 shot = 90 feet). Compute and make note of the swing and drag circles for the anchorage.	
19	Plot Anchoring Approach Track. Ink track in black, ballpoint pen. Label the approach track with a track box following step 8. Approach track shall be based off a prominent Head Bearing (HB), Visual NAVAID which is on the same bearing, or as close as possible, as the approach track. Draw, in pencil, a dashed line from the center of the anchorage to the HB and label as: HB "VA" xxx^{0}T/xxx^{0}M	
20	Plot, in pencil, the Letting Go Circle around the center of the anchorage with a radius equal to the distance from craft's hawsepipe to pelorus.	

Step	Action	Complete
21	Plot, in pencil, the Letting Go Bearing (LGB) and Letting Go Range (LGR). Identify a Visual NAVAID for LGB as close to 90 degrees off the approach track. Draw a dashed line from the intersection point of the LGC and approach track to the LGB NAVAID, and label as: LGB “VA” xxx^{0}T/xxx^{0}R Identify a RADAR NAVAID for LGR forward of the craft’s heading along the approach track as best as possible. Draw a dashed arc from the intersection point of the LGC and approach track to the LGR NAVAID, and label as: LGR “RA” xxx yds	
22	Draw, in pencil, range arcs from the intersection point of the LGC and approach track. The arcs shall be in 100-yard increments across the track to 1000 yards, then at 1200 yards, 1500 yards, and 2000 yards. Label each range arc with the appropriate distance to anchorage.	

APPENDIX L
Navigation Report

Safe Water or Danger Report

Based on our fix, Navigation holds the craft in SAFE WATER or DANGER.

Full Navigation Report

Based off a/an ***(EXCELLENT, GOOD, FAIR, POOR) (VISUAL, ELECTRONIC, COMPOSITE)*** fix at time _____ navigation holds you ***(ON TRACK, RIGHT/LEFT)*** of track by _____ yards (**OPENING**/C**LOSING**). Navigation recommends you (**MAINTAIN COURSE AND SPEED**, **ALTER COURSE AND SPEED** _____) to regain track. The nearest hazard to navigation is _____, _____ yards off the ***(STARBOARD, PORT) (BOW, BEAM, QUARTER).*** The nearest aid to navigation is _____, _____ yards off the (***STARBOARD, PORT) (BOW, BEAM, QUARTER***). There are _____ feet beneath the keel, this (**CONCURS / DOES NOT CONCUR**) with charted depth. Distance remaining in this leg is _____ yards. Time to turn is _____. Next course is _____ degrees True. Set and Drift is _____degrees True at ____ knots.

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APPENDIX M
Navigation Brief Format

Item	Details
Voyage Plan	Provide an overview of total distance and critical points.
ETD/ETA/SOA	What is the overall Speed, Time and Distance challenge?
Weather Forecast	Brief the weather forecast out to ETA + 12 hours.
Ephemeral Data	How will the predicted currents and tidal states impact my plan?
Charts in Use (Both Paper and Digital)	Present approved and corrected charts in order of use. Ensure all publications are at the latest change state.
Outstanding Preparations	Are all actions complete? Is the craft ready in all respects for sea and are the internal compartments correctly secured for rough weather?
Navigation Plan	Track Overview, proximity of shoal water and speed limits.
Emergencies	To include engineering casualties, navigation sensor failures, fire, flood and Man Overboard.
Movements	Outline intentions of other military / civilian vessels in the area.
Communications	VHF (BTB) in additional to any tactical circuits in use.
Uniform	Both in the Pilothouse and on the Upper Decks.
Considerations	Ceremonial/VIP Visitors/Gangway

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APPENDIX N
Attendance Roster for the Navigation and Transit Briefs

Navigation Brief Attendance Register (Attendance Required by all Personnel)	
From/To	
Date/Time/Venue	
Officer in Tactical Command (If assigned)	
Officer in Charge(OIC)	
Assistant OIC	
Craftmaster(CM)	
Engineer	
MIDN Commanding Officer	
MIDN Executive Officer	
Officer of the Deck	
Conning Officer	
Assistant Navigator	
Plotter	
Radar Operator	
Helmsman	
Lee Helm	
Bearing Book Recorder	
Port Bearing Taker	
Starboard Bearing Taker	

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APPENDIX O
VMS/ECDIS Preparation Checklist

Date: _____

The OIC must ensure the listed items have been completed prior to getting underway.

Action	Responsibility	Initials
1. Ensure that all appropriate digital charts are available and displayed with the latest available vector data updates (VDUs).	OIC	
2. Load the required Voyage Plan ensuring that the track matches the paper charts in use.	OIC	
3. Configure the Display Systems Settings and Vector Chart Features as appropriate for the ECDIS/VMS type in use.	OIC	
4. Verify the following safety critical settings are correct: a. LOOK AHEAD TIME: 6 minutes* b. SAFETY DEPTH: 11.8 feet c. SAFETY HEIGHT: 60 feet d. SHALLOW CONTOUR: 12 feet e. DEEP CONTOUR: 36 feet	OIC	
5. Ensure that Ownship's Heading Vector is set to twice the fix interval (usually six minutes)*.	OIC	
6. Ensure that Auto Chart Loading has been selected.	OIC	
7. Check all sensors that are enabled.	OIC	
8. Set Ownship/Track History to 8 hours.	OIC	

*VMS Only.

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APPENDIX P
VMS Version 9.1 Display Features

Chart Settings	Status
Display Mode (Main Menu > Charts > Chart Settings)	
Base	Off
Standard	Off
Other (Additional Features)	On
Enable Features Below	Charting - VPF
GeoSym Beautification	On
Light Features	On
Overscale Pattern	On
Shallow Pattern	On
Simplified Symbols	Off
Soundings and Depths	On
Symbol Filtering	Off
Text Information	On
Text Outline	On
Text Scale (1.0)	On
TOD Level O-4 (all)	Off
Two Shade Depths	Off
Route Display Settings (Main Menu > Routes > Route Display Settings)	
Display Monitored Route	On
Show Critical Point Labels	On
Show Current Turn Bearing	On
Show Current Turn Range	On
Show Distance to Turn	On
Show Leg Bearings	On
Show Leg Distance	On
Show Planned Speeds	On
Show Planned Wheel-Over	On
Show Slide Bar	On
Show Time to Turn	On
Show Turn Bearing Objects	On
Show Turn Range Objects	On
Show Waypoint Labels	On
Show Wheel-Over Labels	On
Ownship (Main Menu > Nav Tools > Display Settings)	
Beam Line Length	10.0 mm
Display True Scale Ship	On
Display Stern Line	Off
Display Antenna Position	Off
Display Vector Tick Marks	On
Vector Tick Marks Interval	1 minute
Display Vector Arrowheads	On
Predicted Vector	Off
Predicted Ship	Off
Predicted Path	Off

Chart Settings	Status
Dangers Settings (Main Menu > Charts > Dangers)	
Show Safety Region	On
Anchor Display Settings (Main Menu > Nav Tools > Anchoring)	
Anchor Symbol	On/Off
Drag Ring	On
Drop Bearing Object	On
Drop Range Object	On
Head Bearing	On
Inner Range Rings	On
Letting Go Circle	On
Outer Range Rings	On
Swing Ring	On
Ownship History (Main Menu > Nav Tools > Ownship History)	
Selected Sensor History	On
Connect Past Positions	On
Position Details	On
Display Events	Off
Maximum Length	On
Spacing of Positions: Desired	On
Sensor History (all)	On

APPENDIX Q
Raytheon Pathfinder ECDIS and Radar Multi-Function Console Settings (703 class YP)

DNC Chart Options	Status
Chart Feature Sets	Full Display
Standard Display Options	
Chart Information	On
Seabed Dangers	On
Marks, Signals, and Lights	On
Coastal Features	On
Traffic Routes	On
New Shore Structure	On
Landmarks	On
Services	On
Restricted and Cautionary Areas	On
Depth, Currents	On
Protected Areas	On
Other Chart Information	
Chart Information	On
Natural Features	On
Shore Structures	On
Tide Rips	On
Seabed Information	On
Depth, Currents	On
Port Features	On
Administrative Areas	On
Text	On
Supplemental Chart Information	
Lights Leg Length	Off
Lights Information	On
Center Symbol Off	Off
Not Danger Depths Off	Off
Shallow Pattern	Off
All Contours	On
Generic Text Off	Off
Unknown Objects Off	Off
Text Other	On
Coverage Off	Off
Text Important	On
Grid	Off
Two Shades Scheme	Off
Overscale Indicator	On
Quality of Data Off	Off
Mariner’s Object Text	On
Depth Settings (Safety Critical)	
Shallow Contour	10 feet
Safety Contour	10 feet
Deep Contour	16 feet

Depth Settings (Safety Critical) (Cont)	
Not Danger Depths Off	ON → 13 feet
Shallow Pattern	Off
All Contours	On
Generic Text Off	Off
Display Settings	
Docking	Selected
Logs > Voyage Data Recorder	
Increments	One Minute
Integration > Navigation Device Selection	
GPS (Use DGPS 1 as Primary Positioning Source)	Enabled
ARPA	Enabled
Radar Image Overlay (RIO)	Enabled
Echo Sounder (Fathometer)	Enabled
Echo Sounder Alarm Depth (beneath keel)	6 Feet
Auto Pilot	Enabled
ECDIS Display Settings	
Default Scale	Enabled
Ship Auto-Centre	Enabled
Allow Ship Motion By	5%
Off Centre Range	50%
Use Toolbar Button to select Auto-Centre	On
ECDIS Functions	
Routes (select each time route altered)	Send to Radar
Right Click on nearest shoal water contour	Send to Radar
ECDIS Position Monitoring	
Enable Position Monitoring Alarm	On
Deviation Limit	30 meters
X-Band Radar Settings	
Sea and Rain Functions	Auto
Gain	Adjust as required
Vectors and Target History	
RM(T) Relative Motion, True Trails	Selected
North Up	Selected
Range Rings	On
AIS	On
Radar and AIS Options	
Enable AIS Targets	On
Progressive Movement	On
Show Labels on Active Targets	On
Sleeping Targets (if not dangerous)	On
Draw outline Hull Shape if possible	On
Show AIS AToN and Base Stations	On
Display only targets within range	Limits set at 55 NM
No Lost Targets Outside of	10 NM
Dangerous AIS Target CPA	1.0 NM
Dangerous AIS Target TCPA	5 minutes

APPENDIX R
Low Visibility Checklist

Date: _____

Action	Responsibility	Initials
1. Inform the OIC, even if below.	OOD	
2. Station the low visibility detail. *'Silence of Deck'.*	OOD	
3. Switch on and check navigation lights.	OOD	
4. Conduct radio check with Lookouts.	OOD	
5. Sound the appropriate signal. *Are you underway, at anchor, or impeded in some way?*	OOD	
4. Pass the word over the 1MC*: "Set material condition Modified Zebra main deck and Below."*	OOD	
6. Maintain a constant appraisal of **safe speed**.	OIC	
7. Ensure that the S/X-Band Radar is configured for maximum surface gain. Setup PIs and safety ranges as appropriate.	OIC/CM	
8. Annotate the deck log.	OOD	

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APPENDIX S
OIC Readiness for Sea Report

From: (name), Officer in Charge, YP-XXX
To: Officer in Tactical Command, Squadron _____
Copy: Seamanship and Navigation Department Operations Officer

Subj: READINESS FOR SEA REPORT FOR YP-XXX

Ref: PRODEV Operations Order XXX

Sir/Ma'am,

1. I report YP-XXX is ready in all respects for sea.

2. **Manpower**. Detail key personnel, list total numbers of officers, enlisted and midshipmen that will sail with the craft. Attach berthing plan.

3. **Equipment**. The propulsion plant and all other ship's systems are available for use. Navigation sensors have been calibrated and all digital charting is corrected to the latest NTM. All deck and survival equipment is in good working order. Any TSOs (with an assessment of impact to the SOE) are detailed below.

4. **Training**. All pre-departure training serials have been completed in accordance with the Operations Order. All personnel have successfully completed an EEBD Egress Drill.

5. **Sustainability**. The current liquid states are detailed below.

Fuel State	
Fresh Water	
MSD	

6. **Charting Products**. My navigation outfit is fully corrected to NTM Week xx/xx and LNTM _____.

7. **Food Provisions**. The onload of all food stores was completed on _____. I have sufficient provisions for the period underway as detailed in reference (a).

8. My vessel is ready in all respects to conduct the Out-of-Area assessment.

Very Respectfully,

//Signature//

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APPENDIX T
OTC Readiness for Sea Report

From: (name), Officer in Tactical Command, Squadron ____
To: Chairman, Seamanship and Navigation Department
Copy: Seamanship and Navigation Department Operations Officer

Subj: READINESS FOR SEA REPORT

Ref: PRODEV Operations Order XXX

Encl: (1) OIC Readiness for Sea Reports
(2) Out of Area Assessment Reports

Sir/Ma'am,

1. I report Squadron _____ is ready in all respects for sea. The following YPs will deploy under my command: _____.

2. All required crew and vessel certifications are complete and attached at enclosures (1) and (2).

3. **Manpower**. Overview of OIC/AOIC and CMs. Detail the total number personnel in each YP.

4. **Equipment**. Specifically detail any issues including TSOs or other material concerns.

5. **Training**. Highlight what (if any) training shortfalls exist and your plan to address any outstanding issues.

6. **Sustainability**. List the minimum liquid states for each craft and the squadron average. Ensure sufficient food provisions have been embarked for the duration of operations.

7. In accordance with the Operations Order, my command aim on departure from USNA will be _____.

(Example: A safe a timely transit from Annapolis to Baltimore in formation at speeds up to 10 knots.)

Very Respectfully,

//Signature//

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APPENDIX U

Yard Patrol Craft Out-of-Area Assessment Checklist

YP Hull Number		**Date of OOA assessment**	
OIC/AOIC/CM			

Serial	**Item**	**Yes**	**No**
Administration			
1	Are the Navigation Charts corrected and signed?		
2	Was the Navigation Brief completed correctly?		
3	Do charts correctly show the limit of safe water, annotated with visual and radar safety (as appropriate)?		
4	Is VMS/ECDIS correctly configured IAW Navigation Standards?		
5	Was a signed watchbill posted for inspection?		
Engineering			
6	Were MLOCs completed and signed by the Engineer, CM, and OIC?		
7	Was the Main Machinery Space in a good condition, free of debris, leaks, flammable liquids, and hazards with equipment in good working order?		
8	Engineering Logs. Were all logs available for inspection and correctly annotated by the Engineer?		
9	Is there any defective equipment not recorded as OOC or covered by a current TSO?		
Damage Control			
10	Is all portable firefighting equipment on station and in-date for the periodic checks?		
Communications			
11	Can the crew proficiently operate all external comms equipment including HF, VHF, SATCOM, and AIS?		
Survival Equipment			
12	All of life rafts, emergency beacons, and life rings serviceable and on station?		

Serial	Item	Yes	No
Navigation			
13	Does the Navigation adhere to PRODEV Standard Procedures? If not, did the (A) OIC or CM take correcting action?		
14	Was the craft's position fixed at the required interval?		
15	Was the navigation report timely, accurate, and properly acknowledged by the Conning Team?		
16	Was the extent of shoal water correctly reported?		
17	Was the watch team able to adequately respond to a loss of ECDIS?		
Bridge Resource Management			
18	Did the Navigation Team correctly acknowledge and consider all alterations or course and speed?		
19	Do all members of the watch team work well together?		
20	Are midshipmen properly supervised by the OIC and CM?		
21	Is there a clear division of labor between the OIC and CM?		
Seamanship			
22	Do all personnel have a sound understanding of the Rules of the Road?		
23	Was a constant appraisal of safe speed made at all times?		
24	Was a good all-around lookout maintained at all times?		
25	Were standard commands used by the watch team?		
26	Were reports accurate and timely?		
27	Contact Management. Were contacts correctly identified at range and the appropriate action taken?		
28	Low Visibility. Did the team correctly transition to a simulated low visibility situation?		
29	Were all watch teams evaluated?		
Emergencies			
30	Did the OIC/AOIC/CM, YP crew, and midshipmen onboard respond correctly to a simulated emergency? (Man Overboard, Loss of Engine, Loss of GPS/ECDIS, etc.)		

Guidelines for Crew Evaluation

1. **Effective**

a. All administrative tasks were successfully completed.

b. Both watch teams displayed a sufficient level of proficiency and professional competence to safely deploy from the OPAREA.

c. The craft is materially ready in all respects for deployment.

2. **Partially Effective**

a. All administrative tasks were successfully completed.

b. Several shortcomings and areas for improvement were identified, requiring reassessment at the earliest opportunity.

3. **Not Effective**

a. At least one administrative action was not complete.

b. Four or more items were marked as “No”. Several, potentially safety critical shortcomings were identified. The watch team requires a further period of continuation training prior to reassessment.

c. The craft was not materially ready for assessment.

Overall Assessment	
Effective	
Partially Effective	
Not Effective	

Assessing Officer	
Officer in Charge	
Craftmaster	
SEANAV	

Assessing Officer’s Remarks

APPENDIX V

676 Class Yard Patrol Craft Required Equipment Checklist

System	FMC	PMC-1	PMC-2	NMC
Engineering, Damage Control, and Deck Equipment				
MPDE-1	X	X	X	
MPDE-2	X	X	X	
SSDG-1	X	X	X	
SSDG-2	X	X	X	
Steering System (both pumps)	X	X	X	
FM-200	X	X	X	
P-100 FF Pump	X	X	X	
Anchor Windlass	X	X		
Damage Control Equipment (as detailed in Chapter 16)	X	X	X	
Portable Fenders	X	X	X	
Navigation and Bridge Systems				
Sat Compass	X	X	X	
VMS (v9.1.5 Rev2)	X	X		
S-Band Radar	X	X	X	
Fathometer	X	X	X	
GNSS/GPS	X	X	X	
AIS (Class B Transponder)	X			
Wind Sensor	X			
Navigation and Bridge Systems				
Speed Log	X			
Binoculars (3)	X	X	X	
Parallel Motion Protractor	X			
Two Telescopic Alidades	X	X		
Navigation Lights	X	X		
Search Light	X	X		
Communications Equipment				
1MC (and alarms)	X	X	X	
21MC	X	X		
VHF Radio	X	X	X	
UHF Radio	X			
HF Radio	X			
Ship’s Whistle	X	X	X	
Survival Equipment				
Life Rafts	X	X	X	
Life Vests (all personnel)	X	X	X	
EPIRB	X	X	X	
Medical Kit	X	X	X	
Galley Equipment, Mess Decks, and General Habitability				
Fresh Water System	X	X		
Heads, CHT/MSD	X	X		
Galley Range	X			
Fridge	X			
Freezers	X			
Berthing Spaces	X			
Interior Lighting (>80%)	X	X		

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APPENDIX W

703 Class Yard Patrol Craft Required Equipment Checklist

System	FMC	PMC-1	PMC-2	NMC
Engineering, Damage Control, and Deck Equipment				
MPDE-1	X	X	X	
MPDE-2	X	X	X	
SSDG-1	X	X	X	
SSDG-2	X	X	X	
SSDG-3 (emergency DG)	X			
Steering System (both pumps)	X	X	X	
FM-200	X	X	X	
P-100 FF Pump	X	X	X	
Anchor Windlass	X	X		
Damage Control Equipment (As detailed in Chapter 16)	X	X	X	
Portable Fenders	X	X	X	
Navigation and Bridge Systems				
Gyro 1	X	X	X	
Gyro 2	X	X		
GNSS 1	X	X	X	
GNSS 2	X	X		
MFC 1 (Primary ECDIS)	X	X	X	
MFC 2 (Secondary ECDIS)	X	X		
MFC 4 (Radar)	X	X		
MFC 5 (classroom)				
Auto Pilot	X			
X-Band Radar	X	X		
Fathometer	X	X	X	
AIS (Class A Transponder)	X			
Wind Sensor	X	X		
Speed Log	X	X		
Binoculars (3)	X	X	X	
Handheld VHF Radios (bridge Lookouts)	X	X		
Navigation Lights	X	X		
Search Light	X	X		
Telescopic Alidades (2)	X	X		
Communications Systems				
1MC (and Alarms)	X	X	X	
21MC	X	X		
VHF (DSC) Radio	X	X	X	
UHF Radio	X			
HF Radio	X			
GMDSS Suite	X			
Ship’s Whistle	X	X	X	
Survival Equipment				
Life Rafts	X	X	X	
Life Vests (all personnel)	X	X	X	
EPIRB	X	X	X	
Portable Flare Kit (OOA or at Night)	X	X	X	
Medical Kit	X	X	X	

703 Class Yard Patrol Craft				
System	**FMC**	**PMC-1**	**PMC-2**	**NMC**
Galley Equipment, Mess Decks, and General Habitability				
Potable Water System	X	X		
Heads, MSD	X	X		
Galley Range	X			
Fridge	X			
Freezer	X			
Berthing Spaces	X			
Interior Lighting (>80%)	X	X		

APPENDIX X
Standard 1MC Announcements

Event	Pipe
Abandon Ship	"All hands prepare to abandon ship. Nearest land bears _____ degrees magnetic, relative _____ from the bow/stern." Repeat three times.
Anchored	"Anchored, shift colors."
Belay the Word	"Belay my last."
Casting Off	"Stand by to cast off (ship) to port (starboard)."
Collision	"Standby for collision (direction). All hands, close all watertight doors." Sound the collision alarm until impact occurs. "All compartments make damage reports to the OIC in the pilothouse."
Colors	"First call, first call to colors." Execution is made by use of the whistle. *1 whistle – Raise/Lower the Ensign and Jack. 3 whistles – Carry-on*. The OIC and senior midshipmen embarked should both be present for colors. When in company, the YP when the senior officer embarked initiates the ceremony.
Condition 3 Steaming	"On deck, Condition III, Watch Section (number)."
Divers Down	"There are divers working over the side. Do not operate any underwater equipment without first checking with the Diving Supervisor." Repeat every 30 minutes.
Fire	"Fire, fire, fire, class (type) fire in compartment _____. Away the emergency detail, muster at the scene of the fire. All other personnel muster in the (compartment). Senior person take charge, report when all personnel accounted for to the OIC in the pilothouse."
Knock Off	"Knock off ship's work."
Liberty	"Liberty call, liberty call. Liberty expires onboard at (time) for all personnel."
Man Overboard	"Man overboard, man overboard! Port (starboard) side. This will be a port (starboard) side recovery to the fantail."
Men aloft	"There are men working aloft. Do not rotate, radiate, or energize any equipment until further notice." Repeat every 30 minutes.
Meals	"Breakfast/lunch/dinner, for the Crew."
Preparations for Departure	"Make all preparations for getting underway; make all reports to the OOD in the pilothouse."
Quarters	"All hands to quarters, muster for instruction, and inspection."
Rain Squall	"Haul over all hatch hoods."

Event	Pipe
Receiving Alongside	“Standby to receive (ship/barge) alongside, port (starboard) side.”
Relieving the Watch	“Relieve the watch, relieve the wheel, now on deck what section _____.”
Reveille	“Reveille, reveille. All hands heave out and trice up”
Secure the Sea and Anchor Detail	“Secure the sea and anchor detail.”
Secure	“Secure from (event).”
Shift the Watch	“The officer of the deck is shifting the watch to the quarterdeck (pilothouse).”
Special Sea and Anchor Detail.	“Go to your stations, all the special sea detail.”
Sweepers	“Sweepers, sweepers, man your brooms, give the ship a clean sweep down fore and aft, sweep down all lower decks, ladder wells, and passageways. Now sweepers”
Taps	“Taps, taps, lights out, all hands turn into your bunks. Maintain silence about the decks.”
Test Alarms	“The following is a test of the general (chemical and collision) alarm(s) from the (compartment).”
Turn To	“Turn to, commence ship’s Work.”

APPENDIX Y
Standard PROWORDS

PROWORD	Explanation
MESSAGE FOLLOWS	A message which requires recording is about to follow; transmitted immediately after the call.
SIGNALS FOLLOW	The groups that follow are taken from a signal book. Not used on nets primarily employed for conveying signals. Intended for use when signals are passed on non-tactical or admin nets.
BREAK (BT)	I hereby indicate the separation of the text from other portions of the message.
CORRECTION	An error has been made in this transmission. Transmission will continue with the last word correctly transmitted.
DISREGARD	This transmission is in error. Disregard it. Not used to cancel TRANSMISSION any message that has been completely transmitted and for which receipt or acknowledgment has been received.
NEGATIVE (NEGAT)	Not received. No.
AFFIRMATIVE (AFFIRM)	Yes. Permission granted.
SAY AGAIN	Repeat all (or portion indicated) of your last transmission.
I SAY AGAIN	I am repeating transmission or portion indicated.
VERIFY	Verify entire message (or portion indicated) with the originator and send correct version.
I VERIFY	That which follows has been verified at your request and is repeated.
I SPELL	I shall spell the next word phonetically.
EXECUTE TO FOLLOW (XTF)	Action on the message or signal that follows is to be carried out upon receipt of the PROWORD “EXECUTE”.
EXECUTE (X)	Carry out the purport of the message or signal to which this applies.
ROGER (R)	I have received your last transmission satisfactorily.
ACKNOWLEDGE	You have received and understood this message.
WILCO	Reply to “ACKNOWLEDGE”, meaning “I have received your message, understood it, and will comply”. Must be authorized by the OIC.
OVER (K)	This is the end of my transmission to you and a response is necessary. Go ahead; transmit.
OUT (AR)	This is the end of my transmission to you and no answer is required or expected.
WORD AFTER	The word of the message referenced is which follows WORD.
WORD BEFORE	The word of the message referenced is which precedes.

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APPENDIX Z
Daily Routine

Underway

TIME	EVENT
0345	Relieve the Watch.
0545	Call the Duty Mess Cooks.
0600	Reveille (all hands). Smoking lamp is lighted.
Sunrise	Turn off navigation lights. Secure from Darken Ship.
0615	Sweepers, polish all topside brightwork, and mess gear. Clear the mess decks.
0630	Breakfast.
0700	Relieve the Watch.
0730	Secure the mess line.
0735	Quarters for muster, instruction, inspection.
0800	Turn to. Commence ship’s work.
0900	OIC/MXO inspection of messing and berthing spaces.
1100	Knock off ship’s work. Sweepers, mess gear.
1115	Dinner.
1145	Relieve the Watch.
1230	Secure the mess line.
1245	Turn to. Continue ship’s work/training.
1545	Relieve the Watch.
1600	Test navigation lights.
1630	Secure from ship’s work.
1700	Sweepers. Mess gear, clear the mess decks.
1715	Supper.
1745	Relieve the Watch.
1815	Secure the Mess Line.
Sunset	Darken Ship (30 minutes prior).
1945	Relieve the Watch.
2200	Taps. Lights out, smoking lamp is out in all spaces.
2345	Relieve the Watch.

Inport

TIME	EVENT
0345	Relieve the Watch.
0545	Call the Duty Mess Cooks.
0615	Sweepers, polish all topside brightwork. Mess gear, clear the mess decks.
Sunrise	Turn off topside working lights.
0645	Breakfast.
0700	Relieve the Watch.
0730	Secure the mess line.
0755	Quarters for muster, instruction, inspection.
0800	Turn to. General clean up of assigned spaces. Issue cleaning gear, commence training.
0900	Inspection of messing and berthing spaces.
1100	Knock off ship’s work. Sweepers, mess gear.
1115	Dinner.
1145	Relieve the Watch.
1200	Strike Eight Bells.
1230	Secure the mess line.
1300	Turn to. Continue ship’s work/training.
1545	Relieve the Watch.
1630	Secure from ship’s work.
1700	Sweepers. Mess gear, clear the mess decks.
1715	Supper.
1745	Relieve the Watch.
1815	Secure the mess line.
Sunset	Turn on deck lights.
1945	Relieve the Watch.
2200	Taps. Lights out. Smoking lap is out in all spaces.
2345	Relieve the Watch.