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Inventory Accuracy of Maintenance Assistance Modules (Mams) on Ships Utilizing the Organizational Maintenance Management System – Next Generation (Omms-Ng)

June 2022

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Naval Postgraduate School

Prepared for the Naval Postgraduate School, Monterey, CA 93943.

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ABSTRACT

Proper inventory management is crucial to the success of a naval warship's completion of mission tasking and maintenance operational readiness. All U.S. naval warships require a predetermined inventory of Maintenance Assistance Modules (MAMs) to test and identify broken parts within a weapons or engineering system when failures occur. Once a part is identified as broken, shipboard personnel order that part through the Navy Supply system and return the MAMs to their appropriate inventory location. These are high-value assets that require 100% inventory validity. Fleet Logistics Center San Diego has raised concerns due to declining inventory accuracy results of MAM inventories. This study contains an analysis of the differences in inventory management procedures between a variety of naval assets, ascertains the most efficient practice of inventory management, and presents possible explanations for the loss of these high value assets. The authors have determined that there is a disparity between a ship's inventory validities and Type Commander's (TYCOM's) inventory validities due to an inadequate inventory management system and insufficient guidance in procedures and policies for managing MAMs.

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Thank you, Dania, Angel, and Gabriel. —Elliot Torresrivera

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LIST OF ACRONYMS AND ABBREVIATIONS

3MC	Maintenance and Material Management Coordinator
AIT	Alteration Installation Teams
ASI	Afloat Shore Interface
ATG	Afloat Training Group
CASREP	Casualty Report
CDM	Configuration Data Manager
CG	Cruisers
CMP	Continuous Monitoring Program
CO	Commanding Officer
COSAL	Coordinated Shipboard Allowance List
CNSP	Commander Naval Surface Pacific
DDG	Destroyers
DH	Department Head
DLA	Defense Logistics Agency
DLR	Depot-Level Repairable
DOD	Department of Defense
FIAR	Financial Improvement and Audit Readiness
FIMARS	Force Inventory Management Analysis Reporting System
FLC	Fleet Logistics Center
ILO	Integrated Logistics Overhaul
ILS	Integrated Logistics Support
LPD	Landing Platform Dock
LS	Logistics Specialist
LSD	Dock Landing Ship
MAM	Maintenance Assistance Module
NAVSUP	Naval Support Systems Command
NIIN	National Item Identification Number
NSC	Naval Support Center
NSN	National Stock Number

NON-DLR	Non-Depot-Level Repair
NTCCS	Naval Tactical Command Support System
O&MN	Operation and Maintenance, Navy
OMMS-NG	Organization Maintenance and Material System—Next Generation
OPTAR	Operating Target
RFID	Radio Frequency Identification
RSUPPLY	Relational Supply
SME	Subject Matter Expert
STATMAN	Statistical Accuracy Techniques Measuring Analysis
SUPPO	Supply Officer
TYCOM	Type Commander
WC	Work Center

EXECUTIVE SUMMARY

Strong inventory management practices are key to the success of any logistic operation, especially onboard naval ships. Proper inventory management results in high inventory accuracy, which assists the Navy in completing mission objectives. Improper inventory management practices can lead to low inventory accuracy and costly replacement requirements, and can greatly degrade a naval ship's ability to remain at sea conducting mission tasking.

Naval ships rely on Maintenance Assistance Modules to diagnose weapon systems when failures occur. These MAMs help technicians troubleshoot critical equipment installed onboard ships. Previously, MAMs were controlled by the Supply Officer (SUPPO), and when needed, they would be issued from their storeroom inventory to the technician that requested it. The SUPPO used the Relational Supply (RSUPPLY) system to manage MAMs, and that system could track inventory, orders, issues, and returns.

Due to a policy change, MAMs have been permanently issued to various departments determined by the weapon systems they can troubleshoot. As a result, MAMs are no longer under the control of the SUPPO or managed in RSUPPLY. They are now controlled by the department under the cognizance of the respective department head. Currently, there is no formal inventory system, such as RSUPPLY, to track MAM inventories, and ships now rely on the Organization Maintenance Management System—Next Generation (OMMS-NG) to generate MAM inventory reports. However, OMMS-NG is not designed as an inventory management system and cannot track orders, issues, or returns. Now MAM inventories are tracked on stand-alone Excel sheets extracted from OMMS-NG and updated by technicians.

The authors have determined through data analysis that the current system has no accurate way of maintaining MAM inventories. Furthermore, there is a lack of policy from Commander, Naval Surface Forces, that enforces good inventory practices by means of inspections from Afloat Training Groups or other agencies that hold ships responsible for MAM inventory accuracy. The data revealed that there were

discrepancies between the inventory validity provided by the ships and the inventory validity provided by TYCOM. The authors recommend further defining policies and procedures for the management of MAMs, specifically appropriate inventory management systems.

I. INTRODUCTION

A. BACKGROUND

Maintenance Assistance Modules were previously inventoried and managed in the Relational Supply Inventory Management System which is a dedicated inventory database managed by the Supply Department onboard aval ships. Supply Departments consist of Logistics Specialists (LSs) that have attended specific schools to receive training on RSUPPLY and inventory management and are considered inventory Subject Matter Experts (SMEs) onboard ships. When MAMs inventories were recorded in RSUPPLY, LSs would conduct inventories as required by Type Commander (TYCOM) Policy because the Supply Department managed the RSUPPLY system. The RSUPPLY system was capable of recording and maintaining a single MAM's current and any previous locations onboard a ship and identifying the specific location and even a specific slot within a drawer. RSUPPLY is capable of identifying the quantity of MAMs onboard and if below a certain inventory amount, RSUPPLY will then create an automatic reorder of the MAMs and notify the Stock Control LS. In addition, RSUPPLY maintains a transaction history of all MAMs, which becomes essential in conducting causative research if a MAM is missing from the location when inventories are conducted. This causative research is extremely helpful when a MAM is missing because RSUPPLY identifies who the last person was to handle it and when it was last handled.

Currently, MAMs are tracked within OMMS-NG (Organizational Maintenance Management System—Next Generation), which is a program managed by the ship's Maintenance Material Management Coordinator (3MC) in coordination with the ashore Configuration Data Manager (CDM). These individuals are responsible for maintenance management, configuration management, and logistics management to ensure the right spares and MAMs are onboard to support critical weapon and engineering systems. The 3MC attends specific OMMS-NG schools and is the SME for the OMMS-NG system onboard naval ships. In this or any capacity, the ships' 3MCs are not part of the Supply Department; they are the liaisons between OMMS-NG and every department on their

ships, ensuring that the management of maintenance, configuration, and logistics flows seamlessly together.

OMMS-NG is not designed to identify a MAM's specific location, history, or actual inventory count. To conduct an inventory, a MAM's report is printed from OMMS-NG; this report indicates what each department on a ship should have, based on the configuration of the ship. For example, if a ship should have a specific weapon system onboard, the OMMS-NG database will list all parts and spares for that particular system, and the MAMs report from OMMS-NG will list only the MAMs required. Often, OMMS-NG will still have old weapon systems showing as installed on the ship when they have actually been removed from the ship. The MAMs belonging to that weapon system are no longer required to be onboard. The ship may have been upgraded with new weapon systems, but these changes have not been reflected in OMMS-NG, and as a result, that system will not have the required MAMs onboard. Due to these various discrepancies in system updates, MAMs inventories are not being properly managed. These inventories are not being conducted on an inventory database, and ships are conducting these inventories utilizing non-computerized, outdated methods with a pen, paper, and binders, which contain written notes about whether specific MAMs are onboard.

TYCOM instructions still indicate that the MAMs program shall be maintained by the Supply Department; however, without a reliable database to conduct and maintain inventories, it is difficult to achieve a high level of accountability. In addition, the Supply Department is not the SME in all weapon systems installed onboard, and as a result, it cannot determine which MAMs are required to be onboard, while a technician that works on their assigned weapon systems on a regular basis will know which specific systems are onboard and require specific MAMs.

B. PROBLEM

Naval Support Systems Command (NAVSUP) has acknowledged that there has been a degradation in accountability and tracking of MAMs. This has led to lower inventory validity rates, increases in inventory spending, and the inability to track high value assets. The perceived reason this degradation occurred was due to the removal of

MAM records from the RSUPPLY system. As a result of the removal from RSUPPLY, MAM records can be tracked only in the OMMS-NG portion of Naval Tactical Command Support System (NTCSS). This degradation of accountability has been highlighted by Naval Supply Weapons Support System (NAVSUP WSS) as a critical area for improvement.

Currently, the inventory management of MAMs is not being conducted through a dedicated inventory management system. Previously, MAMs were maintained and controlled through the RSUPPLY system and inventoried by the Supply Department of the ship. RSUPPLY is a dedicated inventory management system that U.S. afloat and shore commands utilize to manage their logistic operations. According to Space and Naval Warfare Systems Center Atlantic (2015), "RSUPPLY provides Navy personnel with quick, convenient access to the functions they perform most often: ordering, receiving, and issuing necessary supplies and services; maintaining financial records; and reconciling supply, inventory, and financial records with the shore infrastructure." Removing the functionality to track, monitor, and inventory MAMs on the RSUPPLY system has redirected this task to the OMMS-NG software program.

OMMS-NG is not a proper program for conducting inventories and maintaining accountability of required inventory levels. OMMS-NG is a software program designed to maintain the maintenance and configuration levels of naval systems. As defined by Commander, Naval Supply Systems Command (NAVSUP; 2020),

> the OMMS-NG provides online organizational level maintenance management, configuration management and logistics management. The software provides Navy maintenance personnel with quick, convenient access to the maintenance information they need to ensure shipboard readiness information for configuration items, work candidates (formerly called maintenance actions or 2-Kilos), and equipment parts ordering. (p. 1-92)

While this system can pull requisition data from RSUPPLY, it is not able to manage locations, receipts, and issues or record historical data transactions.

Research goal aims to analyze the current systems and practices being utilized at naval commands to collect, monitor, and report information on MAMs inventory management. Through the thorough analysis of obtained data, the aim is to assess

whether there is an effective way to manage MAM inventories through OMMS-NG and provide a streamlined approach to improving the current inventory management practices of these highly valued assets.

Hypothesis: This project investigated the removal of the Coordinated Shipboard Allowance List (COSAL) type for MAMs in the RSUPPLY system for surface ships, which resulted in the requirement for MAMs to be managed in the OMMS-NG system. The hypothesis is that the OMMS-NG system is not capable of accurately managing and tracking MAMs to the 100% validity requirement.

C. RESEARCH METHOD

The methods used to collect data were approved by the Naval Postgraduate School Institutional Review Board. Our primary means of data collection were surveys emailed to SUPPOs currently serving onboard Cruisers (CGs), Destroyers (DDGs), Navy Landing Platform Docks (LPDs), and Dock Landing Ships (LSDs) stationed in the Pacific Fleet. Thorough review of existing policies and procedures of MAMs, inventory management, and Integrated Logistics Overhaul (ILO) practices were conducted. Additionally, the most recent MAMs inventory data for these ships were also collected from CNSP for verification purposes.

The primary collection of data was through surveys conducted via email to SUPPOs currently stationed onboard various naval ships in the Pacific Fleet, including homeports located in San Diego, CA; Pearl Harbor, HI; Everett, WA; and Yokosuka, Japan (Appendix). The ships chosen to survey were selected at random. A total of 45 surveys were sent out, and 20 surveys were received back. As a result, 4 CGs, 11 DDGs, 3 LPDs, and 2 LSDs stationed throughout the Pacific Fleet provided survey responses.

The authors expected all answers to the survey questions to be in line with policies and SOPs provided in Department of Defense (DOD), Department of the Navy (DON), TYCOM, or local command instructions. At a minimum, all requirements are outlined in the DOD, DON, and TYCOM instructions, but local command instructions may have stricter policies to further enhance MAMs accountability. For example, Question 10 was included because even though the Commander, Naval Surface Force

(CNSP; 2019) TYCOM instruction states inventories shall be conducted annually, when a CO turns over, or when DH turns over, a ship may have local instructions that increase the inventory periodicity to further enhance MAM accountability.

Last, Question 13 of the survey was purposely asked in such a manner to not restrict the interviewee from openly answering the question. The question was aimed to receive responses that included issues, improvements, or observations of the MAMs program that the authors did not capture during data collection.

While a survey was chosen as the primary means of data collection, a thorough review was conducted of policies and Standard Operating Procedures (SOPs) provided in instructions from the DOD, the DON, the TYCOM, and the local command. A comparison was made between the results of the surveys and how ships in the Pacific Fleet were performing with respect to MAM inventories by utilizing data provided by their TYCOM. All surveys given to SUPPOs were on a voluntary basis, and all SUPPOs who participated did so on a voluntary basis as well.

D. SCOPE

This project attempts to answer the following questions:

1. Primary: Is there a problem with MAM inventory accuracy and accountability onboard Navy surface ships?
2. Secondary: If there is a problem with MAM inventory accuracy and accountability onboard Navy surface ships, is it due to lack of policy and oversight?

By answering these questions, this research presents an exploration of solutions and provides recommendations to improve inventory accuracy and accountability onboard Navy surface ships to assist ships in remaining fully mission-capable during operational phases.

All Navy surface ships fall under either the Atlantic or Pacific Navy TYCOM, specifically COMNAVSURFLANT or COMNAVCNSP. However, regardless of which Navy TYCOM a Navy surface ships falls under, all policy released by either TYCOM applies to both COMNAVCNSP and COMNAVSURFLANT. As a result, all instructions and policy released by either of the Navy TYCOMs are normally labeled as COMNAVSURFOR, which includes COMNAVCNSP and COMNAVSURFLANT.

Frequently, instructions will be labeled as both Commander, Naval Surface Force Pacific, and Commander, Naval Surface Force Atlantic. The COMNAVSURFOR 4440.1C instruction applies to all Navy surface ships, regardless of their location. This instruction provides all Navy surface ships with shipboard MAM management procedures, specifically inventory procedures.

Originally, data collection was to be conducted primarily through in-person interviews onboard Navy surface ships homeported in San Diego, CA, as it was the closest location with a large number of homeported ships. Additionally, since all surface ships fall under the same policy, location of ships would not affect data results. However, due to the Coronavirus Disease 2019 (COVID-19), travel was restricted, and ships were limiting non-essential personnel from visits. As a result of these restrictions, emails with surveys were sent randomly to ships located in the Pacific Fleet with the permission of COMNAVCNSP N41A. Specifically, the scope of this research is limited to naval surface ships located in Pacific Fleet to include homeports in San Diego, CA; Pearl Harbor, HI; Everett, WA; and Yokosuka, Japan.

1. The Importance of MAMs

MAMs provide a vital repair capability to ships by allowing the ship's technicians to test and troubleshoot critical electronic systems without requiring contractor expertise onboard. These MAMs are typically very expensive circuit cards that remain onboard and are certified as properly functioning parts. This allows the technician to substitute this working part into the failed system to verify if that circuit card is the flawed part or if the issue is stemming from another problem. Having these spare parts onboard allows for better troubleshooting and helps prevent the improper purchasing of these expensive circuit boards.

Another reason these MAMs are so critical is their ability to be accessed in contested environments where obtaining specialized contractor support is unavailable. Having these test capabilities onboard allows the ship to conduct intermediate troubleshooting and possible repairs to critical weapon systems while on deployments in contested environments. These onboard repair capabilities provide the opportunity for ships to remain on station and not have to pull out of their theater of operations

prematurely to conduct critical repairs. This allows the ships to remain operational, conducting their peacekeeping missions and operating at a higher efficiency rate.

2. Financial Improvement and Audit Readiness

The United States has the world's largest military and spends more money on its military than the next 11 countries combined (Peter G. Peterson Foundation, 2021). Within the federal budget, the military is the second largest expense, falling behind Social Security only. For fiscal year 2022, the budget for military spending equates to $752 billion within this number, the DOD has been allocated $715 billion (Amadeo, 2022). With such a large budget, there is the potential for extensive amounts of waste and unaccountability. Therefore, it is imperative that the DOD implement programs and strategies to reduce the possibility of waste and unaccountability occurring. So, in the National Defense Authorization Act (NDAA) of 2010, Congress put forth that the DOD shall create and maintain a Financial Improvement and Audit Readiness (FIAR) Plan. The NDAA of 2010 was signed into law by President Barack Obama on October 28, 2009.

The FIAR Plan was directed to correct the financial management deficiencies that impair the ability of the Department of Defense to prepare timely, reliable, and complete financial management information and ensuring the financial statements of the Department of Defense are validated as ready for audit by not later than September 30, 2014 (NDAA, 2012). Up until this point, there were not viable means for auditing any of the DOD's spending. The second largest amount of government spending was going unchecked. This new FIAR Plan was implemented to provide more oversight and control into one of the largest unchecked governmental spending programs.

Overall, FIAR has impacted all departments within the DOD, and negative audit findings include major inventory accountability issues, undocumented weapon systems and facilities, and lack of property management systems to account for parts (Kadiri et al., 2020).

One portion of accountability under the FIAR program is the legitimacy of inventory management records on naval ships. Maintaining a proper inventory with valid

receipts for receival and issuance of parts is one of the inventory management metrics evaluated in FIAR audits. As some of the most expensive inventory items on a ship, the proper inventory management of MAMs is a highly visible and an important area of concern.

II. LITERATURE REVIEW

We analyzed various theses published by Naval Postgraduate School (NPS) students, which yielded insightful information. The following theses were read and analyzed:

- *Analysis of the Remain in Place Policy* (Hagan & Ohman, 2020)
- *Transitioning to Client-Based NALCOMIS to a Multi-Function Web-Based Application* (Schnetzler, 2016)
- *Inventory Accuracy in NISTARS Controlled Non-Mechanized Warehouse* (Westhoven, 1990)
- *Improving Warehouse Inventory Management Through RFID, Barcoding, and Robotics Technologies* (Burke & Ewing, 2014)
- *Sampling in Physical Inventory* (Coons, 1960)
- *Lean Six Sigma Analysis of Shipboard Audit Readiness* (Lavery & Spraklin, 2016)
- *Evaluation of the Inventory and Accountability Practices of Common Support Equipment Throughout Pacific and Atlantic Fleets* (McCallister et al., 1997)
- *Development of a Naval Supply Systems Command Acquisition Supplemental Business Practice Improvement* (Stevenson, 2015)
- *A Simulation of Alternative for Wholesale Inventory Replenishment* (Roth, 2016)
- *Evaluation of Several Methods of Scheduling and Conducting Physical Inventories* (Wilson, 1968)

In addition to the published theses, we also analyzed various reports published by the Government Accountability Office (GAO) including *Defense Inventory: Management Actions Needed to Improve the Cost Efficiency of the Navy's Spare Parts Inventory* (GAO, 2009) and *Inventory Management: Air Force Inventory Accuracy Problems* (GAO, 1988).

A. ANALYSIS OF THE REMAIN IN PLACE POLICY

Hagan and Ohman's (2020) research proposed a recommendation to the current Depot-Level Repairable (DLR) material turn-in policy. In particular, the proposal examined cost, safety, system redundancy, and risks associated with the current process. The thesis explained and utilized the Carr & Wilcox (2006) DLR tracking and the

Electronic Retrograde System project, which explained down the DLR process. In addition, Carr and Wilcox (2006) highlighted issues and provided recommendations to improve the DLR process through an analysis of the system itself.

Hagan and Ohman's (2020) primary collection of data was through surveys given to Naval ships. Specifically, 30 maintenance and supply departments onboard destroyers and cruiser ships located in San Diego, CA, were given surveys to fill out and return. The surveys focused on time spent removing DLRs from degraded equipment, time spent on required paperwork, and experience levels with the Remain In Place (RIP) policy. Results showed that there were wasted man-hours due to the current RIP policy; however, there could have been more data collected. The surveys could have added questions that correlate to how many DLRs were repaired utilizing the Miniature/Microminiature Electronics Repair (2M) program. Further collection data from ships could have deep dived into money saved utilizing the 2M program or the cost of lost DLRs that were a result of the current DLR policy.

Hagan and Ohman's (2020) explained the data collection procedures to replicate their findings. Due to the COVID-19 pandemic, in-person data collection was not possible, and as a result, a smaller number of surveys were distributed, and a smaller analysis was conducted. The research concluded that a policy change was needed to save the Navy both money and man-hours spent on down equipment. Specifically, DLR cost needs to be considered for any RIP policy, and standardized RIP paperwork needs to be established across the Fleet. The conclusion is valid as there is room for improvement in the RIP policy.

Overall, the thesis could assist the Navy in a DLR policy update once the policy is up for review. Naval ship maintainers receive a lot of on-the-job training, and as this thesis points out, RIP procedures vary from ship to ship. As a result, as Hagan and Ohman (2020) point out, there is a significant manpower cost because of the lack of standardized paperwork and procedures. This was significant to the current MAM policy because some MAMs are DLRs, and there is a similar RIP process for MAMs that stay in systems.

B. TRANSITIONING CLIENT-BASED NALCOMIS TO A MULTI-FUNCTION WEB-BASED APPLICATION

Schnetzler (2016) researched current logistics inventory configurations for deployed aviation units that utilize Naval Aviation Logistics Command Management Information System (NALCOMIS) and RSUPPLY databases hosted in the Naval Tactical Command Support System (NTCSS) suite. The focus of the research was a discussion of how to improve part inventory tracking, maintenance requests, and part orders for a deployed unit, while providing non-deployed commands the most up-to-date data via the Internet. Schnetzler (2016) utilized Mitchell (2014) study to ensure proposed solutions met DOD's security protocols when utilizing websites.

Schnetzler (2016) pulled 12 months of inventory demand data from seven Marine Aviation Logistics Squadrons (MALS) in Marine Forces Pacific (MARFORPAC). Inventory demand data was utilized to create various scenarios to determine whether current Marine Corps servers could handle the additional load of maintaining an online inventory. The results of the various scenarios proved that current servers could handle an online inventory database with minor upgrades. As such, the results seem reasonable and achievable. Schnetzler (2016) clearly explained how data was retrieved and compiled and is easily repeatable.

The research supports the conclusion that the Marine Corps would benefit from having an online version of NALCOMIS because it will increase operational operability around the world. The conclusion is valid as there has always been a need to have a one-stop shop to find the parts needed from or for a command. Having a live online inventory repository would provide maintainers and logistic teams that capability.

Schnetzler (2016) mainly focused on an online NALCOMIS proof of concept. The data showed that Marine Corps servers could handle the additional load; however, issues such as a unit's online capability while deployed and the impacts of not maintaining the inventory when the database was down were not discussed. Schnetzler (2016) will be utilized in the future as a reference as it lays the groundwork and roadmap to an online inventory capability. This thesis supported the theory that an inventory system is needed to maintain MAMs onboard Naval ships.

C. INVENTORY ACCURACY IN NISTARS CONTROLLED NON-MECHANIZED WAREHOUSES

Westhoven (1990) focused on the inventory accuracy in non-mechanized warehouses under NISTARS control versus other warehouses to determine the reasons for variance, should any exist. The research found that there was a significant difference of 13% less accuracy in non-mechanized warehouses under NISTARS control. The study also found that research codes used in inventory reports were not effective and the data output from inventory reports was not fully utilized. The study presented several recommendations to address the low inventory levels in these non-mechanized warehouses. Specifically, the recommendations were to increase the number of quarterly inventories, maintain a tracking system to isolate problem areas, and to reassess the usage of research codes.

Westhoven (1990) did not describe or integrate any previous studies as the topic was very limited in scope. The thesis did however include the references for all inventory procedures utilized in the process, including previous and current inventory processes. Westhoven (1990) highlighted issues and provided three recommendations to limit the effect of utilizing NISTARS at a non-mechanized warehouse.

Westhoven's (1990) primary collection of data was through official inventory records provided by Naval Support Center (NSC), San Diego. Using Statistical Accuracy Techniques and Measuring Analysis (STATMAN), he analyzed inventories from three different quarters from three different warehouses. The three inventories tallied 5,089 items out of the 470,000 total line items from NSC, San Diego. The results from these inventories showed that the new NISTARS system provided higher inventory accuracy in a mechanized warehouse, and it provided less accuracy when applied to a non-mechanized warehouse when compared to the previous Uniform Automated Data Processing System—Stock Point (UADPS-SP) system. Westhoven's (1990) could have researched the inventory accuracy of these warehouses prior to the implementation of the new NISTARS system.

Westhoven (1990) explained the procedures he used to analyze this data and there is opportunity for it to be further analyzed. Further data collection could provide insight

to inventory accuracy levels for specific types of inventory items. Further research could have been conducted to look at training levels and what other areas (other than research codes) are not being optimized, and to investigate the root causes of the inventory validity. As NISTARS is now outdated, further research for this specific topic is not likely, although the methods used to collect and analyze the data can be used in other similar studies.

Westhoven (1990) defined the issues and the proposed recommendations. The data and conclusions are sound as the data supports his conclusion and does not appear to be biased in any direction. The recommendations are also sound as they have been proven methods of increasing inventory accuracy amongst other projects such as this.

Overall, the thesis could have assisted the Navy in a policy update once it was up for review. Inventory management and accountability has been at the forefront of government oversight for quite some time. As the DOD continues to strive for FIAR Compliance, Westhoven (1990) showed that even with implementation of new inventory systems, there continue to be gaps after the advancement. Although this project was more focused on major warehouse inventories, ships can have complicated storage solutions due to space issues; this strengthens the argument that MAMs need to be inventoried often by a ship's force and spot-checked by outside agencies for accuracy.

D. IMPROVING WAREHOUSE INVENTORY MANAGEMENT THROUGH RFID, BARCODING, AND ROBOTICS TECHNOLOGIES

Burke and Ewing (2014) aimed to determine whether Radio Frequency Identification (RFID) technology and robotic technology was ready to implement and cost feasible for a Defense Logistics Agency warehouse. This research had a plethora of resources including several GAO reports; interviews with commercial industry; DOD assessments and policies; and various journals, articles, and books. Burke and Ewing (2014) used case studies and qualitative and quantitative methods when determining the cost–benefit analysis of implementing this new technology. The research compared multiple technologies: active RFID, passive RFID, standard barcodes, 2D barcodes, and material handling robotics. The study evaluated three years of inventories, wage rates for all levels of employees, and the costs of implementing various types of RFID technology.

By conducting research in the commercial sector in addition to the DOD, the research fully supports the analysis and provides multiple viewpoints. It is a reasonable conclusion that the technology and ability to implement is ready and cost saving, though the return on investment would not be seen for quite a while due to the initial implementation cost. The purpose and questions were answered thoroughly, but additional research will be required to reach a better decision point for the Defense Logistics Agency. This study provided alternate long-term solutions to MAM inventories and non-MAM inventories onboard Navy ships.

E. INVENTORY MANAGEMENT: AIR FORCE INVENTORY ACCURACY PROBLEMS

GAO (1988) evaluated the accuracy and completeness of Air Force inventory records and its research into differences between physical inventory counts and records. This report referenced previous GAO reports, data and publications/references provided by the Air Force, and a previous Air Force inventory study completed by Arthur Young and Company (p. 12). Qualitatively, the GAO evaluated the inventory procedures for the Air Force and compared them with the DOD procedures. Additionally, Air Force practices in conducting inventories, and investigating discrepancies were reviewed at three separate Air Force Inventory warehouses. Quantitatively, samplings of four random inventories provided by the Air Force were evaluated, relying on the premise that the inventories were conducted correctly. The GAO methods support the analysis, especially the notion that inventory accuracy could be inflated due to counting zero-balance items with no location. GAO did answer their research question, although relying on the information provided by the Air Force may have produced higher than actual inventory accuracies. This report strengthened the argument for MAM inventory inspections conducted by off-ship agencies.

F. SAMPLING IN PHYSICAL INVENTORY

Inventory held at Naval supply activities is inventoried only in specific schedules or when being handled (Coons, 1960). However, not all inventory is inventoried if there is not a specific characteristic code given to that inventory. As such, the purpose of Coons (1960) is to determine how and when those items that do not have to be

inventoried can be inventoried all the same. The literature review included reports from the DON, Bureau of Supplies and Accounts, Radack (1959) and two studies from Fitch (1958) and Wood (1958). All three literature reviews focused on inventory management best practices. Qualitative sampling analysis was conducted on hypothetical inventory scenarios. These various sampling scenarios were used to determine if 100% of all inventory could be inventoried when using sampling techniques. In conclusion, the thesis recommended sampling inventory schedules for all inventory that lacks requirements to be inventoried. The conclusion was reasonable, logical, and supported with all the research questions answered. Although dated research, MAM inventories are conducted and maintained in a system that is not designed to do so, and this report suggests that regularly inventorying MAMs will result in higher accountability.

G. LEAN SIX SIGMA ANALYSIS OF SHIPBOARD AUDIT READINESS ON A U.S. NAVY DESTROYER

The DON has changed policy and procedures in finances in support of the DOD FIAR program (Lavery & Spraklin, 2016). Using a Lean Six Sigma analysis, the project deep dives into why U.S. ships in the Pacific Fleet have not met FIAR requirements. The recommendations given to improve FIAR readiness are to be used by the DON as suggestions for process changes. All these literature reviews were used to describe current DOD FIAR requirements, Navy FIAR procedures, and the future of FIAR requirements and procedures for both the DOD and Navy. A case study was used to collect quantitative data on how many seconds it took a ship to process FIAR-required paperwork, and surveys were conducted with seven sailors to gain qualitative information on their level of experience with FIAR. As such, the research methods supported the analysis with regards to process improvement using Lean Six Sigma. In conclusion, the researchers discovered that the DON FIAR process is very efficient; however, additional FIAR-compliant training is needed for sailors to ensure the process is fully understood. This study emphasizes that the Navy is under pressure to improve part accountability onboard ships, and MAMs could fall under this FIAR policy over the next few years.

H. EVALUATION OF THE INVENTORY AND ACCOUNTABILITY PRACTICES OF COMMON SUPPORT EQUIPMENT THROUGHOUT PACIFIC AND ATLANTIC FLEETS

This thesis assesses the validity of Intermediate Materiel Readiness Level (IMRL) inventories throughout Pacific Fleet units and whether there is a correlation between validity and aircraft materiel readiness (McCallister et al., 1997, p. 10). Additionally, it seeks to answer five additional questions regarding support equipment, procedure validity, efficiency, and education. In addition to numerous manuals and instructions, the study included the findings of a Naval Audit Report. The research conducted a mixed-method review of publications, a survey, and a physical audit of inventory validity. The research conclusions failed to adequately answer the five stated questions due to an inadequate baseline knowledge of conducting inventories. The conclusions and research did recommend potential resolutions for these issues and provide areas for further research. MAMs greatly affect ship readiness, and this study strengthens the argument for proper inventory management.

I. DEVELOPMENT OF A NAVAL SUPPLY SYSTEMS COMMAND ACQUISITION SUPPLEMENT: A BUSINESS PRACTICE IMPROVEMENT

Naval Supply Systems Command (NAVSUP) has an inefficient process to disseminate guidance, procedures, and instructions to contracting personnel, and a change is needed to make NAVSUP more efficient (Stevenson, 2015). The literature review did not include anything outside the Federal Acquisition Regulation (FAR), Defense Federal Acquisition Regulation Supplement (DFAR), supplements to both those regulations, and NAVSUP instructions. A quantitative research method was used to determine how NAVSUP guidance, procedures, and instructions were disseminated and could be accessed. This research method supported the analysis as it deep dived into the main problem. Reasonable conclusions were derived from the research, and recommendations were provided to streamline communication and place all NAVSUP guidance, procedures, and instructions in a one-stop depository for all to easily access the most up-to-date information. Although this study was not about inventory management or

accountability, it highlighted the importance for ships to have the ability to obtain the latest policies and guidance in one location, such as a website.

J. A SIMULATION OF ALTERNATIVES FOR WHOLESALE INVENTORY REPLENISHMENT

The Navy Supply Systems Command needs to be efficient in its management of inventory levels on its $21 billion of inventory (Roth, 2016). The literature review included a long list of articles on inventory modeling, inventory planning, and inventory simulation. The case study utilized three different reorder point methods utilizing a mix of both quantitative and qualitative research to determine which method gave the highest inventory fill rates. The analysis supported the research, as each method analyzed could easily be replicated and used by the Navy Supply Systems Command. In conclusion, the research solved the main issue and identified a reorder point that would best keep inventory levels at peak compacity. This project related to MAM guidance as MAMs need to be reordered once they are broken or used to repair critical weapon systems.

K. DEFENSE INVENTORY: MANAGEMENT ACTIONS NEEDED TO IMPROVE THE COST EFFICIENCY OF THE NAVY'S SPARE PARTS INVENTORY

The purpose of this report was to further address the GAO's 1990 assessment of the DOD's inventory management as a high-risk area (GAO, 2009). This report evaluated the management of secondary inventory and its ability to support Navy requirements and the causes for maintaining secondary inventory more than current requirements (p. 1). The report references previous GAO reports and findings, along with DOD Supply Chain Management Regulations. Quantitative methods analyzing the on-hand secondary inventories and comparing 2007 data against 2004 data were utilized. The research methods do support the analysis. The GAO (2009) did answer the research questions thoroughly. While the main conclusion presented was that the Navy's secondary inventory exceeded the current requirements by 40%, it also noted that 80% of that inventory was projected for use within the next 2 years. There are identified MAM inventory discrepancies onboard ships, and this GAO report highlights the importance of resolving shortages and overages in order to determine correct inventory levels.

L. EVALUATION OF SEVERAL METHODS OF SCHEDULING AND CONDUCTING PHYSICAL INVENTORIES

This research focuses on the costs of maintaining inventory accuracy (Wilson, 1968). The research question was to determine what the optimal method of inventory would be for a single warehouse with high-volume inventory. The literature reviewed for this study included various theses from NPS and various DOD documents and publications. The research compared inventory effectiveness using statistical models using four different inventory schedules and the research methods did support the analysis. Wilson (1968) did find that 100% wall to wall inventories were most effective over a 5-year period at a frequency of 6.5 times per year (p. 32). It should be noted that these simulations were done on high-volume parts, and Wilson (1968) determined that lower volume parts would possess lower inventory inaccuracies and require less inventories due to reduced errors when issuing and ordering. Although this study is dated, inventory accuracy and methods to conduct inventories have consistently been a topic of interest in the Navy, and ways to improve MAM accountability onboard ships need to be identified and practiced.

III. DATA

This chapter includes the methods used in this project to collect data, the limitations of the data collection, and various processes implemented to combat biases or invalid data. This chapter primarily focuses on the survey that was distributed to the SUPPOs stationed onboard naval surface ships in the Pacific Fleet.

A. SURVEY

The primary collection of data was based upon the use of surveys issued to SUPPOs stationed onboard Naval surface ships in the Pacific Fleet. The survey was sent out to 25 ships, consisting of CGs, DDGs, LPDs, and LSDs. The attempt was to receive the maximum number of responses to obtain an overarching view of the MAMs inventory programs in the surface ships of the Pacific Fleet. These surveys were sent out and requested as non-attributional and on a volunteer basis. Of the 25 surveys that were sent out, there were 21 replies with information. The authors attribute the lack of four responses to several possible factors. The first is that the operational tempo may have been too high for some ships to provide feedback for a non-mandatory task. Secondly, although described as non-attributional, the authors believe that some ships may not have responded if they believed their MAMs programs had significant problems, in fear of further inquiry or critiques from outside sources. Finally, the ship may have had communication issues that prevented them from receiving or sending emails.

A survey was chosen in addition to a thorough review of the policies provided in DOD and DON instructions to provide an assessment between what the units are practicing and what the policy and instructions dictate. In addition to the surveys and policy review, the authors requested the latest MAMs inventory data from the ships' TYCOMs to verify that the data received from the ships was accurate and reflected what was being reported to their higher command.

Several questions on the survey were asked to verify and compare whether the ship was adhering to the procedures outlined in the various MAMs instructions. The questions specifically crafted to assess this were questions 1, 4, 5, 6, 8, 9, and 14.

The second question was included to assess the Integrated Logistics Overhaul (ILO) evolution of ships, provided that the ILO period was recent and documented. After a ship has been through an availability period that updates and reconfigures many systems onboard, a final verification of supply support must be conducted. Part of this verification is to ensure that 100% of required MAMs are onboard. This is crucially important as many new systems can be installed and many old systems may be removed, which drastically affects the required MAMs onboard. If there was no ILO MAM inventory verification conducted during the last ILO period, this could be the cause of an inventory discrepancy.

The third question was included to ascertain the level of oversight of the MAMs program by higher headquarters during Supply inspections. The goal of this question was to discover if there was a correlation between ships with high inventory validity and inspection teams that provided greater oversight into the MAMs programs.

Question 7 was included to discover what level of knowledge was onboard each ship with respect to exterior commands that could assist the ship in case there was an issue with a missing MAM. The expectation is that the ships with a baseline or higher level of knowledge of who to contact when an issue arises should have greater inventory validities.

Finally, questions 10 through 13 and 15 were asked to assess whether certain ships have implemented any additional measures, beyond that of the required instructions, to assist with their accountability of MAMs. The base requirements are listed in the instructions, but it is possible for a ship to impose stricter accountability methods to assist in the inventory management process. The questions were designed to provide further insight into whether stricter policies and procedures led to higher inventory validities.

The 15 survey questions that were distributed to the ship are below:

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs)program on the ship?
2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?
    a. During the ILO, were MAMs inventoried?

b. If so, did ship's force conduct the inventory? Or was it conducted by or with another agency?

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?
   a. During the SMC, were MAMs spot checked by Afloat Training Group?
   b. Were MAMs paperwork inspected?
4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?
5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?
6. What is the procedure for conducting MAMS surveys for lost MAMs?
7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?
8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc.)?
9. When the Commanding Officer (CO) turned over, was a MAMS inventory conducted?
10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when DH turns over?
    a. How are these inventories tracked and what position, office, or personnel tracks them?
11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?
12. How are MAMS inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc.)?
13. How accurate has OMMS-NG been in maintaining MAMS allowances?
14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?
15. Is there a process to forecast MAMS requirements?

B. LIMITATIONS AND BIAS

One of the limitations of this survey is that it relies on the ship to provide accurate and up-to-date data. Since there is no dedicated inventory management system for MAMs, there was not a way to pull this data from a centralized system. Therefore, the assumption that the ship would provide accurate data was a requirement. To counter this limitation, the authors obtained the most recent MAMs inventory data from CNSP, the ships' TYCOM, to correlate and verify the data provided. The MAMs inventory data provided from CNSP is in Table 1.

Another limitation was that the survey was only distributed to surface ships in the Pacific Fleet. The main limitation of this is that the command and oversight of each ship is different. The policies and procedures do not vary between Pacific and Atlantic Surface Fleets, though there may be differences in sub-surface and/or aviation units. To combat this limitation, the authors obtained MAM policies and inventory data from Commander, Submarine Force, Pacific Fleet (COMSUBPAC). The information obtained from COMSUBPAC was the 4406.1E - Submarine Supply Procedures Manual, and an inventory data pull from a random submarine, which was the USS *MAINE* (SSBN 741).

An area of cognitive bias from survey participants may have also occurred, which might have disrupted the results. Confirmation bias may have pushed participants who know that the inventory validity requirement is 100% for MAMs to report their validity as such, rather than research their last inventory and provide the actual accurate data. To combat this bias, the authors obtained inventory data from the ships' TYCOM and solicited the surveys to a large number of participating ships in order to create a better baseline of information. Our research may also contain escalation of commitment, as the survey was provided to every ship regardless of operational phase. There was no consideration given to the operational tempo of any ship; therefore, there may have been pressure to provide incorrect data just to complete the survey. To combat this, the authors assured participants that the survey responses would be completely voluntary and non-attributional.

C. SURVEY RESULTS

Upon receipt of the surveys from the ships, the results were analyzed and compiled into tables. Table 2 contains the responses for question one through four, Table 3 contains the responses for questions five through eight and Table 4 contains the responses for questions nine through 15. The areas that are highlighted green indicate that the ship was either: performing in accordance with the procedures or operating under best practices. The areas highlighted in red indicate that the ship was either: not adhering to a procedure or operating under less than best known practices.

Table 1. MAMS Inventory.

Command	HULL	Location	Completed	Annual Inv.	PRE-ILO	Accuracy	$ Value of MAMS
SHIP 1	LPD	SD	1/28/21	153/153		100%	$1,607,506.09
SHIP 2	CG	YOKO	2/2/21		1027/1036	99.13%	$10,003,558.75
SHIP 3	LSD	SAS	3/8/21	294/294		100%	$1,469,220.80
SHIP 4	CG	SD	8/31/21	856/866		98.84%	$9,729,652.85
SHIP 5	DDG	PH	8/14/21	983/983		100%	$16,878,492.98
SHIP 6	CG	YOKO	8/5/21	742/742		100%	$14,903,611.20
SHIP 7	DDG	SD	12/17/21	1215/1215		100%	$18,594,263.69
SHIP 8	DDG	SD	9/30/21	401/401		100%	$11,556,711.89
SHIP 9	DDG	PH	3/29/21	491/518		94.78%	$12,530,760.38
SHIP 10	LSD	SD	12/20/21	224/224		100.00%	$1,365,856.81
SHIP 11	DDG	PH	1/12/21	405/430		94.18%	$6,014,062.55
SHIP 12	CG	SD	10/23/20		2005/2011	99.70%	$21,025,541.96
SHIP 13	DDG	EVE	7/25/21	458/460		99.56%	$13,010,565.67
SHIP 14	DDG	SD	ILO				
SHIP 15	DDG	YOKO	12/15/20	303/322		4/3/00	$5,295,745.40
SHIP 16	LPD	SD	8/25/21		166/174	95.40%	$2,309,350.17
SHIP 17	LPD	SD	12/28/21	144/148		97.29%	$1,851,517.95
SHIP 18	DDG	SD	12/9/21	426/426		100%	$11,663,944.39
SHIP 19	DDG	SD	11/9/20	409/409		100%	$11,640,241.10
SHIP 20	DDG	SD	ILO				

Table 2. Questions 1–4 results.

Ship Alpha	Question 1	Question 2a	Question 2b	Question 3a	Question 3b	Question 4
	Does Supply manage?	Inv. conducted in ILO?	Inv. conducted DOD/ oversight?	Did ATG spot check?	Did ATG admin check?	Was the issue/receipt process known?
Ship 1						
Ship 2						
Ship 3						
Ship 4						
Ship 5						
Ship 6						
Ship 7						
Ship 8						
Ship 9						
Ship 10						
Ship 11						
Ship 12						
Ship 13						
Ship 14						
Ship 15						
Ship 16						
Ship 17						
Ship 18						
Ship 19						
Ship 20						

Table 3. Questions 5–8 and CNSP Data.

Ship Alpha	Question 5a	TYCOM Date	Question 5b	TYCOM Inv	Question 6	Question 7	Question 8
	Was inv. in periodicity?	Did TYCOM match ship's date?	Was inv. 100%?	Did TYCOM match ship's validity?	Was DD200 known?	Was outside help known about?	Do DH's conduct inv.?
Ship 1	Dec 2021	1/28/21	95	100			
Ship 2	June 2021	2/2/21	97	99.13			
Ship 3	recent	3/8/21	100	100			
Ship 4	Aug 2021	8/31/21	100	98.84			
Ship 5	Aug 2021	8/14/21	96	100			
Ship 6	Sept 2021	8/5/21	100	100			
Ship 7	Oct 2021	12/17/21	98	100			
Ship 8	Oct 2021	9/30/21	100	100			
Ship 9	April 2021	3/29/21	100	94.78			
Ship 10	Oct 2021	12/20/21	98	100			
Ship 11	unknown	1/12/21	100	94.18			
Ship 12	June 2020	10/23/20	90	99.7			
Ship 13	June 2021	7/25/21	unknown	99.56			
Ship 14	Oct 2021	SOA - 05Oct20	**unknown**				
Ship 15	Aug 2021	12/15/20	100	94.09			
Ship 16	Fall 2021	8/25/21	100	95.4			
Ship 17	Sept 2021	12/28/21	unknown	97.29			
Ship 18	unknown	12/9/21	100	100			
Ship 19	March 2021	11/9/20	unknown	100			
Ship 20	Jan 2022		unknown				

Table 4. Questions 9–15 results.

Ship Alpha	Question 9	Question 10a	Question 11	Question 12	Question 13	Question 14	Question 15
	Inv. conducted at CoC?	Any addt. inv. conducted?	Did Non ship's force provide assistance?	Only 1 method or 2 to track inventories?	Is OMMS accurate?	Does 3MC help?	Can you forecast MAMs?
Ship 1							
Ship 2							
Ship 3				OMMS-NG			
Ship 4				Excel			
Ship 5				OMMS-NG			
Ship 6				OMMS-NG			
Ship 7							
Ship 8							
Ship 9							
Ship 10				OMMS-NG			
Ship 11				OMMS-NG			
Ship 12							
Ship 13							
Ship 14							
Ship 15				OMMS-NG			
Ship 16							
Ship 17							
Ship 18				OMMS-NG			
Ship 19				Excel			
Ship 20				OMMS-NG			

IV. DISCUSSION/ANALYSIS

This chapter expands on the information and survey responses included in Chapter III: Data by evaluating responses collected. It is broken down by survey responses into 7 sections: MAMs program manager, Integrated Logistics Overhaul (ILO), Supply Management Certification (SMC), issue and receive MAMs, MAM inventories, MAM surveys, OMMS-NG, and TYCOM. It is also important to note that there is no central database, network, or system that can provide the information requested in the surveys. The data is reliant on accurate and honest reporting from the ships and CNSP, using whatever recording method they have. If these recording systems are inaccurate or if untruthful, so is the data.

A. MAMS PROGRAM MANAGER

Question 1: "What position, office, or personnel manages the Maintenance Assistance Modules (MAMs) program on the ship?"

Of the 20 surveys received, 18 contained responses that the Supply department was involved in at least a portion of process. Among these 18 responses, there are a wide variation of MAM managers ranging from the SUPPO, S-1 Division, other Department Heads, etc. Two of the responses did not list the Supply department in the management process of MAMs. The authors believe these two responses were oversimplifications in their answer as their answers for following questions were much more involved and detailed in the MAMs procedures.

The COMNAVSURFOR instruction 4440.1C, *Shipboard Management of Maintenance Assistance Modules*, provides policy for the shipboard management of MAMs. The 4400.1C states that the Commanding Officer (CO) is overall accountable for the MAMs program and the SUPPO is overall responsible for the MAMs program.

All MAM inventory results need to be reported to the CO via the SUPPO. The SUPPO will then submit the completed MAMs inventory to CNSP N41 via their Immediate Superior in Charge (ISIC) within 10 days of completion for consolidation. In addition, all MAMs inventories will be documented in the Supply Officer's Commanding

Officer's monthly report, and hard copies will be maintained by both the Supply department and work center in charge of those specific MAMs (Commander, Naval Surface Force, 2019).

B. INTEGRATED LOGISTICS OVERHAUL

Question 2: "When was the last time the ship completed an Integrated Logistics Overhaul (ILO)? During the ILO, were MAMs inventoried? If so, did ship force conduct the inventory? Or was it conducted by or with another agency?"

Nine of the responses indicated that either no inventory occurred during the last ILO period or that no records were able to be located. One of the responses indicated that the ILO team briefed the ship that a MAM inventory was no longer part of the ILO process. With only 60% of surveyed ships reporting valid completion of an ILO MAMs inventory, the authors believe this to be a lack of training and familiarity with the MAMs instruction. Of the 12 ships that conducted MAMs inventories, only five conducted them with the support of ILO staff. Without the support of ILO staff, it is possible that new MAMs required due to system upgrades were omitted from the inventory, along with MAMs that should have been offloaded due to system upgrades, thus leading to incorrect validity. With this data, only 25% of ships can accurately report that they have met the requirements in accordance with the 4440.1C.

The 4440.1C states that all MAMs will be inventoried by ILO organizations during a Chief of Naval Operations availability. Every ship at various times of its life cycle must go through an availability period, which requires an ILO to be conducted with the assistance of a Regional Maintenance Center (RMC) Integrated Logistics Support (ILS) team. Some of the survey questions were generated around ILOs, as the primary objective of an ILO is to improve ship readiness by leveraging logistics and maintenance support processes to validate and document accurate ship configuration.

The COMNAVSURFOR 4400.1A, *Surface Force Supply Procedures*, indicates that during an ILO, a repair parts analysis should be conducted. During an ILO, weapon systems and engineering systems can be replaced, and as a result, MAMs in the ship's possession can become obsolete due to new equipment and new MAMs will be outfitted

to the ship along with the equipment being installed. The RMC ILS team will assist ship's force with the repair part analysis that involves offloading excess MAMs, onloading new MAMs, and identifying and reordering any MAMs shortfalls. Both the 4400.1A and the 4440.1C have detailed processes and checklists to assist with the coordination of both the onload and offload of MAMs during an ILO.

C. SUPPLY MANAGEMENT CERTIFICATION

Question 3: "When was the ship's (or unit's) most recent Supply Management Certification (SMC)? During the SMC, were MAMs spot checked by Afloat Training Group? Were MAMs paperwork inspected?"

The COMNAVSURFPAC and COMNAVSURFLANT 5040.1D, *Supply Management Certification Program*, verifies administrative items including MAMs binders and hardcopy inventories. No MAMs inventories are required to be spot-checked or inspected for accuracy by Afloat Training Group (ATG) inspectors.

All survey participants reported that the administration portion of the MAMs program were inspected in accordance with the instruction. In 45% of the results, the ATG went further to conduct spot-checks of MAMs inventory. These unexpected spot-checks could assist the ship in effectively finding mistakes and increasing the validity of their normal required inventories. However, ships cannot be held responsible for these spot-checks until the instruction is updated with such requirements.

D. ISSUE AND RECEIVE MAMS

Question 4: "What is the ship's (or unit's) procedure for issuing and receiving MAM's?"

Twelve of the ships did not reference the required paperwork for issuing or receiving a MAM. Several of the ships reported that they were handled in the same fashion as any other repair parts.

The 4440.1C states that all MAMs that are transferred off the ship or received by the ship should be coordinated through the Supply department and documented on a DD-

1149. The DD-1149 should be maintained by both the Supply department and work center in the MAMs binder.

E. MAM INVENTORIES

Question 5: "When was your last wall-to-wall inventory of MAMs? What was the validity?

Question 8: "Who conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc.)?"

Question 9: "When the Commanding Officer (CO) turned over, was a MAMs inventory conducted?"

Question 10: "Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over? How are these inventories tracked and who tracks them?"

Question 11: "Have there been any other agencies that conducted or assisted the ship with MAMs inventory?"

Question 12: "How are MAMs inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc.)?"

These questions were asked as they provide insight into the level of knowledge SUPPOs have in MAM ship inventory requirements and procedures. Survey answers were compared against the 4440.1C inventory requirements, which state inventories shall be inventoried:

- Annually
- Upon the relief of the CO
- Upon the relief of the DH
- Recommended upon the turnover of the MAMs work center custodian

The responses for questions 8 and 9 were identical across the board with only one ship that did not conduct a MAMs inventory during the CO change of command. This one outlier could be due to operational tempo or a wide variety of extenuating circumstances. The authors believe that required MAMs inventory requirements are

widely known and followed, as 55% of ships conducted additional MAMs inventories that are recommended to be completed when MAMs work center custodians turn over.

F. MAMS SURVEYS

Question 6: "What is the procedure for conducting MAM surveys for lost MAM's?"

Question 7: "Do any other commands assist with lost MAM's and who on the ship coordinates with them to resolve the issue?"

The 4440.1C provides step by step guidance to document lost MAMs and provide notification procedures to CNSP. All lost MAMs are to be researched by the ship with the assistance of CNSP N41. If determined to be lost by CNSP N41, a DD-200 should be generated and by the DH and routed to the CO for final approval prior to submitting to CNSP N41.

The responses showed that the ships were knowledgeable of the instruction and the procedure in the circumstance that a MAM was lost. Only three ships responded that they were unaware of outside assistance they could enlist to assist with missing MAMs. The authors believe these three responses to be severe outliers as 90% of the ships knew they could reach out to their TYCOM and gain assistance. Some ships even referenced a specific individual, indicating more experience with the MAMs process.

G. OMMS-NG

Question 13: "How accurate is OMMS-NG in maintaining MAM allowances?"

Question 14: "Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAM's?"

Question 15: "Is there a way to forecast MAM's?"

MAMs increases or decreases come to the ship via an Automated Shore Interface (ASI) update in OMMS-NG and the Maintenance and Material Manager Coordinator (3MC) will coordinate with the SUPPO to process them. The 3MC also generates MAMs inventories, verifies that the MAMs inventory is clear of duplicate MAM locations, and

provides the final inventory to the SUPPO to distribute to department heads to take action (Commander, Naval Surface Force, 2019).

There may be MAMs discrepancies due to Configuration Data Manager Data-Open Architecture (CDMD-OA) not being up to date with configuration changes to the ship, such as new equipment installed. CNSP N41 must be notified if MAMs discrepancies exist, and they can help resolve issues with excess or missing MAMs discovered during inventories. Due to delays in CDMD-OA in being updated, it is hard to forecast MAMs that the ship will receive in the future without the assistance of CNSP N41 (Commander, Naval Surface Force, 2019).

The responses received for these questions indicate that 55% of the ships do not believe that OMMS-NG is an accurate system for recording and managing MAMs inventories. Several respondents noted that they use other sources in conjunction with OMMS-NG due to duplications in the system or known errors that cannot be fixed within the system. Additionally, the majority of ships reported that their ship's 3MC was not involved in the management of MAMs. The authors believe this to be either a lack of training on the side of the 3MC or a lack of training on the side of the SUPPO. There did not appear to be a correlation between the accuracy of OMMS-NG and the active involvement of the 3MC.

H. TYCOM

Question 5: "When was your last wall-to-wall inventory of MAMs? What was the validity?"

The responses to question 5 were validated against the information provided by CNSP. For purposes of verifying data, if the date the ship reported the inventory completed was within 3 months from the date CNSP reported the last completed inventory, then these inventories were assumed to be the same inventory. This assumption was applied due to various operational commitments that could prevent communications to/from the ship. This assumption was required to validate if there was a discrepancy between the ship's data and CNSP's data.

Eight ships' last inventory completion date does not match CNSP's data. It is possible that another inventory was completed and has not yet been reported to CNSP, which may be the cause for inconsistency for the data for Ships 2, 15, 17, and 19. On the other hand, Ship 12 reported an inventory 4 months prior to the inventory date that CNSP reported for them. This falls outside of the assumption parameter and must be viewed as two different inventories. Furthermore, Ships 11 and 18 did not provide the dates of their last inventory, so the authors cannot assume the inventories are the same. Either the ship and/or CNSP did not provide inventory data for Ships 13, 14, and 20. For these reasons, the authors could not verify the accuracy of reported inventory dates provided by 10 ships.

Ten of the ship's inventory dates did match the dates provided by CNSP, so these are the ships that are compared for validity. Of the 11 ships with matching inventory validity dates, only ships 3, 6, and 8 inventory percentages matched with CNSP's records. The remaining ships 1, 4, 5, 7, 9, 10, and 16 had inventory validity percentages that did not match the inventory validity percentage that CNSP reported. Ships 4, 9, and 16 reported 100% accuracy, whereas CNSP reported less than 100% accuracy. A possible explanation for this discrepancy is that the ships knew the requirement to have 100% accuracy and falsely reported for fear of a lack of anonymity with the survey, lack of effort in finding accurate information, or any other number of factors. On the other hand, ships 1, 5, 7, and 10 reported lower inventory validities than CNSP reported. It is possible that these ships reported inflated validities to CNSP for fear of reprisal and the anonymity of the survey allowed them to provide more accurate numbers to the authors.

The key metric to acknowledge from this data selection is that out of 20 ships, the ability to correctly match the ship's data and CNSP's data was possible only 15% of the time. All other data was either inaccurate or unverifiable because of conflicting information due to timeline data. The positive side is that when the data matched on both sides, the result was a 100% validity. The negative side of this analysis shows that when either entity is showing a discrepancy, it does not correlate with the other entity's information.

The authors have summarized the results of the research using a root cause analysis. Figure 1 displays a fishbone diagram, in this diagram the authors have define categories as process, instructions, inventory, issue and receipts, OMMS-NG, and assistance. Under each of the defined categories the authors have captured the root cause and the correspondence to an inadequate inventory management system, and lack of guidance in procedures and policy.

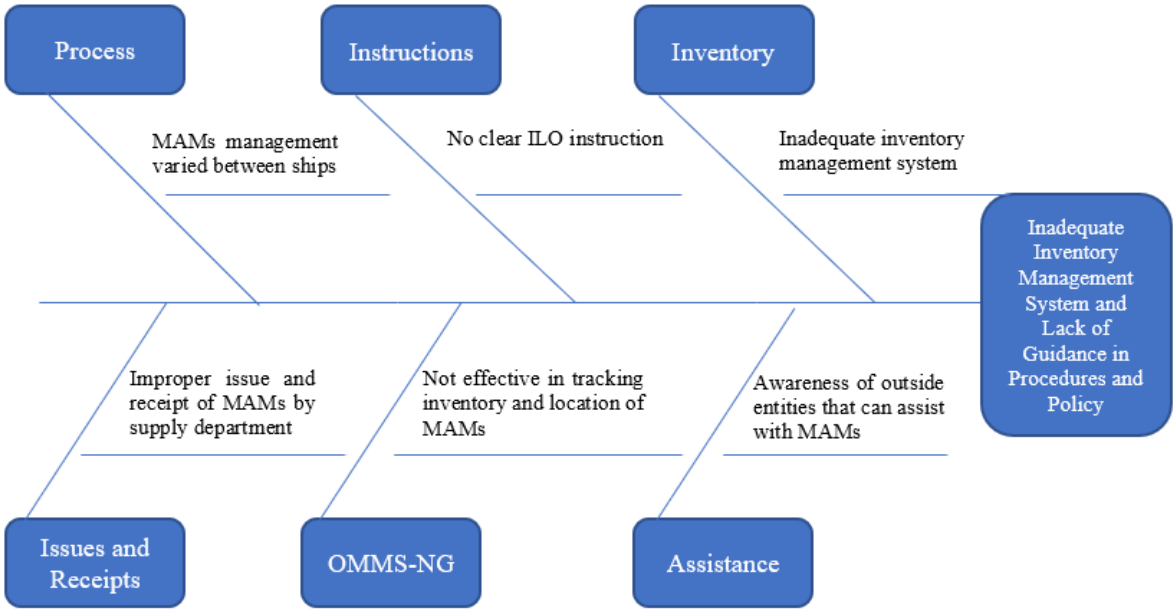

Figure 1. Fishbone Diagram

V. CONCLUSIONS AND RECOMMENDATIONS

A. CONCLUSIONS

MAMs are expensive and vital troubleshooting repair parts crucial to the success of a ship's mission. As discussed in Chapter IV, the ships surveyed in this research appear to have followed appropriate procedures; however, there is an overall lack of guidance in these procedures and policies, which ultimately led to variances in the ship's responses. The authors believe that the result of not maintaining the requirement of 100% validity has large financial, operational, and strategic implications. Combined with the troubleshooting criticality these parts have on weapons systems, there must be a greater effort in ensuring every ship has 100% accountability. From the research conducted, the authors recommend four possible solutions to assist with fixing these discrepancies. These recommendations are as follows:

- Emphasize MAM inventories during SMCs
- Emphasize importance of MAMs during command inspections
- Update existing doctrine to provide more guidance for MAMs handling during an ILO
- Revert to using the RSUPPLY system to manage MAMs inventories

B. RECOMMENDATIONS

1. Emphasize MAM Inventories during SMCs

Currently, there are no outside entities or inspections that are required to visually inspect MAM inventories onboard ships and provide results to their respective chain of command. During an SMC, ATG conducts many inventories throughout the different divisions within the Supply department; however, a MAMs inventory is not required. Although ATG does inspect the Supply department for proper MAM administration paperwork and inventory documentation, there is no spot-check to verify the validity of this paperwork. MAMs are crucial to the ship's mission success, and there should be outside accountability during major inspections, which typically occurs every 18–24 months. The authors believe that it is vital for MAMs to be spot-checked during SMC to help ensure the responsible parties are closely monitoring the usage, ordering, and inventory of MAMs.

2. Emphasize Importance of MAMs during Other Inspections

TYCOMs must put more emphasis on the importance of properly maintaining and inventorying MAMs. There are various phases of a ship's life cycle where MAMs could be spot-checked, not only during SMC, but also during a Maintenance and Material Maintenance (3M) certification as MAMs are required to troubleshoot and maintain equipment on ships. The authors believe that this additional inventory will provide added oversight for the ship, further emphasizing proper MAMs management including inventory management and location validity, as these inventories are located throughout the ship's various departments.

3. Update Doctrine to Provide Better Guidance for MAMs during ILO

Currently, there is not a designated instruction for MAMs handling during an ILO period. The COMNAVSURFOR 4401.1C has a detailed process to assist with coordinating the offload and onload of MAMs during the ILO process; however, the amount and type of assistance provided by an ILO team during a MAM inventory needs to be clarified and applicable in all locations that conduct MAMs. Providing a more detailed procedure for the ILO process will ensure ships force and ILO teams understand their roles when conducting MAM inventories, offloads, and onloads. The authors feel that by having a specific, outlined process for MAMs during the ILO process will greatly assist both the 3MC and SUPPO to ensure the ship's configurations is updated correctly and the new MAM inventory levels reflect the new configuration.

4. Transition MAMs Back to RSUPPLY in Place of OMMS-NG

There appears to be MAMs inventory accuracy validity discrepancies between the reports from individual ships and CNSP. OMMS-NG and the inventory levels of MAMs are unique to every vessel and will vary due to the systems installed on each ship. Furthermore, the 3MC is responsible for the OMMS-NG system, and many ships indicated the 3MC does not assist with MAM maintenance, which resides in OMMS-NG. Due to the complexity of the system and overall difficulty to manage these inventories within OMMS-NG, numerous SUPPOs are creating and maintaining Excel spreadsheets as a secondary method to verify inventory data. MAMs inventories previously conducted

in RSUPPLY allowed for verifiable inventory data, transaction history, adjustable storage locations, and customizable reports. The authors recommend that the surface force of the Navy return to maintaining MAM inventories in the RSUPPLY system and further study should be conducted on the mechanics and effects of that. The authors believe that if improvement in MAMs inventory accountability is desired, SUPPOs must be able to account for these high-value assets in a system that was specifically designed for inventory management, not a system designed for configuration and maintenance management.

The main recommendation for further research into this topic is to assess the benefits of returning the management of MAMs to a dedicated inventory management system, similar to RSUPPLY. Further studies into finding or creating a cost efficient, centralized system that synchronizes data between the ship and its' TYCOM could potentially close the gap in inventory discrepancies resulting in savings to the Navy.

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APPENDIX: SURVEY ANSWERS

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

- SUPPO

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?
    a. During the ILO, were MAMs inventoried?
    b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-Last ILO was end of 2019, we did not remove any inventory from the ship due to lack of warehouse space in Sasebo. Didn't really see the point, we ended up issuing out from stock anyways and had to get permission from our local ILO guy. Also lost an LS1 to him in the process to help out the manager. Ship's force conducted the inventory.

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?
    a. During the SMC, were MAMs spot checked by Afloat Training Group?
    b. Were MAM paperwork inspected?

-Last SMC was DEC2020, the MAM program was looked over and some stock was checked.

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-I haven't had any equipment changes or initial outfitting for MAMs, just replacement for bad ones.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-Last wall to wall was when OPS turned over recently, 100% validity. Though we do have issues with the same MAM replicating in OMMS. We know it isn't a loss because the serial number is the same and we compare to the previous MAM inventory.

6. What is the procedure for conducting MAM surveys for lost MAMs?

-We have not lost a MAM yet to survey, but when I took over there were 2 NVGs missing from inventory. After a lot of back and forth with Crane our allowance was shrunk and we did not have to process a DD200.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-We have in writing MAM custodians and DHs responsible for their MAMs and accountable if they go missing. I only ever discussed loss with Crane as the manager for NVGs.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-Initial MAM inventory is done by DH or SUPPO (for SUPPO turnover). After that I have my S1 LPO conduct it and brief it to me for signature.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

    a. How are these inventories tracked and what position, office, or personnel tracks them?

-Not unless loss is suspected, but not so far in my tenure as SUPPO

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-SRF who hosted the NAVSEA PMS 443 on site logistics rep local to Sasebo during ILO.

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-OMMS

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-We have had issue with duplicates in the system. It is still unknown why some duplicate and we reference previous inventories to ensure there is no loss.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-He attempted to solve the duplication issue for MAMs in OMMS but ultimately it is still an issue.

15. Is there a process to forecast MAM requirements?

-Not really. I only worry about it when we get new equipment and the only piece of equipment I was worried about getting new MAMs for was the SIMRAD. None have been identified or sent so far for the ship to use.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-SUPPO overall manages the program.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

-November 2020.

b. During the ILO, were MAMs inventoried?

-No.

c. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-N/A.

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-October 2020.

b. During the SMC, were MAMs spot checked by Afloat Training Group?

-Yes.

c. Were MAM paperwork inspected?

-Yes.

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-New MAMs are received by Supply and issued to the work centers using normal issuing procedures for DLRs and insuring that the MAMs custodians take custody.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-The entire ship last conducted a wall-to-wall of the MAMs of MAMs in June 2020, the validity was approximately 90%.

6. What is the procedure for conducting MAM surveys for lost MAMs?
-DD200s are signed up through the CO, OMMS-NG is updated, funds are requested from CNSP to purchase replacements for lost MAMs.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-CNSP assists with lost MAMs and SUPPO coordinates with them to resolve the issue.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-Department Heads, departmental Khaki, and MAMs Custodians.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes.

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-Yes, we conducted 10% monthly inventories before SRA logistics made these inventories too difficult to execute effectively. We also inventory upon the turnover of a MAMs Custodian.

> a. How are these inventories tracked and what position, office, or personnel tracks them?
>
> -They are tracked by Supply Department and the department inventorying, specifically SUPPO, the LS2 that owns the MAMs program.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-No.

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-Excel sheet and OMMS-NG.

13. How accurate has OMMS-NG been in maintaining MAM allowances?
-Very accurate.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-No.

15. Is there a process to forecast MAM requirements?

-No.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-SS01 / SUPPO

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

a. During the ILO, were MAMs inventoried?

-Yes

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

- Ship's Force

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-2019

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-Yes

b. Were MAM paperwork inspected?

-Yes

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-1 for 1 exchange; log in Custodians records; update OMMS-NG

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-April 2021/100%

6. What is the procedure for conducting MAM surveys for lost MAMs?
-Custodians notify CoC, CO must be informed after 3 days. TYCOM N41 is informed and part is ordered/survey is routed.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-TYCOM N41

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-Department Heads, DOD/C Custodians, SUPPLY Custodian.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes.

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-Yes, when DOD/C MAMs custodians turn over.

a. How are these inventories tracked and what position, office, or personnel tracks them?

-Both DOD/C and SUPPLY Custodian keep copys in designated binder.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-Yes, NSWC Port Hueneme.

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-Inventories are tracked on OMMS-NG, turned into excel spreadsheet, and printed for physical copy records.

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-100% accurate.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-Yes. 3MC access to update OMMS-NG with any changes/updates to MAMs records.

15. Is there a process to forecast MAM requirements?

-No.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-SUPPO and MAMs Logistics Specialist

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?
    a. During the ILO, were MAMs inventoried?
    b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-Last ILO 2019; Unknown if MAMs were inventoried.

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-July 2020

    a. During the SMC, were MAMs spot checked by Afloat Training Group?

    -No

    b. Were MAM paperwork inspected?

    -Yes

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-Treated the same as DLR issuance. S1 receives and turns over to the WC after 1348 is signed and the issuance is recorded in the DLR log.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-Annual MAMs inventory – October 2021; 100% validity

6. What is the procedure for conducting MAM surveys for lost MAMs?

-Same process we follow for DLR surveys. Once determined that part has been lost, facts are gathered, and a DD200 prepared. PI may be assigned depending on dollar value and circumstances. Fully signed DD200's retained in S1 survey binder for future audit/inspection.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-Never lost of MAM, so not sure of resources available to assist with missing MAMs.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-Department Heads are responsible for conducting their MAMs inventories. SUPPO completes spot check once inventories are completed.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes, May 2021

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-No

a. How are these inventories tracked and what position, office, or personnel tracks them?

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-No

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-MAMs are tracked in AWN. Local inventories are completed using excel files of all command MAMs (pulled from AWN). Once excel sheet has been fully populated by DHs and validated by SUPPO, this file is sent to Mr. Vernon Basa at CNSP for his validation and inventory update in AWN.

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-Probably about 95%. We use AWN. We do encounter instances of duplicates and other administrative errors at times. These are typically corrected during our DH turnover, Annual, or Change of Command inventories.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-No

15. Is there a process to forecast MAM requirements?

-No

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-Supply S1 has a designated personnel as overall MAM manager
Each workcenter that owns MAMs have a MAM custodian that manages the workcenter' MAMs.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

-Our last ILO was in NOV 2019

a. During the ILO, were MAMs inventoried?

-No the MAMs inventory was not completed during that ILO

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-N/A

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-JUN 2020

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-Yes ATG spot checked our MAMs

b. Were MAM paperwork inspected?

-Yes ATG inspected our MAM program

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-MAM are used to trouble shoot defectives equipment and put back in their stored location when the trouble shoot is completed and then order the part from the supply system. We only leave them in place when removing them will impact the ship's mission and then we order the replacement part form the supply system

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-The last wall to wall inventory was in Aug 2021. The validity was 96%

6. What is the procedure for conducting MAM surveys for lost MAMs?

-If the workcenter in charge cannot find the missing MAM, they have to complete a DD200 signed by the Department head, SUPPO, and the CO, and then forward it to CNSP.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-We had Port Hueneme techs helped us once with finding free issue MAMs for our missing MAMs during the ship's Combat System modernization availability. It was coordinated by the workcenter that lost the MAMs and the supply office

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-The inventory starts with the supply MAM manager to the workcenter MAM custodians who conduct the actual physical inventory.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-No

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?.
-No

a. How are these inventories tracked and what position, office, or personnel tracks them?

-N/A

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-During the ship's Combat System modernization availability

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-Tracked via OMMS-NG

13. How accurate has OMMS-NG been in maintaining MAM allowances?
-Our OMMS reflects the MAMs that we need onboard.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-No

15. Is there a process to forecast MAM requirements?

-None that I know of.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-The Supply Department is responsible for the program, but each Work Center is independently accountable for the MAMs under their custody.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

-Before 2017.

a. During the ILO, were MAMs inventoried?

-Unknown.

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-Unknown.

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-April 2019.

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-Yes.

b. Were MAM paperwork inspected?

-Yes.

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-MAMs are issued to the Work Center based on requirements by TYCOM. When a MAM goes bad, Supply will order and exchange the new MAM for the old.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-August 2021. 100% in all DOD/C except for two.

6. What is the procedure for conducting MAM surveys for lost MAMs?

-The Work Center accountable for the lost MAMs drafts the survey and routes it through the CoC.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-TYCOM and Supply Department.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-MAMs Managers and the Work Center's Division Officer. Once done, signed off on by the Department Head, then SUPPO.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes. Back in April 2020.

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-Negative.

a. How are these inventories tracked and what position, office, or personnel tracks them?

-Inventories tracked by the MAMs Program Custodian (LS E-5 or Above) via the MAMs program Binder.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-Negative.

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-Excel Sheets in a MAMs program Binder.

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-Not accurate. OMMS-NG does not match TYCOM allowance and requirements.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-Negative.

15. Is there a process to forecast MAM requirements?

-Not at this time.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-Supply/ S1 division

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

a. During the ILO, were MAMs inventoried?

-DSRA 2020, yes.

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-Joint inventory with ship's force and the ILO team

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-Jan-Feb 2021

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-Yes

b. Were MAM paperwork inspected?

-Yes

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-1149 signed between SUPPO and receiving DH for accountability. 3MC assists work center with adding as a configuration item in OMMS-NG. MAMs custodian (SUP and WC) adds to MAM log for traceability. A new MEMO is signed by the CO to the DH and SUPPO to add the MAM.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-September 2021, 100%

6. What is the procedure for conducting MAM surveys for lost MAMs?

-MAM custodians conduct wall to wall inventory. Log books are reviewed to see MAM history. If not found, DH is responsible for routing survey to CO.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-CNSP

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-MAMs manager and work center MAM custodian

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-No

a. How are these inventories tracked and what position, office, or personnel tracks them?

-Tracked between Supply, 3MC, responsible work center and CNSP

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-NAVSEA for LOGSAT

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-OMMS-NG

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-Not very accurate. It must be manually updated and validated for validity.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-Yes

15. Is there a process to forecast MAM requirements?

-No

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-S-1

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

-January2021-June2021

a. During the ILO, were MAMs inventoried?

-Yes

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-ILO team oversaw the inventory but Ships Force conducted the inventory counts

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-March 2019

a. During the SMC, were MAMs spot checked by Afloat Training Group?

b. Were MAM paperwork inspected?

-Yes

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?
-NRFI MAM is turned in
-S-1 places the order
-Once received it is turned over to DOD/C

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-June 2021 / 97%

6. What is the procedure for conducting MAM surveys for lost MAMs?

-Validate if MAM is an authorized allowance
-Conduct Causative research
-If MAM is confirmed missing, search for RAM assets/Excess assets on other units and any UNMATCHED assets in ERMS
-If no asset can be found have DOD/C route survey and signed by the CO
-Once Survey is signed by the CO, reorder missing MAM

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-CNSP, Lea Villanueva

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-MAMs Manager with DH's during a DH turnover or Change of Command

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-During a MAMs manager turnover

a. How are these inventories tracked and what position, office, or personnel tracks them?

-S-1 maintains a copy of the inventory

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-SRF Yokosuka ILO team
-NSWC LOGSAT team

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-EXCEL and then uploaded to OMMS

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-Not that accurate, refer to excel sheet most of the time

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-Rarely

15. Is there a process to forecast MAM requirements?

-No

Additional comments: Workcenters will used the MAMS and not tell anyone that it was installed and never order the replacement since it corrected the casualty, that's an issue I see especially with Combat systems and Weapons department. Not sure how that can be controlled, possibly more frequent inventories have supply keep the MAMS in a storeroom.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-The workcenter's designated MAMS custodians and department heads with MAMS in their department (CHENG, CSO, WEPS). The Supply Officer and LS's provide administrative oversight.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

   a. During the ILO, were MAMs inventoried?

   -Yes

   b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

   -Ship's Force and Naval Sea Systems Command (NAVSEA).

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-August 2021

   a. During the SMC, were MAMs spot checked by Afloat Training Group?

   -No, they mainly looked at the paperwork.

   b. Were MAM paperwork inspected?

   -Yes

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-Ensure all paperwork is signed and saved by MAMS custodians and supply department. Also ensure Configuration Item Listing (CIL) correctly reflects updated information.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-The last wall-to-wall inventory was 10/25/2021 with a validity of 98%.

6. What is the procedure for conducting MAM surveys for lost MAMs?

-Conduct causative research, if NONDLR order replacement, if DLR reach out to
RRAM and ERMS for floater. If no floater found submit DDFORM 200.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-NAVSEA/TYCOM

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-Departmental Custodian, Department Head, Supply representative.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes.

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-Yes

a. How are these inventories tracked and what position, office, or personnel tracks them?

-VIA checklist by Supply Department.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-NAVSEA

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-VIA checklist in binders corresponding with individual binders for each division/department. CIL printed from OMMS used to conduct inventory.

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-Partially, but needs to be checked against CDM-OA to verify accuracy.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-Printing CIL, Conducting Automated Shore Interfaces (ASI).

15. Is there a process to forecast MAM requirements?

-ASI/NAVSEA.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-LS2 IS MAMS MANAGER, PO2 OR ABOVE ARE DEPARTMENTAL MAMS CUSTODIANS.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

-FY20-21

a. During the ILO, were MAMs inventoried?

-YES

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-SF CONDUCTED

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-OCT 2021

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-YES

b. Were MAM paperwork inspected?

-YES

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-MAMS INVENTORIES ARE MAINTAINED BY CUSTODIANS. NEWLY RECEIVED MAMS ARE TURNED OVER TO WORKCENTERS FOR CUSTODY.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-OCT 2021 WITH 98% VALIDITY, MISSING 9B MAMS WERE REORDERED AND REPLENISHED.

6. What is the procedure for conducting MAM surveys for lost MAMs?

-SUBMIT DD-200 FORM THEN SEARCH FOR FREE ISSUE OR ORDER REPLACEMENT.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-SHIP'S MAMS MANAGER COORDINATES WITH CNSP MAMS MANAGER FOR ASSISTANCE.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-MAMS MANAGER COORDINATES WITH MAMS CUSTODIANS

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-YES

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-NO

a. How are these inventories tracked and what position, office, or personnel tracks them?

-N/A

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-CNSP LOGISTICS SUPPORT ASSISTED WITH CORRECTING MAMS ALLOWANCE BASELINE.

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-OMMS-NG

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-ACCURATE AS LONG AS UPDATES ARE MADE AFTER CONDUCTING INVENTORIES

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-YES, EVERY LOCATION UPDATE IN OMMS WAS RECONCILED AND UPDATED WITH THE COORDINATION BETWEEN MAMS CUSTODIANS AND 3MC.

15. Is there a process to forecast MAM requirements?

-YES, BY GETTING AN ANNUALLY UPDATED LISTING OF CDMOA FROM TYCOM MAMS MANAGER.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-Supply Department. As the Supply Officer, I distribute the inventories to the respective Department Heads and I have a senior LS2 that works with the custodians to accurately account for completed inventories.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

-Completing one now

a. During the ILO, were MAMs inventoried?

-Yes

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-Ship's Force

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-2019

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-Yes

b. Were MAM paperwork inspected?

-Yes

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-We do not have any special procedure. We receive and issue like we do with any other part.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-Fall 2021 as we entered DSRA and ILO. 100%

6. What is the procedure for conducting MAM surveys for lost MAMs?

-DD-200 and work with the CNSP MAMs Manager

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-Vernon Basa, CNSP N414A2

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-DHs and their custodians conduct the inventories and submit them to the Supply Officer. I have an LS2 that helps with the admin.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?
-ILO

a. How are these inventories tracked and what position, office, or personnel tracks them?

-Yes. All inventories are reported to CNSP N414A2

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-No

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-An inventory is generated from OMMS-NG and saved as an excel file. The print out of that excel file is what is given to the Departments to conduct their inventories and then we account for them in OMMS-NG.

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-We've had no issues.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-No

15. Is there a process to forecast MAM requirements?

-EQVs?

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-CHENG/CSO/OPS, their designated personnel and SUPPO oversees to ensure the program runs smooth

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

-Currently undergoing one. We are at the 53% mark of the CNO Avail

a. During the ILO, were MAMs inventoried?

-Not yet

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-I am planning for S/F to conduct the inventory

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-May 2021

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-Negative

b. Were MAM paperwork inspected?

-Yes. Also, TYCOM began requiring the MAMs inventory paperwork be submitted to them

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-Workcenter receives the MAM, updates OMMS-NG with new serial number, and we let CNSP know of the update

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-September 2021 (CO's turnover)

6. What is the procedure for conducting MAM surveys for lost MAMs?

-Complete DD Form 200 – Causative research, identify cause, appoint someone to conduct an investigation, if required – Route to the CO for signature

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-NSWC Crane for the Combat Systems MAMs and the divo responsible for the workcenter – Haven't had any issue with OPS/CHENG

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-For wall to wall: Cognizant MAMs manager with Supply representative, spot checked by DH
-For DH/Custodian change: the custodian and the P-DH do the entire inventory

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-A RESOUNDING YES… I was sitting next to you when you re-wrote that instruction

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-During MAMs custodian change over and the above

a. How are these inventories tracked and what position, office, or personnel tracks them?

-Supply gets a copy and keeps on file all inventories

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-CNSP for clarification on policy, not the actual inventory

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-Excel sheet and OMMS-NG

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-Not always the best – workcenters have more MAMs than what is allowed

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-I believe there might be a lack of training on the 3MC pipeline; they make themselves available but are clueless and don't understand what the requirement is

15. Is there a process to forecast MAM requirements?

-Negative – Wouldn't this come from configuration changes during availabilities?

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-Individual departments are in charge of their own MAMs.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

-Full ILO was over (3) years ago.

a. During the ILO, were MAMs inventoried?

-MAMS were not inventoried by SUPPLY

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-Uncertain- non Supply

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-2019

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-NO

b. Were MAM paperwork inspected?

-YES, inspected the CIL

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-Issued and ordered like a regular part, we are unable to order under MAM APL

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-100%

6. What is the procedure for conducting MAM surveys for lost MAMs?

-DD Form 200

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-None

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-MAM manager and DH

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-YES

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-NO

a. How are these inventories tracked and what position, office, or personnel tracks them?

-Tracked by Supply with Departmental inputs

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-NO

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-OMMS-NG

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-High Accuracy

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-NO

15. Is there a process to forecast MAM requirements?

-ASI or configuration ALT

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-Supply Department manages MAMs.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

a. During the ILO, were MAMs inventoried?

-STR finished an ILO in October. We conducted a MAMs inventory but only because the CO turned over.

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-Yes. Divisional MAMs custodians conducted the inventory.

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-Our last SMC was October of 2019. ATG took a look at our inventory sheets, but did not actually spot check the MAMS.

b. Were MAM paperwork inspected?

-Yes. Paperwork was inspected.

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-When issuing, the Work Center must complete a form and have it signed by the Supply Officer and the CO. This can be done retroactively.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-March 2021.

6. What is the procedure for conducting MAM surveys for lost MAMs?
-We conduct costive research to make sure there's not an oversight, then reach out to TYCOM for assistance, ultimately submitting a DD200 to account for the loss.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?
-Yes. CNSP (TYCOM). Supply Dept coordinates with them.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-DHs upon turnover. MAMS custodian with periodic.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes.

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-No. MAMs are inventoried annually, when the CO turns over and when the DH turns over.

a. How are these inventories tracked and what position, office, or personnel tracks them?

-They are tracked by the Supply MAMs custodian.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-No. Only STR sailors actually conduct MAMs inventories.

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-Excel sheet

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-We use AWN which doesn't maintain MAMs allowances. We get our allowances from TYCOM.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-No

15. Is there a process to forecast MAM requirements?

-Reach out to TYCOM annually and when an inventory is required.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-Supply Officer, Dept Heads, LS MAMs Mgr, Dept. MAMs custodians

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

–OCT 2019 – SEP 2021

a. During the ILO, were MAMs inventoried?

-No.

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-2018

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-No

b. Were MAM paperwork inspected?

-Yes

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-Order through OMMS, similar to issuing other DLRs through our LS DLR mgr.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs?
-DEC 2021 - JAN 2022 What was the validity?

6. What is the procedure for conducting MAM surveys for lost MAMs?

-Follow Ship's instruction, research/investigate, workcenter coordinate with TYCOM MAMs POC for validity, draft DD200 for CO signature if survey is valid.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-CNSP N414A2 MAMs POC assists often. Other units assist with OSO of excess MAMs to avoid charges.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-DH and Dept. MAMs mgr

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-Yes, upon turnover of Dept. MAMs custodian, if DH requests it.

a. How are these inventories tracked and what position, office, or personnel tracks them?

-Department responsible for the inventory conducts and submits to the Supply Officer and LS MAMs Mgr.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-No.

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-OMMS CIL, CDMDOA allowance listing.

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-As far as I can tell, it is accurate. Coming out of EDSRA and ILO it looks to be updated for our current configuration.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-Yes. OMMS CIL review between 3MC and Dept. MAMs custodians for duplicates and any erroneous entries.

15. Is there a process to forecast MAM requirements?

-No.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-SUPPO has taken the lead on ensuring Depts manage their MAMs and conduct inventories as required.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

    a. During the ILO, were MAMs inventoried?

    -Yes MAMs inventory was conducted prior to entering the dry dock and for CO/DH turnovers.

    b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

    -S/F conducted the inventory. I was brief by ILO leads that MAMs inventory and management was no longer a part of the ILO process. Due to the limited space on the barge and S/F not being authorized to stow MAMs at the ILO warehouse, we stowed the Material in a designated CONNEX Box.

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-June 2020

    a. During the SMC, were MAMs spot checked by Afloat Training Group?

    b. Were MAM paperwork inspected?

    -MAM paperwork was not part of the inspection.

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-Depts are responsible for their MAMs. Issuing and receiving is usually accounted for in the log. I have not inspected their logs.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-Oct 2021 was the last wall to wall inventory. Validity is unknown due MAM requirements are currently in flux as onboard equipment is upgraded. Deletions and additions of MAM requirements are in progress.

6. What is the procedure for conducting MAM surveys for lost MAMs?

-DD200 is routed to responsible Dept. Efforts are made to ensure that material hasn't been transferred via 1149 to offship activity and/or free issues aren't available.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-USFFC Naval Forces Logistics (NFL). They assist in maintaining documentation of inventories for the Fleet. I have been brief that they assist directly with Dept with resolving issues; without Supply's involvement.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-MAMs custodians E-5 and above conduct MAM inventories.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-No

a. How are these inventories tracked and what position, office, or personnel tracks them?

-We have an excel spreadsheet utilized on the ship's network to verify accountability of what we have onhand.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-NSWC PHD Code A31. Specifically for only Combat Systems MAMs.

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-Excel Spreadsheet. OMMS-NG is printed out but, it is understood that it needs to updated.

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-I don't believe OMMS-NG is accurate and it needs to be updated. Recommend offship entities complete that for S/F.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-Not that I am aware of.

15. Is there a process to forecast MAM requirements?

-Not that I am aware of.

Comment: Recommend that MAMs be treated like Aviation Pack Up Kits. It would be a part of a deployment load out for respective departments. An offship MAMs representative would deliver and inventory MAMs on the spot with Senior Leadership E6 and above. Upon return from the deployment it would be inventoried again with MAMs representative and returned to the offship entity. They should not remain with S/F. Longer it remains with S/F the more likely accountability will be lost.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-CHENG, OPS, CSO, SUPPO, S1 MAMs Manager, WC MAMs Custodians in EA05, EE03, OT01, CSE1, CM01, and CM04.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

a. During the ILO, were MAMs inventoried?

-N/A

b. If so, did ship's force conduct the inventory? Or was it conducted by or with another agency?

-N/A

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-Aug 2020

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-Yes

b. Were MAM paperwork inspected?

-Yes

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-Issue/Turnover MAMs with DD Form 1149

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-29 Dec 21; 95%

6. What is the procedure for conducting MAM surveys for lost MAMs?

-WC completes the survey (DD Form 200) with WC DH's signature, routed to CO and SUPPO then submitted to TYCOM.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-Yes; TYCOM and RRAM.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-S1 MAMs Manager, WC MAMs Custodians, SUPPO, and WC DHs

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes; 09 May 21

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-Yes; WC MAMs Custodian Turnover

a. How are these inventories tracked and what position, office, or personnel tracks them?

-S1 MAMs Manager and WC MAMs Custodians prints out inventory listing from AWN and they are tracked in both S1 MAMs Manager and WC MAMs Custodian's binders.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-NAVSEA

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-AWN, Excel spread sheets and correspondence with TYCOM DLR/MAMs Manager

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-We utilize AWN and it has not been very accurate

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-3MC doesn't play a big role in MAMs management but ensures the COSAL onboard is up-to-date; 3MC has access to run the complete listings of MAMs in AWN

15. Is there a process to forecast MAM requirements?

-No, not that we're aware of

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-The Commanding Officer is overall accountable and the Supply Officer is overall responsible for the MAM program. All Department Heads are responsible for managing and inventorying the MAMs in their custody, and supervision over their divisional MAMs custodians.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

    a. During the ILO, were MAMs inventoried?

    b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

    -Not sure, last ILO 2012.

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-The most recent SMC was May 2021. 95% Overall S1: 91, S-2: 98.5, S-3: 98.75

    a. During the SMC, were MAMs spot checked by Afloat Training Group?

    -No; MAMs inventory for validity was not spot-checked by ATG.
    b. Were MAM paperwork inspected?

    -Yes; all documentation was inspected for all required inventory sheets and that all mandatory inventories where completed i.e. Department Head Turn over, Commanding Officer turn over.

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-The work center requests permission from the Commanding Officer to troubleshoot using a MAM. The Commanding Officer signs a chit approving the use as a MAM as a repair part.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-The validity was 100% with zero missing MAMs. However, and ASI removed numerous MAMs from a work center, and they are no longer required. The workcenter still has in their possession and inventoried all of the MAMs. (I.E. Did not know they were removed)

6. What is the procedure for conducting MAM surveys for lost MAMs?

-The first step is to conduct a wall to wall inventory of the effected department's MAMs to ensure validity of the lost MAM. The next step would be to review documentation of the last inventory to investigate any discrepancies or notes that could explain why it is missing. Ships force will also contact our off ship MAM point of contact to verify that the lost MAM is still required to be maintained onboard and was not removed during a system upgrade, removal of equipment, or if there is a possible free issue replacement or "floater." If none of those, DD200 and causative research is required.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-Commands with excess parts on hand (ATC-6, etc) can be requested to transfer their part to cover for the lost MAM, instead of ships ordering a new part wasting additional resources to replace the lost MAM. This process is usually an OSO between the Supply Officers of both commands. There is also a CNSP MAMs POC.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-Inventories are completed by the MAM custodians who are designated in writing for each department by their respective Department Heads. The inventories are then signed by the cognizant DH, and the department and S-1 keep a copy.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes. The inventory was completed for Commanding Officer turnover.

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-MAMs are recommended to be inventoried when the MAM custodian is relieved.

a. How are these inventories tracked and what position, office, or personnel tracks them?

-These inventories are tracked by the Command MAM custodian who normally works in Supply department and is responsible for retaining all records.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-Port Hueneme ISEA has conducted MAMs inventories.

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-Inventories are tracked via OMMS-NG directly from the database.

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-It has been accurate for the most part. However making corrections such as removing duplicate entries has been very time consuming for ships force personnel.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-Yes, he is the subject matter expert with OMMS-NG and is vital with assisting in making the corrections with MAMs.

15. Is there a process to forecast MAM requirements?

-Not to my knowledge

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-DLR Manager

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

-JUL2020

a. During the ILO, were MAMs inventoried?

-Yes.

b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

-Ship's Force and ILO civilian together.

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-March 2021

a. During the SMC, were MAMs spot checked by Afloat Training Group?

-No

b. Were MAM paperwork inspected?

-Yes

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-Retain a copy of any 1149 received with the new MAM received and turn it over to the custodian and notify 3MC once it is received to ensure the part number/ serial number is added to the MAMs inventory.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-JUNE 2021

6. What is the procedure for conducting MAM surveys for lost MAMs?

-LBI report generated by RSUPPLY will be sent to MOMSEN's CDMDOA and standby for additional guidance(after causative research has been done and we still can't find it). If CDMDOA approves survey, we will route it to the CO and forward it our CDMDOA.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-No.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-DOD/C MAM Custodian.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes.

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-New MAMs custodian.

a. How are these inventories tracked and what position, office, or personnel tracks them?

-Copies of signed inventories are kept by S1 MAMs Manager and copies kept with each MAMs custodian/ DH.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-Yes, but do not remember who they were, maybe Civilians (OBRP).

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc?

-Signed inventories are done by Excel Sheet generated by Automated Work Notification (AWN) and a Memo signed by the Depart Heads kept on file.

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-AWN is almost accurate (about 98%).

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-Yes.

15. Is there a process to forecast MAM requirements?

-No.

Interview Questions

1. What position, office, or personnel manages the Maintenance Assist Modules (MAMs) program on the ship?

-An LS2 oversees the program. MAMs managers exist in multiple work centers. Cognizant DHs also have accountability.

2. When was the last time the ship completed an Integrated Logistics Overhaul (ILO)?

    a. During the ILO, were MAMs inventoried?

    b. If so, did ship force conduct the inventory? Or was it conducted by or with another agency?

    -Presently going through one as we are now in 'the yards'/ yes MAMs were inventoried. Personnel TAD from ship's force conduct the inventory with the oversight of a civilian.

3. When was the ship's (or unit's) most recent Supply Management Certification (SMC)?

-August 2021

    a. During the SMC, were MAMs spot checked by Afloat Training Group?

    b. Were MAM paperwork inspected?

    -Yes

4. What is the ship's (or unit's) procedure for issuing and receiving MAMs?

-We adhere to what is populated in the MAMs system.

5. When was the ship's (or unit's) last wall-to-wall inventory of MAMs? What was the validity?

-During this present ILO. Real validity is 100%. But 4 MAMs that we never received seem impossible to delete away from the program.

6. What is the procedure for conducting MAM surveys for lost MAMs?

-N/A. But it would require CO signature and an investigation as they are DLRs.

7. Do any other commands assist with lost MAMs and what position, office, or personnel on the ship coordinates with them to resolve the issue?

-Hasn't come up.

8. What position, office, or personnel conducts your MAMs inventory (MAMs manager, Department Heads (DH), etc)?

-MAMS custodians. INV required upon DH turnover, CO turnover, and custodian turnover, annually.

9. When the Commanding Officer (CO) turned over, was a MAM inventory conducted?

-Yes.

10. Are MAMs inventoried any other time besides annually, when a CO turns over, or when a DH turns over?

-Yes, when the custodian turns over.

a. How are these inventories tracked and what position, office, or personnel tracks them?

-MAMs manager, LS.

11. Have there been any other agencies that conducted or assisted the ship with MAMs inventory?

-ILO

12. How are MAM inventories tracked (excel sheet, Organizational Maintenance Management System – Next Generation (OMMS-NG), etc)?

-OMMS-NG

13. How accurate has OMMS-NG been in maintaining MAM allowances?

-Fairly accurate. Doesn't seem to print uniformly across work centers. But as mentioned before 3 specific MAMs we never received keep popping up on the inventory list periodically.

14. Does the ship Maintenance Material Management System Coordinator (3MC) assist with the management of MAMs?

-Hasn't been asked to.

15. Is there a process to forecast MAM requirements?

-Any time there is a major systems upgrade/swap it is something to consider.

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