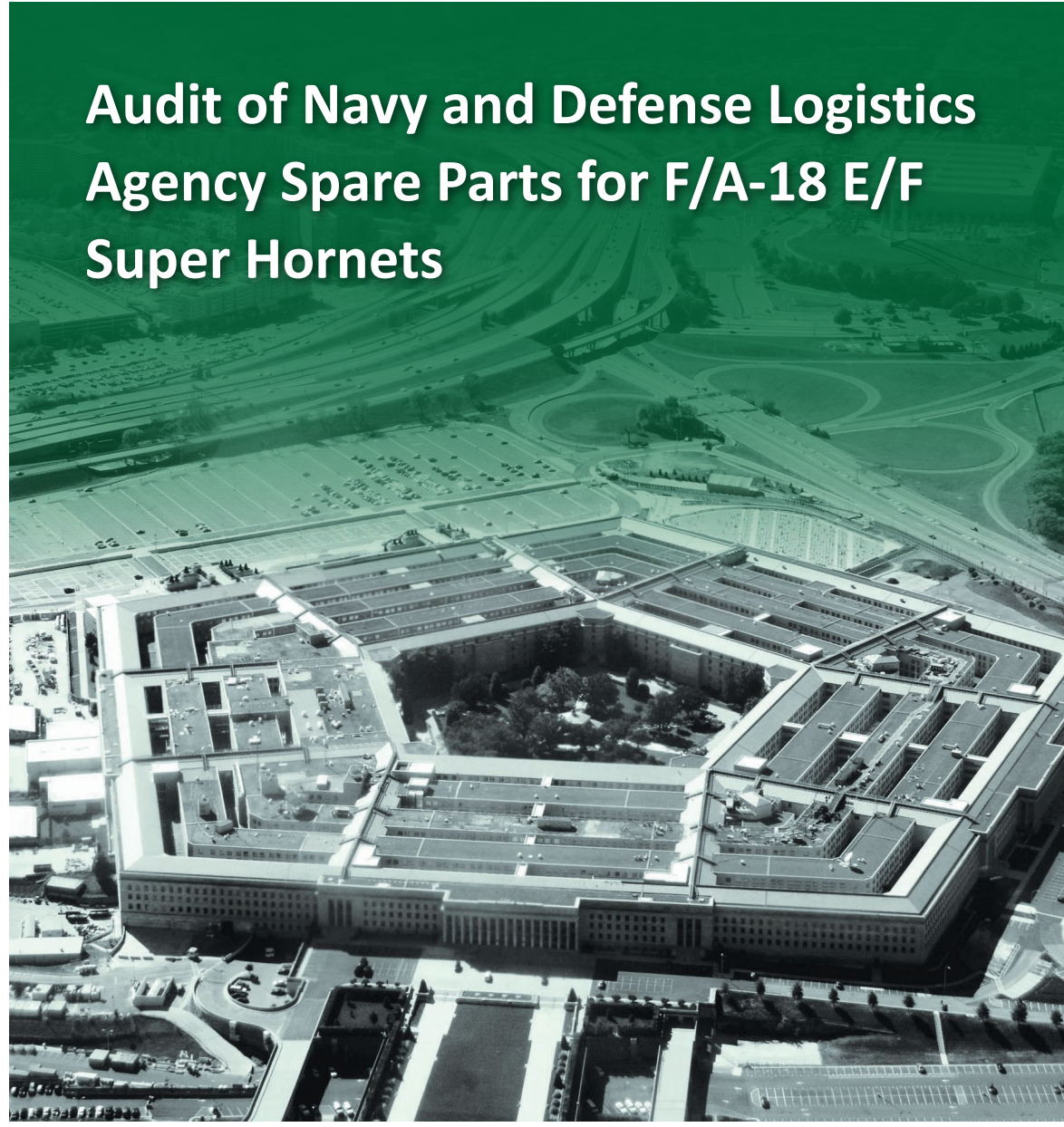


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INSPECTOR GENERAL

U.S. Department of Defense

NOVEMBER 19, 2019



Audit of Navy and Defense Logistics Agency Spare Parts for F/A-18 E/F Super Hornets

INTEGRITY ★ INDEPENDENCE ★ EXCELLENCE

The document contains information that may be exempt from
mandatory disclosure under the Freedom of Information Act.

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Results in Brief

Audit of Navy and Defense Logistics Agency Spare Parts for F/A-18 E/F Super Hornets

November 19, 2019

Objective

The objective of this audit was to determine whether the Navy and the Defense Logistics Agency (DLA) identified and obtained spare parts that the Navy needed to meet F/A-18 E/F Super Hornets (Super Hornets) readiness requirements.

Background

The Super Hornet is a fighter and attack aircraft that provides escort and fleet air defense, as well as offensive capabilities. The aircraft can target enemy fighter aircraft and attack ground and surface targets. When we selected our nonstatistical sample in April 2018, the Navy had 542 Super Hornets assigned to training, test and evaluation, and strike fighter squadrons.

A spare part is an item purchased for replacement, replenishment of stock or for use in the maintenance, overhaul, and repair of equipment, such as aircraft. The Naval Air Systems Command, the Naval Supply Systems Command, and the DLA work together to maintain the spare parts for the Navy's fleet of Super Hornets.

The spare parts we focused on in this report were identified by the Navy as critical spare parts that if missing or non-functional would result in the failure of a system to perform a required function. We reviewed a nonstatistical sample of 5 of 20 critical spare parts that directly impact the mission capability of Super Hornets.

Background (cont'd)

The five critical spare parts that we reviewed were the generator converter unit, multipurpose color display replacement, advanced targeting forward looking infrared electro-optical sensor unit, communication antenna, and rudder actuator.

Finding

For the five critical spare parts that we reviewed, the Navy and the DLA identified the quantity of those five parts that the Navy needed to maintain the operational readiness of the Super Hornet fleet. However, Navy and DLA officials could not obtain the quantity needed to satisfy current demand and fill backorders.

Our review of the five critical spare parts identified specific causes contributing to the backorders:

- obsolete materials that are no longer made or available for purchase;
- manufacturing delivery and repair delays; and
- the Navy's lack of technical data used in producing or repairing spare parts.

Had Navy officials performed an overall independent logistics assessment as required for the Super Hornet Program between 2000 and 2018, the Navy would have identified causes for the deficiencies in obtaining spare parts and given the Navy the information needed to develop plans to correct the deficiencies.

In addition, F/A-18 E/F Program Office (PMA-265) officials stated that a lack of sustainment funding contributed to the difficulties with obtaining spare parts. However, officials from the Chief of Naval Operations office stated that PMA-265 received reduced funding because PMA-265 officials had under-executed its budget and naval aviation sustainment budgets were all reduced. For example, from FYs 2013 through 2016 PMA-265 requested more funding



Results in Brief

Audit of Navy and Defense Logistics Agency Spare Parts for F/A-18 E/F Super Hornets

Finding (cont'd)

for sustainment than it received. Specifically, PMA-265 requested between \$193.6 and \$311.5 million and received between \$85.2 and \$136.3 million.

As a result, Navy officials had cannibalized aircraft to obtain needed spare parts—removed working parts from an aircraft and installing those parts on a second aircraft to make the second aircraft operational. Therefore, each act of cannibalization increased the risk of damage to the aircraft or part, including:

- the maintainer breaking the part during removal or reinstallation, and
- corrosion from sections of the aircraft being removed and exposed to the elements during cannibalization or while awaiting a new part.

In addition, cannibalization takes time and money because a maintainer has to uninstall a usable part from one aircraft, reinstall the usable part on another aircraft, and then install the replacement part, once received, on another aircraft. Furthermore, because of backorders and cannibalization the Navy may not meet sudden increases in operational mission readiness requirements or the Secretary of Defense's goal of 80-percent mission capable rate for the Super Hornet fleet by the end of FY 2019.

Recommendations

We recommend that the PMA-265 Program Manager:

- determine the parts or supplies that are obsolete or are limited in quantity and develop and implement a plan to minimize the impact of obsolete materials, including ensuring the parts or supplies are covered by the obsolescence program;
- develop alternative contracting sources to eliminate delivery delays;

- develop and implement plans, in coordination with organizations responsible for managing repair materials and support equipment for the Navy, to ensure the availability of those materials and support equipment needed to complete repairs; and
- develop and implement a strategy to obtain technical data, to obtain access to technical data, or to mitigate the barriers when the contractor owns the data rights in order to increase the Navy's repair capability.

We also recommend that the Naval Air Forces Commander review the Navy's cannibalization practice to determine whether aircraft maintainers are using cannibalization to avoid obtaining approval from higher level officials as required in Navy cannibalization guidance and determine whether the Navy should make changes to the guidance.

Management Comments and Our Response

The PMA-265 Program Manager agreed with the recommendations, stating that PMA-265:

- has arranged with the U.S. Army Combat Capabilities Development Command to obtain system, subsystem, and component-level data that will be tracked for obsolescence management;
- is coordinating with the Naval Supply Systems Command and the DLA to identify and develop alternative supply sources when the original equipment manufacturer cannot keep pace with repair demand or the manufacturer has decided to no longer sustain a repair or production line;



Results in Brief

Audit of Navy and Defense Logistics Agency Spare Parts for F/A-18 E/F Super Hornets

Management Comments (cont'd)

- in conjunction with the Naval Air Warfare Center Aircraft Division Lakehurst and the Super Hornet Fleet began an initial support equipment evaluation in 2019 to address and identify issues regarding repair materials and support equipment; and
- started a comprehensive initiative to gain access to technical data from the F/A-18 original equipment manufacturer and subsystems vendors.

Comments from the PMA-265 Program Manager addressed all specifics of the recommendations. Therefore, the recommendations are resolved but will remain open until we verify that the planned actions have been implemented.

The Naval Air Forces Commander agreed with the recommendation, stating that over the next 90 days the Naval Air Forces Commander will:

- collect all necessary data on a sample of five randomly selected Super Hornet squadrons to analyze the Navy's compliance with the Naval Aviation Maintenance Program (NAMP) regarding cannibalization,

- review the 30 and 90-day cannibalization thresholds in the NAMP to ensure that the number and frequency of all cannibalization events met the intent of the NAMP, and
- address changes that should be made to prevent or detect errors prior to occurrence if the squadrons did not meet the intent of the NAMP.

Comments from the Naval Air Forces Commander addressed all specifics of the recommendation. Therefore, the recommendation is resolved but will remain open until we verify that the planned actions have been implemented. Please see the Recommendations Table on the next page for the status of recommendations.

Recommendations Table

Management	Recommendations Unresolved	Recommendations Resolved	Recommendations Closed
Commander, Naval Air Forces	None	2	None
Program Manager, F/A-18 and EA-18G Program Management Office	None	1.a, 1.b, 1.c, and 1.d	None

Note: The following categories are used to describe agency management’s comments to individual recommendations.

- **Unresolved** – Management has not agreed to implement the recommendation or has not proposed actions that will address the recommendation.
- **Resolved** – Management agreed to implement the recommendation or has proposed actions that will address the underlying finding that generated the recommendation.
- **Closed** – OIG verified that the agreed upon corrective actions were implemented.



**INSPECTOR GENERAL
DEPARTMENT OF DEFENSE**
4800 MARK CENTER DRIVE
ALEXANDRIA, VIRGINIA 22350-1500

November 19, 2019

MEMORANDUM FOR UNDER SECRETARY OF DEFENSE FOR ACQUISITION
AND SUSTAINMENT
DIRECTOR, DEFENSE LOGISTICS AGENCY
AUDITOR GENERAL, DEPARTMENT OF THE NAVY

SUBJECT: Audit of Navy and Defense Logistics Agency Spare Parts for F/A-18 E/F
Super Hornets (Report No. DODIG-2020-030)

This final report provides the results of the DoD Office of Inspector General's audit. We previously provided copies of the draft report and requested written comments on the recommendations. We considered management's comments on the draft report when preparing the final report. These comments are included in the report.

The Naval Air Forces Commander and PMA-265 Program Manager agreed to address all recommendations presented in the report; therefore, the recommendations are considered resolved and open. As described in the Recommendations, Management Comments, and Our Response section of this report, the recommendations may be closed when we receive adequate documentation showing that all agreed upon actions to implement the recommendations have been completed. Therefore, please provide us within 90 days your response concerning specific actions in process or completed on the recommendations. Your response should be sent to either followup@dodig.mil if unclassified or rfunet@dodig.smil.mil if classified SECRET.

If you have any questions please contact me at [REDACTED]

A handwritten signature in black ink, reading "Richard B. Vasquez".

Richard B. Vasquez
Assistant Inspector General for Audit
Readiness and Global Operations

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Introduction

Objective

The objective of this audit was to determine whether the Navy and the Defense Logistics Agency (DLA) identified and obtained spare parts that the Navy needed to meet F/A-18 E/F Super Hornets (Super Hornets) readiness requirements. See Appendix A for a discussion of the scope and methodology and prior audit coverage related to the objective.

Background

The Super Hornet is a fighter and attack aircraft that provides escort and fleet air defense as well as offensive capabilities. The aircraft can target enemy fighter aircraft and attack ground and surface targets. The Super Hornet is the newest model of F/A-18 with increased maneuverability, range, and payloads compared to the legacy Hornets.¹ As of April 2018, when we selected our nonstatistical sample of locations of strike fighter squadrons, the Navy had 542 Super Hornets assigned to training, test and evaluation, and strike fighter squadrons across the world. The Super Hornet has single-seat (F/A-18 E) and two-seat (F/A-18 F) models; Figure 1 shows an image of the Super Hornet.



Figure 1. F/A-18 Super Hornet
Source: The Navy.

¹ Legacy Hornets include the F/A-18 A through D models. In 1999, the Super Hornet entered operational service with the Navy.

Spare Parts

A spare part is an item purchased for replacement, replenishment of stock, or for use in the maintenance, overhaul, and repair of equipment, such as aircraft.

A spare part can be a repairable or a consumable part.

1. **Repairable Part.** A durable item that, when broken, can be economically restored through regular repair procedures.
2. **Consumable Part.** Any item or substance that, upon installation, cannot be economically repaired.

Organizations That Supply Spare Parts for the Super Hornet

The Naval Air Systems Command (NAVAIR), the Naval Supply Systems Command (NAVSUP), and the DLA work together to maintain the spare parts for the Navy's fleet of Super Hornets. The DoD Supply Chain Materiel Management Procedures state that DoD Components will collaborate to operate an integrated materiel distribution system and use consistent performance and cost criteria to manage asset visibility of inventory and repairs.²

Naval Air Systems Command

NAVAIR provides life-cycle support of naval aviation aircraft, weapons, and systems operated by the Navy and Marine Corps. Life-cycle support includes designing, developing, acquiring, testing, and supporting the systems throughout the life of the weapon systems. The Naval Aviation Program Executive Officers (PEOs) and their assigned program managers are responsible for meeting the cost, schedule, and performance requirements of their assigned weapon systems.

As a component of NAVAIR, the PEO for Tactical Aircraft Programs (PEO[Tactical]) oversees multiple aircraft and weapon systems, including the Super Hornet. As part of the PEO(Tactical), the Program Management Office (PMA-265) acquires, delivers, and sustains the Super Hornet.³ To sustain the Super Hornet, the PMA-265 coordinates with NAVSUP and the DLA for the repair and acquisition of spare parts.

² DoD Manual 4140.01, Volume 5, "DoD Supply Chain Materiel Management Procedures: Delivery of Materiel," February 10, 2014. On September 17, 2018, the Manual was updated and incorporated Change 1. However upon review, we determined that the Manual included similar instructions requiring DoD Components to collaborate to operate an integrated supply system.

³ The F/A-18 and EA-18G Program Management Office (PMA-265) manages the F/A-18 A through F models and the EA-18G model. The EA-18G is a Growler, the most recent model of the Hornet family. Our review focused on the Super Hornets, though some of the parts reviewed may also be used on the other aircraft models.

In addition to the PMA-265, the Fleet Readiness Centers are Navy maintenance providers with NAVAIR. The Fleet Readiness Centers have eight locations at Naval Air Stations and facilities in the United States and Japan. The Fleet Readiness Centers provide support for naval aviation by maintaining and overhauling aircraft, engines, component and support equipment, and the services to maintain them.

Naval Supply Systems Command

NAVSUP manages and supports a global supply system to provide material for Navy aircraft, surface ships, submarines, and their associated weapon systems. NAVSUP Weapon Systems Support (WSS), a major organization of NAVSUP, provides program, supply, and logistics support for the Navy's ships, aircraft, and weapon systems from its two Pennsylvania locations in Mechanicsburg and Philadelphia. NAVSUP WSS Philadelphia provides support for naval aviation weapon systems, and manages the supply chain for repairable parts.

Defense Logistics Agency

The DLA provides worldwide logistics support to the Military Services, DoD agencies, and foreign countries. DLA Aviation supports weapon systems, such as airframes, engines, and missiles. For the Super Hornet, DLA Aviation procures flight-control surfaces, high-priority parts, and consumable parts needed to keep the aircraft mission capable.⁴ Flight-control surfaces are any replaceable parts visible on the outside of the plane that attach to the main body of the aircraft, including the wings, rudders, tails, and horizontal stabilizers.

Supply Chain Management

The Super Hornet's supply chain management includes the organizations that supply spare parts for the Super Hornet—NAVAIR, NAVSUP WSS, and the DLA. The Navy orders spare parts for the Super Hornet based on forecasting the need for the spare part or based on aircrew and maintainers (aircraft maintenance personnel) identifying the need for the spare part.⁵ Forecasting is the process of analyzing the historical need for spare parts to anticipate the future need. The Commander, Naval Air Forces Instruction 4790.2C, "The Naval Aviation Maintenance Program (NAMP)," provides an overview of the process to identify and order materials for aircraft including the Super Hornet.

⁴ Commander, Naval Air Forces Instruction 4790.2C, "The Naval Aviation Maintenance Program (NAMP)," January 15, 2017, defines the material condition of an aircraft that can perform all of its missions as fully mission capable. An aircraft that is not capable of performing any of its missions is defined as not mission capable.

⁵ We use the term aircrew to refer to the pilot and weapon systems officer for the two-seat F model and for the pilot in the single-seat E model.

Forecasting, Identifying, and Obtaining Spare Parts

According to NAVAIR officials, NAVAIR develops forecasts of future spare parts needed based on material requirements for inspections, stock, and comparison of actual demand to NAVSUP's and DLA's demand metrics. According to Navy and DLA officials, NAVAIR also coordinates with NAVSUP and the DLA to determine whether the supply chain can support the required demand. Aircrew or squadron maintainers identify aircraft parts that need to be replaced. The squadron maintainers verify the problems identified by the aircrew and order the replacement spare part in the Optimized Organizational Maintenance Activity system.⁶ Then the Aviation Support Division (ASD) fills the order. The ASD receives the requests for spare parts and delivers the spare parts. The Fleet Readiness Centers, NAVSUP WSS, and DLA Aviation play a role in spare parts ordering, depending on whether the spare part is a repairable or consumable part and whether the spare part is in stock. Table 1 describes the roles of the Fleet Readiness Centers, NAVSUP WSS, and DLA Aviation in the ordering process.

Table 1. Process Used to Order Repairable or Consumable Spare Parts Depending on Availability

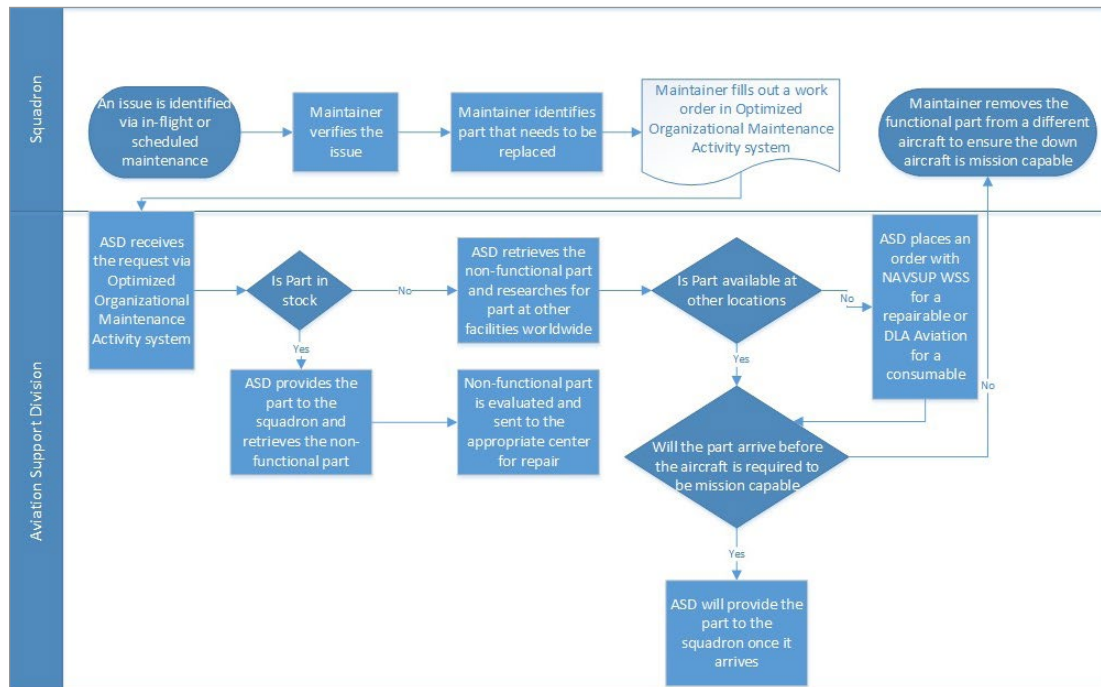
Availability	Repairable Spare Parts	Consumable Spare Parts
In Stock	The ASD provides the part to the squadron for replacement and takes the non-functional part to the assigned Fleet Readiness Center where the part is evaluated for repairs	The ASD provides the part to the squadron
Not in Stock	The ASD orders the part from NAVSUP WSS	The ASD orders the part from DLA Aviation

Source: The DoD OIG.

⁶ The Naval Aviation Logistics Command Management Information System Optimized Organization Maintenance Activity is a computer-based system used to document the work conducted by most Navy and Marine Corps organizational level activities performing maintenance in support of its own operations.

Figure 2 describes the process that the Navy uses to identify and order spare parts according to the NAMP and interviews with Navy officials.

Figure 2. The Navy's Process to Identify and Order Spare Parts



Source: The DoD OIG.

Cannibalization in Aircraft

When the supply chain cannot provide needed spare parts, the NAMP allows maintainers to remove working parts from an aircraft and install those parts on another aircraft to make the aircraft mission capable. This process of moving parts from one aircraft to another is known as cannibalization. For example, if a generator on aircraft A fails, and aircraft B has a working generator but is not mission capable because of a faulty antenna, the maintainers may move the working generator from aircraft B to aircraft A. This movement of the generator allows the Navy to use aircraft A for the mission and leaves aircraft B with two nonworking parts—the generator and the antenna.

The NAMP states that cannibalization of aircraft equipment is an acceptable management choice, but only when it is necessary to meet operational readiness. The NAMP authorizes the Naval Air Forces Commander to approve cannibalization of parts from aircraft that have been non-mission capable (not flown) in over 90 days.

Independent Logistics Assessment for the Super Hornet

(FOUO) A logistics assessment is an analysis of a program's supportability planning performed by an independent team of subject matter experts not directly associated with the program being assessed.⁷ The DoD calls this analysis an independent logistics assessment (ILA). During our audit, [REDACTED]

[REDACTED] We reviewed the ILA summary to determine how the findings and recommendations outlined in the assessment related to our audit objective. See the Finding for the specific sections of the ILA that relate to our audit and Appendix B for a more detailed summary of the 2018 ILA.

Spare Parts Reviewed

We reviewed a nonstatistical sample of 5 of 20 critical spare parts that directly impact the mission capability of Super Hornets. Critical parts are parts that, if missing or non-functional, would result in failure of a system to perform a required function. Navy officials identified the 20 critical spare parts in the Strike Fighter Wings' Watch List from May 25, 2018. The Watch List tracks the critical spare parts that are in demand and affect aircraft readiness.

We selected the five critical spare parts based on those parts with the highest demand and longest time for Navy and DLA officials to obtain parts to eliminate the backorders for these five parts.⁸ These spare parts included repairable and consumable parts manufactured by contractors and repaired by both Navy and contractor organizations. We evaluated the five critical spare parts to determine whether Navy and DLA officials identified and obtained the spare parts. Table 2 shows the five critical spare parts that we reviewed.

⁷ DoD Logistics Assessment Guidebook, July 2011.

⁸ Backordered parts are parts that are needed immediately or have a forecasted need but will not be available until after the part is needed.

Table 2. Five Critical Spare Parts Selected for Review

Part Name	Part Description	Responsible Organization	Consumable or Repairable Spare Part
Generator Converter Unit	The system that generates electrical power for the aircraft.	NAVSUP WSS	Repairable
Multipurpose Color Display Replacement	The center cockpit display.	NAVSUP WSS	Repairable
Advanced Targeting Forward Looking Infrared Electro-Optical Sensor Unit	A primary sensor that enables precision targeting of air-to-ground and air-to-air munitions.	NAVSUP WSS	Repairable
Communication Antenna	An antenna that transmits and receives radio frequencies.	DLA	Consumable
Rudder Actuator	A mechanical device on the tail of the aircraft that moves the rudder.	NAVSUP WSS	Repairable

Source: The DoD OIG.

Review of Internal Controls

DoD Instruction 5010.40 requires DoD organizations to implement a comprehensive system of internal controls that provides reasonable assurance that programs are operating as intended and to evaluate the effectiveness of the controls.⁹ We identified internal control weaknesses concerning the Navy not performing an ILA for the Super Hornet fleet, which would have identified the internal control weaknesses we found related to obsolete materials, production and repair capabilities, and the Navy's need for technical data. We will provide a copy of the report to the senior official responsible for internal controls in the Department of the Navy.

⁹ DoD Instruction 5010.40, "Managers' Internal Control Program Procedures," May 30, 2013.

Finding

The Navy and DLA's Supply Chain Management Deficiencies Caused Backorders for Super Hornet Spare Parts

For the five critical spare parts we reviewed, the Navy and DLA identified the quantity of those parts that the Navy needed to maintain the operational readiness of the Super Hornet fleet. However, Navy and DLA officials could not obtain the quantity needed to satisfy current demand and fill backorders.

(FOUO) Our review of the five critical spare parts and the [REDACTED] identified specific causes contributing to the spare part backorders:

- obsolete materials, which are materials that are no longer made or available for purchase;
- manufacturing delivery and repair delays; and
- the Navy's lack of technical data used in producing or repairing spare parts.

Had Navy officials performed an overall ILA for the Super Hornet Program between 2000 and 2018, the Navy would have identified causes for the deficiencies in obtaining spare parts and given the Navy the information needed to develop plans to correct the deficiencies.

In addition, PMA-265 officials stated that a lack of sustainment funding contributed to the difficulties with obtaining spare parts. However, officials from the Chief of Naval Operations office stated that PMA-265 received reduced funding because PMA-265 had under-executed its budget and naval aviation sustainment budgets were all reduced.

As a result, Navy officials had cannibalized aircraft to obtain needed spare parts—removing working parts from an aircraft and installing those parts on a second aircraft to make the second aircraft operational. Therefore, each act of cannibalization increased the risk of damage to the aircraft or part, including:

- the maintainer breaking the part during removal or reinstallation, and
- corrosion from sections of the aircraft being removed and exposed to the elements during cannibalization or while awaiting a new part.

In addition, cannibalization takes time and money because a maintainer has to uninstall a usable part from one aircraft, reinstall the usable part on another aircraft, and then install the replacement part, once received, on another aircraft. From October 2016 to December 2018, for the E and F models of the Super Hornet the average cannibalization rate was about 10 percent of operational flights for the E model and about 12 percent of operational flights for the F model. Furthermore, because of backorders and cannibalization the Navy may not meet sudden increases in operational mission readiness requirements or the Secretary of Defense's goal of 80 percent mission capable rate for the Super Hornet fleet by the end of FY 2019.

Navy Officials Identified Spares Needed to Maintain Operational Readiness but Could Not Meet Demand

For the five critical spare parts that we reviewed, the Navy and the DLA identified the quantity of those parts that the Navy needed to maintain operational readiness for the Super Hornet fleet. However, Navy and DLA officials could not obtain the quantity needed to satisfy current demand and fill backorders. Aircrew and squadron maintainers followed the procedures for ordering parts described in the NAMP. The Navy and the DLA also identified spare parts through forecasting, the process of analyzing the historical need for spare parts to anticipate the future need for spare parts.

Aircrew and Maintainers Identified and Ordered Spare Parts

Aircrew and aircraft maintainers identified the spare parts that needed to be replaced on the Super Hornets and then followed the procedures for ordering spare parts described in the NAMP. The squadron maintainers stated that they identified needed spare parts while performing scheduled maintenance or when notified by aircrew about problems identified while operating the aircraft. The squadron maintainers then ordered the spare parts in the Optimized Organizational Maintenance Activity system.

Navy and DLA Officials Forecasted Spare Parts

The Navy and the DLA identified spare parts through forecasting. A NAVSUP WSS official stated that NAVSUP WSS forecasted spare parts needs based on factors such as historical trends, wear, and repairs of parts. In addition, to generate forecasts of needed spare parts, the DLA used statistical forecasting with input from the Fleet Readiness Centers, historical sales, and information about parts returned from customers. According to PMA-265, NAVSUP WSS, and DLA officials the offices coordinated through e-mail, discussions, and quarterly meetings.

According to Navy and DLA officials, NAVSUP and DLA officials forecasted for parts based on historical data and all three offices worked together to support the demand.

Five Critical Spare Parts Were Backordered

(FOUO) Although Navy and DLA officials identified the quantity of spare parts needed, the officials could not obtain the quantity needed to satisfy current demand and fill backorders. For four of the five critical spare parts, [REDACTED] Specifically, the Generator Converter Unit backorders were [REDACTED] However, for one of the five critical spare parts, the Advanced Targeting Forward Looking Infrared Electro-Optical Sensor Unit [REDACTED]. Navy and DLA officials [REDACTED] Table 3 shows the backorders for the five critical spare parts, first from the Strike Fighter Wings as of May 2018 and then from NAVSUP WSS and the DLA as of May 2019. The table also shows the “Get Well Date” according to NAVSUP WSS and the DLA, which is the estimated date when the organization responsible for the spare part expects backorders to be filled.

(FOUO) Table 3. Backorders for Spare Parts and Get Well Dates

(FOUO) Spare Part	Responsible Organization	Strike Fighter Wings' Data	NAVSUP WSS and DLA Data	
		Backorders as of May 2018	Backorders as of May 2019	Get Well Date as of May 2019
Generator Converter Unit	NAVSUP WSS	[REDACTED]	[REDACTED]	[REDACTED]
Multipurpose Color Display Replacement	NAVSUP WSS	[REDACTED]	[REDACTED]	[REDACTED]
Advanced Targeting Forward Looking Infrared Electro-Optical Sensor Unit	NAVSUP WSS	[REDACTED]	[REDACTED]	[REDACTED]
Communication Antenna	DLA	[REDACTED]	[REDACTED]	[REDACTED]
Rudder Actuator	NAVSUP WSS	[REDACTED]	[REDACTED]	[REDACTED] (FOUO)

(FOUO) [REDACTED]
[REDACTED]

Source: The Navy and the DLA.

Navy Officials Did Not Perform ILAs to Identify Causes for Deficiencies in Obtaining Spare Parts

(FOUO) Our review of the five critical spare parts and the [REDACTED] identified specific causes contributing to the backorders:

- obsolete materials, which are materials that are no longer made or available for purchase;
- manufacturing delivery and repair delays; and
- the Navy's lack of technical data used in producing or repairing spare parts.

Had Navy officials performed an overall ILA for the Super Hornet Program between 2000 and 2018, the Navy would have identified causes for the deficiencies in obtaining spare parts and given the Navy the information needed to develop plans to correct the deficiencies. According to the November 2013 DoD Instruction 5000.02, an ILA should be performed every 5 years.¹⁰

In 1999, the Super Hornet entered operational service with the Navy and a program-level ILA for the Super Hornet was performed in 2000. NAVAIR also conducted ILAs for individual systems in the Super Hornet in 2012 and 2017. An ILA was also conducted in 2007 for another aircraft platform managed by PMA-265, which shares some parts and processes with the Super Hornet. However, the Navy did not perform another program-level ILA of the Super Hornet until 2018 which PMA-265 requested to support Super Hornet readiness recovery planning.¹¹ By performing an ILA, the Navy would have identified causes for the deficiencies in obtaining spare parts for the Super Hornets and given the Navy the information needed to develop plans to correct the deficiencies causing backorders. We are not making a recommendation at this time since the Navy performed an ILA in 2018. For additional details about the ILA, see Appendix B.

In addition, PMA-265 officials stated that a lack of sustainment funding contributed to difficulties with maintaining aircraft. However, officials from the Chief of Naval Operations office stated that PMA-265 received reduced funding because PMA-265 had under-executed its budget and naval aviation sustainment budgets were all reduced.

¹⁰ DoD Instruction 5000.02 (Interim), "Operation of the Defense Acquisition System," November 26, 2013.

¹¹ ILA Summary for the F/A- 18 E/F Program, "Return to Readiness Review," October 17, 2018.

Obsolete Materials Limited Repairs

(FOUO) We determined during our review of the five critical spare parts that obsolete materials, which are materials that are no longer made or available for purchase, contributed to the spare parts backorders. For example, the multipurpose color display replacement, which is a center cockpit display for the Super Hornet, uses a type of Liquid Crystal Display glass that is obsolete. In December 2018, a NAVSUP WSS official stated that the contractor had only 68 pieces of obsolete glass remaining to support the current repair contract. As of May 2019, there were [REDACTED] for the multipurpose color display replacement that the Navy expects to fill in [REDACTED]. A NAVSUP WSS official stated that the Navy was working on approving a new type of glass for the multipurpose color display replacement. In addition, a NAVSUP WSS official explained that the Navy will replace the multipurpose color display replacement with a re-designed large area display glass with deliveries expected to begin in [REDACTED]. Figure 3 shows an example of a multipurpose color display replacement.

... Obsolete materials contributed to the spare parts backorders.



Figure 3. Multipurpose Color Display Replacement Unit for the Super Hornet
Source: The Navy.

(FOUO) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

12

¹² Diminishing manufacturing sources and material shortages are defined by the Defense Acquisition University as the loss or impending loss of manufacturers or suppliers of items, raw materials, or software.

(FOUO) [REDACTED]
[REDACTED]
[REDACTED]

(FOUO) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]. The PMA-265 Program Manager should determine that parts or supplies that are obsolete or are limited in quantity and develop and implement a plan to minimize the impact of obsolete materials, including ensuring the parts or supplies are covered by the obsolescence program.

Spare Parts Delivery and Repair Delays

We found instances of delayed deliveries for the five critical spare parts we reviewed, to include delays from the manufacturer and the Fleet Readiness Centers. For example, DLA's top backordered spare part for the Super Hornet, the communication antenna shown in Figure 4, was affected by manufacturer production delays. A DLA official stated that there was only one vendor capable of manufacturing the antenna. The sole-source contractor moved from Massachusetts to Pennsylvania and experienced delays getting the production line running. Therefore, the DLA did not have a contract in place to obtain the antennas for a 13-month period.

In another example, Navy officials stated that maintainers cannibalized advanced targeting forward looking infrared electro-optical sensor units by replacing broken parts from an electro-optical sensor unit with functioning parts from another unit. Navy officials then sent the cannibalized sensor units to the contractor for repairs. According to the contract, the contractor cannot begin repairs on units

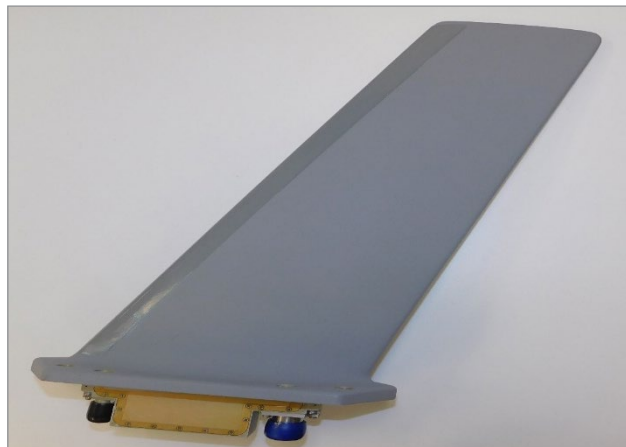


Figure 4. F/A-18 Super Hornet Communication Antenna
Source: The DLA.

received that are missing parts until the contractor receives instructions on how to proceed. Examples of these types of problems could include a unit that had parts that belonged to a different unit or a unit that had missing parts. Until the Navy provided instructions or parts to the contractor, the contractor could not begin work on the electro-optical sensor unit, delaying the repair and delaying the return of the unit to the Navy for use.

Furthermore, NAVSUP WSS and Fleet Readiness Center officials stated that there were delays in repairing the rudder actuator, shown in Figure 5. These delays in repairing the rudder actuator were because only one or two of three test benches at the Fleet Readiness Center's Southwest facility were operational at any given time. Fleet Readiness Center officials use the test benches to perform quality tests and certify the repaired spare parts for use. There are repairable spare parts, in addition to the rudder actuator, that require test benches, but the Fleet Readiness Center's Southwest facility did not have enough operational test benches to handle the demand for required quality tests and certification of repaired spare parts. Therefore, the lack of operational test benches impacted the timeframes for repairing spare parts.

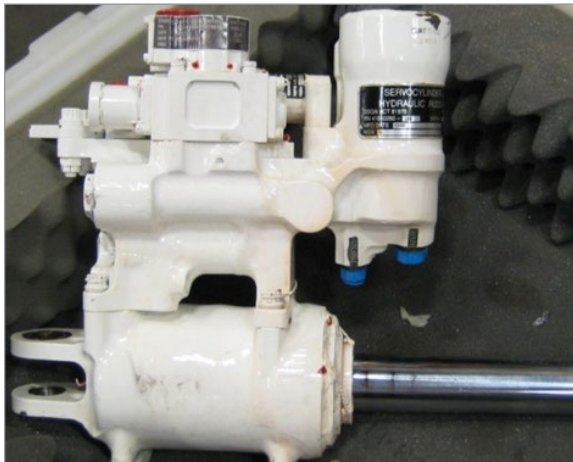


Figure 5. Rudder Actuator for the Super Hornet
Source: The Navy.

(FOUO) [REDACTED]

(FOUO) [REDACTED]

The PMA-265 Program

Manager should develop alternative contracting sources to eliminate delivery

(FOUO) delays. In addition, the PMA-265 Program Manager, in coordination with organizations responsible for managing repair materials and support equipment for the Navy, should develop and implement plans to ensure the availability of those materials and support equipment, such as test benches, needed to complete repairs.

Lack of Technical Data to Produce or Repair Spare Parts

Based on our review of the five spare parts, the Navy lacked the technical data needed to produce and repair spare parts, although the Navy had the rights to that data. When the contractor is unable to produce or repair the spare parts, one solution is for the DoD to find alternative sources which means the DoD needs technical data to buy and sustain parts. Technical data is required to produce or sustain the part including drawings, operating and maintenance instructions, specifications, inspections and test procedures, instruction cards, engineering and support analysis data, special purpose computer programs, or audiovisual presentations. Having access to all or portions of the technical data would allow the DoD to develop maintenance capabilities within the DoD, compete contracts to acquire or repair the spare parts, and develop alternative sources when the primary contractor is unable to meet the demand for a spare part. According to NAVSUP WSS officials, when the Navy did not have the rights to the data, there was a high cost of acquiring the rights and the cost of the data was prohibitive.

The Navy lacked the technical data needed to produce and repair spare parts.

For the communication antenna, the DLA transferred management between departments without a contract in place. According to a DLA official, there was confusion over whether a performance-based logistics contract could be established with the prime contractor for the aircraft (Boeing) to supply the communication antenna. However, upon further research, the DLA found that Boeing could not provide the spare part, and the Government did not own the technical drawings for the part. Therefore, the DLA could not acquire the communication antenna from anyone other than the sole-source manufacturer.

In another example, the repair and production of generator converter units, which regulates voltage, is performed by a sole-source contractor. A NAVSUP WSS official stated that the contractor did not have the capacity to keep up with the demand for generator converter units. In addition, the contractor was slow in providing cost and pricing data leading to contract award delays. However, Navy officials have taken steps to improve generator converter unit reliability and reduce shortages by purchasing kits from the sole-source contractor to retrofit the units. As of February 2019, NAVSUP officials awarded a 5-year, long-term repair contract that would reduce the production time of parts and incentivize the contractor to

[illegible]

Lack of Sustainment Funding for PMA-265

Sustainment funding includes funds to obtain spare parts and the support needed to, among other things, to obtain, repair, and maintain those parts. Based on documentation provided by NAVAIR officials and discussions with Navy officials, from FYs 2013 through 2016, PMA-265 requested more funding for sustainment than it received. Specifically, from FYs 2013 through 2016 PMA-265 requested

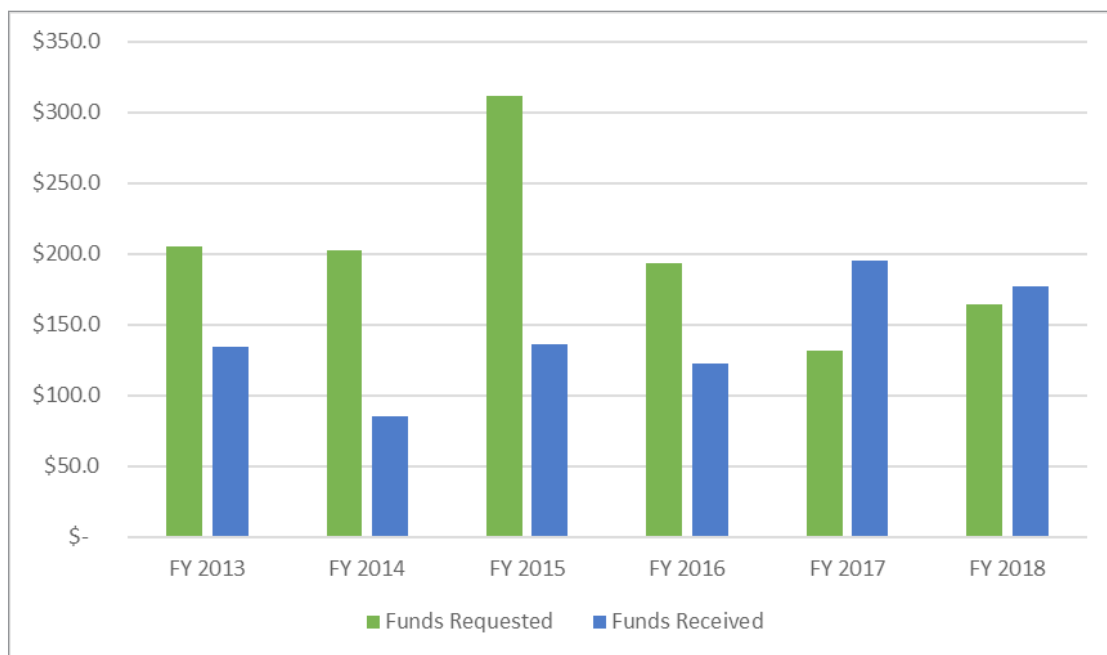
between \$193.6 and \$311.5 million and received between \$85.2 million and \$136.3 million. For example, in FY 2016 PMA-265 requested \$193.6 million for spare parts, but only received \$122.3 million.

From FYs 2013 through 2016, PMA-265 requested more funding for sustainment than it received.

Chief of Naval Operations officials explained that all budgets were reduced and that during that time (FYs 2013 through 2016) sustainment funding for naval aviation programs was not the priority with the limited funds available.

The Chief of Naval Operations officials also explained that, since FY 2016, funding had increased; however, it takes time to see the effects of the additional funding. For example, in FY 2017 PMA-265 requested \$131.7 million for spare parts, and it received \$195.3 million. Because PMA-265 received an increase in funding in FYs 2017 and 2018, we are not making a funding recommendation. Figure 6 shows a comparison of the spare part funding PMA-265 requested and received from FYs 2013 through 2018.

Figure 6. Comparison of PMA-265 Spare Part Funds Requested and Received (in Millions)



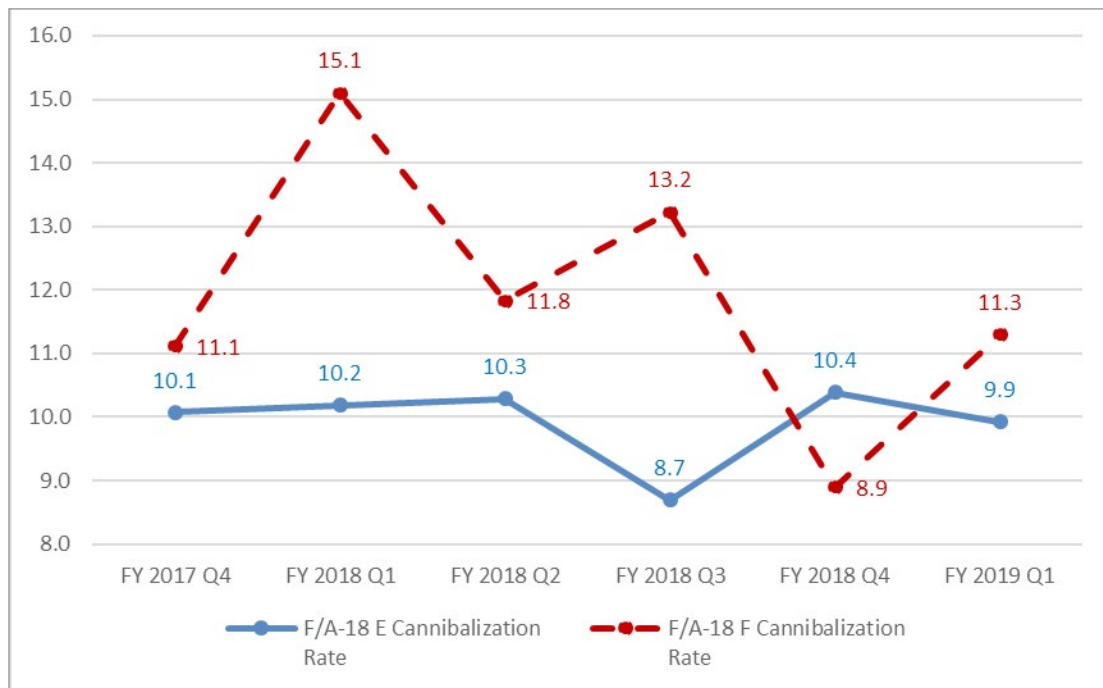
Source: The Navy.

The Navy Cannibalized Super Hornets and May Not Meet Readiness Goals

As a result of the delays to obtain missing spare parts, Navy officials cannibalized parts from aircraft already waiting for parts to use in other aircraft, allowing the Navy to keep some aircraft operational. The United States Code states that the DoD must report quarterly cannibalization rates to Congress.¹³

The cannibalization rate reported is the average number of cannibalizations that occur for every 100 operational flights. Therefore, for the F/A-18 E Super Hornet, the cannibalization rate was around 10 percent for 5 of the 6 quarters shown in Figure 7. For the F/A-18 F Super Hornet, the cannibalization rate ranged from about 9 to 15 percent for the 6 quarters shown in Figure 7. Figure 7 shows the most recent reported cannibalization percentage rates for each Super Hornet series.

Figure 7: The Cannibalization Percentage Rates for the F/A-18 E and F



Source: The Navy.

The NAMP allows the practice of cannibalization to move a part from one aircraft to another aircraft to meet a mission requirement. Squadron maintainers stated that they would move a part from one aircraft to the next to ensure that each aircraft could accomplish its mission. For example, squadron maintainers would move a part from aircraft A to aircraft B so that B could complete its mission on

¹³ Section 117, title 10, United States Code, 2012.

a given day. The next week they would move the same part to aircraft C so that it could complete its mission since new parts still had not arrived. The lack of spare parts causes maintainers to move the same part multiple times.

The NAMP requires approval from the Naval Air Forces Commander before removing a part from an aircraft that has not flown in over 90 days. Maintainers stated that they could cannibalize parts within their squadron on an aircraft that had been flown within 30 days. According to squadron officials, for aircraft that have flown within a period greater than 30 days but less than 90 days, squadron officials must request approval from the Wing Commander before removing a part. According to squadron officials, they would cannibalize parts before the thresholds to avoid the longer approval chain to move a part.

For example, if aircraft A had not flown in 80 days because of a broken part, the squadron must request permission from the Wing Commander to cannibalize a part from aircraft B. The part would be placed on aircraft A to fly a scheduled training mission even though aircraft C may have been available to use instead. The NAMP does not restrict this practice. Therefore, the Naval Air Forces Commander should review the Navy's cannibalization practice to determine whether aircraft maintainers are using cannibalization to avoid approval from higher level officials as required in Navy cannibalization guidance and determine whether the Navy should make changes to the guidance.

Each act of cannibalization increases the risk of damage to the aircraft. During cannibalization, a part may be broken during the removal process, during transfer to the second aircraft, or in the installation process. In addition, an aircraft may have sections that are not normally open and exposed to the elements as maintainers cannibalize parts and while the aircraft waits for replacement parts. This exposure can lead to corrosion or other forms of damage. According to Navy officials, cannibalization also takes time and money because a maintainer uninstalls a usable part from one aircraft, reinstalls that usable part on another aircraft, and then installs the replacement part once received on another aircraft. Any parts that are broken, damaged, or exposed to corrosion will need to be repaired or replaced, involving additional time and costs.

(FOUO) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Reducing wait times for spare parts will improve the

(FOUO) operational readiness of aircraft and reduce the need for cannibalization.

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED] If the Navy needed to deploy additional squadrons, the Navy may not be able to obtain or cannibalize enough parts to support the mission.

From October 2016 through December 2018, for the E and F models of the Super Hornet the average cannibalization rate was about 10 percent of operational flights for the E model and about 12 percent of operational flights for the F model.

From October 2016 through December 2018, for the E and F models of the Super Hornet the average cannibalization rate was about 10 percent of operational flights for the E model and about 12 percent of operational flights for the F model. The backorders in combination with the acts of cannibalization may result in the Navy not being able meet sudden increases in operational mission readiness requirements and the Navy may not meet the Secretary of Defense's goal of at least an 80-percent mission capable rate for the Super Hornet fleet by the end of FY 2019.¹⁴

Management Actions Taken

The Navy has taken actions to improve the readiness of Super Hornets. The Chief of Naval Operations established the Naval Aviation Maintenance Center for Excellence at Naval Air Station Lemoore, California, which is a program to return Super Hornets to operational status.¹⁵ The Super Hornets that go to the Center for Excellence are long-term down aircraft, which include those that are required to undergo a depot-level planned maintenance interval every 6 years.¹⁶ The Naval Aviation Maintenance Center for Excellence can repair 12 Super Hornets at a time. The Navy plans to open seven additional centers and deploy training personnel from the centers to squadrons and wings to improve local maintenance procedures. A Navy official stated that the Naval Aviation Maintenance Center for Excellence would help the Navy track the actual time and costs involved to rebuild

¹⁴ Secretary of Defense Memorandum, "NDS [National Defense Strategy] Implementation-Mission Capability of Critical Aviation Platforms," September 17, 2018.

¹⁵ Chief of Naval Operations Notice 5400, "Establishment of Naval Aviation Maintenance Center for Excellence, Lemoore, California," July 17, 2018.

¹⁶ A planned maintenance interval includes inspection of the aircraft, particularly the airframe, and modifications to keep it current.

an aircraft. As a result, the Navy would be able to better track the repair process from start to finish, identify system process improvements and cost savings, and make best practice recommendations to the squadrons to improve readiness.

(FOUO) [REDACTED]

[REDACTED]
[REDACTED] For example, [REDACTED]

[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

[REDACTED]. Specifically, the Navy established the Reliability Control Board process, and its purpose is to ensure the reliability and readiness program is identifying adverse trends, and appropriate corrective actions are initiated and completed with expected results. [REDACTED]

[REDACTED]

[REDACTED]¹⁷

Furthermore, the Office of the Assistant Secretary of the Navy for Research, Development, and Acquisition approved a justification and approval for an award of a performance-based logistics contract through other than full and open competition for the sustainment of Super Hornet aircraft. Under the performance-based logistics contract, the Navy is tasking the aircraft designer and producer (Boeing) to assist the Navy in improving the reliability and maintainability of aircraft after they deploy. The contract involves engineering and related services to monitor and improve aircraft readiness through identifying and implementing process and parts improvements. Therefore, the Navy has established initiatives to address readiness and spare part issues with the Super Hornets; however, additional actions are still needed as outlined in the following recommendations.

¹⁷ A degrader is a component (spare part) or maintenance process that most impacts aircraft readiness.

Recommendations, Management Comments, and Our Response

Recommendation 1

We recommend that the PMA-265 Program Manager:

- a. **Determine the parts or supplies that are obsolete or are limited in quantity and develop and implement a plan to minimize the impact of obsolete materials, including ensuring the parts or supplies are covered by the obsolescence program.**

PMA-265 Program Manager Comments

The PMA-265 Program Manager agreed with the recommendation, stating that PMA-265 has established an arrangement with the U.S. Army Combat Capabilities Command, in Huntsville, Alabama, to obtain system, subsystem, and component-level data that will be tracked for obsolescence impact and will be the foundation of the Obsolescence Management Plan for all F/A-18 aircraft.

Our Response

Comments from the Program Manager addressed all specifics of the recommendation; therefore, the recommendation is resolved but will remain open. We will close this recommendation once PMA-265 provides documentation verifying it has identified a list of parts or supplies that are obsolete or limited in quantity and developed and implemented a plan to minimize the impact of the obsolete parts.

- b. **Develop alternative contracting sources to eliminate delivery delays.**

PMA-265 Program Manager Comments

The PMA-265 Program Manager agreed with the recommendation, stating that PMA-265 is coordinating with NAVSUP and the DLA to identify and develop sources of supply when the original equipment manufacturer for a component cannot keep pace with repair demand or has decided to no longer sustain a repair or production line. These efforts will be ongoing throughout the remaining service life of all F/A-18 aircraft.

Our Response

Comments from the Program Manager addressed all specifics of the recommendation; therefore, the recommendation is resolved but will remain open. We will close this recommendation once PMA-265 provides documentation verifying it has developed alternative contracting sources to eliminate delivery delays.

- c. **Develop and implement plans, in coordination with the organizations responsible for managing repair materials and support equipment for the Navy, to ensure the availability of those materials and support equipment needed to complete repairs.**

PMA-265 Program Manager Comments

The PMA-265 Program Manager agreed with the recommendation, stating that PMA-265, in conjunction with the Naval Air Warfare Center Aircraft Division Lakehurst and the Super Hornet Fleet, began an initial support equipment evaluation in 2019 to:

- address and identify issues regarding repair materials and support equipment and
- develop a mitigation plan with available funding.

The support equipment team has conducted evaluations to assess the material condition of support equipment used on F/A-18s to determine investments that need to be made to reconstitute aging and worn equipment.

Our Response

Comments from the Program Manager addressed all specifics of the recommendation; therefore, the recommendation is resolved but will remain open. We will close this recommendation once PMA-265 provides documentation verifying it has developed and implemented plans to ensure repair materials and support equipment are available to complete repairs.

- d. **Develop and implement a strategy to obtain technical data, to obtain access to technical data, or to mitigate the barriers when the contractor owns the data rights in order to increase the Navy's repair capability.**

PMA-265 Program Manager Comments

The PMA-265 Program Manager agreed with the recommendation, stating PMA-265 started a comprehensive initiative to gain access to technical data from the F/A-18 original equipment manufacturer and subsystems vendors. PMA-265 has identified data thought to have been developed at the Government's expense and has requested delivery of the data.

Our Response

Comments from the Program Manager addressed all specifics of the recommendation; therefore, the recommendation is resolved but will remain open. We will close this recommendation once PMA-265 provides documentation verifying it has developed and implemented a strategy to obtain technical data to increase the Navy's repair capability.

Recommendation 2

We recommend that the Naval Air Forces Commander review the Navy's cannibalization practice to determine whether aircraft maintainers are using cannibalization to avoid obtaining approval from higher level officials as required in the Navy cannibalization guidance, and determine whether the Navy should make appropriate changes to the guidance.

Naval Air Forces Commander Comments

The Naval Air Forces Commander agreed with the recommendation, stating that over the next 90 days the Naval Air Forces Commander will collect all necessary data on a sample of five randomly selected Super Hornet squadrons to analyze the Navy's compliance with the NAMP regarding cannibalization. This review will include both the 30 and 90-day thresholds in the NAMP. The cannibalization process will be reviewed to ensure that the number and frequency of all cannibalization events met the intent of the NAMP. If the Commander finds that the squadrons did not meet the intent of the NAMP, it will address the changes that should be made to prevent or detect errors prior to occurrence. The Commander will provide the results of the review and the corrective actions to the audit team for review.

Our Response

Comments from the Naval Air Forces Commander addressed all specifics of the recommendation; therefore, the recommendation is resolved but will remain open. We will close this recommendation once the Naval Air Forces Commander provides documentation verifying it has reviewed the Navy's cannibalization practice and provides the corrective actions implemented.

Appendix A

Scope and Methodology

We conducted this performance audit from March 2018 through September 2019 in accordance with generally accepted government auditing standards. Those standards required that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Universe and Sample of Super Hornets and Spare Parts

To identify spare parts for our audit, we started by identifying aircraft and their respective locations. The PMA-265 identified 542 Super Hornets in the Navy, as of April 2018. The PMA-265 provided a list of the 542 Super Hornets that included each aircraft's location, the assigned squadron, and the operational readiness status from April 1, 2017, through March 31, 2018. The 542 Super Hornets were assigned to 45 squadrons. Squadrons and their associated Super Hornets serve different functional purposes, including training; research, development, and testing; and strike fighter. We chose to visit the locations with strike fighter squadrons because of the squadron's requirement to maintain a larger number of mission-capable aircraft. These squadrons were at NAS Oceana, Virginia, and NAS Lemoore, California.

An official from the Commander, Strike Fighter Wing Atlantic provided the Strike Fighter Wings' Watch List of 20 critical spare parts that directly impact the mission capability of the Super Hornets. The list shows historical trends for these 20 spare parts critical for the aircraft to be mission capable and the shortages affecting the fleet. We selected a nonstatistical sample of 5 critical spare parts from a universe of 20 critical spare parts to determine whether Navy and DLA officials identified, requested, and obtained the spare parts. We based our selection on the spare parts with the highest demand and that had the longest time for Navy and DLA officials to obtain enough spare parts to eliminate backorders. We selected the following five spare parts.

1. Generator Converter Unit
2. Multipurpose Color Display Replacement
3. Advanced Targeting Forward Looking Infrared Electro-optical Sensor Unit
4. Communication Antenna
5. Rudder Actuator

Site Visits and Interviews

We conducted site visits to the following locations to perform our audit.

- NAVAIR's PMA-265 office and squadrons at NAS Patuxent River, Maryland
- PEO(Tactical) office at NAS Patuxent River
- Commander, Strike Fighter Wing Atlantic squadrons and Fleet Readiness Center Mid-Atlantic at NAS Oceana
- Commander, Strike Fighter Wing Pacific squadrons and Fleet Readiness Center West at NAS Lemoore
- Fleet Readiness Center Southwest at NAS North Island, California
- NAVSUP WSS in Philadelphia, Pennsylvania

To determine the roles and responsibilities for the Super Hornet spare parts and sustainment processes, the process of forecasting spare parts, and the constraints in obtaining spare parts, we interviewed officials from:

- PMA-265,
- Strike Fighter Wing Atlantic,
- Strike Fighter Wing Pacific,
- Commander, Fleet Readiness Center,
- NAVSUP WSS, and
- DLA Aviation.

To ensure that the Navy and the DLA properly identified and obtained spare parts presented on the list, we reviewed:

- way forward plans by NAVSUP WSS and DLA Aviation to obtain spare parts needed by the Super Hornet fleet; and
- procurement documents from NAVSUP WSS and DLA Aviation to determine whether the parts needed were procured.

We also visited squadrons and fleet readiness center repair facilities to determine the identification of needed spare parts, the process to ensure Super Hornets are mission capable as required, the constraints in obtaining spare parts, and the impact on readiness due to unavailability of spare parts. Table 4 shows the squadrons we visited to perform our audit.

Table 4. Squadrons Visited

Squadron	Location
Test and Evaluation Squadron 23	NAS Patuxent River
Strike Fighter Squadron (VFA)-14	NAS Lemoore
VFA-32	NAS Oceana
VFA-41	NAS Lemoore
VFA-94	NAS Lemoore
VFA-97	NAS Lemoore
VFA-103	NAS Oceana
VFA-105	NAS Oceana
VFA-106	NAS Oceana
VFA-122	NAS Lemoore
VFA-131	NAS Oceana
VFA-143	NAS Oceana
VFA-146	NAS Lemoore
VFA-213	NAS Oceana

Source: The DoD OIG.

Use of Computer-Processed Data

We did not use computer-processed data to perform this audit.

Prior Coverage

During the last 5 years, the GAO and the DoD Office of the Inspector General (DoD OIG) issued six reports discussing the Navy and the DLA's procurement of spare parts for aircraft. Unrestricted GAO reports can be accessed at <http://www.gao.gov>. Unrestricted DoD OIG reports can be accessed at <http://www.dodig.mil/reports.html>.

GAO

Report No. GAO-18-146SU, "Weapon System Sustainment – Selected Air Force and Navy Aircraft Generally Have Not Met Availability Goals, and DoD and Navy Guidance Need Clarification," April 25, 2018

(FOUO) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]
[REDACTED]

Report No. GAO-17-183, "Defense Logistics – Improved Performance Measures and Information Needed for Assessing Asset Visibility Initiatives," March 16, 2017

The GAO evaluated the progress the DoD made in improving asset visibility initiatives identified in the GAO Strategies, and steps taken to remove asset visibility issues identified on the GAO's High Risk list. The GAO determined that the DoD's supply chain management continues to be a high-risk area due to limitations in asset visibility; making it difficult to obtain timely and accurate information on assets present in the theater of operations.

Report No. GAO-15-350, "Defense Inventory – Services Generally Have Reduced Excess Inventory, but Additional Actions Are needed," April 20, 2015

The GAO identified DoD supply chain management as a high-risk area due to ineffective and inefficient inventory management practices. The GAO made several recommendations to the Navy to ensure adequate oversight of on-order excess inventory termination decisions and necessary performance measures consistent with DoD guidance.

Report No. GAO-14-495, "Actions Needed to Improve the Defense Logistics Agency's Inventory Management," June 19, 2014

The GAO determined that while the DLA met goals to reduce on-hand and on-order excess inventory, the DLA still faced challenges in reducing the number of backorders to meet the DoD's goal of on-order excess inventory to four percent by the end of FY 2016.

DoD OIG

Report No. DODIG-2019-047, "Navy and Marine Corps Backup Aircraft and Depot Maintenance Float for Ground Combat and Tactical Vehicles," January 18, 2019

(FOUO)

Report No. DODIG-2017-050, "Defense Logistics Agency Aviation Negotiated Fair and Reasonable Prices for F402 Engine Spare Parts, but Pricing Errors and Late Deliveries Occurred," January 31, 2017

The DoD OIG determined that although DLA Aviation negotiated fair and reasonable prices for spare parts for the AV-8B Harrier II's engine, DLA contracting officials did not properly enforce contract requirements. As a result, Navy officials scavenged parts from mission ready engines, decreasing the inventory and number of mission-ready engines for the AV-8B Harrier II.

Initial Findings in the ILA for the Super Hornet Program

(FOUO) [REDACTED]
[REDACTED]
[REDACTED]
[REDACTED] Table 5 identifies the [REDACTED] areas reviewed by the assessment team and the number of findings and recommendations per area.

[illegible]

(FOUO) [REDACTED]

(FOUO) Within the body of our report, we discuss our findings as they relate specifically to obsolete materials and the impact of obsolete materials on the readiness of the Super Hornet fleet. [REDACTED]

[REDACTED].

(FOUO) [REDACTED]

[REDACTED]

[REDACTED] According to the PMA-265 Product Support Manager, the Naval Undersea Warfare Center in Keyport supports NAVAIR in managing obsolescence, diminishing manufacturing sources, and material shortages and has access to a program that helps identify components when original equipment manufacturers are unwilling to provide bills of materials, which are lists of materials and components for specific equipment. [REDACTED]

[REDACTED]

[REDACTED]

(FOUO) [REDACTED]

(FOUO) [REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]
- [REDACTED]

(FOUO) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED] This metric shows the time that elapses from the time a customer orders a part to the time the customer receives the part.

(FOUO) [REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

[REDACTED]

- [REDACTED]
- [REDACTED]
- [REDACTED]
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[REDACTED]

(FOUO) [REDACTED]
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[REDACTED]
[REDACTED]

Management Comments

Commander Naval Air Forces



DEPARTMENT OF THE NAVY
COMMANDER NAVAL AIR FORCES
BOX 357051
SAN DIEGO CA 92135-7051

4790
Ser N422C/065
12 Nov 19

From: Commander Naval Air Forces
To: Inspector General, Department of Defense


Subj: DEPARTMENT OF DEFENSE OFFICE OF INSPECTOR GENERAL REPORT ON
PROJECT NO. D2018-D000RK-0124.000

Ref: (a) DoD OIG Report on Project No. D2018-D000RK-0124.000
(b) COMNAVAIRFORINST 4790.2C

1. Reference (a) Recommendation 2: Commander Naval Air Forces review the Navy's cannibalization practice to determine whether aircraft maintainers are using cannibalization to avoid obtaining approval from higher level officials as required in the Navy cannibalization guidance, and determine whether the Navy should make appropriate changes to the guidance.

2. Response: Concur: Commander, Naval Air Forces will collect all necessary data on a sample of randomly selected squadrons to analyze the Forces' compliance with the Naval Aviation Maintenance Program (NAMP) guidance regarding cannibalization. This review will include both 30 and 90-day threshold information. All information gathered will be reviewed to ensure that the number and frequency of all cannibalization events met the intent of the NAMP. Should we find that events did not meet the intent of the NAMP, we will address the appropriate changes that should be made to prevent or detect errors prior to the event taking place (i.e. training or tracking mechanisms). While a change to the NAMP is not believed to be necessary, we will review all options at the conclusion of our review.

3. Action: Over the next 90 days Commander, Naval Air Forces will conduct a review of five Super Hornet squadrons within the Force to determine compliance with the intent of the NAMP regarding cannibalization. Results of the review and all corrective actions will be documented and provided for audit team review.


T. L. STRAUB
By direction

Copy to:
COMNAVAIRPAC (N011G)

F/A-18 and EA-18G Program Management Office



DEPARTMENT OF THE NAVY
PROGRAM EXECUTIVE OFFICER
TACTICAL AIRCRAFT PROGRAMS
47123 BUSE ROAD BLDG 2272
PATUXENT RIVER MARYLAND 20670-1547

Ser PMA-265/19-2718

From: Program Executive Officer, Tactical Aircraft Programs, PMA-265
To: Department of Defense, Inspector General Office

Subj: AUDIT OF NAVY AND DEFENSE LOGISTICS AGENCY SPARE PARTS FOR F/A-18 E/F SUPER
HORNETS (PROJECT NO. D2018-D000RK-0124.000)

1. As Program Manager for the F/A-18 & EA-18G Program Office (PMA-265), I agree with the following Department of Defense Inspector General (DoDIG) Office recommendations regarding the results from the Audit of Navy and Defense Logistics Agency Spare Parts for F/A-18 E/F Super Hornets (Project No. D2018-D000RK-0124.000)

a. Determine the parts or supplies that are obsolete or are limited in quantity and develop and implement a plan to minimize the impact of obsolete materials, including ensuring the parts or supplies are covered by the obsolescence program:

PMA-265 has established an arrangement with the U.S. Army Combat Capabilities Development Command in Huntsville, AL to obtain system, subsystem and component level data that will in turn be tracked for DMSMS/obsolescence impact. The United States Army are renowned experts in the field of obsolescence. To date, 55 aircraft systems/subsystems have been loaded and are actively being tracked for obsolescence impacts. These efforts will lay the foundation of the future Obsolescence Management Plan to be utilized by all F/A-18 Type/Model/Series.

b. Develop alternative contracting sources to eliminate delivery delays:

The Program Office is working with Naval Supply Systems Command (NAVSUP) and the Defense Logistics Agency (DLA) to identify and develop second sources of supply for a number of components where either the Original Equipment Manufacturer cannot keep pace with repair demand and/or the Original Equipment Manufacturer has decided to no longer sustain a repair/production line. These efforts will be ongoing throughout the remaining service life of the F/A-18 series, however available funding and technical data will dictate the range and depth of these second source efforts.

c. Develop and implement plans, in coordination with organizations responsible for managing repair materials and support equipment for the Navy, to ensure the availability of those materials and support equipment needed to complete repairs:

Sustainment of Support Equipment is an ongoing effort in the post-production phase of the F/A-18 and EA-18G's life cycle. PMA-265, in conjunction with support staff at NAWCAD Lakehurst and the Fleet, began an initial Support Equipment evaluation in 2019 to address and identify issues regarding repair materials and support equipment and develop a mitigation plan with available funding. The PMA-265 Support Equipment team has conducted field evaluations to assess the material condition of both Peculiar Support Equipment (used only for F/A-18 series aircraft) and Common Support

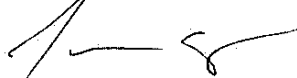
F/A-18 and EA-18G Program Management Office (cont'd)

Subj: AUDIT OF NAVY AND DEFENSE LOGISTICS AGENCY SPARE PARTS FOR F/A-18 E/F SUPER HORNETS (PROJECT NO. D2018-D000RK-0124.000)

Equipment (used for multiple Type/Model/Series aircraft) to determine investments that need to be made to reconstitute aging and worn PSE and CSE.

d. *Develop and implement a strategy to obtain technical data, to obtain access to technical data, or to mitigate the barriers when the contractor owns the data rights in order to increase the Navy's repair capability:*

The PMA has embarked on a comprehensive initiative to gain access to technical data from the F/A-18 and EA-18G Original Equipment Manufacturer and associated subsystems vendors. The Program Office has identified data believed to have been developed at Government expense and have requested this data be marked appropriately and delivered to the Government. The Program Office is working with legal and contracting departments to address these proprietary data issues.



J. M. DENNEY

Acronyms and Abbreviations

ASD	Aviation Support Division
DLA	Defense Logistics Agency
ILA	Independent Logistics Assessment
NAMP	Naval Aviation Maintenance Program
NAS	Naval Air Station
NAVAIR	Naval Air Systems Command
NAVSUP	Naval Supply Systems Command
PEO	Program Executive Officer
WSS	Weapon Systems Support

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