

# Tactical Aircraft: Operation and Maintenance Spending Varies by System, and Availability Generally Does Not Meet Service Goals

GAO-25-107870 (Accessible Version)

Q&A Report to the Committee on Armed Services, House of Representatives

October 21, 2024

## Why This Matters

The Department of Defense (DOD) spends tens of billions of dollars annually to operate and maintain its weapon systems, including aircraft. Fixed-wing fighter and attack planes, referred to as tactical aircraft, are piloted aircraft that provide air-to-air, air-to-ground, and electronic warfare capabilities. These aircraft are vital to the success of combat operations and homeland defense.

The military services use operation and maintenance (O&M) funds to support flying the aircraft, including buying spare parts for and conducting maintenance on the aircraft (see fig. 1). These funds support the military services in achieving readiness goals, such as mission capable rate goals for aircraft. Mission capable rates—the percentage of total time when the aircraft can fly and perform at least one mission—are used to assess the health and readiness of an aircraft fleet.

House Report 117-397, accompanying a bill for the National Defense Authorization Act for Fiscal Year 2023, includes a provision for us to review O&M funding and readiness for fighter aircraft. This report provides information on how the Air Force and Navy (which includes the Marine Corps) develop their O&M funding requirements for active-duty tactical aircraft; the amount of O&M funds used during fiscal years 2018 through 2023; and any association of trends in O&M funding with mission capable rates. This is a public version of a sensitive report that GAO is issuing concurrently. GAO omitted information about mission capable rates that DOD deemed sensitive.

**Figure 1: F/A-18 Fighter Aircraft Receiving Maintenance**



Source: U.S. Navy/Mass Communication Specialist 3rd Class K. Tang. | GAO-25-107870

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**Accessible Text for Figure 1: F/A-18 Fighter Aircraft Receiving Maintenance**

Fixed-wing military aircraft inside airplane hangar

Source: U.S. Navy/Mass Communication Specialist 3rd Class K. Tang. | GAO-25-107870

## Key Takeaways

- The Departments of the Air Force and Navy have detailed processes for developing their tactical aircraft requests for their O&M funding that involve various organizations and levels of review.
- Though variations exist on an annual basis, service execution of O&M funding for tactical aircraft was generally consistent with the military services' requested funding for fiscal years 2018 through 2023. Generally, the Air Force and Navy executed slightly more than their requested O&M amounts to fund tactical aircraft sustainment, while the Marine Corps executed less.
- During fiscal years 2018 through 2023, the mission capable rates for all Navy tactical aircraft in our review increased, while the rates for all Air Force tactical aircraft decreased.
- Mission capable rates for tactical aircraft have generally not met service goals for several years. Our prior work attributes this to numerous interrelated, complex factors, such as aging aircraft, maintenance challenges, and supply support issues.

## What roles do the aircraft that compose DOD's tactical aircraft fleet serve?

DOD's tactical aircraft fleet is generally composed of

- the **Air Force's** A-10, F-15C-ED, F-16C/D, F-22A, and F-35A (conventional takeoff and landing variant);<sup>1</sup>
- the **Navy's** EA-18G, F/A-18E/F, and F-35C (carrier-suitable variant); and
- the **Marine Corps'** AV-8B, F/A-18A-D, F-35B (short takeoff and vertical landing variant), and F-35C aircraft.<sup>2</sup>

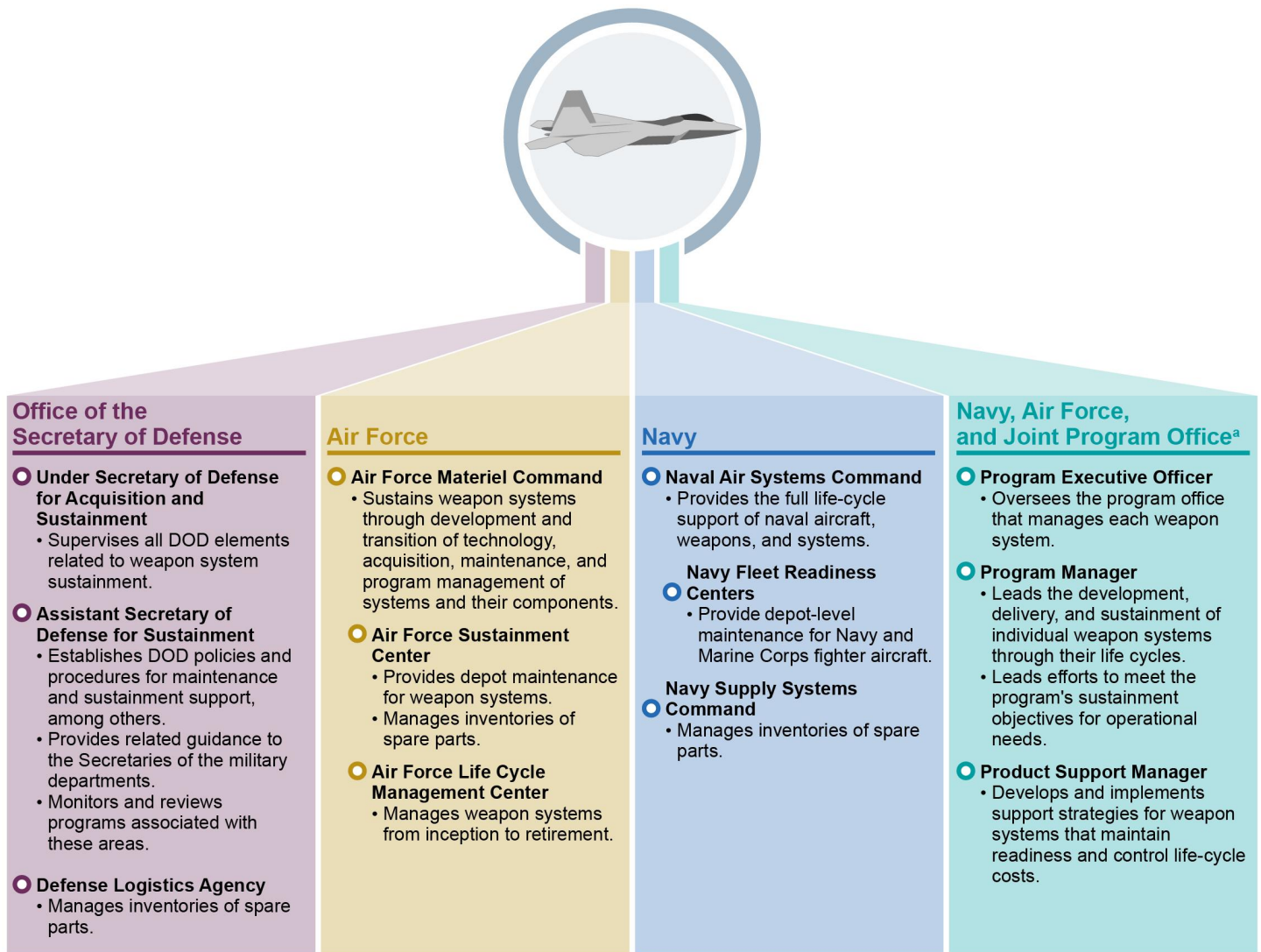
Most of DOD's tactical aircraft models first entered service in the 1970s and 1980s and have exceeded their original service lives. Structural fatigue and retirement of aging aircraft affects the size, or inventory, of DOD's force available to meet operational demands. However, as new aircraft acquisitions have been delayed—such as the F-35 fifth-generation tactical fighter—the Air Force, Navy, and Marine Corps have invested billions of dollars to sustain DOD's fourth-generation fleet, such as the F-16, F/A-18E/F, and AV-8B.<sup>3</sup>

Tactical air forces are critical to achieving and maintaining air dominance during combat operations. These forces include Air Force, Navy, and Marine Corps fixed-wing fighter and attack aircraft with air-to-air, air-to-ground, and electronic warfare missions, along with related equipment and support activities. In their combat role, these aircraft often operate during the first days of a conflict to penetrate enemy air space, defeat air defenses, and achieve air dominance. These activities allow follow-on ground, air, and naval forces freedom to operate within the battle space. Once air dominance is established, tactical aircraft continue to strike ground targets for the remainder of a conflict. Some tactical aircraft are also essential to protecting the homeland by responding to potential airborne and ground-based threats.

## Who is responsible for sustaining tactical aircraft?

Several DOD offices share roles and responsibilities for sustaining tactical aircraft, as shown in figure 2. Sustainment broadly defined includes logistics, maintenance, spare part provision, and facilities needed to conduct these activities.

**Figure 2: Department of Defense Sustainment Roles and Responsibilities for Tactical Aircraft**



Source: GAO analysis of Department of Defense information; GAO (art). | GAO-25-107870

<sup>a</sup>The F-35 Lightning II Joint Program Office leads the life-cycle program management of the F-35A, F-35B, and F-35C.

The services sustain tactical aircraft under various arrangements that may include contractors, DOD organic facilities (i.e., government owned, government operated), or a combination of the two. Further, individual aircraft programs are typically supported by a complex supplier network that includes a prime contractor, subcontractors, and various tiers of parts suppliers. DOD may also contract out sustainment functions and responsibilities—either in their entirety or particular elements—as part of a public-private partnership or a performance-based logistics contract, or even both as is the case with the F-22 Raptor.<sup>4</sup>

### What appropriation accounts does DOD use to support tactical aircraft?

Congress provides various appropriations that DOD uses for activities that support operations of tactical aircraft, as described in figure 3.

**Figure 3: Appropriation Accounts Used for Tactical Aircraft**



**Operation and Maintenance (O&M)**

These appropriations fund expenses such as maintenance services, civilian salaries, travel, minor construction projects, military force operations, training and education, depot maintenance, working capital funds, and base operations support.



**Procurement**

These appropriations fund non-construction-related investment items that include:

- Major service life extension programs, including the labor associated with incorporating these efforts as part of the end item, and
- Support elements, such as data, factory training, equipment, and interim contractor support required for procurement of a new weapon system.



**Military Construction**

These appropriations fund major projects such as bases, schools, missile storage facilities, maintenance facilities, medical/dental clinics, libraries, and military family housing.



**Research, Development, Test and Evaluation (RDT&E)**

These appropriations fund research, development, test and evaluation efforts performed by both contractors and government installations in the development of equipment, material, or computer application software. This includes services (including government civilian salaries), equipment, components, materials, end items and weapons used in such efforts.

Source: GAO analysis of Department of Defense information; GAO (icons). | GAO-25-107870

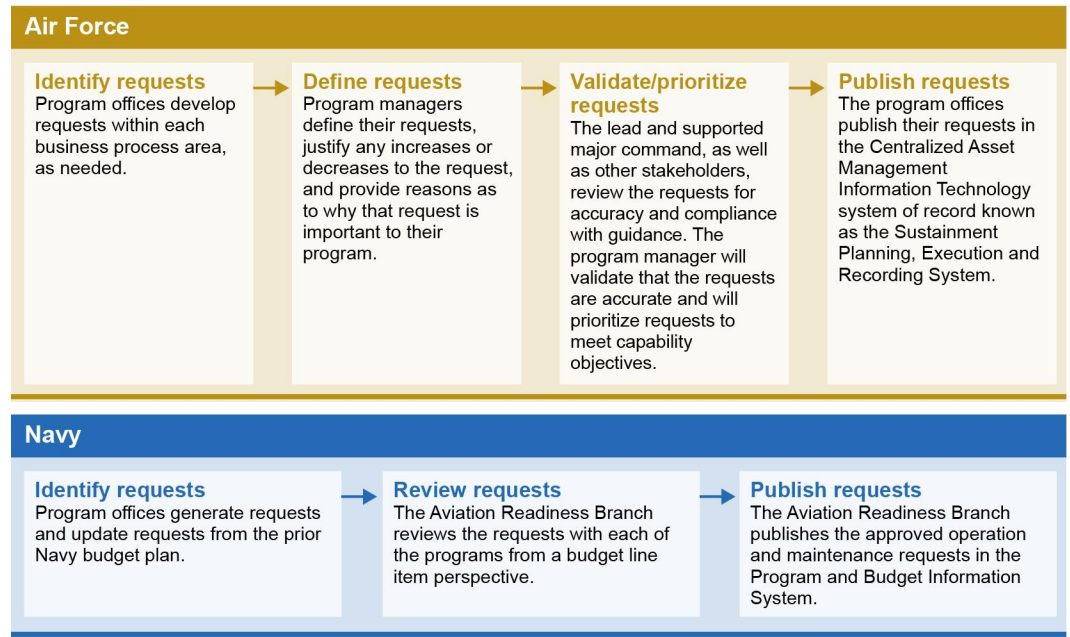
For the purposes of this report, we are focusing exclusively on the O&M appropriated amounts used for active-duty tactical aircraft. DOD uses O&M appropriations to fund a range of programs and activities, including purchases of fuel and spare parts, as well as depot-level maintenance. For the Air Force and the Navy, O&M funding does not include the Service Life Extension Program (SLEP) or certain spare parts funded through procurement, according to service officials.<sup>5</sup>

**How does DOD develop O&M funding requests for tactical aircraft?**

The military departments and tactical aircraft program offices use specific processes to establish O&M funding requests submitted to Congress. For an overview by military department, see figure 4. These processes include the consideration of multiple factors for each tactical aircraft program. According to Air Force and Navy officials, these factors include historical execution trends for O&M funds; an assessment of the depot’s ability to conduct planned maintenance; and any relevant requirements in service or DOD guidance, among others.



**Figure 4: Air Force and Navy Processes for Operation and Maintenance Funding Requests**



Source: GAO analysis of Department of Defense information and interviews with officials. | GAO-25-107870

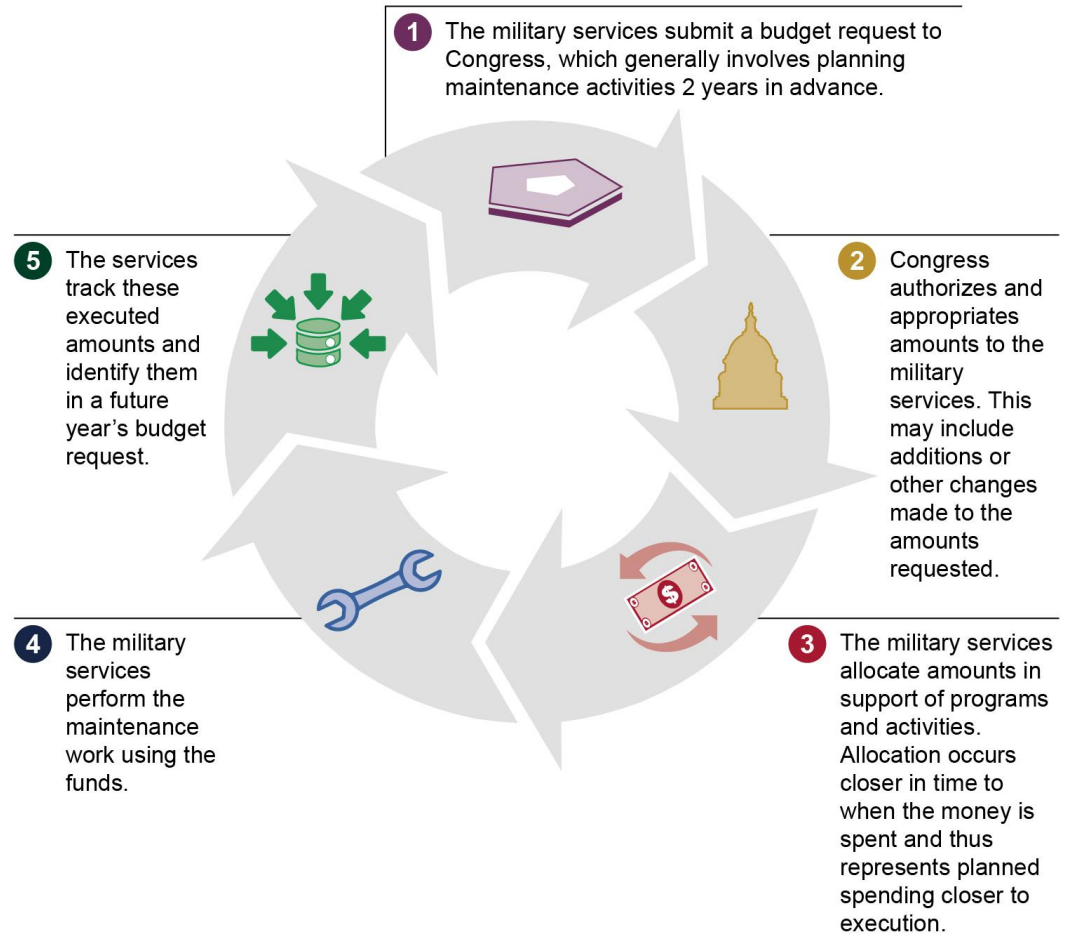
Note: After the program offices develop their budget requests, higher-level budget decisions that affect the amounts may be made by the military department, Department of Defense, or the Office of Management and Budget as part of the budget development process.

Air Force officials stated the F-35 program establishes O&M funding requests using the same general process as other tactical aircraft programs. However, the F-35 process has some key differences, including the participation of additional stakeholders such as international partners and the additional time required to estimate costs, according to officials.<sup>6</sup> The military services also provide the F-35 Joint Program Office earlier notification of changes in cost estimates compared to other tactical aircraft programs. Air Force officials stated this advance notification occurs due to the complex nature of the F-35 program and its reliance on a contractor to provide sustainment for the aircraft.<sup>7</sup>

### How do the services request O&M funding for tactical aircraft?

The military services request their O&M funding for tactical aircraft through the annual President’s budget (see fig. 5).

**Figure 5: Budget and Funding Process Related to Tactical Aircraft Maintenance**



Source: GAO analysis of Department of Defense information; GAO (art). | GAO-25-107870

There are two primary budget exhibits for tactical aircraft O&M funding, known as the OP-20 (flying hour) and PB-61 (depot maintenance) exhibits. The flying hour exhibit provides data on the funds requested and used to operate the tactical aircraft, which includes fuel and spare parts. Similarly, the depot maintenance exhibit shows how much funding the services requested and used to repair each aircraft at the depot.

Both exhibits are needed to obtain the total O&M costs for sustaining tactical aircraft. Only one—the PB-61—is included in the publicly available budget justification materials. Budget justification materials support the President's budget request and provide details on the O&M budget request. Meanwhile, officials noted that the OP-20 is available to Congress, but it is considered sensitive and therefore not available to the public.

See appendix I for funding details by tactical aircraft.

### **How much O&M funding has DOD requested and executed for tactical aircraft since fiscal year 2018?**

During fiscal years 2018 through 2023, the Air Force, Navy, and Marine Corps executed about \$57.2 billion of O&M funding to operate and sustain tactical aircraft—roughly the same amount requested from Congress. Differences between requests and execution may occur partly due to decisions made by the services and DOD, and congressional changes during the authorization and appropriation process or transfer or reprogramming actions thereafter. The services collectively executed about \$8.3 million more than was requested over the 6-year period. According to service officials, this difference was generally due

to changes made during the 2-year budgeting process and challenges involved in executing funds that arrive late in the year because of continuing resolutions.

Though variations exist annually, the military services' execution of O&M funding for tactical aircraft was generally consistent with their requested funding for fiscal years 2018 through 2023. Air Force and Navy officials noted that the services prepare requests 2 years prior to the year of execution, which means that changes during this time often affect their spending plans. According to service officials, changes may be caused by supportability issues, aging aircraft fleets, unforeseen technical challenges, accidents, and force structure and operational changes, among other things. The services also report on O&M funding for engine depot maintenance, which can be found in appendix II.

- The **Air Force** overall executed about \$478.1 million (or 1.4 percent) more than its total requested amounts for tactical aircraft (see table 3). The largest single-year variation occurred in fiscal year 2023, when the Air Force executed about \$521 million more for tactical aircraft sustainment than it had requested.

**Table 1: Operation and Maintenance Funding for Air Force Tactical Aircraft, Fiscal Years (FY) 2018–2023 (in millions)**

	FY18	FY19	FY20	FY21	FY22	FY23	Total
Requested	\$4,702.3	\$5,014.5	\$5,968.2	\$6,077.1	\$5,991.4	\$5,967.8	\$33,721.3
Executed	\$4,610.3	\$5,267.8	\$5,760.0	\$5,874.7	\$6,197.9	\$6,488.7	\$34,199.4
Difference	-\$92.1	\$253.3	-\$208.2	-\$202.4	\$206.5	\$520.9	\$478.1

Source: GAO analysis of Department of the Air Force budget documentation. | GAO-25-107870

Note: Amounts may not total due to rounding. Engine depot maintenance funding is displayed separately in appendix II.

- The **Navy** overall executed about \$189 million (or 1.2 percent) more than its total requested amounts for tactical aircraft (see table 1). The largest single-year variation occurred in fiscal year 2022, when the Navy executed about \$365 million more for tactical aircraft sustainment than it had requested.

**Table 2: Operation and Maintenance Funding for Navy Tactical Aircraft, Fiscal Years (FY) 2018–2023 (in millions)**

	FY18	FY19	FY20	FY21	FY22	FY23	Total
Requested	\$2,510.3	\$2,332.5	\$2,498.1	\$2,414.2	\$2,560.0	\$3,308.0	\$15,623.2
Executed	\$2,272.9	\$2,293.4	\$2,554.8	\$2,425.4	\$2,924.9	\$3,341.0	\$15,812.4
Difference	-\$237.4	-\$39.1	\$56.7	\$11.2	\$364.9	\$33.0	\$189.2

Source: GAO analysis of Department of the Navy budget documentation. | GAO-25-107870

Note: Amounts may not total due to rounding. Engine depot maintenance funding is displayed separately in appendix II.

- The **Marine Corps** overall executed about \$659 million (or 8.4 percent) less than its total requested amounts for tactical aircraft (see table 2). The largest single-year variation occurred in fiscal year 2021, when the Marine Corps executed about \$225 million less for tactical aircraft sustainment than it had requested.



**Table 3: Operation and Maintenance Funding for Marine Corps Tactical Aircraft, Fiscal Years (FY) 2018–2023 (in millions)**

	FY18	FY19	FY20	FY21	FY22	FY23	Total
Requested	\$1,168.5	\$1,105.8	\$1,334.5	\$1,425.2	\$1,410.5	\$1,447.3	\$7,891.8
Executed	\$1,032.5	\$1,098.9	\$1,262.4	\$1,199.9	\$1,246.9	\$1,392.1	\$7,232.7
Difference	-\$136.0	-\$7.0	-\$72.1	-\$225.3	-\$163.5	-\$55.1	-\$659.1

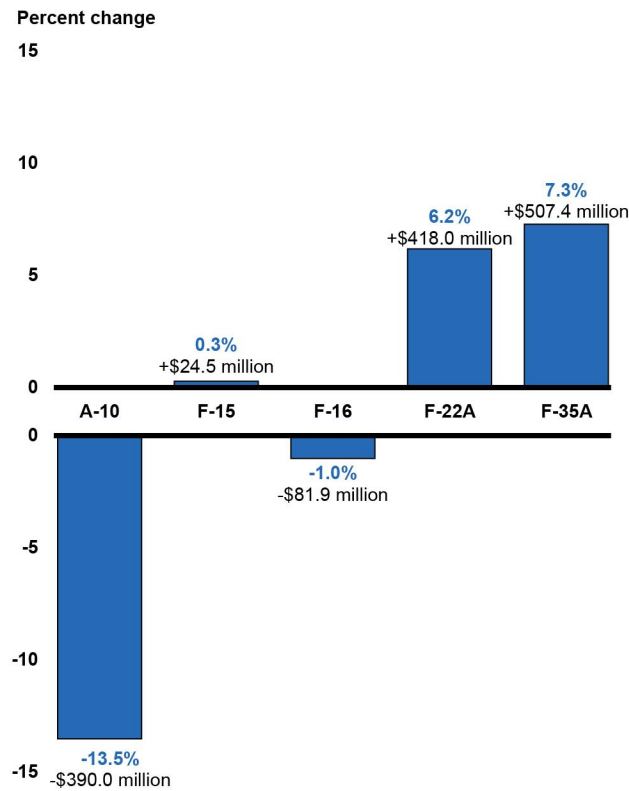
Source: GAO analysis of Department of the Navy budget documentation. | GAO-25-107870

Note: Amounts may not total due to rounding. Engine depot maintenance funding is displayed separately in appendix II.

**Does the requested O&M funding since 2018 for each tactical aircraft differ from their executed funding?**

The difference between the requested and executed amounts of O&M funding for fiscal years 2018 through 2023 varied for each tactical aircraft, as shown in figures 6 and 7. The variations in execution were both higher and lower than the requested amounts. For example, the Air Force and Navy executed funding above their requests for the EA-18G, F/A-18E/F, F-15C-E, F-22, and F-35A. Conversely, the Air Force, Navy, and Marine Corps executed funding below their requests for the AV-8B, A-10, F/A-18A-D, F-16C/D, and F-35B and C. For greater detail on each tactical aircraft, see appendix I.

**Figure 6: Percentage Difference between Requested and Executed Operation and Maintenance Funds for Air Force Tactical Aircraft, Fiscal Years 2018–2023**



Source: GAO analysis of Department of Defense data. | GAO-25-107870

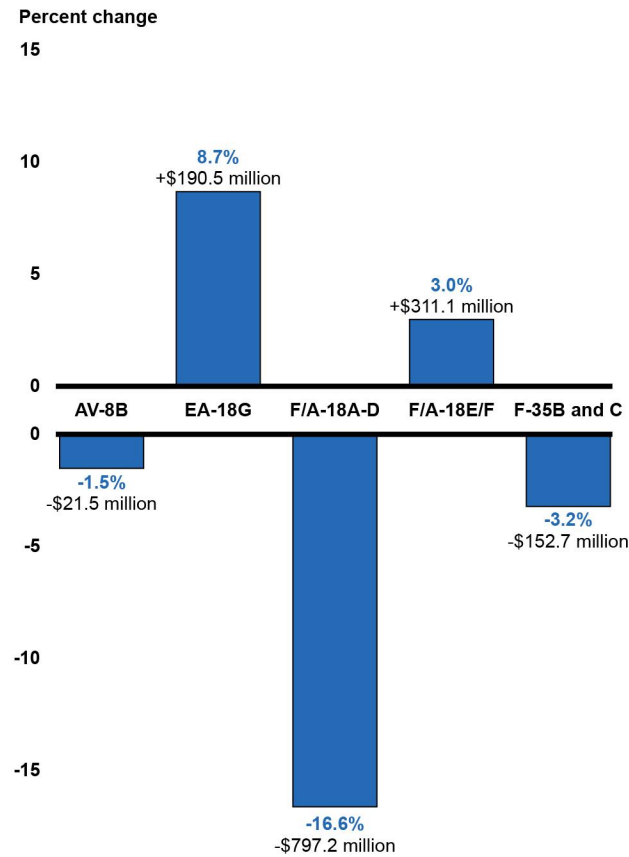
**Accessible Data for Figure 6: Percentage Difference between Requested and Executed Operation and Maintenance Funds for Air Force Tactical Aircraft, Fiscal Years 2018–2023**

Air Force tactical aircraft	Percentage difference
A-10	-13.5
F-15	0.3
F-16	-1.0
F-22A	6.2
F-35A	7.3

Source: GAO analysis of Department of Defense data. | GAO-25-107870

Note: The percentage difference is the percentage of the Air Force’s total requested funds for the aircraft compared to the total executed funds over the 6 fiscal years.

**Figure 7: Percentage Difference between Requested and Executed Operation and Maintenance Funds for Navy and Marine Corps Tactical Aircraft, Fiscal Years 2018–2023**



Source: GAO analysis of Department of Defense data. | GAO-25-107870

**Accessible Data for Figure 7: Percentage Difference between Requested and Executed Operation and Maintenance Funds for Navy and Marine Corps Tactical Aircraft, Fiscal Years 2018–2023**

Navy and Marine Corps tactical aircraft	Percentage difference
AV-8B	-1.5
EA-18G	8.7
F/A-18 A-D	-16.6
F/A-18 E/F	3
F-35B	3.0
F-35C	-3.2

Source: GAO analysis of Department of Defense data. | GAO-25-107870

Note: The percentage difference is the percentage of the Department of the Navy's total requested funds for the Navy or Marine Corps aircraft compared to the total executed funds over the 6 fiscal years.

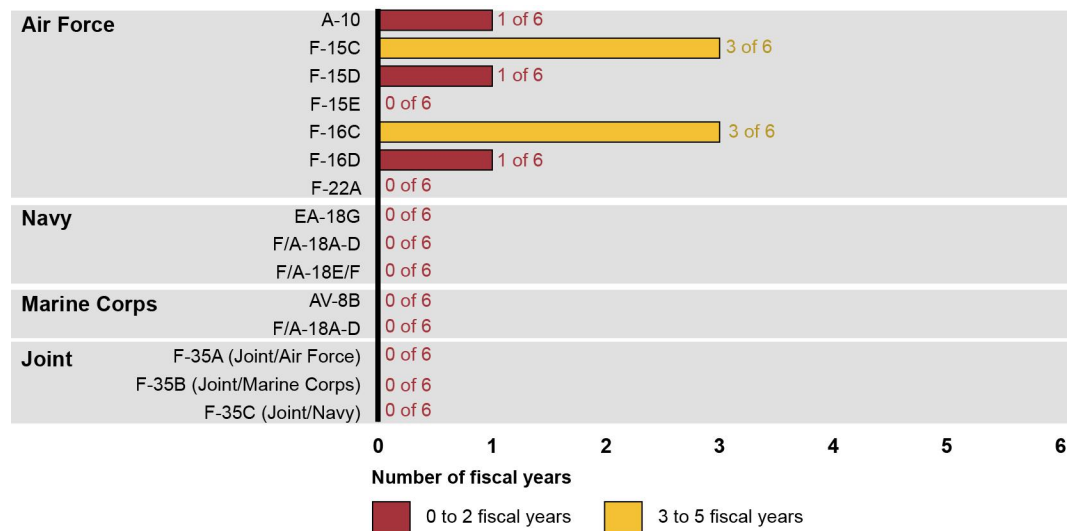
### Are O&M funding differences associated with mission capable rates for tactical aircraft?

The variances observed between the executed and requested amounts for tactical aircraft are not meaningfully associated with mission capable rates. In some cases, executed amounts that were above the requested amounts are associated with increased mission capable rates, as is the case with the EA-18G. However, in others, mission capable rates increased even as the service spent less than requested, such as with the F-35B. For the aircraft we reviewed, only five variants had mission capable rates that moved in the same direction as their changes to executed funding, while the others did not. Overall, the mission capable rates for the Air Force aircraft decreased, while the rates for Navy and Marine Corps aircraft improved over the 6 fiscal years we reviewed. We omitted specific details about mission capable rates and the changes in those rates because DOD deemed the information sensitive.

### Are mission capable rates for tactical aircraft meeting service goals?

Generally, the mission capable rates for tactical aircraft are not meeting Air Force, Navy, and Marine Corps goals. This finding is consistent with previous work we have done on this issue.<sup>8</sup> None of the 15 tactical aircraft variants met their mission capable goals in fiscal year 2023. Only two—the F-15C and the F-16C—met their annual goals in at least half of the years since fiscal year 2018, as shown in figure 8.

**Figure 8: Number of Fiscal Years Tactical Aircraft Met Their Annual Mission Capable Goal, 2018–2023**



Source: GAO analysis of Department of Defense data. | GAO-25-107870

**Accessible Data for Figure 8: Number of Fiscal Years Tactical Aircraft Met Their Annual Mission Capable Goal, 2018–2023**

Tactical aircraft	Number of fiscal years
A-10	1
F-15C	3
F-15D	1
F-15E	0
F-16C	3
F-16D	1
F-22A	0
EA-18G	0
F/A-18A-D	0
F/A-18E/F	0
AV-8B	0
F/A-18A-D	0
F-35A (Joint/Air Force)	0
F-35B (Joint/Marine Corps)	0
F-35C (Joint/Navy)	0

Source: GAO analysis of Department of Defense data. | GAO-25-107870

In our prior work, we have identified a host of sustainment challenges that have led to the military services not meeting their mission capable rate goals for tactical aircraft.<sup>9</sup> These include shortages of spare parts, unexpected replacement of parts and repairs, limited access to technical data for the aircraft, and shortages of trained maintenance personnel.

In June 2022, we reported on challenges with Air Force and Navy unit-level maintenance of aircraft, including the F-22 and F/A-18E/F.<sup>10</sup> We found that neither service had mitigated persistent sustainment risks across fixed-wing aircraft. We recommended that the Air Force and Navy develop mitigation plans with specific milestones to remedy maintenance challenges, risks, or related effects on aircraft availability identified in completed sustainment reviews. The Air Force and Navy concurred but, as of June 2024, have not yet implemented this recommendation.

We also recommended to Congress that it consider amending section 4323 of Title 10, U.S. Code, to require the Air Force and Navy to submit to Congress mitigation plans related to identified maintenance challenges and risks to aircraft availability found in sustainment reviews based on a specific sustainment threshold. Such thresholds could include aircraft falling below their mission capable rate goal for consecutive years, an aircraft’s mission capable rate declining by a specified percentage, or some other sustainment metric or metrics. As of June 2024, Congress has not yet taken action to amend statutory requirements for reporting mitigation actions.

Lastly, we have reported since 2023 on F-35 sustainment challenges that impede achievement of mission capable rate goals. In September 2023, we reported that several maintenance challenges negatively affected F-35 readiness and the ability of the aircraft to achieve mission capable goals.<sup>11</sup> The F-35s’ poor mission capable rates were due partly to challenges with depot and organizational maintenance. We also reported that, by design, DOD relies heavily on its contractor to lead and manage F-35 sustainment. In April 2024, we reported that

DOD's projected costs to sustain the F-35 grew from an estimated \$1.1 trillion in fiscal year 2018 to \$1.58 trillion in fiscal year 2023.<sup>12</sup>

In recent years, DOD has expressed a desire to have more governmental control over sustainment activities. However, as DOD seeks to expand government control, it has neither (1) determined the desired mix of government and contractor roles nor (2) identified and obtained the technical data needed to support its desired mix. We recommended in April 2024 that DOD reassess F-35 sustainment elements to determine government and contractor responsibility, identify any required technical data, and make final decisions on changes to F-35 sustainment to address performance and affordability. DOD officials told us they were working to implement these recommendations as part of their efforts to transfer all functions relating to the management, planning, and execution of sustainment activities for the F-35 from the F-35 Joint Program Office to the Secretaries of the Air Force and Navy. Section 142 of the National Defense Authorization Act for Fiscal Year 2022 requires this transfer to occur by October 1, 2027.<sup>13</sup>

### Agency Comments

We provided a draft of this report to DOD for review and comment. The Department of Defense had no comments on this report.

### How GAO Did This Study

We collected and analyzed the Navy's and Air Force's data from fiscal years 2018 through 2025 for the PB-61 and OP-20 exhibits for the President's budgets from, respectively, the Navy's Flying Hour Projection System and its Program and Budget Information System and the Air Force's Programming and Budget Enterprise System. More specifically, we analyzed the data to determine the amount of O&M funds that the two military departments requested for and executed by their tactical aircraft programs in fiscal years 2018 through 2023. We assessed the reliability of this data by interviewing service officials, sending and reviewing their responses to questionnaires, and conducting electronic testing to, for example, identify missing values. We determined that this data was sufficiently reliable for the purposes of reporting the amounts of O&M funds that were requested for and executed by each of the tactical aircraft programs that we reviewed.

The PB-61 and OP-20 exhibit data for both the Air Force and Navy were not consistent for different variants of the same aircraft. More specifically, in the PB-61 exhibit data, some of the O&M funding was combined for multiple variants of the same aircraft. Therefore, we could not determine the percent change from requested to executed funding for each variant of the Air Force's F-15C-E and F-16C/D, the Navy's F/A-18E/F, and the Navy and Marine Corps' F-35B/C and F/A18A-D tactical aircraft separately.

We collected the annual mission capable rate and mission capable goal for each of the Air Force, Navy, and Marine Corps tactical aircraft programs for fiscal years 2018 through 2023. We obtained the mission capable rates and goals for the Air Force tactical aircraft programs from the Logistics, Installations, and Management-Enterprise View system for the entire time frame. For the Navy and Marine Corps tactical aircraft programs, we obtained the mission capable rates for fiscal years 2018 through 2021, and fiscal years 2018 through 2022, respectively, from the Decision Knowledge Programming for Logistics Analysis and Technical Evaluation (DECKPLATE) system and we compared the annual mission capable rates to the overall mission capable goal for each aircraft from the Naval Aviation Maintenance Program.<sup>14</sup> We obtained the percentage of mission capable aircraft (i.e., the mission capable rate) for each of the Navy and Marine Corps tactical aircraft from the Aviation Maintenance Supply Readiness



Reporting (AMSRR) system for fiscal years 2022 and 2023, and for fiscal year 2023, respectively, and compared the rate to the annual mission capable aircraft required goal (i.e., the mission capable goal) for each tactical aircraft.<sup>15</sup> The mission capable aircraft required goals were issued by the Commander, Naval Air Forces, for each Navy aircraft for fiscal years 2022 and 2023, and by Headquarters, Marine Corps for fiscal years 2023 for each Marine Corps aircraft. We assessed the reliability of this data by sending questionnaires and reviewing the answers and documentation provided in response. We determined that this data was sufficiently reliable for the purposes of reporting the mission capable rates and goals for the tactical aircraft programs that we reviewed.

The change in mission capable rates was calculated as the difference between an aircraft's average mission capable rate in fiscal year 2018 and its rate in fiscal year 2023. The change from requested to executed funding was calculated as a comparison of total executed funds over the 6 fiscal years as a percentage of the service's total requested funds over that same time frame. This report is a public version of a sensitive report that we issued in October 2024.<sup>16</sup> DOD deemed some of the information in our February report to be sensitive, which must be protected from public disclosure. Therefore, this report omits sensitive information about mission capable rates for the weapon systems.

We also conducted interviews with Air Force and Navy budget and tactical aircraft program officials to determine the processes involved in developing and validating the O&M funding requirements for tactical aircraft fleets.

We conducted this performance audit from February 2023 to October 2024 in accordance with generally accepted government auditing standards. Those standards require 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.

### List of Addressees

The Honorable Mike Rogers  
Chairman  
The Honorable Adam Smith  
Ranking Member  
Committee on Armed Services  
House of Representatives

We are sending copies of this report to the appropriate congressional committees and the Secretaries of Defense, Air Force, and Navy. In addition, the report is available at no charge on the GAO website at <https://www.gao.gov>.

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## **Appendix I: Aircraft Sustainment Funding**

This appendix provides detailed information about each tactical aircraft's mission, sustainment method, requested and executed O&M funding, and mission capable rates and goals over 6 fiscal years. We omitted specific details about mission capable rates and the changes in those rates because DOD deemed the information sensitive.

## Appendix II: Engine Funding

The Operation and Maintenance (O&M) funding for tactical aircraft reported above likely funded some aspects of sustainment for the engines used by the aircraft, but it did not include any O&M funding for engine depot maintenance. The Departments of the Air Force and the Navy reported this funding separately from the O&M funding for other depot maintenance for the tactical aircraft. The funding that the two military departments requested and executed each year in fiscal years 2018 through 2023 for depot maintenance for the A-10, AV-8B, EA-18G, F/A-18E/F, and F-22 engines and the engines for all three F-35 variants is shown in tables 4 through 8 below. In total, the Air Force, Navy, and Marine Corps executed about \$7 billion of O&M funding for depot maintenance for these engines during the 6-year period. No funding was requested or executed for F-15, F-16, and F/A-18A-D engine depot maintenance in fiscal years 2018 through 2023. Service officials confirmed that the engines used on these aircraft do not undergo depot-level overhaul or maintenance.

**Table 4: Operation and Maintenance Funding for A-10 Engine Depot Maintenance, Fiscal Years (FY) 2018–2023 (in millions)**

	FY18	FY19	FY20	FY21	FY22	FY23	Total
Requested	\$0	\$5.3	\$8.5	\$8.1	\$6.8	\$7.9	\$36.6
Executed	\$7.7	\$9.0	\$6.7	\$6.5	\$9.1	\$7.8	\$46.7
Difference	\$7.7	\$3.6	(\$1.8)	(\$1.6)	\$2.3	(\$0.1)	\$10.1

Source: GAO analysis of Department of the Air Force budget documentation. | GAO-25-107870

Note: Amounts may not total due to rounding.

**Table 5: Operation and Maintenance Funding for AV-8B Engine Depot Maintenance, Fiscal Years (FY) 2018–2023 (in millions)**

	FY18	FY19	FY20	FY21	FY22	FY23	Total
Requested	\$35.3	\$37.6	\$33.7	\$22.2	\$46.1	\$35.7	\$210.5
Executed	\$19.6	\$26.5	\$38.6	\$42.2	\$47.8	\$42.4	\$217.1
Difference	-\$15.7	-\$11.0	\$5.0	\$20.0	\$1.7	\$6.7	\$6.6

Source: GAO analysis of Department of the Navy budget documentation. | GAO-25-107870

Note: Amounts may not total due to rounding.

**Table 6: Operation and Maintenance Funding for EA-18G and F/A-18E/F Engine Depot Maintenance, Fiscal Years (FY) 2018–2023 (in millions)**

	FY18	FY19	FY20	FY21	FY22	FY23	Total
Requested	\$343.6	\$383.2	\$421.4	\$429.8	\$356.1	\$470.7	\$2,404.9
Executed	\$421.4	\$449.8	\$407.9	\$406.6	\$550.4	\$556.9	\$2,793.0
Difference	\$77.8	\$66.6	-\$13.6	-\$23.3	\$194.3	\$86.2	\$388.1

Source: GAO analysis of Department of the Navy budget documentation. | GAO-25-107870

Note: The EA-18G and F/A-18E/F use the same engine: the F414GE400. Amounts may not total due to rounding.

**Table 7: Operation and Maintenance Funding for F-22 Engine Depot Maintenance, Fiscal Years (FY) 2018–2023 (in millions)**

	FY18	FY19	FY20	FY21	FY22	FY23	Total
Requested	\$513.2	\$507.2	\$624.2	\$656.7	\$480.9	\$315.3	\$3,097.6
Executed	\$629.4	\$593.5	\$339.1	\$408.2	\$359.6	\$364.7	\$2,694.6
Difference	\$116.2	\$86.3	-\$285.2	-\$248.5	-\$121.3	\$49.4	-\$403.0

Source: GAO analysis of Department of the Air Force budget documentation. | GAO-25-107870

Note: Amounts may not total due to rounding.

**Table 8: Operation and Maintenance Funding for F-35 Engine Depot Maintenance, Fiscal Years (FY) 2018–2023 (in millions)**

	<b>FY18</b>	<b>FY19</b>	<b>FY20</b>	<b>FY21</b>	<b>FY22</b>	<b>FY23</b>	<b>Total</b>
Requested	\$143.0	\$160.3	\$220.9	\$209.5	\$241.3	\$440.9	\$1,416.0
Executed	\$67.3	\$142.7	\$168.9	\$208.0	\$217.2	\$493.1	\$1,297.3
Difference	-\$75.7	-\$17.6	-\$52.0	-\$1.5	-\$24.1	\$52.2	-\$118.7

Source: GAO analysis of Department of the Navy budget documentation. | GAO-25-107870

Note: Amounts may not total due to rounding.

## Endnotes

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<sup>1</sup>We did not include the F-15EX variant in our review.

<sup>2</sup>The Joint F-35 Fighter program is delivering three variants of the F-35 aircraft: (1) the F-35A conventional takeoff and landing variant for the Air Force, (2) the F-35B short takeoff and vertical landing variant for the Marine Corps, and (3) the F-35C carrier-suitable variant for both the Marine Corps and the Navy.

<sup>3</sup>For more information on DOD's investments in tactical aircraft, see GAO, *Tactical Aircraft Investments: DOD Needs Additional Portfolio Analysis to Inform Future Budget Decisions*, [GAO-23-106375](#) (Washington, D.C.: Dec. 20, 2022).

<sup>4</sup>According to DOD Instruction 4151.21, *Public-Private Partnerships for Product Support* (Nov. 21, 2016) (incorporating change 4, effective July 31, 2019), a public-private partnership, including those for depot-level maintenance, is a cooperative arrangement between an organic product support provider and one or more private-sector entities to perform defense-related work and/or to use DOD facilities and equipment. According to DOD's *Performance-Based Logistics Guidebook*, performance-based logistics is synonymous with performance-based life-cycle product support, in which outcomes are acquired through performance-based arrangements that deliver warfighter requirements and incentivize product support providers to reduce costs through innovation. These arrangements are contracts with industry or intragovernmental agreements. DOD, *PBL Guidebook: A Guide to Developing Performance-Based Arrangements* (2016).

<sup>5</sup>SLEP refers to modification(s) to fielded systems undertaken to extend the life of the system beyond what was previously planned. According to service officials, the Air Force funds SLEP with procurement. For the Navy, O&M funding does not include SLEP and modifications, which it funds primarily with procurement, but also RDT&E appropriations, according to service officials. See [GAO-23-106375](#).

<sup>6</sup>The F-35 program is managed as a joint, multinational program. Program participants include the Air Force, Navy, Marine Corps, seven international partners, and multiple foreign military sales customers. International partner nations are Australia, Canada, Denmark, Italy, Netherlands, Norway, and United Kingdom. Foreign military sales countries are Belgium, Czech Republic, Finland, Germany, Israel, Japan, Poland, Singapore, South Korea, and Switzerland. For more information on the F-35 program, see GAO, *F-35 Sustainment: Costs Continue to Rise While Planned Use and Availability Have Decreased*, [GAO-24-106703](#) (Washington, D.C.: Apr. 15, 2024).

<sup>7</sup>See GAO, *F-35 Aircraft: DOD and the Military Services Need to Reassess the Future Sustainment Strategy*, [GAO-23-105341](#) (Washington, D.C.: Sept. 21, 2023).

<sup>8</sup>See GAO, *Weapon System Sustainment: Aircraft Mission Capable Goals Were Generally Not Met and Sustainment Costs Varied by Aircraft*, [GAO-23-106217](#) (Washington, D.C.: Nov. 10, 2022); *Air Force and Navy Aviation: Actions Needed to Address Persistent Sustainment Risks*, [GAO-22-104533](#) (Washington, D.C.: June 15, 2022); and *Military Depots: The Navy Needs Improved Planning to Address Persistent Aircraft Maintenance Delays While Air Force Maintenance Has Generally Been Timely*, [GAO-20-390](#) (Washington, D.C.: June 23, 2020).

<sup>9</sup>[GAO-23-106217](#).

<sup>10</sup>[GAO-22-104533](#).

<sup>11</sup>[GAO-23-105341](#).

<sup>12</sup>See GAO, *F-35 Sustainment: Costs Continue to Rise While Planned Use and Availability Have Decreased*, [GAO-24-106703](#) (Washington, D.C.: Apr. 15, 2024).

<sup>13</sup>Pub. L. No. 117-81, § 142 (2021).

<sup>14</sup>COMNAVAIRFORINST 4790.2, *Mission Capable (MC) and Full Mission Capable (FMC) Goals by Type/Model/Series (T/M/S) Aircraft and Unit Operational Category*, (Jan. 09, 2018).

<sup>15</sup>In fiscal year 2022, an instruction issued by the Commanders, Naval Air Forces, Atlantic and U.S. Pacific Fleet identified the AMSRR system as the authoritative data source for material condition reporting for all Navy and Marine Corps aircraft. COMNAVAIRPACINST/COMNAVAIRLANTINST 5442.1A, *Aircraft Material Condition Reporting* (July 1, 2022).

<sup>16</sup>See GAO, *Tactical Aircraft: Operation and Maintenance Spending Varies by System, and Availability Generally Does Not Meet Service Goals*, [GAO-25-106659SU](#) (Washington, D.C.: Oct. 21, 2024).