

GAO Highlights

Highlights of [GAO-23-105556](#), a report to the Committee on Armed Services, House of Representatives

Why GAO Did This Study

DOD is continually challenged to provide battle-ready ground combat systems, ships and submarines, and aircraft to its warfighters, spending nearly \$90 billion each year on weapon systems maintenance. To improve availability of weapon systems, DOD is implementing predictive maintenance. Often used in the private sector, predictive maintenance relies on personnel to use condition-monitoring technology and data analytics to schedule maintenance based on evidence of need.

House Report 117-118, which accompanied a bill for the National Defense Authorization Act for Fiscal Year 2022, included a provision for GAO to examine the use of predictive maintenance for the sustainment of ground combat systems, ships and submarines, and aircraft. GAO examined the extent to which the military services have (1) implemented and (2) assessed the performance of predictive maintenance, and described (3) challenges and efforts to address challenges with implementing predictive maintenance. GAO reviewed DOD guidance and budget materials for predictive maintenance, interviewed maintenance officials, and visited units implementing predictive maintenance.

What GAO Recommends

GAO is making 16 recommendations to the Army, Marine Corps, Navy, and Air Force to develop plans to implement predictive maintenance and assess its performance. DOD generally concurred with the recommendations.

View [GAO-23-105556](#). For more information, contact Diana Maurer at (202) 512-9627 or maurerd@gao.gov.

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MILITARY READINESS

Actions Needed to Further Implement Predictive Maintenance on Weapon Systems

What GAO Found

The Department of Defense (DOD) issued an interim predictive maintenance policy in 2002, but the military services made limited progress implementing it until recently. In 2007, DOD instructed the military services to designate a single focal point for predictive maintenance, provide funding, and begin implementing predictive maintenance to achieve readiness at the best cost where it is technically feasible and beneficial. While the military services have begun piloting predictive maintenance programs on some weapon systems, they do not replace parts or components regularly based on predictive maintenance forecasts. GAO found that the military services have not consistently adopted and tracked implementation of predictive maintenance. By developing plans to implement predictive maintenance, including action plans and milestones for weapon systems, the military services would be better positioned to determine where, when, and how to effectively adopt predictive maintenance.

The military services have reported examples of how predictive maintenance has improved maintenance outcomes. According to military service officials, unplanned maintenance—which adversely affects costs and operations—can be reduced through greater use of predictive maintenance. Army and Navy officials also provided examples of predictive maintenance possibly preventing accidents on aircraft such as the AH-64 Apache and the F/A-18 Super Hornet.

Predictive Maintenance Has Been Used for AH-64 and F/A-18 Aircraft



Source: U.S. Army/Sergeant S. Galimore (AH-64); U.S. Marine Corps/Corporal D. J. Bjorndal (F/A-18). | GAO-23-105556

Military service officials acknowledge that, while they have examples of improvements they attribute to predictive maintenance implementation, the examples are from limited experience, and the military services generally lack metrics to evaluate the results of predictive maintenance. By developing plans with goals and metrics, and establishing procedures to monitor predictive maintenance, the military services will be better able to determine whether predictive maintenance achieves expected results and improves military readiness.

The military services identified personnel, parts, and technology resource challenges to implementing predictive maintenance and have taken some actions to address challenges. For example, temporary policy exemptions allow personnel hours saved using predictive maintenance to be used to address maintenance backlogs in other systems. The military services have also begun efforts to allow units to order parts ahead of need rather than waiting for the part to break. The military services also recognize that shifting to predictive maintenance is a cultural challenge that requires sustained leadership focus.