

AIMD Oceana

If They Can't Fix It, It Ain't Broke

By JO1 Joshua M. Hudson

Naval aircraft are designed to fly hard, fast and in the worst conditions, and squadron mechs work hard to ensure that they perform at 100 percent. When the components of those planes need repair or maintenance, that's where the local Aircraft Intermediate Maintenance Department (AIMD) comes in.

Servicing all of the Navy's F-14 *Tomcats*, East Coast F/A-18 *Hornets* and 11 aircraft carriers, the NAS Oceana, Va., AIMD is one of the busiest in the Navy. The department is more like a command, with almost 1,500 Sailors and civilian contractors working in three shifts to keep the aircraft they support up and flying. More than 450 of the AIMD's military personnel comprise a sea-going detachment that acts as a deployable portion of the workforce to augment the maintenance skills aboard the carriers.

Squadrons perform routine aircraft maintenance and replace failed parts at the *operational*

level. When a component is broken, it goes to the *intermediate* maintenance level for repair and then is returned to the squadron. Major airframe repairs are usually handed over to a *depot*-level maintenance facility.

Squadrons do not handle intermediate-level maintenance because the equipment needed to test and evaluate, repair and replace components is too large and personnel intensive. Instead, the AIMD provides local squadrons with a one-source service center for intermediate and some organizational- and depot-level repairs and maintenance. Nearly 50 percent of the repairs are performed on removable avionics electronic component boxes. However, the AIMD also works on ground support equipment, weapons racks, parachutes, pilot safety gear and aircraft frames.

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The Oceana AIMD has 65 work

centers, organized into 8 divisions: personnel, supply, avionics, powerplants, airframes, the paraloft, armaments, and ground support equipment. More than 200,000 aircraft parts per month run through the department. Having an item repaired and back to the squadrons as quickly as possible requires a lot of parts sharing. You can't stock everything. So if we have two components that are broken, we can make one working component using the parts from both. We do what we need to do to get planes flying, said Aviation Storekeeper First Class (AW) Mark House, material control manager.

The AIMD provides a fast turnaround of parts, spreading out the workload in assembly line fashion so that no one shop is busier than another. An avionics box that might take one person a month to repair can be fixed in a matter of days or hours with a team of specialized workers. In addition, the paperwork process is streamlined. A part is inventoried and a form is generated and stored in the computerized Naval Aviation Logistics Command Management Information System,

AMS2 Pedro Prieto examines the progress of a structural repair on an F/A-18 *Hornet* wing. The use of heatlamps reduces the time required for nonmetal composites to harden.

For every hour a pilot flies, 10 hours of maintenance are required.

ADCS (AW) Mike Balcam

which follows the part throughout the repair process, accounting for the work done on it as well as gathering a history of the part's troubles and usability.

Aviation Maintenance Administrationman Senior Chief Isaac Calvin explained, We service all the squadrons and the naval air station, including ordering all parts. We take care of 28 squadrons, as well as whatever the carriers can't handle, and we process 400 to 500 pieces of gear a day.

Avionics

Below, AT3 Marc St. Denis inspects an avionics box after it has been tested for errors by the Hybrid Test System. Opposite page, AS3 John Carson works on the electrical system of a piece of ground support equipment.

Inside a labyrinth of workspaces, the Avionics Division keeps a constant flow of electronic components, radar parts, transmitters and other equipment moving from bench to bench. Three-inch cords coming out of the ceiling plugged into behemoth 1970s-vintage diagnostic computers run underneath a blanket of deafening noise from the cooling fans, comprising the Hybrid Test System (HTS). In this shop everyone is an aviation electronics technician, AT2 Daniel Parker noted. We test F-14 and F/A-18 systems gear that squadrons can't repair, decide what is

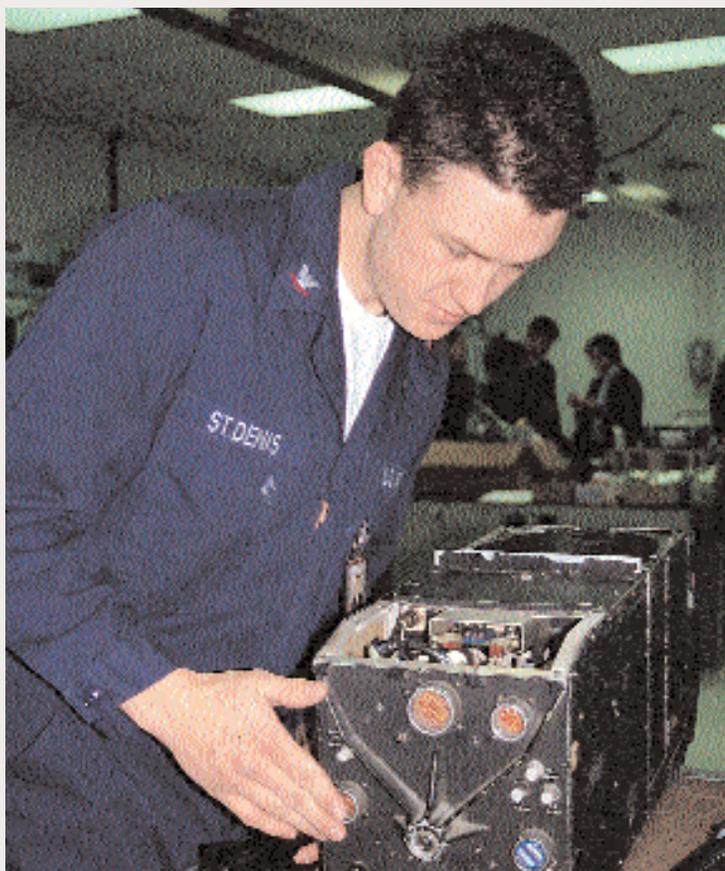
wrong with it and get a work center to repair it. Then we test it again to see if it's fixed, and send it back to the fleet.

Many of the components that don't go to the HTS bench are tested by the state-of-the-art Consolidated Automated Support System (CASS). AT1 (AW) John Bucci, who works in the CASS shop, said there's a good reason why some of the test equipment isn't top of the line. It hasn't been cost effective to transfer everything from the older systems. In the near future, the older diagnostic test gear will be out of the fleet and everything will come through here. CASS has the ability to run evaluations on multiple types of equipment. The system has been so effective that the Navy has started using it for sub and surface fleet applications. It is a more user-friendly system because junior Sailors don't need to have an extensive electronics background to run the equipment, Bucci explained. But you still have to be a troubleshooter. Experience is necessary to keep up with the workload.

Powerplants

One of the most intriguing facilities at the AIMD is the test cell section of the Powerplants Division. Rebuilt F-14 and F/A-18 engines are put to the test before being sent back to the fleet. Flames shoot from the jet nozzle and fuel changes from yellow to blue like a giant blowtorch, often raising the temperature of the cavernous room to 400 degrees, while the ground shakes from the thundering power of the engines.

The core of the division is far more sedate. In a large, separate hangar, an assembly line of engines at various stages of repair and maintenance wait to be worked on or to be returned to



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AD3 Leon Romo reassembles an F/A-18 Hornet's F404 engine.

the squadrons. Yellow lights in the hangar enable an easier transition on the eyes from the darkness of the flight line at the end of the day for the technicians who are often too busy to tell sunrise from sunset.

Approximately 250 aviation machinist's mates (AD) and contractors work three shifts, seven days a week, to

perform maintenance on 40 to 50 engines at any given time. About half of the engines come to the division for routine maintenance, and the rest are damaged by foreign object debris. AIMD Oceana repairs F110 and TF30 *Tomcat* engines and the F404 *Hornet* engine, as well as auxiliary power units. The work is broken down into

the various sections of the engines with teams working in an assembly line, performing operational- and intermediate-level maintenance on each section.

Contractors complement the Sailors to help ensure a level of experience that is difficult to retain in the military. Many E-5 and E-6 ADs leave

the Navy for more lucrative civilian work, leaving the division's military with less-experienced mechs to do the work. It's a real strain, said ADCS (AW) Mike Balcam. It's getting more difficult to keep senior mechs than it is to find repair parts for F-14s. He added, The only thing that has remained the same about the shop's business is that we pull and repair engines. As technology changes, so does the playing ground we work on. But it's OK. We do more with less, and we do it well.

Airframes

FOD may ruin an engine, but there is no end of stresses and obstacles that can damage an aircraft's frame. The Airframes Division is responsible for the repair of all structural components. Jobs like changing the glass on a canopy can take up to three days. This body shop for fighter jets works on hydraulics, makes composite and metal structural repairs and even changes tires. More than 170 people in this division work within various specialized cages with turnaround

times that could give Maaco a run for its money.

Two specialized shops handle different airframes. The composite shop does the structural repairs for non-metal pieces, which make up 75 to 80 percent of the F/A-18 *Hornet's* airframe. Graphite strips are bonded to damaged areas like papier-mâché, then sanded and shaped to precise specifications. The F-14 *Tomcat*, on the other hand, requires metal work in the structures shop. There is always a backlog of jobs, keeping workers constantly moving. Aviation Structural Mechanic (Structures) First Class (AW) Richard Winters explained, Since F-14 parts aren't made anymore, we are doing everything we can to keep this airplane up and running. It's a real challenge.

The hydraulics shop is where Airframes personnel work on the hydraulic-pneumatic components of F-14s and electrohydraulic components of F/A-18s. Personnel use diagnostic equipment to test parts such as spoilers and directional lift controllers on the aircraft.

The stress of takeoffs and landings

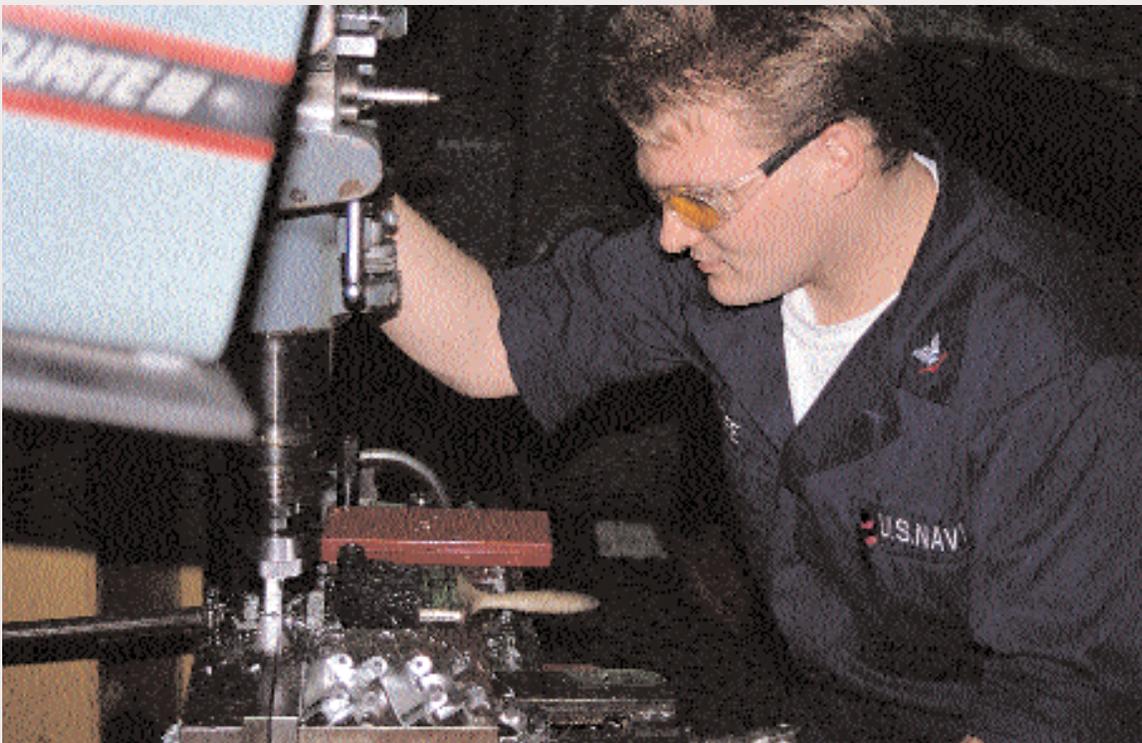
falls mainly on the landing gear and struts. More than 120 brake and strut systems come through the strut shop each month for repair and replacement, and an average of 18 tires are replaced on the aircraft at NAS Oceana every day.

The Airframes machine shop is unique because it is the only area of the AIMD in which no aviation-rated personnel work. Blackshoe Navy machinery repairmen determine the tolerances of parts that are sent to them for evaluation. When necessary they make aircraft parts from scratch, using metal lathes and high-end power drills to meet exacting standards. The computer numerically controlled mill can create parts from specifications sent via the Internet by the manufacturer, transforming solid blocks of metal into vital aircraft parts.

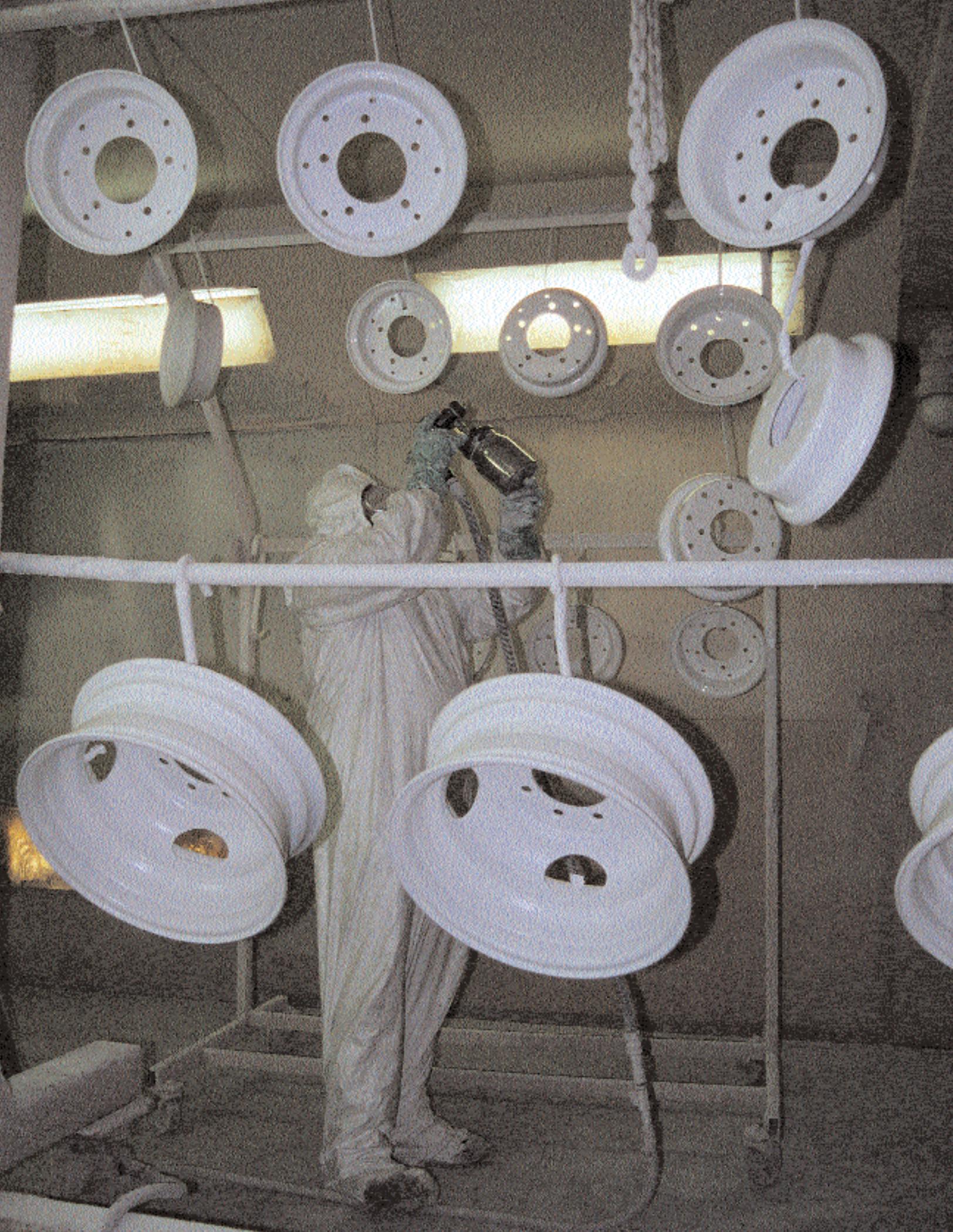
Paraloft

While the rest of the AIMD keeps the aircraft flying, the Paraloft's mission is to keep the aircrew alive. This division is tasked with checking and packing critical items such as

MR3 Chad McGee uses a high-end power drill with exacting precision to produce a hard-to-find piece.



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Opposite, the traditional yellow color of ground support equipment is being changed to lead-free white. Right, PR2 Ricky Dodrill, PRAN Charles Garner and PR2 Mark Gunnoe work together to ensure pilot survival gear is packed accurately.



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parachutes, life rafts, life preservers and seat survival kits. It also fits pilots for some of their flight gear, including dry suits that are tailored for each pilot.

Since survival equipment acts as the aircrew's lifeline during an emergency, the Paraloft packs parachutes following strict procedures. Different aircraft have different types of parachutes, and personnel must follow exact specifications from a specific manual for each type. Some parachutes can take at least two days to pack.

The ejection seat contains a life raft stocked with survival items. Navy life rafts, which are shaped like a big slipper to decrease exposure, provide 24-hour survival capability. After that, aircrews must rely on their own resources.

The division also tests regulators for emergency oxygen supply bottles and liquid oxygen converters. Liquid oxygen is extremely combustible and requires specialized technicians to handle it.

Although the Paraloft is the smallest division in AIMD, it is one of the aircrew's most valuable friends.

Armaments

The aviation ordnancemen (AO) in the Armaments Division exclusively work on all Navy F-14 and East Coast F/A-18 armament equipment. They

maintain everything from bomb ejector racks and missile launchers to Tactical Air Reconnaissance Pod System racks, ensuring that bombs will release on demand.

Sixty percent of the division's work is scheduled maintenance. For example, A bomb rack is on a regular inspection cycle, explained AOC (AW) Kim Williams. Every 210 days that rack comes across this test bench and is torn apart. We make sure that everything is working correctly and that there is no excessive corrosion. Then we put it back together within tolerances, and send it out the door. We ensure that the fleet has the best.

Ground Support Equipment

When squadrons need support equipment on the flight line, they get it from the Ground Support Equipment (GSE) Division, which maintains and repairs more than 2,000 pieces of what is commonly known as yellow gear. Although the well-known, bright-yellow equipment is changing color to white (it was determined that the lead-based yellow paint was unhealthy), its job is still the same: tractors tow the aircraft, air conditioning and electrical units provide necessary cooling and power when squadrons test systems without powering up the planes, and

airstart units supply airflow to start engines.

With the skills of highly trained mechanics, GSE not only issues 2,000 pieces of gear but maintains it for operational-, intermediate- and often depot-level maintenance. Outside contractors perform any maintenance that cannot be done in-house so that no squadron is denied critical gear.

NAS Oceana's AIMD has a tremendous job to do in today's Navy. New technologies and methodologies increase performance and efficiency, but present new challenges. There is an exponential leap in technology these days, said Maintenance Officer Commander Bill Bergin. Automated test equipment is the only way that we are going to be able to keep up. Fortunately, the Navy is moving toward machines being connected to multipurpose equipment such as CASS, which will help us do our job.

Naval Aviation enters the 21st century with a blend of old and new equipment, personnel and missions. Whatever new technology may come, the human factor will always be essential to keeping planes flying. As Cdr. Bergin summed up, Keeping planes in the air is the name of game. And at AIMD Oceana, everybody plays. ✈️