

## WING SHOP MECHANICS GROUNDED AT NADEP JAX

The Hangar 122 Wing Shop at Naval Aviation Depot (NADEP), Jacksonville, Florida is located far away from the aircraft that they service. The aircraft sheet metal mechanics used to transport incoming and repaired aircraft wing parts on clumsy transport carts over industrial roads that were only partially paved and had speed bumps and potholes. The mechanics also had to stop at multiple security gates on the way to and from the hangar.



Mechanics used to transport overwing fairings, parts that cover and direct airflow over aircraft wings, to and from the wing shop on *transport carts*, very large carts that had relatively small wheels that made them top-heavy and difficult to control. The carts were designed such that the mechanics were required to climb up the frame of the cart, as shown in the photo at left, in order to attach and detach parts for sheet metal work. It was a task that mechanics said made them feel like “acrobats.”

These maneuvers also put workers at risk for cumulative trauma disorders (CTDs) due to working in awkward postures, and increased the risk of injury from falling off the transport cart onto the ground.

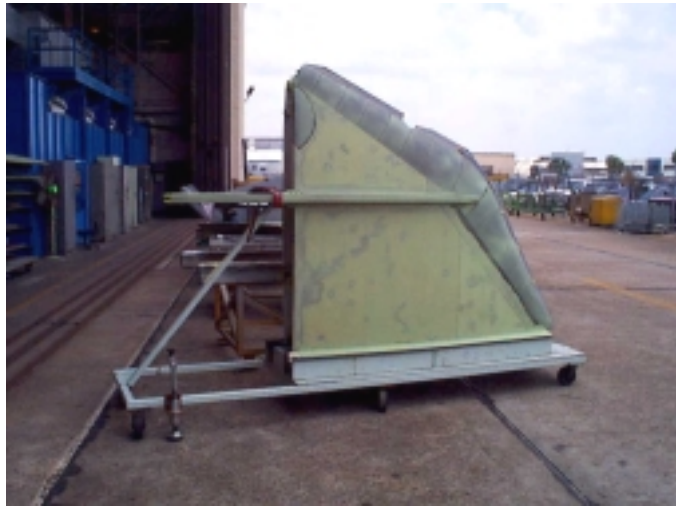
Working for long periods of time in awkward postures can overwork certain muscle groups that are used to accomplish the task, causing those muscles to tire quickly. A person who regularly works in an awkward posture may eventually experience a CTD in the overworked muscles and the tendons and ligaments that support those muscles. Work-related CTDs commonly involve the wrists, arms, shoulders, neck, legs, or back. The discomfort often improves after discontinuing activities that weaken the affected muscles and getting medical treatment for the CTD.

The goal of an ergonomics program is to reduce the frequency and severity of CTDs by redefining work assignments or redesigning work tasks and workstations using procedures and tools that minimize the risk of CTDs. Ergonomics is the science of fitting the work to the worker, instead of requiring the worker to adapt to existing working conditions. Work tasks, equipment, and tools that are ergonomically designed help to reduce the risk of work-related injuries and CTDs by making it easier for the worker to avoid repetitive motions, awkward positions, and unnatural postures.

After the NADEP Ergonomics Team trained Mr. Lee Pearl, a Wing Shop work leader, in Ergonomic Basics, he saw employees' work assignments from an ergonomics point of view. He actively searched for a better way to handle the large, difficult to maneuver

aircraft wing parts. Mr. Pearl observed that when the manufacturer of the airplane wing assemblies delivered overwing fairings to the NADEP wing shop, the wing assemblies arrived on a different type of transport cart, or *dolly*. The *dolly* is designed such that mechanics can attach and detach parts at ground level instead of climbing up and down a cart. This new type of *transport dolly* promotes ergonomically safe, neutral postures that prevent workers from straining their backs, arms, legs and knees.

The sheet metal mechanics were delighted to find out that the manufacturer of the airplane wing assemblies intended to discontinue the use of their *transport dollies*. Wing shop employees also found out that the *transport dollies* had originally been Navy property and arranged for them to be sent to NADEP at no additional cost to the government. NADEP will also keep the engineering drawings for the new *transport dollies* so that additional *dollies* can be manufactured when more are needed.



Another advantage of the new *transport dollies* is that they store overwing fairings in an upright position, as shown in the photo above, which saves valuable storage space in the warehouse and the wing shop. When an old transport cart was stored with one overwing fairing, it took up approximately 730 cubic feet (9 feet long, by 9 feet wide, by 9 feet high) of storage space. The *dollies*, with one overwing fairing each, take up less storage space, only about 210 cubic feet (10 feet long, by 3 feet wide, by 7 feet high) per *dolly*. Freeing up storage space for other uses saves the government additional money by avoiding the expense of new construction or adding on to existing buildings.

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