



F-35 Lightning II Program

Public Affairs Release – 2016 06 06

388th MXS Airmen improve F-35 tire change process

HILL AIR FORCE BASE, Utah -- For years, the wheel shop here has disassembled, inspected, repaired, built, and delivered reliable F-16 aircraft tires and wheels. That reliability and 24-hour turnaround time will remain intact as the base's operational mission transitions from F-16 to F-35A Lightning II aircraft.

Three active-duty Airmen and one Air Reserve Technician work in the 388th Maintenance Squadron's wheel and tire shop, providing wheels to warfighters.

"We have been building tires for the F-16 for decades, which means that the tools and processes used to accomplish this task are proven," said Tech. Sgt. Astolfo Mercado Cruz, the shop's noncommissioned officer in charge. "For the F-35, things are getting started, so we have to use our hands-on knowledge and experience to ensure the process is streamlined and efficient."

The F-35 tire change process has become more efficient thanks to an innovation devised by the shop's Airmen.

In conjunction with the first F-35s arriving here last year, the wheel shop received a new tire changing machine - a hydraulic tool used to separate tires from rims - for exclusive use with the F-35. Although the new tool is adequate, the shop's Airmen immediately recognized inefficiencies.

Four workers are required to lift an F-35 wheel onto the new machine, while only one worker is needed to roll a wheel into the shop's legacy tire changing machine and another to operate the tool. Additionally, the new machine employs a hand-operated pump as opposed to the automatic pump used on the legacy machine.

Drawing on years of experience changing F-16 tires, the shop's Airmen felt they could make the process of changing F-35 tires better if the legacy tire changing machine could be used. After studying the legacy machine, it was determined the tool would work with F-35 wheels if its bead breaker - a compressing component which actually pushes on the tire, separating it from its rim via hydraulic pressure - could be adapted for use.

After coming up with a solution, they provided their design modification proposal to the 388th MXS's metals technology shop. There, Airmen fabricated a ring-shaped compressing component and the braces necessary for adapting it to the legacy tire changing machine.

"Using the legacy machine means that we can load the F-35 tires by rolling them on instead of lifting them on as we have to do on the newer, manual machine," said Mercado Cruz. "This saves a lot of time because only two personnel are involved, not four. By using the automated process, it takes half the time, which allows us to provide assets to the warfighter a lot quicker."

Recently, aircraft engineers verified the modified bead breaker for use on the legacy tire changing machine and joint technical data is being updated so that the setup can be used on all F-35 variants, benefiting not only Hill F-35s, but F-35s throughout the Department of Defense as well as international partners.

This success will continue according to Mercado Cruz, who noted that other tool modifications are in the works.

"The innovations keep on coming," he said. "As more F-35s arrive, we'll continue looking for ways to do things better."



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