LEANING

By LCdr. Keith Jones

When was the last time your shop reviewed the meanings of the words "warning," "caution," "shall," and "should?" We learn these meanings early on, but, as we gain experience and expertise, do their meanings begin to change? Does our own expertise begin to supplant the wisdom of the MIMs? Does a lack of understanding for the reasons behind a warning or a caution make it invalid? The following incident should answer that question with an emphatic, "No!"

It became clearer everyday aboard the USS *Harry S. Truman* (CVN 75) that training was coming to an end, and the real action soon would start. The Seahawks of VAW-126 had only four E-2Cs, and two of them were the world's largest paperweights in the hangar bay. Aircraft 602 was up on jacks for a nose-landing gear, drag-brace problem. The parts were not expected for two weeks. With hangar space at a premium, flight-deck control was not going to let a huge Hummer sit on jacks in the middle of the hangar bay for two weeks. I knew the nose gear on 602 had to be reassembled, so it could come off the jacks and could be moved around as needed.

The maintenance crew, feeling a little more pressure than normal, worked to put the aircraft back on its wheels. An aircraft on jacks already is at increased risk of damage, but that risk increases aboard ship. However, 602 was stable, resting on four aircraft jack stands. Getting her back on the deck was going to require my maintainers to install the bad drag-brace bar in the nose-gear assembly. The airframers who undertook this task, including a chief and a PO1, had more than 40 years of maintenance experience. Aircraft maintenance never is as straightforward as it should be. On this evening, the drag brace simply wouldn't go back in place. Different techniques, approaches, and varying degrees of elbow grease were applied to the problem, but nothing worked. After six hours of effort, the team decided the only way to get the drag-brace bar back in was to change the angle of the aircraft.

They could gain better access and a better angle if the nose of the aircraft was more level with the deck. To level the nose, the jack on the tail would have to be removed, and the two wing jacks would have to be lowered slightly. The supervisors were aware of the bold print in the maintenance manual that reads, "CAUTION: The nose jack shall be lowered prior to lowering the wing jacks, in order to prevent damage to the aircraft."

None of the Sailors involved completely understood the physical dynamics of an E-2C being lowered backward, but they had seen it done—succesfully—before. The resident experts chose to proceed cautiously with their revised procedure, ignoring the caution.

The crew assigned observers to watch the chains and the jacks and slowly began to lower the wing jacks. All was well until the main mounts touched

"World-class organizations do not tolerate preventable accidents." -Donald Rumsfeld, SecDef

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down on the deck. As the aircraft's weight began to shift from the jacks to the tires, the aircraft began to pivot forward on the main-landing gear. The supervisor stopped the job when he noticed the aft pad of the nose jack had tilted upward about two inches.

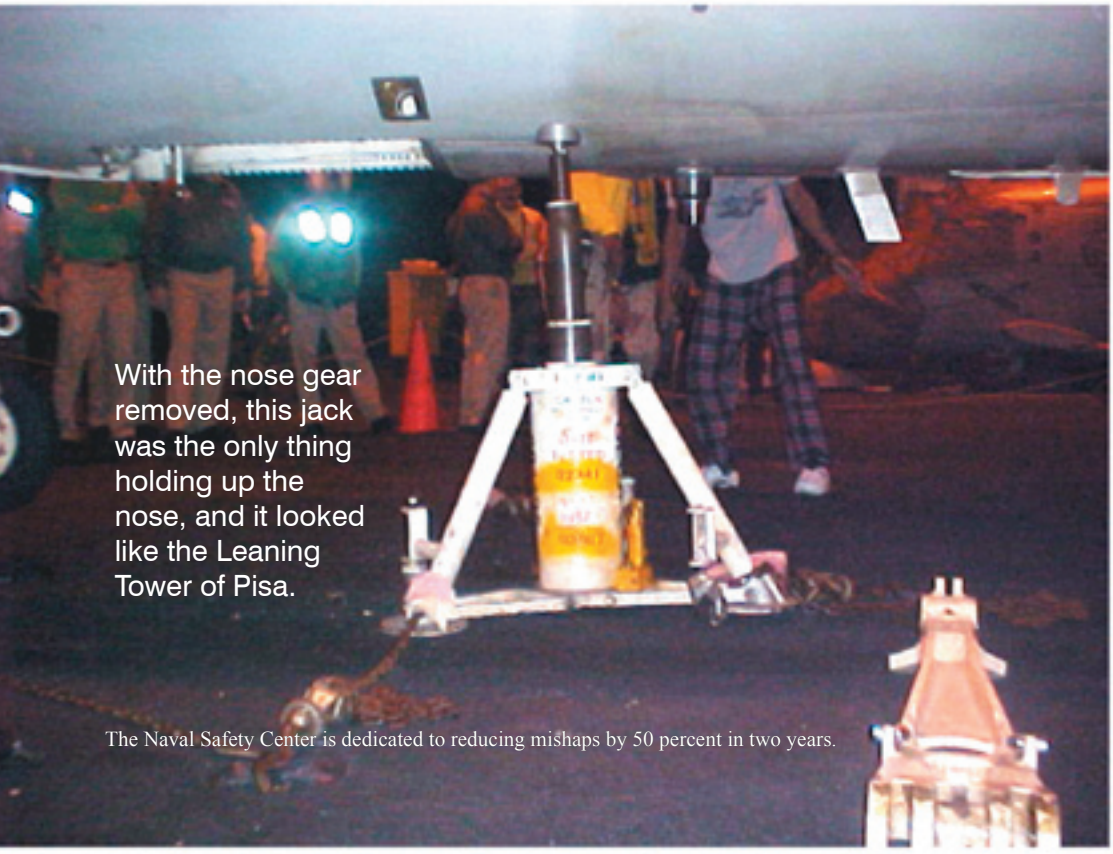
The nose of the aircraft now was perched precariously on a leaning jack without nose gear to support the aircraft if the jack slipped out. If the nose jack fully unseated, the aircraft's nose would hit the deck because the nose-gear drag brace was disconnected. In that case, the wing jacks likely would slip off their pads and would be thrust into the wings of the aircraft, puncturing the fuel tanks and spilling about 5,000 pounds of JP.

The nose jack remained in place, but a crash forklift was used to raise the aircraft, and jack stands then were reseated to stabilize the Hawkeye. Although no damage was done to the aircraft, we experienced a close call.

When questioned afterward, the supervisors said they did not know what would happen as the wing jacks were lowered before the nose jack. They had been confident enough in their understanding of the situation to ignore the caution in the manual. As a result, a fleet asset almost was damaged catastrophically.

Every maintenance professional must respect and follow the warnings and cautions in the maintenance manuals. Understanding terms like "shall" and "should" are critical to prevent repeat mishaps that caused the hard lessons contained in our aircraft NATOPS and maintenance manuals.

LCdr. Jones is the maintenance officer and flies with VAW-126.



With the nose gear removed, this jack was the only thing holding up the nose, and it looked like the Leaning Tower of Pisa.

The Naval Safety Center is dedicated to reducing mishaps by 50 percent in two years.