

THE WRONG GET THINGS

By AD2 Kenneth Eaglin

The E-2C community had been experiencing a rash of turbine failures over the previous year. Although the Liberty Bells had escaped this unfortunate problem, our luck was about to change.

Liberty 602 was on a routine out and in to Osan Air Base, Korea. The flight to Osan was uneventful, except for slightly louder engine noise than normal. The crew chalked this difference up to an inoperative propeller-synchronization system. Later that afternoon, Liberty 602 departed from Osan for a return flight to Atsugi, Japan. The initial departure was routine, and 602 was on its way home. As the aircraft climbed through 24,000 feet, the crew heard a loud “bang.” It felt like the plane had been hit in the side. The plane swerved to the right, and the pilot and co-pilot noticed the starboard-engine gauges were giving abnormal indications. They had experienced a first-stage turbine failure.

The pilot immediately started a descent to 15,000 feet and turned back toward Osan. The crew knew the Hawkeye was needed in Atsugi for CQ in a few days, but Osan was much closer. It was not worth the risk to continue to Atsugi.

The crew followed NATOPS emergency procedures for an engine shutdown. After several radio transmissions to Taegu Center, the crew was able to break through the language barrier and requested a single-engine field arrestment.

The crew took a trap, landing safely.

That landing turned out to be the easy part. The crew now needed to get an engine, to remove the failed engine, and to install the replacement in a timely manner at an airfield without support equipment designed for an E-2. The crew could not remain in Osan because of the upcoming FCLP and CQ dets, so they flew back to Atsugi on a different aircraft.

A few days later, an engine was removed from an aircraft in integrated phase and was sent to replace the failed engine.

The Liberty Bells’ maintenance department had a lot of work to do, with very little time. The engine quickly was removed from 603 and was prepared for installation in 602. The ADs knew time was critical, and they would not have all of the support equipment normally present during an engine change, so they decided not to drain the engine before shipment.

Communication within the maintenance department broke down, and the engine was drained without telling the ADs. To make matters worse, it was not tagged with a drain-and-purge tag.

The aircrew, maintenance personnel, replacement engine, and support equipment were flown to Osan in a C-130, and the flight arrived around 2000 that evening. Due to time constraints, we immediately went to work.

We had expected a routine engine change, but, when we arrived at Osan Air Base, we had no idea of the obstacles that lay ahead. An E-2C was down, and it was our job to fix it. We didn’t have the support equipment, packing or time that we would have liked. The first problem was removing the engine from the aircraft. The only piece of equipment on the base capable of this task was a 60-ton boom crane. Securing the engine to the crane was pretty easy, but the removal was far more involved than we had planned. Because of the limited capability of the crane to move an object out of an extremely tight space, a five-minute job turned into a three-hour job.

The crane had an angled boom, so the engine moved down one inch for every inch we pulled out. Moving that engine was painful and tedious, especially on the crane operator. Once the engine was out of the nacelle, it took another two hours to secure it onto its support stand. We were exhausted and retired to our hotel to get some sleep for the following day.

Early the next morning, we began to install the replacement engine with the same crane. Realizing the crane’s limited capability, we decided to try something else. We lifted and leveled the engine in front of the engine cavity, then hooked up a tow tractor to the aircraft, attempting to pull the plane into the engine. It worked!

WAY TO 3 DONE

Photograph by PH2(SW) John Collins

After connecting the engine, it was time for a low-power turn. After working three straight 12-to-15-hour days in near freezing weather, it was time to do an operational check of our hard work.

I had asked that the engine not be drained, and it was not tagged as such, so I assumed it was full. The aircrew attempted the first start but stopped when they did not get any positive oil indications. We checked all the mechanical and electrical connections, tried again, and still got no positive oil indications. Believing the engine was full of oil, we began to narrow down the possibilities. We installed different gauges and tried everything we knew, except checking the oil level. We finally convinced ourselves that we had found a problem with an electrical circuit. After six failed start attempts, the aircrew decided to call it a night. We had worked a 17-hour day and could tell fatigue had set in.

The next morning, we decided to check the oil level—just to be sure. To my surprise, the engine was empty. We filled it with oil, and it started on the next attempt. We were lucky the engine had not been damaged on the six previous start attempts.

How could we have missed the most obvious solution? Fatigue and stress played a large part in our mistakes. Not having the normal equipment to change an engine contributed to our fatigue, and simple tasks suddenly became difficult. Knowing the air wing would deploy in less than a week added considerable pressure to get the airplane fixed and back to Atsugi. I learned never to leave anything to chance. 

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