Engine Fire at High Power

by Lt. Billy Ray Davis

The importance of the aviator's relationship with maintainers became very evident one December afternoon in Sigonella, Sicily, while I was serving as the squadron taxi pilot. The operational tempo during this part of our deployment was high, the maintenance department was hopping, and the duty Flight Engineer (FE) and I expected to be busy with high-power turns on a couple of aircraft.

As a taxi pilot, I take pride in bringing back an up aircraft. My first taxi event of the day went well. The maintenance chief told me not to go far because another aircraft would be ready for high-power soon. I went topside to handle some ground duties and waited for the call from maintenance.

I soon found myself in maintenance control again, reading the aircraft discrepancy book . The book was full of new, open MAFs, which was typical of an aircraft coming out of phase maintenance. None of the gripes would affect the maintenance turns, however. I arrived at the aircraft to find that I had two qualified flight engineers to help me. I set up the cockpit and then proceeded to do my walk-around inspection of the aircraft. While it was only a maintenance turn, I still wanted to give the plane a good inspection, especially after a period in the hangar. Then I called the lineman and the maintenance crew to the flight station for a quick brief on both engine starts and the maintenance part of the event. I included all of our standard items for a maintenance turn, including ground emergencies and responsibilities throughout the turns. Having a second qualified FE aboard to serve as the brake rider in the copilot seat and run the checklist would pay great dividends later that day.

I called for starts and subsequent taxi to the "hammerhead" for maintenance. Once established

at the designated area with the aircraft pointed into the wind, I set the parking brake and reminded my aft observers to stand by for the start of maintenance. Before running up the engines, I told the duty FE that if we got a fire warning while at high power, we'd pull back the power levers before pulling the e-handle for shut down. This is a standard procedure for high-power turns, which ensures that the fire warning is valid. The checks on the No. 1 engine went well.

For the No. 2 engine, we began with the checks for the fuel governor, pitchlock and reverse-shaft horsepower. These checks verify that the fuel governor limits engine speed in the event the prop governor fails. We also intentionally pitchlock the propeller to verify that the blade angle is maintained, and, finally, we check the reverse-shaft horsepower. Midway through the procedure with the propeller pithclocked, we heard the undeniable sound of a fire-warning horn and saw the glow of the lights around the e-handle. Thoughts of all the briefed items flooded my head. I looked at the FE in the copilot seat as he announced, "Fire warning on two."

I said, "Break pitchlock and retard the power levers to flight idle to verify." All the while, my eyes were glued to the glowing light as I waited for it to go out. I expected the fire warning to extinguish once the power levers were pulled back. I watched and waited for what seemed to be an eternity, and then I heard "Flight idle" from the FE, followed shortly by "Check me on two."

I responded, "E-handle two, engine fire on the ground checklist." My mind was catching up to the fact that we had an engine fire. We raced through the checklist (the fact that I had another qualified FE in the copilot seat helped), getting the e-handle out and discharging the extinguishing agent into the nacelle. As the fire-warning light went out, I started to feel a sense of control.

I made my first call to ground control (to let them know we'd had an emergency and had shut down an engine), then called base. We arrived at *Alternate HRD* on the checklist; this step required us to assess the status of the fire to determine if we needed to use the other extinguishers. I asked the aft observer to visually check the nacelle. He reported seeing some smoke, but it had started to slow. Then one of the maintainers on board called out that she saw smoke and discoloration on the nacelle. This was a critical point in the event, because if we had a confirmed fire, we would have to get out of the aircraft. I asked the FE in the copilot seat to check the nacelle for bubbling or peeling paint. The duty FE and I discussed what we would do if we still had the fire indications. We decided that if we had to discharge a second bottle, we would continue on the checklist. Once the necessary calls were made, we would secure engines. My second FE said the nacelle still was burning.

I called for the second bottle, then announced that we would evacuate the aircraft via the starboard over-wing exit. A sense of urgency became pervasive. I called Ground, advising them that I had continued fire indications and that I needed firefighting assistance. I repeated the call, not sure if the ground control had heard and understood. I then quickly called Base, at the same time checking the FE on the e-handles of the remaining engines, saving No. 4 for last, so I could get that last radio call out. Then the aircraft went dead, except for the sound of the command bell ringing to signal the egress.

As I exited the flight station behind the FE, I glanced out at the engine and saw the large discoloration on the nacelle. I wondered if I was overreacting. The smell of burning wires and melting paint convinced me otherwise, so I slid down the flap to join the rest of the crew. As we waited for the fire trucks, I watched the aircraft, and I realized at that moment just how dangerous our job can become in a matter of seconds. I also realized just how important it is that we execute our procedures quickly and efficiently as a crew.

An igniter plug on the engine had failed. As the details of the mishap became clear to me, I was aware of just how close we had come to a Class A mishap. Damage to the aircraft was significant, but the total effect was minimized because our crew knew and followed the procedures.

[This story is a fine example of following NATOPS procedures, using good judgment, and practicing exceptional crew coordination. This mishap also dramatizes why to include maintainers in CRM programs that promote decision-making, assertiveness and communication skills.—LCdr. Mike Rogers]

Lt. Davis flies with VP-16.