My Ticket to PSAB

By LCdr. Herb Carmen

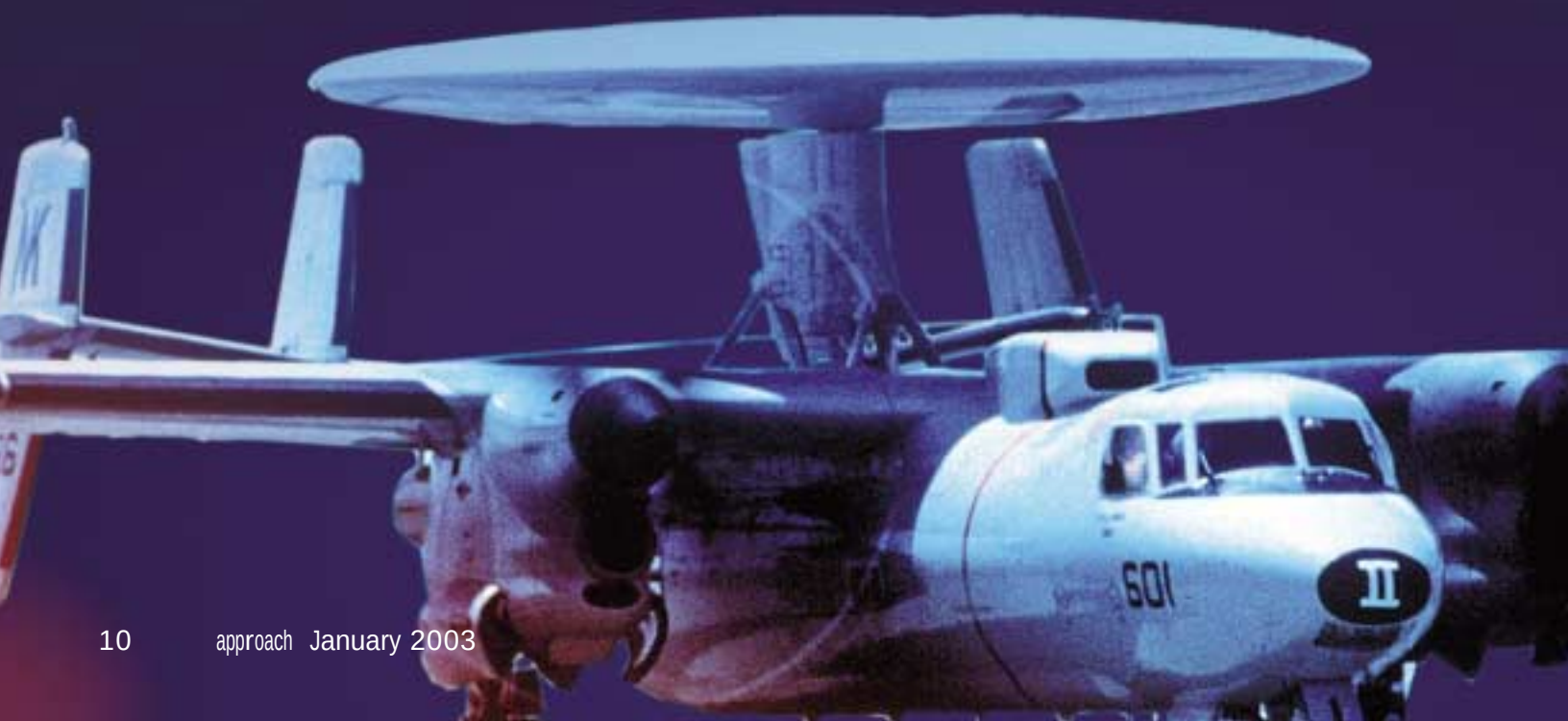
Just days from getting underway, the Liberty Bells were cramming in as much field-carrier-landing practice (FCLP) in the Hawkeye as we could stand. As a new department head, I was establishing my reputation in the squadron. I already had experienced an engine-turbine failure on one flight and a trim failure on another. In just two months, to "Carmenize" an E-2 quickly had become the descriptive term in the squadron for downing an airplane. I wanted to avoid downing any more airplanes during our FCLP periods.

Ben had been my "partner in crime" during both of my previous emergencies, and he again was my copilot for a night bounce at home field. Corpse was our CICO for the flight. Ben would get eight FCLP passes, then we would seat swap, and I would get eight. We'd seat swap again for another period for Ben.

As we walked to the plane, our skipper joked that operational risk management should prevent Ben and me from again flying together. We laughed, but I already wondered if I would spend more time on cruise in Prince Sultan Airbase than I would on the ship, since I kept breaking his planes.

Ben flew his first eight night passes, and we departed the pattern for our side-to-side crew swap. On the long trip back to the initial, we swapped seats, and I flew into the break. We slowed and cranked through the landing checklists. Ben reviewed them, "Three down and locked, 20 flaps, max rudder 20 degrees, auto, indicates 20 degrees."

I turned base and set up for my first pass. Since I just had been an instructor at the FRS and was current in the Hawkeye, I would get fewer passes than the younger



guys. I had to make each pass count. I concentrated on a good start and flew a good pass. We still were above max-trap weight, so I went to full power just before touchdown for the heavy waveoff. As we began to climb, things didn't feel right.

I immediately realized I could not control the nose. It pulled and rolled to the left because of the huge p-factor generated by the power addition. For a Hawkeye pilot, adding power and right rudder simultaneously is as natural as breathing, so it took a second for me to realize what the problem was. I pushed with my right foot, but the pedals didn't move.

As I pulled back on the power to reduce the yaw, I blurted something the chaplains would not appreciate. I told Ben the pedals were stuck as I kept the nose low enough to keep speed on the plane. I noticed the slower I flew, the more right rudder we needed to fly straight. I added a little differential power on the left engine to help counter the yaw and to keep up our speed. As we accelerated, I reset the climb and got away from the runway.

Safely off ground, I easily could keep the plane straight at 150 knots. If I slowed, the nose again would pull left. At high speeds, the Hawkeye has a mechanical stop that engages to prevent rudder movement more than two degrees. I had heard of pilots who had had the two-degree rudder remaining engaged after slowing out of the break, so that was my first thought. A lever in the back of the plane could release the two-degree-rudder stops.

There were no caution lights, and the max-rudder indicator showed we had 20 degrees available. According to what we saw, we should have been able to push the pedals full throw. With 20 degrees or six degrees of rudder available, the pedals move about three inches fore and aft. With just two degrees available, the pedals still should move an inch in each direction, but neither of us could budge the pedals. Even kicking the rudders didn't help; they may as well have been welded in place. Using rudder trim didn't help, either. Corpse and Ben scoured NATOPS to find the appropriate emergency. Not a single, rudder-system failure fit the problem. Looking at the NATOPS, nothing except, "Jammed/Restricted/Binding Flight Controls" matched. We determined the rudder pedals were stuck.

arresting gear was in place on that end. Since we were heavy, we considered dumping fuel. However, climbing to 6,000 feet with no rudder control wasn't an enticing option, and the idea of creating an international incident by dumping gas on crowded Tokyo suburbs didn't appeal to me, either. We'd just take what we had and trap.

We set up for a long straightaway, so we could get used to how the plane responded to heading, power, and airspeed changes.

It was clear we'd have to keep up our speed. Slowing below 140 knots required more aileron and differential power than I felt comfortable landing with. We saw that 145 knots and a few degrees right wing down kept us pointed down the runway. We told the LSOs our plan, and they briefed us on how to get the wire. All three of us wanted to make sure we got the wire on the first try, since a rollout with no rudder, at best, would be squirrelly. If we boltered, we planned to keep up our speed, get airborne, and try again.

As we motored down the glide slope, we knew the extra speed would make it that much harder to get the plane on deck. A little settle in close helped, since it let me flatten out the glide slope and reduced the rate of descent as we touched down. I kept the power where it was until I felt the tug of the arresting gear. The E-28 gear quickly stopped us.

After the trap, we took a deep sigh of relief. I pushed the pedals one more time, and they worked just fine.

We taxied to the line and let the troubleshooters look at the plane. After examining the rudder system and the two-degree stops, they determined it wasn't the rudder stops. The next step to solving the mystery was to shut down and search for what had obstructed the rudders.

Three separate nose-to-tail FOD searches by three different crews never revealed the golden BB. They did find some FOD, but nothing that would have bound the rudders. The airframers checked and tightened every bolt, nut, screw, and cotter key in the system.

That night, we concluded not every emergency perfectly fits a NATOPS procedure. In this case, we pooled all the knowledge and experience in the airplane to help get back on deck.

We took our time before flying the plane again, completing throws, an FCF, and a confidence flight, just to be sure. We didn't want this gripe to reappear at the ship. Meanwhile, I wondered if the Atsugi uniform shop sold insignia for desert-camouflage uniforms.

While circling overhead the field, we devised our plan. The binding-flight-controls procedure calls for using minimum-flight-control inputs and landing as soon as possible. We maneuvered for the opposite runway because the

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