

To Push Or Not To Push?

By LCdr. Brian C. Sinclair

I was one of the fortunate FRS students to head to El Centro in the summer of 2006 for my strike Det. My hiatus from aviation in Monterey, Calif., had made me completely incompatible with the desert climate. My respect for our Marine brethren in Yuma quadrupled as I burned my fingers every start from APU spool-up until I got both engines online. The last time I had dealt with this kind of weather was in the Gulf in 2002, with TF-34 (S-3B Viking) engines. In that platform, I had a true respect for the old “hot and heavy” situation, which can test a pilot’s skills. Although VFA-106 had thoroughly briefed me on engine-performance degradation, and I had spun the numbers using TOLD (takeoff and landing data), I honestly thought the Hornet always would have power available. With a configuration of single centerline tank and a few Mk-76s, the aircraft at least would have enough power available so that my skills would not be tested. That was my first misconception.

So, there I was, waiting at the holdshort with my lead, just minutes away from taking off VFR to the ranges. Because of the short transit, I was rehearsing the mission and switchology in my mind. I knew it would be fast and furious once I got wheels in the well. I always thought of the takeoff and rendezvous as quite mechanical and did not give much thought during my chair flying—bad idea No. 2.

We received clearance from tower and set up for a

standard 10-second-go on the west-flow runway. As I watched lead race away from me, his plane looked distorted from all the rising hot air; it made him look almost like a mirage. As I began to roll, I noticed this mirage took quite a lot of concrete to rotate. I took a final look at my gauges, then focused outside on the runway and my airspeed. At just over my TOLD-calculated rotation speed, the plane picked itself off the deck.

I then heard several loud, successive bangs from my right engine. Betty blurted, “Engine right. Engine right,” as the plane began to yaw to the right. I steadied the plane and left both throttles in burner, as I hawked my airspeed and altitude. I struggled to maintain 380 feet and 157 knots (three knots below calculated take-off speed) for a few moments, while I sucked up the seat cushion. I glanced down at the IFEI (integrated fuel engine indicator) and saw my right engine had rolled back to flight idle, despite my left hand still commanding afterburner on both sides.

I tried to push the throttles through the anti-skid switch and had a white-knuckle grip on the stick. I also tried to curl my toes around the brakes as I maintained balanced flight. Just then, the rest of the emergency-takeoff procedure hit me: “External jettison button-push (if required).”

As my stem power invited a few more neurons to play, I realized I was flying over farms and buildings. I saw an open patch of desert at my 1 o’clock and not terribly far. I decided to hold the jettison until that point, so I wouldn’t ruin anyone else’s day. Fleeting ideas of possible ejection caused me to straighten up in the seat and reassess the populated areas if the “EXT JETT” did not make a difference.

As I wrestled with the plane for a few more seconds, out of one of the darkest, dustiest corners in my mind, the old Viking EP for emergency takeoff reared its head. I decided I could gain a little more airspeed by retracting the landing gear. Without a second thought, my left hand complied, and up they came. As the green lights extinguished, the airspeed crept up a few knots to a much more comfortable 165 knots. I now felt comfortable raising the nose a few degrees and started a gentle climb at about 162 knots.

When I passed 2,000 feet, I did my best impersonation of a calm, collected pilot and told tower of my emergency. I then asked for a delta at 7,000 feet. I finally brought the right throttle back to idle, and the IFEI showed the engine safely stable at that setting. The left throttle remained in A/B while I explained the situation to my lead. He immediately rejoined in a loose

cruise, and we went through the PCL (pocket checklist) procedures several times to ensure accuracy. I cracked a smile as he said (over TAC), “Let me know if you have to step out of the jet at any moment.”

Only a Brit would use such a genteel expression to describe such a violent and undesirable act. Once established at 7,000 feet, my next order of business was to set up for a trap. Because I had kept the external tank, I had to dump a lot of gas to get down to landing weight. Unfortunately, I had to keep the left engine in blower to maintain altitude, which brought me to my next dilemma: Should I be dumping fuel only eight to 10 feet above my staged afterburner? My fearless lead’s response was something along the lines of “I’m not quite sure, but I will move farther away.”

I dumped down and took an uneventful trap on the duty runway. On deck, the right engine started making a horrible crunching sound, so I shut it down. After an initial inspection, the maintainers realized my right nose-gear bearing had exploded and had sent shards of metal and ball bearings down the right engine. The ball bearings bounced fore and aft like pinballs between the compressor and turbine stages, robbing the engine of many blades before exiting. The nosegear hub had fused to the strut. I could see daylight through the right engine. I had clobbered the active for about 30 minutes until they could properly tow me away—mistake No. 3.

I was impressed with the GE engine and how much abuse it could take and still run. I really appreciated having all of my utilities, which are run off the hydraulic pump from the affected engine. Never before had I seen an engine so completely destroyed and still running at idle.

More importantly, I learned that single-engine flight, in even the mightiest of aircraft, really tests a pilot. Each phase of flight must be considered carefully during a preflight. Seemingly mundane take-offs quickly can become the most difficult part of a flight, especially in bad weather. Airport surroundings (farms, buildings) also must play into the decision matrix when executing EPs, and dramatically can alter strategies. These factors should be addressed in the briefing space at 1G and 0 knots. I also learned that NATOPS does not recommend dumping while in blower (for obvious reasons). I comfortably could have burned circles in the sky and contacted the SDO on base freq to double-check procedures in the Big Blue. 

LCdr. Sinclair flies with VFA-81.