

The Tale of the Super-Secret, Supersonic Tri-Pacer by the “Fabric Flash”

There have been a few articles in the Short Wing Piper News recently about the military uses of Short Wing Pipers. Now that the story of the super-secret, supersonic Tri-Pacer has been declassified, the whole tale can finally be told. I should know – I was there. It was my Tri-Pacer and I was the pilot.

It all started when I was employed as a long-range strategic planning officer at the National Air & Space Intelligence Center located at Wright-Patterson AFB. The military was interested in investigating the possibility of using a small, lightweight, rugged, semi-stealthy, prop-driven general aviation aircraft for covert operations in third world countries. The fabric covered short wing Piper series seemed to fit the bill perfectly, except that it was a little slow and lacked extended range capability. It was decided the speed and range issues could be solved by: 1. highly modifying the power plant to greatly increase the speed, and 2. reaching into third world countries by operating from the deck of an aircraft carrier.

The aircraft would need to be fitted with an extensively modified, sophisticated Lycoming engine utilizing classified (at that time) technologies. Other “tweaks” to the propeller, airframe, and landing gear would be needed to accommodate the engine and resulting speed. The Tri-Pacer was modified in a tightly guarded hanger at Wright-Patt.

Ground taxi test were done there at WPAFB just before daybreak on a Sunday morning to avoid snooping eyes. I was admittedly nervous as I ran through the checklist, fired up the engine, and proceeded with the low and high speed taxi tests. We could not risk taking this classified asset into the air in plain view of onlookers in the Dayton area, so it was decided to actually conduct the flight tests from the deck of an aircraft carrier at sea, far from unauthorized prying eyes.

I flew my deceptive bird down to Pensacola NAS low and slow to look like any other Tri-Pacer and not give any hints of how very special this PA-22 really was under the cowlings. I first practiced carrier landings in a simulator and then made numerous approaches on a runway outlined like a carrier deck. Getting used to flying the “meatball,” a Fresnel lens landing light system, was a piece of cake – the runway was not moving.

A real plus to landing a Tri-Pacer on an aircraft carrier is the airplane’s slow short-field approach speed. Combine this with the ship “steaming” into the wind at 35kts, plus 20-30 knots of natural ocean headwind right down the deck, and the Tri-Pacer can land with very little forward motion, almost like a Harrier or Helio-Courier. Certainly no need for a tail hook or arresting gear. The Navy loved it.

The day of reckoning finally arrived to fly “feet wet” to a rendezvous with the nuclear powered USS Eisenhower (CVN-69) at sea. I homed in on the “Ike’s” beacon and set

up for the standard Navy approach as follows: fly at full cruise power upwind abeam the starboard side in the same direction as the ship is moving, until the ship is at your “7 o'clock.” Next comes “the break” as you roll into a 90 degree left bank – right wing points straight up at the sky, left wing straight down at the water – flying a crosswind turn around the bow of the ship to bleed off airspeed. Dial in the landing configuration on downwind. Then you roll into a left base and hold that bank for 185 degrees until you “roll into the groove” on final, 12 seconds from touch down.

I would be lying to say my palms were dry. My line-up on the centerline was acceptable, angle of attack was good, “paddles” (the LSO - Landing Signals Officer) signaled to add a touch of power, cross over the round-off, fly it right down onto the deck, don't flare, and BANG, my Tri-Pacer & I were safely aboard. I could start breathing again.



Once aboard the USS Eisenhower, the author observes Navy flight operations from “Vultures Row”.

A few days later, following final system checks and inspections, the full high speed tests commenced. As I donned a “brain bucket” helmet then strapped into the left seat using my four-point harness, I got two thumbs up from the test coordinator and Lycoming engineers who had modified the engine. I concentrated on the engine start procedure checklist. When I was ready to taxi, I keyed the microphone and requested clearance from the Air Boss, who first cleared the flight deck from his perch two stories above me up in “Pri Fly.”



The Tri-Pacer on the flight deck of the "Ike" leading a formation take-off with a Navy chase plane in trail. The jet could not keep up with the modified Tri-Pacer.

The white shirted aircraft handlers directed me to the catapult using crisp, well rehearsed hand signals. Once in position over the catapult, a "green shirt" disappeared under the cowling to connect the shuttle and catapult bridle to my specially reinforced nose strut. I got the signal to initiate a full power run-up. This was no ordinary O-320. The modifications are no longer secret, so it can now be told that the standard Champion spark plugs were replaced with special di-lithium-cobalt crystal turbo-encabulator "spark plugs" pictured here.



Watch a video fully explaining how the encabulators work:
[CLICK HERE.](#)

My Tri-Pacer bucked under the restraints of the “holdback.” I saw each of the four handlers posted on the corners give thumbs up as I cycled the yolk through its full travel, left-right-fore-aft. Then the catapult officer dropped down on one knee – my heart was pounding - with his arm extended forward, he pointed toward the bow briefly, then suddenly dropped his arm, touching two fingers to the deck – the signal to launch. Zoweeee! From zero to 135 kts in 2.5 seconds! It happened so quickly I almost forgot to hit the actuator switch to kick in the turbo-encabulator hyperdrive. I managed to reach the switch and throw it just as the nose wheel left the end of the catapult.



Suddenly I was rocketing skyward like nothing I ever experienced before, accelerating past 370 knots in mere seconds. Airspeed was building too quickly, so I hauled back on the yolk and began a nearly vertical climb. The vertical velocity indicator was pegged at max rate of climb and the altimeter was winding up into the flight levels. So I killed the hyperdrive, hauled back on the yoke performing an Immelmann maneuver to reverse course, and at the top I rolled upright, leveling the wings at 21,000 ft. Before I knew it, my craft was 30 miles behind the ship and in position to start the high speed run.

After a 180-degree turn I aimed for the ship, pointed the nose on a 45 degree down-line, kicked in the hyperdrive again, and commenced the high speed test run. The ocean was racing up to meet me. The fabric began to whine like a wounded banshee. As I neared the carrier I leveled at 250 ft with all the stops out. The Lycoming up front was screaming like a tormented demon. The mach meter was flirting with 0.9. The smell of burning rubber filled the cabin as the tires began to cook from the friction – make a note: next time fly with the wheel pants on. I was thrashing about, thankful for the restraints and praying they would continue to hold me in the aircraft. The shaking became more violent. The instrument panel was a blur. I wondered if the trusty PA-22 would hold together. Suddenly – BOOM! It got strangely quiet as I slipped through the sound barrier. All I could hear now was my heart pounding and the confident purring of that turbo-encabulated Lycoming up front.



This picture documenting the event is a rarity. It takes just the right combination of conditions and events to capture passing the sound barrier. Not only were the water vapor, density and temperature just right, but there just happened to be a shutterbug on deck to capture the moment. The Tri-Pacer is actually in transonic flight, with normal shock waves emanating from behind the landing gear and across the empennage and tail surfaces. The condition will last for only an instant, and once supersonic flow exists completely around the aircraft, sharp-angled sonic cones replace the normal shock waves. The odds of getting a shot like this are staggering .

With the first test run completed successfully, I hauled back on the controls and pointed the nose straight up at heaven. This time I wanted to see just how high my little Tri-Pacer could go. Up, up, up the burning blue I topped the windswept heights where neither lark nor eagle flew. As I leveled off at 72,000 ft, I noticed the deep black of space above me and could see the curvature of the earth spread out before me. It was exhilarating, but I was not dressed for the intense cold. I was only wearing a t-shirt from a Caribbean cruise. It was time to head back to the ship

I requested a fly-by of the ship's "tower" but the Air Boss gave me a "NEGATIVE!" It was a good thing because the little Lycoming had given it's all and gave up the ghost

well before I reached the ship. Penetrating the deep cold of the stratosphere after a flaming run at sea level must have done some shock cooling damage. I shut her down and announced an “engine out, dead stick landing”. There was no time to clear the F/A-18 Hornets off the flight deck, and no margin for error. I had to get it right the first time – no “bolter” or go-around for a second shot at it. I flew the “meatball” right to touchdown as the Captain adjusted the “Ike’s” speed to accommodate my Tri-Pacer’s gentle descent profile.



The author sits in Capt. Alan Gemmill’s chair on the bridge of the “Ike” as the special visitors pose with the Captain for a VIP picture to commemorate the occasion.



The author having lunch with F/A-18 Hornet jocks on the "Ike" that were all ears to hear what it was like to break the sound barrier in a propeller driven general aviation aircraft.

Once on board, a tug smartly positioned my Tri-Pacer on the ship's elevator and we were lowered to the hanger deck below, where it was secured. At the mission debriefing that immediately followed, the first thing I heard was a quiet, gentle, demure voice whispering in my ear, "Honey, it's time to wake up from your nap - dinner's ready."

