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The F-111 in Southeast Asia



An F-111A, using its terrain-following radar, flies a roller-coaster pattern during a daylight training mission in Thailand. Most actual missions were at night, in weather, and at 200 feet through this kind of landscape.

During the last four months of the Vietnam War, F-111s of the 474th TFW set a phenomenal record for bombing effectiveness, survivability, and combat readiness. Here is an on-the-spot report on some very hairy missions, and the overall performance of . . .

Whispering Death: The F-111 in SEA

By Wayne Thomis

WHEN THE 474th Tactical Fighter Wing brought its swingwing F-111A twin jets to Takhli Air Base 130 miles north of Bangkok, Thailand, last September, a Seventh Air Force operations officer, part of the

teams controlling air combat over Southeast Asia, asked:

"Do you people have smart bombs?"

The reply, verging on the flip-pant, was:

"No, but we've got smart airplanes."

And the 474th proved its claim. The F-111s flown by two squadrons (the 429th and 430th) of gung ho aircrews and maintained by dedicated, hard-working maintenance people "cut a new groove" in aerial fighting. They demonstrated in the crucible of battle—final test of any weapon or military theory—that the low-level, high-speed penetration of even the most sophisticated defenses is the right way to go.

The Vietnam performance of the 474th TFW's forty-eight aircraft speaks for itself. Here is a brief summary of these operations:

- **Sorties flown:** Approaching 3,500 at the time of cease-fire.

- **Bombing effectiveness:** Rated by Seventh Air Force analysts as very close to accuracies achieved by the guided bombs (smart bombs). In the case of the 474th, targets were not hit by single bomb drops, but rather by salvos of twelve to sixteen iron bombs on each sortie. At the end of the fighting, strike planners were sending single F-111s to hit an airfield, attack a SAM site, or a railroad yard—with the certainty that the target would be hit by that single-plane mission, flown at night, in bad weather, against the toughest ground defenses in the history of air warfare. Never, before the guided bombs or the F-111s, could single-plane missions be launched with foreknowledge that the strike would be effective.

- **Mission aborts:** Less than one percent. No other equipment in the inventory had a lower abort rate, even though the F-111s were in their first full-scale combat assignment. Weather scrubbed missions only once, according to wing operations records, and that at the height of the year's worst monsoon rains.

- **Plane losses:** An astonishingly



low total of only six. This represents a combat loss ratio of one-sixth of one percent of the aircraft exposed to enemy fire. No other units engaged in Southeast Asia (F-4s, A-7s, B-52s, A-6s) proved so survivable—a fact apparently overlooked by correspondents who reported the final days of the air war, which intensified right up to the cease-fire.

"We certainly expected more losses," reported the F-111 crews who were rotated back to the 474th Wing home base at Nellis AFB, Nev., in late January.

TFR: Making Believers

"We gradually gained great confidence in our planes, our navigation and bombing equipment, and that fantastic, really unbelievable TFR [terrain-following radar]. All this special electronics enabled us to go in at very low altitudes. We went on mission after mission [crews averaged forty-five to fifty-three sorties] without taking a hit," an aircrew member of the 429th told this writer.

"By actual count, there were less than ten hits taken by 474th aircraft up to the time we left, about January 20. We know that one of the planes that didn't return took SAM hits. The crew so reported as they punched out. Those boys are coming home as prisoners—their names are on published lists—so we'll get the full account later.

"There was only one precautionary landing away from Takhli because of damage. That was at Udorn, in north Thailand. Inspection on the ground showed half a dozen small holes near the tail. The skin inspection plates were opened up and routes of the flak traced. Fortunately, the shrapnel cut no lines, and the plane was flown to Takhli with only tape across the entry holes."

Do not assume, however, that the F-111 crews took combat lightly. Moments of terror, hours of sober consideration of tactics and flight planning, long hours of energy-

absorbing concentration while flights were in progress are acknowledged by all. Penetrations of the Hanoi/Haiphong defenses and the Red River delta with its SAMs and AAA demanded the highest sort of courage and self-control.

"We were always nervous, no matter where we were targeted, because flying as low as we did and as fast is inherently dangerous.

"You are only a quarter of a second—at 500 miles an hour—from hitting the ground if anything goes wrong," explained Lt. Steve Glass, Weapons Systems Officer.

"Think about flying around in daylight and good weather only 200 feet above the ground and going up and down over hills and into valleys, keeping this height," said Capt. Jackie Crouch, former F-105 pilot with two earlier SEA tours.

"Now do this at night, in mountains and in heavy cloud when you can't see anything outside the cockpit. That is really, really exciting, even without the enemy threat.

"It takes real discipline to come up over these mountains, as we did at night, out on top of the cloud layer in the moonlight. We'd see those jagged peaks all round us poking through the cloud tops, and we'd have to put the nose down back into that mist. And as we went down, the moonlight would fade, and the cloud get darker, and we'd know we were descending below those peaks and were depending on our radars and our autopilots—and with Hanoi coming up. . . .

"I won't say that I wasn't worried.

"One night when the weather was *very* bad, I was in cloud for the last eleven minutes before bombs away—and that means at the lowest levels of the whole flight, going up and down hills and keeping our clearance still at 200 to 250 feet above these obstructions.

"We didn't see a thing outside the cockpit, not even after the bombs left us. For me, this thing was really remarkable. Even now I can't explain how fantastic it was, what extraordinary instrumentation we

have, what systems—I find it hard to comprehend even now.

"The confidence I gained in the airplane—it made a believer out of me. I'll tell anyone in the Air Force that, given a choice on a night strike of going in high or going in low, I'll go in low every time. And I'll go anywhere in the F-111."

The crews had the highest possible praise for their TFRs—the terrain-following radar that electronically observes their height above ground and directs the autopilot during final phases of all strike missions. The crews could pick the height they wanted to maintain above obstructions, and the TFR plus the autopilot provided the control inputs to give it to them, regardless of hills, mountains, trees, valleys, or other ground irregularities.

Confident though they were, the crews are overwhelmingly aware of the proximity of the ground during bombing runs. An indication of this is a notice they posted on the bulletin board in the Takhli officers' club. It said:

"Effectiveness of SAMs is less than fifteen percent for all firings.

"Effectiveness of Triple A is less than five percent, day or night.

"But—Effectiveness of the ground remains 100 percent. Don't let it hit you."

Headlines the Hard Way

The 474th was a bit shaken when one of the first two planes launched, within three hours after the long ferry flight from Nevada, failed to return. Its fate and that of its crew remain a mystery even today. In the weeks of combat that followed, five other F-111s also were lost. Of these, four were 430th aircraft, and two were from the 429th. The sixth and last was hit by ground fire over Hanoi. The crew was able to make a radio report before they punched out in the capsule. Both men made it safely to the ground, but were captured.

During the first weeks of combat,



Whispering Death

"I'll tell anyone in the Air Force that, given a choice on a night strike of going in high or going in low, I'll go in low every time. And I'll go anywhere in the F-111."

the F-111 crews maintained radio silence following takeoff as a security measure. This contributed to the mystery of the early losses. Investigators had no clues, or virtually none, on which to base investigations. By early November, Seventh Air Force changed the rules. Pilots had to make a brief radio check at course change points to high-flying radio-relay planes. "We've got to have some line on the F-111s," headquarters said.

"But this wasn't everything they'd hoped for," Captain Crouch said. "We were expected to make those calls when we were busiest. I got so I just let them go, once I was down low in final stages of a strike."

Maj. Carlos Higgins, another F-111 left-seater with the 429th, said: "Once you were low, you had to monitor everything; you had to be thinking and looking—by radar—as far ahead as possible so you would know what the terrain was like, and you had to count on this information from your right-seat man whose radar is better than the small vertical indicator scope on the pilot side. You count on your right-seat man to keep giving you word on obstructions so you could be sure the autopilot was obeying the TFR.

"But, if you missed making a position report by five minutes, they

would call you. Often I'd come back with, 'Jumbo Two Four, still alive,' and let it go at that."

F-111 crews never could understand why Seventh Air Force and PACAF Headquarters got so excited over F-111 combat losses. Other types of plane were lost daily, inevitably, in the hazards of a bitter war. Such plane and crew casualties were routinely reported and routinely accepted. But not so with the F-111s. Captain Crouch voiced the 429th attitude:

"We never could figure why the generals went straight up when an F-111 failed to return. Navy could lose an A-6, which was just as expensive and almost as sophisticated in navigation, radar, and bomb delivery as we are, yet nothing was said.

"The same attitudes were evident when Air Force or Navy F-4s went down, almost every day. Even with the B-52s, when they began hitting Hanoi—those shoot-downs were more or less accepted. But let an F-111 be lost and everybody seemed to go right through the roof. It wasn't realistic."

"Certainly we ourselves had expected to lose more than we did," said Capt. Paul Sperry, right-seater for Major Higgins.

"Look how the airplane performed in battle," Major Higgins said. "We couldn't understand all the bad publicity it received during development. But once in battle, its performance was ignored, or the publicity referred only to losses. The F-111 played a major role in the resumed bombing pressures on Hanoi and did great work that was never acknowledged."

Close, But No Cigar

The North Vietnamese, the Major said, respected the F-111s. They called the plane "Whispering Death" in propaganda broadcasts. This, the 429th crews agreed, is a good description of the only warning sounds of an F-111 in a high-speed, very-low-level bombing approach.

"This kind of a name indicates the surprise with which we hit them," he said. "When we bombed in bad weather or rain, we wondered whether they could hear us in advance at all. They must have been surprised when the bombs flashed on impact in downpours, as they



In 3,500 combat missions flown: abort rate, less than one percent.

often did. We thought the bomb flashes were often the first clue—other than their radar—of where we were."

North Vietnamese radar coverage was "unbelievable," all agreed. "There was no such thing as coming in under it in the Red River delta," Major Higgins said. "The place is so small, so heavily defended, so flat, that they are looking in all directions for attacks all the time.

"Once you came skiing over the mountains [crews called their

ground-hugging tactics "skiing"], you found yourself within their radar energy outputs. There was no escaping this," he continued.

"Of course, we never were sure what return they were getting—whether they actually could track us against the ground. Our onboard

"You must remember that Hanoi/Haiphong is a little bitty place—it only took us five to six minutes to fly across it," said Captain Crouch. "With all that lead we saw floating around, we expected hits, but we kept coming back without a scratch. Lots of it came so close we could

"really catches your eye as it surrounds you."

Zapping the SAMs

"SAM gunners tried for us," said Captain Crouch. "Their equipment let them guide the SAMs—if their



countermeasures equipment told us they were looking. But ground fire—triple A—seemed to be rather indiscriminate. Once there was firing along your track, the guns ahead would shoot straight up with everything available, hoping, we thought, that we would fly into the barrage.

"We were all surprised how readily and repeatedly we went in and came out despite the defenses, the knowledge by the ground crews that we were coming back night after night, the certainty of the targets we would hit. And those gunners—they've had more practice in the last five years than any gun or missile crews in history."

hear the supersonic 'whack' as it went by."

"One night, five rounds went by so close we felt the passage and heard it," said Lieutenant Glass. "We thought we'd been hit. But we looked over the panel and nothing flickered. When we got home, inspection turned up nothing."

The 474th crews saw some "really unusual sights," they said, during their dusk-to-dawn sorties. SAMs are "very visible," the fireball at the tail being easily followed from the moment of ignition on launching rails "until they go by you." As for triple A—it comes in all colors, sizes, and trajectories, and at night

radar could track us. They tried often enough. The hits we did take usually were SAM shrapnel."

The 474th had a special feeling for SAMs, anyhow. They were turned loose by Seventh Air Force to attack SAM sites on December 21. They recall that, during the nights of the eighteenth through the twentieth of December, Air Force electronic countermeasures planes and crews flying high above the battle reported eighty to 120 SAM firings, mostly at the B-52s operating at 28,000- to 35,000-foot levels. The Air Force count on expenditure of SAMs in this period, by day and night, totaled 600 firings.



Whispering Death

The author, Wayne Thomis, who recently retired as Aviation Editor of the Chicago Tribune after forty years with that paper, has logged 12,000 hours of stick time since he soloed in 1932. A Navy pilot in the Pacific during World War II, he shot down four enemy aircraft and was himself shot down once. He has covered a variety of assignments around the world, but is best known for his reporting on civil and military aviation. Mr. Thomis is now living in Florida, where he continues to write for the Fort Lauderdale News.

"On those nights, we saw plenty of SAM fireballs," said Lieutenant Glass. "After 'bombs away,' I looked back once and saw four rising together, a salvo. And over the common radio frequency we all monitored, the countermeasures watch never stopped talking, reporting SAM tracks. I heard him call at least fifty before we were out of range."

"The North had accumulated quite a stockpile before December," Captain Crouch said. "Their radars were peaked up, and triple A had plenty of ammo. They'd not been using it while we kept the bombing below the twentieth parallel."

"When we came back to renew the Hanoi assault, they were ready. Hits on the B-52s and others were sufficiently damaging that Seventh Air Force sent us against the SAM sites after the third night. And a SAM site, usually a big star with launchers at the points and radar



An F-111A, loaded with sixteen CBU-58 cluster bomblets, ready to go.

and control trailers at the center, is a good target for us."

"If you'd like a good figure for comparison, after we went to work," interjected Captain Sperry, "the firings dropped way down immediately. We got counts of eighty to 120 firings during each of the early nights; they dropped to twenty-eight on December 21, and to eighteen on December 22."

"There were nights after that," concluded Captain Crouch, "when not a single SAM was fired."

Faster Than Lights Out

"I think we convinced Seventh Air Force of our accuracy and our value after those four tough days."

The two squadrons never will forget other experiences during that bombing renewal. Maj. Jack Funke, Captain Crouch, and Major Higgins recall vividly the earliest sorties flown the night of December 18.

"The delta weather was way down, ceiling 200 feet or thereabouts, and cloud piled up to 28,000 feet," Lieutenant Glass re-

membered. "Talking it over later, we agreed the North Vietnamese, who long ago had turned the clock around, working at night and resting by day because of the day attacks, never expected anybody to hit them in such weather conditions."

"We came skiing down the mountains and plunged out into the open under the lower edge of the overcast, and it seemed to us the entire Hanoi valley was lighted up like Las Vegas," said Captain Crouch. "Hanoi was bright with neon and street lights, and the port was aglow in the distance. On the roads leading out of town and on the mountain switchbacks to the south, truck headlights were blazing like strings of pearls."

"We happened to arrive about ten minutes to eight in the evening, Hanoi time," said Lieutenant Glass. "We were coming so fast, we were almost on release point before any of those lights started going out. Sections of the town blacked out one at a time, and we knew sirens were screaming and somebody down there was pulling master switches, even as the bombs left us."

Captain Crouch and his right-seater, on December 19, in very poor weather, had the unusual experience of bombing Yen Bai airfield while the runway lights were still on.

"The field is one of Hanoi's fighter defense bases," he recalled in a slow drawl. "At 300 feet we were running in and out of ragged mist, but five miles out I could see the runway lights. I couldn't believe it."

"Geary's steering directions from our equipment pointed right at them, though. I thought either they decided nobody could go bombing in this weather and were working on the lights, or they had some MIGs out and were trying to recover them. Either way, I thought, it's fine for us."

"Still, we bombed on our own radar. Looking down, after bomb release, I saw the runway and some blobs of building near it. No planes; they keep their fighters at the ends of five-mile taxiways, or taxi-tracks, and operations must be buried somewhere nearby."

The night attacks served to keep Hanoi's technical-warfare people on twenty-four-hour alert and contributed to a general fatigue factor that could have had great importance in breaking down the defenses. The defenses had "failed," in the view of the 474th crews, as bombing was resumed on December 26, following a thirty-six-hour Christmas pause at President Nixon's order.

Conclusion: One Smart Airplane

The F-111 is demanding of its pilots; all low-level operations are energy-draining. Men and equipment are cranked to peak performance in these phases, matched by no other combat airplanes, the crews said.

"You are really busy, monitoring everything, once you get well into a mission," said Major Higgins. "Things are happening so fast that you have to stay well ahead, just to keep up. Chances are the equipment is so good it would get you where you want to go, if you just sat back. But nobody can do that once in a combat area.

"Our F-111s are not fighters—they're bombers. Demanding as it is, the airplane will deliver an attack in weather and against defenses that are the very best the enemy has shown at any time. And do it over and over again. It's got capabilities no other aircraft in the inventory can match."

The crews agreed: "We always planned our missions so we could bomb manually and make a return to base without our computer, more or less by dead reckoning. But we never did either of these things.

That speaks for the equipment reliability."

This writer was told by Seventh Air Force operations officers that the F-111 had "really come out smelling like a rose." They said earlier doubts based on its rather unsuccessful 1967 appearance in Southeast Asia—long before the developmental period was concluded



Maj. Jack Funke climbs aboard for a Mu Gia Pass mission.

—and upon a somewhat cool attitude toward F-111s held by Pentagon brass "were completely dispelled."

"It's a great airplane, and it does a job like nothing else can in darkness and bad weather," I was told. "We had crews from Strategic Air Command out here seeing how the TAC outfit flew. We had TAC F-111 crews from England, and from two US-based F-111 outfits. And we had more than our share of congressmen and senators from Washington to observe the F-111s in battle.

"They saw the birds going out of Takhli, one by one—the crews

briefed, flight planned, rested, re-briefed on weather and the strike areas, and then sent off on their solitary missions. Some two and a half hours later when our men and their birds were back, the observers had the chance at the club to sit and talk to the people who had been over Hanoi that night.

"Our conclusion is that we need more F-111s. It's going to be a long time before we get anything else that will come close to this aircraft and its systems—nothing at all before 1980 when the B-1 now is scheduled."

True cost-effectiveness of the F-111 in battle is only appreciated by the combat planners, said a Seventh Air Force operations officer while Linebacker II, the December 1972 campaign against military targets in the Hanoi/Haiphong area, was going on.

"When 500 planes fly strikes against Hanoi—from Navy, Marine, and Air Force sources—there are another 500 planes supporting them. These supporting aircraft are around and above the battle, but don't make the strikes. There are the F-4 combat air patrols, and the tankers that must maintain position for F-4s, A-7s, A-4s, and A-6s to get a drink of fuel if they need it. And there are the electronic countermeasures birds, the traffic controllers, the communications relayers, and the heavy commitment of those great air rescue crews and copters.

"The F-111s don't need this support armada. They can come into an area, fuel and arm at their home base, then go out and bomb and return with no support from anybody else. Their low-level speed is as great or greater than enemy fighters, and their legs are long enough to bypass the tankers. All this adds up to savings that are dramatically in favor of the low-level swingwingers—the F-111s."

Like the crews say, it's one smart airplane. ■