THE WILDER WILDCAT

THE HIGHEST-SCORING FIGHTER IN U.S. HISTORY

BY **BARRETT TILLMAN**

If you've never heard of the Grumman XF4F-8 Wildcat, don't worry. Hardly anyone has. But it led to one of the most unappreciated fighters in history. In late 1943, with Grumman committed to building F6F Hellcats, the Navy sought another source of Wildcats and Avengers. The answer was General Motors, with large plants lying idle due to wartime automobile restrictions. The corporation's aviation branch was Eastern Aircraft Division, which built Wildcats at Linden, New Jersey, and TBM Avengers at Trenton. After learning the trade from assembling Grumman parts, Eastern kicked into gear and began producing FM-1 Wildcats, nearly identical to F4F-4s. GM delivered 1,200 FM-1s from September 1942 through 1943.

However, fleet aviators were not entirely happy with their fighter. The dash four Wildcat grossed nearly a half ton more than the dash three, with no increase in power. And the six-gun armament reduced the amount of ammunition.

Meanwhile, Grumman had not given up on the Wildcat. After the limited-production F4F-7 photo plane, Bethpage's engineers reckoned they could design a "wilder Wildcat." The result was the XF4F-8 delivered late 1942, which entered production as the Eastern FM-2.

FM-2s in the Pacific Theater sported two color schemes—tricolor and overall gloss blue. The first and third aircraft display 1945 markings identifying specific escort carrier units, though the number three Wildcat unaccountably has the short-lived 1943 red surround. (Photo by David Leininger)

The FM-2 was powered by the Wright R1820 replacing the Pratt & Whitney 1830, a gain of about 150 horsepower. Additionally, the new Wildcat's empty weight was 450 pounds less with 400 more gross weight. To handle the greater power, the FM-2's vertical stabilizer and rudder were raised nearly nine inches, providing the most prominent recognition feature.

The FM-2's greatest improvement was rate of climb, between 950 and 1,400 feet per minute over the F4F-4.

With a significant performance advantage over the dash four, the FM-2 became known as "The Wilder Wildcat."

FM-2 deliveries began in September 1943, with squadron deliveries beginning in November. At first, the new Wildcats arrived in ones and twos, augmenting F4F-4s and FM-1s. But by January 1944, at least three CVE squadrons were fully equipped with FM-2s, and two others flew a mixture of F4F-4s, FM-1s, and dash twos.

The new fighter was entirely assigned to escort carriers, or CVEs. Rather than separate fighter and torpedo squadrons, most "jeep" carriers operated an integrated composite squadron under one CO who controlled both Wildcats and Avengers. The CVEs' bread and butter mission was antisubmarine warfare in the Atlantic, but Pacific "CompRons" also trained in close air support.

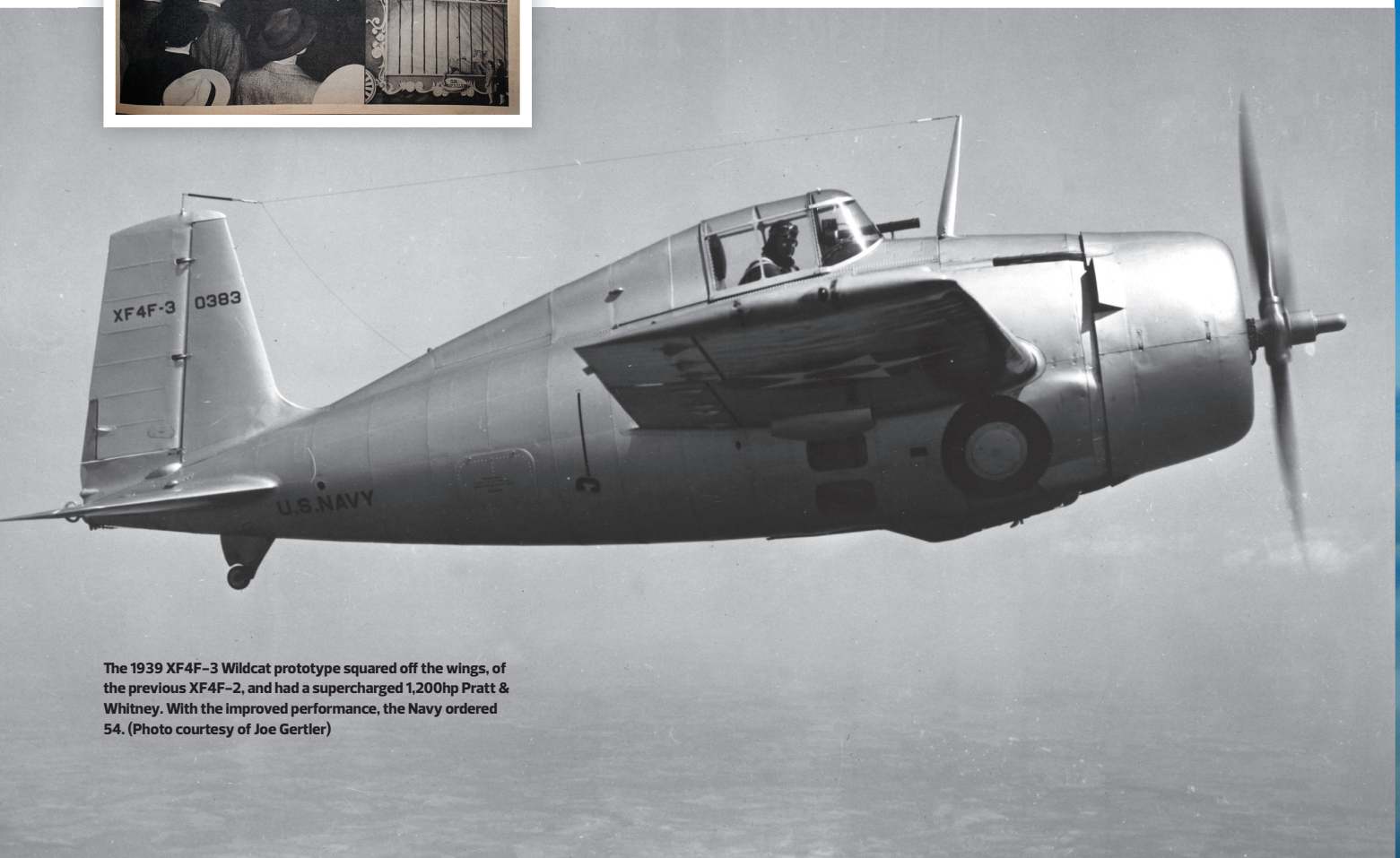
The Linden plant picked up speed, averaging nearly 250 deliveries per month during 1944. When production ended in May 1945, Eastern had produced more than 4,000 FM-2s. It was well over half of all Wildcat production with 340 Royal Navy Wildcat Mark Vis (originally called Martlets).

The most notable operating feature of the FM-2, and all Wildcats/Martlets was the hand-cranked landing gear, requiring 28 turns to raise or lower the wheels. The handle was on the starboard side of the cockpit, requiring the pilot to shift the stick to his left hand while raising the gear and leaving the throttle to manage itself.

The pilot's manual warned, "While extending the wheels, a point is reached at which it becomes more difficult to rotate the crank handle and there may be a tendency for the pilot to stop and engage the ratchet lock. However, the pilot should continue to rotate the crank handle until it hits a stop indicating that the gear is fully down."

Water injection was of course limited for combat emergencies, with the most benefit below 17,800 feet, the critical altitude for full military power. Owing to operational conditions, FM-2s seldom encountered enemy aircraft at 20,000 feet.

Serving the five sub– and final assembly converted General Motors factories, this May 1944 issue of the *Eastern Aircraftsman* featured the "official" press day at Linden, New Jersey, of the new "wilder" FM–2 that had begun deliveries to the fleet in September 1943. (Photo courtesy of Stan Piet)



The 1939 XF4F–3 Wildcat prototype squared off the wings, of the previous XF4F–2, and had a supercharged 1,200hp Pratt & Whitney. With the improved performance, the Navy ordered 54. (Photo courtesy of Joe Gertler)

Wildcats By The Numbers

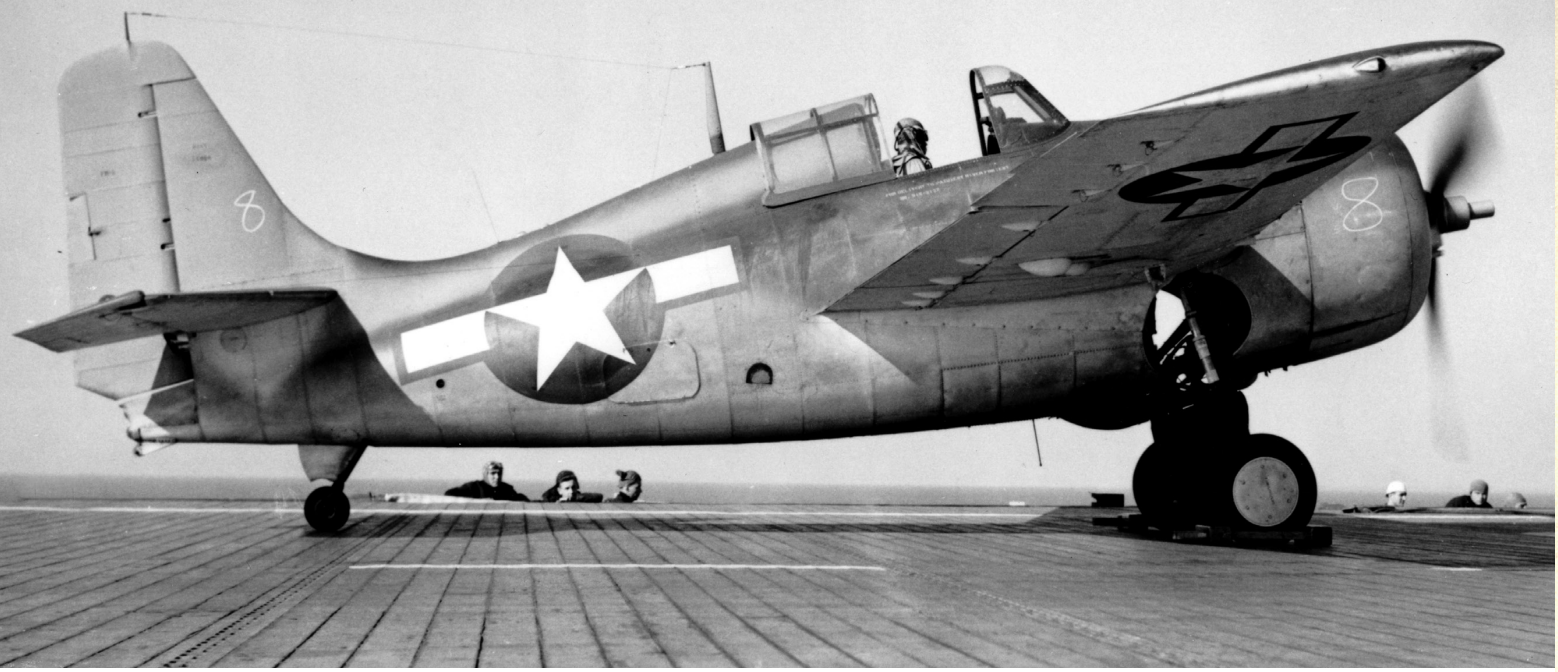
Model	Empty	Loaded	VMax	MSL climb
F4F-4	5,895 lbs	7,875 lbs	318mph	1,850 fpm
FM-2	5,448 lbs	8,271 lbs	330mph	3,150 fpm

F4F-4: Patuxent River, Maryland, September 10, 1942
FM-2: Patuxent River, Maryland, May 31, 1944

Above: A well-restored Wilder Wildcat with the markings of Ensign "Jo-jo" McGraw. The B on the tail identified aircraft of USS *Gambier Bay* and the winged seahorse was the logo of Composite Squadron 10.

Below: Grumman Wildcats are rare birds these days. This F4F-3 (BuNo 12260) owned by Steve Craig in 2005 is the only flying example known. It shows the most visible differences with the FM-2, the shorter vertical stabilizer and rudder and the air scoop on the upper cowl lip. (Photos by John Dibbs/planepicture.com)

The pilot of an FM-2 Wildcat awaits a catapult shot on the flight deck of the escort carrier *Charger* (CVE 30) operating in the Chesapeake Bay in 1943. *Charger*'s primary role in World War II was the training of pilots and crews in carrier operations. (Photo courtesy of Hill Goodspeed/USN)



Despite its name, the Wilder Wildcat retained the generally docile characteristics of its predecessors. Regardless of configuration, the airframe shuddered at an approaching stall, which broke gently with wing drop either way. The flaps were effective, reducing the clean stall from 69 to 61 knots, and the landing configuration with power was reckoned at 59. Ailerons remained effective to five knots above the break but that large rudder continued working through the departure.

FM-2s often flew with a 58-gallon drop tank, which could be retained through such basic maneuvers as wingovers, aileron rolls, and vertical turns. A half roll before pulling into a dive also was within drop-tank limits.

Four Browning M2 .50 calibers with 430 rounds per gun afforded about 30 seconds trigger time. (The F4F-4 packed only 240 rpg for its six guns.) Apparently, Wildcats never received gyroscopic computing sights, retaining the early-war Mark VIII with 50 and 100-mil sighting rings.

At war's end the Wilder Wildcat owned an astonishing record. Almost unknown today, the FM-2 was credited with 422 aerial victories against 13 losses—a kill-loss ratio of 32 to one. In contrast, the Hellcat's ratio was pegged at 19-1 and the Corsair 11-1. All F4F models were figured at 5 to 1, and while combat claims certainly exceed reality, the relative difference screams in favor of the Wilder Wildcat. (The only U.S. fighter of WW II that might match the FM-2 could be the P-61 Black Widow but loss figures are unavailable.)

There's remarkable similarity in the ratio of Japanese bombers to fighters downed by F4Fs and FM-2s. Bombers (including observation and patrol planes) represented 46.1 percent of the Grumman's victims while the Eastern cat claimed 45.9 percent. Hellcats and Corsairs were in the 22 to 28 percent realm, reflecting their emphasis on gaining air superiority more than fleet defense. Since the Wildcats were more defensive, naturally they encountered bombers more than fighters.

Related to the FM-2's unrivaled victory-loss ratio was its extraordinarily high percentage of confirmed kills. The wisdom of reverting to the four-gun armament is proven when the figures are tallied. The median ratio of destroyed to total

FM-2 #17 of VF-26 flies CAP over the USS *Santee* CVE-29 off Leyte, Philippines during December 1944. (Photo courtesy of Jack Cook)

Flight deck crewmen spot an FM–2 Wildcat on board the light carrier *Independence* (CVL 22) in 1943. The trademark wing fold on Grumman aircraft, conceived by company founder Leroy Grumman using and eraser and paper clips, is clearly visible in this overhead shot. (Photo courtesy of Hill Goodspeed/ USN)

claims (including probables and damaged) was 94 percent, demonstrating that in the Pacific four .50s were optimum. In comparison, the median figure for the top five Hellcat and Corsair squadrons is 76 percent assessed destroyed.

The seeming contradiction in lethality is explained by the nature of the Wildcat's mission. Since FM-2s encountered a high ratio of bombers in relatively small numbers, Wildcat pilots could focus on fewer targets, which were not as likely to evade as fighters were.

Three rockets under each wing comprised the FM-2's greatest offensive punch, but 500-pound bombs and napalm also rounded out the menu for close air support.

Sub hunters

Composite squadrons had the same composition whether assigned to the Atlantic or Pacific Fleets. By mid 1944, the typical loadout was 12 FMs and nine TBM Avengers. However, mission requirements were different. In the Atlantic, where CVEs focused on antisubmarine warfare, there was almost no aerial threat. (F4Fs had fought Vichy French aircraft during the Morocco landings in November 1942, and USS *Ranger* had launched F4F-4s against German shipping in Norway in October 1943. Finally, an FM-1 damaged a Dornier 217 in December 1943.)

Lacking aerial opposition, Wildcats mainly were employed to suppress antiaircraft fire from surfaced U-boats. By the time FM-2s arrived in March 1944, the Germans had abandoned their "fight back" doctrine that resulted in some Wildcat losses. However, the new fighters could contribute to the ASW effort, as proved off the Azores on June 4, 1944.

U-505 was detected by hunter-killer destroyers, which summoned aircraft of USS *Guadalcanal*'s VC-8. Two Wildcat pilots — Lt. W.W. Roberts and Ens. J.W. Cadle — saw the submerged sub and strafed the area, locating the U-boat for the "blackshoes." Damaged by depth charges, U-505 was forced to the surface and fired upon by the fighters and nearby destroyers. Encouraged by 2,800 rounds of .50 caliber, the crew abandoned ship, and a daring plan was quickly put into action. American sailors boarded the sub, preventing its scuttling. The prize was towed to Bermuda, and is displayed today in Chicago.

Pacific combat

From early 1944 onward, FM-2s played an increasingly important role in Pacific operations.

Their primary missions were combat air patrol and close air support, and they performed both with distinction.

Probably the first FM-2 victory fell to a pair of VC-63 aviators off USS *Midway* (CVE-63) over the Bismarcks in March 1944. (Midway was renamed St. Lo when the large fleet carrier CV-41 was christened later that year.) The Tony fighter was the squadron's only victory.

Wildcats were overhead marines and soldiers in Operation *Forager*, the invasion of the Marianas in June 1944. On the 19th, the day of the "turkey shoot," CVE squadrons were heavily committed to close air support but FM-2s contributed four of the day's 370 credited victories.

By far, the Wilder Wildcat's wildest days came four months later in the Philippines. During October, three naval engagements over three violent days and nights became the Battle of Leyte Gulf, the largest naval battle of modern times.

From the 24th to 26th, FM-2 pilots claimed 133 victories, nearly one-third of the wartime total of 422.

The highlight of the Philippine campaign was the lopsided Battle Off Samar when Japanese battleships and cruisers emerged into Leyte Gulf the morning of the 25th. The main force between them and General MacArthur's transport ships was an escort carrier group known to history as Taffy Three." The six CVEs and seven escorts were horribly outgunned, but they did the only thing they could: they attacked.

Supported by two other CVE groups within range, Taffy Three aviators made repeated strafing and bombing runs on four battleships, eight cruisers, and 11 destroyers. The fighters quickly ran dry but continued attacking anyway. One Wildcat pilot made 26 passes, most of them to divert flak from the Avengers armed with bombs or torpedoes.

The odds piled up, with USS *Gambier Bay* being sunk by gunfire and St. Lo by air attack, plus three destroyers. But the ferocity of the CVE sailors and aircrews convinced the Japanese that they faced a fast carrier group, and the enemy steamed away.

All the FM-2 aces carved the majority of their notches at Leyte. Savo Island's VC-27 produced four of the top nine FM-2 scores. The leading scorer was Lt. Ralph Elliott, known in Training Command as a fearsome dogfight instructor. He was so well respected that operational students began calling him "Tojo" while learning their trade. His nearly two years in TraCom time was well spent, as he arrived in the Pacific as one of the most experienced FM pilots in the fleet.

Elliot made most of his record in four action-packed days at Leyte Gulf. He splashed four Frans on October 24, two Tojos (by "Tojo"!) the next day, with a Zeke damaged on the 26th and half a Val the 27th. He completed his victory log during an afternoon CAP on January 5, with a solo kill and two shares, running his total to 9.5.

Lieutenant Commander Harold N. Funk was a combat-experienced Hellcat pilot when he assumed command of VF-26 in early 1944. The squadron flew FM-2s but belonged to one of the few CVE air groups, assigned to Santee April to October 1944. His only Wildcat combat occurred on October 24, downing four bombers and a Zeke in a frantic 15 minutes that morning, finishing

A Fighting Squadron 41 F4F–4 off USS *Ranger*, 1942, showing the early Wildcat paint scheme, the shorter vertical tail, cowl air scoop and three–gun wings of the Grumman–built aircraft. (Photo courtesy of Stan Piet)

Credited Victory–Loss Records

Fighter	Overall	Ratio
FM–2	422–13	32.4–1
F6F–3/5	5,163–270	19.1–1
F4U–1/4	2,140–189	11.3–1
F4F–3/4	905–178	5.0–1

Top-scoring FM–2 Squadrons

Unit	Carrier(s)	Victories
VC–27	Savo Island	61.5
VF–26	Santee	31
VC–81	Natoma Bay	21
VOC–1	Wake I., Marcus I.	20
VC–84	Makin Island	19
VC–21	Nassau, Marcus I.	18
VC–3	Kalinin Bay	17
VC–75	Ommaney Bay	17
VC–93	Shamrock Bay	17

Ensign Joseph D. McGraw, a three–victory VC–10 pilot whose ship, USS *Gambier Bay*, was sunk at Leyte Gulf. He landed aboard the Manila Bay to become an ace with two additional victories on October 25, 1944. (Photo courtesy of author)

with Irving that afternoon.

Lieutenant Leo M. Ferko was older than most combat pilots. At 29, he flew with VC-4 from USS *White Plains* between June and October. He opened with two Zekes the 24th, added two Jills the next day, and landed on Kadashan Bay nearly out of fuel. He flew with VC-20 and made ace with a Tojo over Leyte.

An Iowan, Lt. Kenneth G. Hippe, was a prewar private pilot and, like Ralph Elliott, served two years as a navy instructor. He made lieutenant in October 1943 and entered combat with more than 2,200 hours flight time. At age 26, made his mark flying from Kalinin Bay. On October 24 he downed five JAAF Lily bombers in 20 minutes over northern Leyte.

Ensign Joseph McGraw was an extroverted 20-year-old aboard USS *Gambier Bay*. His Corpus Christi tactics instructor had been Ralph Elliott, whom he called "a tough dogfighter." McGraw downed a Betty in the Marianas, then two Lilys on October 24. Off Samar the next day his ship was trapped by Japanese cruisers, forcing his VC-10 squadronmates to land on other CVEs or to divert ashore. "Jo-Jo" opted for USS *Manila Bay*, adding his name to the VC-80 flight schedule. There he scored two more kills to become an ace. In all, he logged a numbing 11 hours that day.

End game

In one of the more remarkable episodes in U.S. aviation history, two brothers shared their squadron's only victory flying FM-2s. Lt.(jg)s Alton and Grant Donnelly of USS *Nehenta Bay*'s VC-11 combined to down a Jake floatplane over Indochina in January 1945.

Escort carriers were heavily engaged during the Okinawa campaign beginning in April. Probably the most active squadron was VOC-1, an observation-composite squadron aboard USS *Wake Island* and Marcus Island. Led by the popular Lt. Cdr. William "Bush" Bringle, the squadron established a globe-trotting reputation. After supporting the invasion of Southern France in August 1944 Bringle's crew exchanged Hellcats for Wildcats and recycled to the Pacific. Their naval gunfire spotting ability was constantly in demand, and VOC-1 may have flown more hours per pilot than any carrier unit of the war. Along the way Bringle and company downed six German and 20 Japanese aircraft.

For all its success, apparently the Wilder Wildcat was more demanding in the carrier environment than its contemporaries. F4Fs logged 20 percent losses to noncombat causes with the F6F and F4U nearly identical at 29 percent, combined ashore and afloat. The latter is especially noteworthy, considering the Corsair's early mankiller reputation flying off "the boat." But those three fighters mainly operated from big-deck carriers whereas FM-2s exclusively flew from CVEs. An *Essex*-class carrier's flight deck measured about 870 feet by 147, a vivid contrast to a "jeep" carrier's 474 by 80. So FM-2 sticks had much less room for error at sea.

At war's end, the Wildcat represented an anomaly: essentially a prewar design still flying in significant numbers with front-line squadrons. The FM undoubtedly was the only combat aircraft with hand-cranked landing gear in 1945, but its simple systems, including vacuum-operated flaps, meant high operational availability.

Today FM-2s are popular warbirds due to their simplicity and relatively low operating costs. Approximately 30 airframes remain, and the FAA lists 16 as currently registered.