

Southern California Wing 455 Aviation Drive, Camarillo, CA 93010 (805) 482-0064



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COMMEMORATIV AIR FORCE



Si Robin, CAF-SoCAl Wing Major Benefactor (See Page 12)

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Photo by Scott Slocum Our Wing's Mitsubishi A6M3 Zero fighter flying cover for CAF's venerable Boeing B-29 Superfortress "FIFI"

To Educate, Inspire and Honor Through Flight and Living History Experiences

### September 2020

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#### Our Wing's RIDE PROGRAM

#### By Bill O'Neill

I started the Ride Program with a lot of help and support from Steve Barber. Our Wing was hurting for income and I had seen the ride program at Planes of Fame in May, 2004 (I actually took a ride in their P-51 Wee Willy II). I asked Steve why we didn't have a ride program. He encouraged me to gather the facts about running a ride program.

Basically, we needed permission from HQ and the FAA, insurance, gualified pilots (by FAA regulations) and participation (mandatory) in the random drug testing program. Some of the initial pilots of the new ride program were from the airlines, which had their own drug testing program which was sufficient for use in our program. The remaining pilots had to participate in our random drug testing program, which was to have an approved lab for the people to be tested to visit. We had some pushback from a couple of mechanics, but that was resolved by Steve. (There were a number of months that passed from the start of the project until the first rides were taken. I estimate 6 months – but it could have been longer.)



Photo by Eric Van Gilder SNJ #290 – first plane in our Ride Program

Initially, we had 2 pilots qualified to give rides, Steve Barber and Jason Somes. We had 3 pilots waiting for HQ approval: Mark Russell, Terry Cedar and Al Kepler. Jason gave the first rides in our SNJ #290 on February 2, 2008. We had a total of 4 rides that day. With only the SNJ we sold 100 rides before December 31<sup>st</sup>. Our pricing for the SNJ back then was \$300 for 20 minutes.

Over the years we added additional planes and pilots to the program. The first addition was the PT-19, then the Mustang, the PBJ, and the AirCoupe -with the F-24 and the L-17 Navion now waiting for approval to join the program. The Mustang left our program, after 10 marvelous years, on May 9<sup>th</sup> of this year. The P-51 "Man O' War" joined the program in September, 2010. Today we have about 11 pilots that participate in the Ride Program.



The PT-19 – 2<sup>nd</sup> plane in our Ride Program

Initially, all of the ride sales were to be taken over the phone. I made the decision to have all of those calls be directed to the museum (which is still the case today). The docents at the museum were charged with selling and scheduling the rides (still today). We started with log books for the sales and the scheduling of rides (still do today). About 5 years ago the decision was made to build a new web site. As part of this new website we included a section for rides. People could then buy and schedule rides on-line through the website. However, only about 30-35% of the rides are purchased this way. The majority of rides are still reserved via phone purchases and scheduling.

None of this would have worked if it wasn't for our wing leader's (Steve Barber) support and the unheralded support of the docents. Not only did the docents sell and schedule rides, some of them created the ride certificates and sent them to the purchasers of the rides. Dan Newcomb helped the docents establish a meet-and-greet system for all arriving riders and their families. They were on the front line! Without them the Ride Program would never have gotten off the ground. All of the docents have been great. There are a few that I would like to single out since they went above the basic need. Walt Metcalf created our first ride certificate and continued doing it for a few years. Then Larry Kates picked up the ball when Walt couldn't do it any longer.

Then along came Paul Klienbaum and John Knopp, who have been big assets to the ride program. Kathy Newhard developed a better way of tracking rides.



Photo by John Dibbs Our PBJ "Semper Fi" has sold 167 seats to excited Ride Program enthusiasts.

There were numerous pilots who helped out beyond the normal "call to duty" such as Steve Barber, Jason Somes, Al Kepler and others. Chris Liguori was our pilot coordinator for many years which was a tremendous help to be able to schedule rides.

The maintenance people were fantastic. They all broke their backs to get the airplanes ready for the rides. A special thanks goes out to Trace Eubanks and his group for doing yeoman's work on the Mustang to minimize the down time and especially during times of big problems.

Mike Hodson is now in charge of the Ride Program. The Mustang is no longer with us but we still have four planes to give rides - and two more waiting for approval. Mike is doing a great job in this time when our planes are grounded due to Covid-19. Those who have reserved rides are contacted and convinced to postpone their ride to a later date. I know the program will continue to succeed under Mike's leadership.

In 2019 alone, the Ride Program earned a little over \$200,000! What a boon to our Wing!

# As of 7/5/2020 we have had the following total ride sales by aircraft since each of them started in the Ride Program:

**P-51** - **590** rides sold (with an unknown number of refunds, to me, due to the return of the aircraft and the COVID-19 pandemic);

SNJ - 739 rides sold; PT-19 - 398 rides sold; PBJ - 167 seats sold; AirCoupe - 18 rides sold

These rides amount to approximately **1,900** rides given to warbird lovers in the past 12+ years

I view the ride program as a complete success. However, that success was due in great part to the efforts of the Docents, Pilots, Mechanics and Administrative people. None of this would have happened without the full cooperation of everyone.



Photo by Eric Van Gilder Our P-51 Mustang "Man O' War," which is no longer with us.



Our F-24 "Forwarder" – readying for the Ride Program

Editor's Note: Bill O'Neill, the author of this article, was the "Point Man" and initiator of our Ride Program. Our Wing owes him a big "thank you" for his vision and perseverance in developing this highly successful program.

#### New Planes For Our Wing

The Bf 108 is here; the A-2 is coming late July/early August; the Fi-156 later.

#### Antonov An-2 Colt

#### Thanks, in part, to Wikipedia, the free encyclopedia



CAF-SoCalWing's new addition: the Antonov An-2 Colt, N50670 "Big Panda II"

The **Antonov An-2** / USAF/DoD reporting name **Type 22**, NATO reporting name **Colt**) is a Soviet mass-produced singleengine biplane utility/agricultural aircraft designed and manufactured by the Antonov Design Bureau beginning in 1946.

Its remarkable durability, high lifting power, and ability to take off and land from poor runways have given it a long service life. The An-2 was produced up to 2001 and remains in service with military and civilian operators around the world.

The An-2 was designed as a utility aircraft for use in forestry and agriculture. Numerous variants of the type have been developed; these include hopper-equipped versions for crop-dusting, scientific versions for atmospheric sampling, water-bombers for fighting forest-fires, flying ambulances, float-equipped seaplane versions and lightly armed combat versions for dropping paratroops. The most common version is the **An-2T** 12-seater passenger aircraft.

All versions (other than the An-3 and the An-2-100) are powered by a 750 kW (1,010 hp) nine-cylinder Shvetsov ASh-62 radial engine, which was developed from the Wright R-1820. The An-2 typically consumes 2.5 l/min (0.66 US gal/min; 0.55 imp gal/min).

#### Design

The Antonov An-2 is a mass-produced single-engine biplane that has been commonly used as a utility and agricultural aircraft. It is deliberately furnished with a minimum of complex systems. The crucial wing leading edge slats that give the aircraft its slow flight ability are fully automatic, being held closed by the airflow over the wings. Once the airspeed drops below 64 km/h (40 mph), the slats will extend because they are on elastic rubber springs. Under typical conditions, the take-off is complete within 170 m (560 ft) while the landing run requires 215 m (705 ft); these figures will vary dependent upon various factors, such as the aircraft's take-off/landing weight, the external air temperature, surface roughness, and headwind.

The An-2 is equipped with various design features which make it suitable for operation in remote areas with unsurfaced airstrips. It is fitted with a pneumatic brake system (similar to those used on heavy road vehicles) to stop on short runways, along with an air line attached to the compressor, so the pressure in the tires and shock absorbers can be adjusted without the need for installing specialised equipment. The batteries, while sizable, are relatively easy to remove, so the aircraft does not need a ground power unit to supply power for starting the engine. Likewise, there is no need for an external fuel pump to refuel the aircraft as it is provided with an inbuilt onboard pump, which allows the tanks to be filled from simple fuel drums.



Antonov An-2 (An2-TP)

The An-2 has no stall speed, a fact which is quoted in the operating handbook. A note from the pilot's handbook reads: "If the engine quits in instrument conditions or at night, the pilot should pull the control column full aft and keep the wings level. The leading-edge slats will snap out at about 64 km/h (40 mph) and when the airplane slows to a forward speed of about 40 km/h (25 mph), the airplane will

sink at about a parachute descent rate until the aircraft hits the ground."<sup>[4]</sup> As such, pilots of the An-2 have stated that they are capable of flying the aircraft in full control at 48 km/h (30 mph) (as a contrast, a modern Cessna four-seater light aircraft has a stall speed of around 80 km/h (50 mph)). This slow stall speed makes it possible for the aircraft to fly backwards relative to the ground (if the aircraft is pointed into a headwind of roughly 56 km/h (35 mph), it will travel backwards at 8.0 km/h (5 mph) whilst under full control).

The An-2's ability, looks and flying characteristics, and its status as one of the world's biggest single-engined production biplanes, mean that demand for the An-2 is increasing in Western Europe and the United States, where they are prized by collectors of classic aircraft, making it an increasingly common sight at airshows. Many western countries prohibit the use of the An-2 commercially because the aircraft has not been certified by the relevant national aviation authorities. These restrictions vary by country, but all prevent the An-2 being used for any 'for profit' purpose, with the exception of the United States, where An-2s imported since 1993 are limited to experimental certification, but PZLbuilt An-2s are exempt from this restriction due to a bilateral agreement with Poland.

#### **Operational history**]



An AN-2 of the Laos air force

The An-2 was adopted in bulk by both the Soviet Air Force and other Eastern Bloc military forces. It was first used in a military context during the Korean War of the early 1950s.

The Vietnam People's Air Force (VPAF) was another prolific user of the AN-2; during the Vietnam War, the service occasionally used the type as an attack aircraft. During the 1960s, a single An-2 that was attempting to engage South Vietnamese naval units was shot down by a United States Air Force McDonnell Douglas F-4 Phantom II fighter, under the control of an Air Intercept Controller on the USS *Long Beach*.

On 12 January 1968, a clandestine TACAN site (call sign: *Lima Site 85*/Phou Pha Ti) installed by the United States Air Force in Northern Laos for directing USAF warplanes flying from Thailand to Vietnam was attacked by three North Vietnamese An-2s.

A pair of An-2s fired on the outpost using a mixture of machine guns and rockets while a third An-2 orbited overhead to survey the assault. An Air America Bell UH-1B, XW-PHF that had been resupplying the site gave chase to the two attacking aircraft; using an AK-47, the American crew (Ted Moore Captain, Glen Wood Kicker) succeeded in shooting down one of the An-2s while the second aircraft was forced down by combined ground and air fire, eventually crashing into a mountain. The surviving Antonov returned to its home base, Gia Lam, near Hanoi.

During the Croatian War of Independence in 1991, a number of aged An-2 biplanes previously used for cropspraying were converted by the Croatian Air Force to drop makeshift barrel bombs; they were also used to conduct supply missions to the town of Vukovar and other besieged parts of Croatia.

The chief advantage for the An-2 was that they could take off and land in small or improvised airstrips; they were also frequently used to drop supplies by parachute on isolated garrisons.

At least one AN-2 was shot down on 2 December 1991 over Vinkovci, eastern Slavonia, by a Serbian surface to air missile (SAM) emplacement which purportedly launched a salvo of SA-6s at the aircraft.

Following the shootdown, the flights over Serbian lines ceased, due to the presence of TV guided SA-6. The previous radar guided AA systems were avoided by keeping the airplane's speed below 140 km/h, the speed of objects that radars were programmed to erase from the screen.

Reportedly, North Korea has operated a number of the AN-2s. The Korean People's Army Special Operation Force is known to use the An-2 to facilitate the infiltration of paratroopers. It has been speculated that in wartime, these aircraft could possibly be used to

deliver troops behind enemy lines for sabotage operations.

#### Specifications (An-2)[



Data from Biplanes, Triplanes, and Seaplanes

#### **General characteristics**

- **Crew:** 1–2
- Capacity: 12 passengers / 2,140 kg (4,718 lb)
- Length: 12.4 m (40 ft 8 in)
- **Upper wingspan:** 18.2 m (59 ft 9 in)
- Lower wingspan: 14.2 m (46 ft 7 in)
- **Height:** 4.1 m (13 ft 5 in)
- Wing area: 71.52 m<sup>2</sup> (769.8 sq ft)
- Airfoil: TsAGI R-11 (14%)[31]
- Empty weight: 3,300 kg (7,275 lb)
- Gross weight: 5,440 kg (11,993 lb)
- Fuel capacity: 1,200 I (320 US gal; 260 imp gal)
- Powerplant: 1 × Shvetsov ASh-62IR 9-cylinder air-cooled supercharge radial piston engine, 750 kW (1,010 hp)
- Propellers: 4-bladed constant-speed propeller

#### Performance

- Maximum speed: 258 km/h (160 mph, 139 kn)
- Cruise speed: 190 km/h (120 mph, 100 kn)
- Stall speed: 50 km/h (31 mph, 27 kn) circa
- Range: 845 km (525 mi, 456 nmi)
- Service ceiling: 4,500 m (14,800 ft)
- Rate of climb: 3.5 m/s (690 ft/min)
- **Power/mass:** 0.136 kW/kg (0.083 hp/lb)

• **Fuel consumption:** 185–200 l/h (49–53 gal/h; 41–44 imp gal/h)

#### Messerschmitt Bf 108 Taifun (Typhoon)

Thanks, in part, to Wikipedia, the free encyclopedia



Photo by Frank Mormillo CAF-SoCalWing's new Messerschmidt Bf 108 Tailfun – N2231

The **Messerschmitt Bf 108** *Taifun* was a German single-engine sport and touring aircraft, developed by Bayerische Flugzeugwerke in the 1930s. The Bf 108 was of all-metal construction.

#### **Design and development**

Originally designated the **M 37**, the aircraft was designed as a four-seat sports/recreation aircraft for competition in the 4<sup>th</sup> *Challenge International de Tourisme* (1934). The M 37 prototype flew first in spring 1934, powered by a 250 PS (247 hp, 184 kW) Hirth HM 8U 8.0 litre displacement, air-cooled inverted-V8 engine, which drove a three-blade propeller.

Although it was outperformed by several other aircraft in the competition, the M 37's overall performance marked it as a popular choice for record flights. Particular among these traits was its low fuel consumption rate, good handling, and superb takeoff and landing characteristics.

The Bf 108A first flew in 1934, followed by the Bf 108B in 1935. The Bf 108B used the substantially larger, 12.67 litre displacement Argus As 10 air-cooled inverted V8 engine.

The nickname *Taifun* (German for "typhoon") was given to her own aircraft by Elly Beinhorn, a well-known German pilot, and was generally adopted.

#### **Operational history**

Soon after the first production aircraft began to roll off the assembly line in Augsburg, several Bf 108s had set endurance records.

The Bf 108 was adopted into Luftwaffe service during World War II, where it was primarily used as a personnel transport and liaison aircraft. The aircraft involved in the Mechelen Incident was a Bf 108.

Production of the Bf 108 was transferred to occupied France during World War II and production continued after the war as the Nord 1000 *Pingouin*.

#### Variants

#### Bf 108A

Initial version designed in 1934 for use in Challenge 1934. Six were built with the Hirth HM 8U, one other initially had a 220 PS (217 hp, 162 kW) Argus As 17B inline engine and later a 160 PS (158 hp, 118 kW) Siemens-Halske Sh 14 radial.<sup>[4]</sup>

#### Bf 108B

Revised version, built from late 1935. The prototype had a Siemens-Halske Sh 14A radial, but production machines used the 240 PS (237 hp, 177 kW) Argus As 10C or the 270 PS (266 hp, 199 kW) Argus As 10E. A quadrant-shaped rather than rectangular rear window, tailwheel replacing skid, revision of shape of empennage and removal of tailplane upper bracing.<sup>[4]</sup>

#### Bf 108C

Proposed high-speed version, powered by a 400 PS (395 hp, 294 kW) Hirth HM 512 engine. Probably not built.<sup>[4]</sup>

#### Me 208

Improved and enlarged version with a retractable tricycle landing gear. Two prototypes were built by SNCAN (Nord) in France during the war. After 1945 Nord continued its production as the Nord Noralpha.

#### Nord 1000 Pingouin

Bf 108 built during and after the war by SNCAN in France; followed by the Nord 1001, that had only minor variations and the Nord 1002, which used a Renault engine.

#### Specifications (Bf 108B)

Data from Jane's all the World's Aircraft 1938, Die Deutsche Luftrüstung 1933–1945 Vol.3 – Flugzeugtypen Henschel-Messerschmitt<sup>[6]</sup>

#### **General characteristics**

- **Crew:** 1 or 2
- Capacity: 2 or 3 pax
- Length: 8.29 m (27 ft 2 in)
- Wingspan: 10.5 m (34 ft 5 in)
- Height: 2.3 m (7 ft 7 in)
- Wing area: 16.4 m<sup>2</sup> (177 sq ft)
- Airfoil: root: NACA 2416; tip: NACA 2413<sup>[7]</sup>
- Empty weight: 806 kg (1,777 lb)
- Gross weight: 1,350 kg (2,976 lb)
- **Powerplant:** 1 × Argus As 10C V-8 inverted aircooled piston engine, 174 kW (233 hp)
- **Propellers:** 2-bladed variable-pitch propeller

#### Performance

- Maximum speed: 305 km/h (190 mph, 165 kn)
- **Cruise speed:** 260 km/h (160 mph, 140 kn)
- Landing speed: 85 km/h (53 mph; 46 kn)
- **Range:** 1,000 km (620 mi, 540 nmi) at 250 km/h (160 mph; 130 kn)
- Service ceiling: 6,200 m (20,300 ft) (with 3 pax + 50 kg (110 lb) baggage)
- Time to altitude: 1,000 m (3,300 ft) in 3 minutes 12 seconds
   2,000 m (6,600 ft) in 7 minutes 30 seconds
   3,000 m (9,800 ft) in 14 minutes
   4,000 m (13,000 ft) in 22 minutes
   5,000 m (16,000 ft) in 39 minutes
- Wing loading: 82.3 kg/m<sup>2</sup> (16.9 lb/sq ft)
- Power/mass: 0.133 kW/kg (0.081 hp/lb)



#### Fieseler Fi 156 Storch (Stork) – N40FS

Thanks, in part, to Wikipedia, the free encyclopedia



CAF-SoCalWing's new Fieseler Fi-156 Storch (Stork) It has some renovation planned once it gets to CMA.

The **Fieseler Fi 156** *Storch* (English: *Stork*) was a small German liaison aircraft built by Fieseler before and during World War II. Production continued in other countries into the 1950s for the private market. It remains famous for its excellent STOL performance and low stall speed of 31 mph (50 km/h); Frenchbuilt later variants often appear at air shows.

#### **Operational history**

#### **During World War II**



The *Storch* involved in Mussolini's rescue in the Gran Sasso raid.

The *Storch* was deployed in all European and North African theaters of World War II, but it is probably most famous for its role in *Operation Eiche*, the 1943 rescue of deposed Italian dictator Benito Mussolini from a boulder-strewn mountain-top near the Gran Sasso. Even though the mountain was surrounded by Italian troops, German commando Otto Skorzeny and 90 paratroopers used gliders to land on the peak and quickly captured it. However, the problem of how to get back off remained. A Focke-Achgelis Fa 223 helicopter was sent, but it broke down en route. Instead, pilot Heinrich Gerlach flew in a *Storch*. It landed in 30 m (100 ft), and after Mussolini and Skorzeny boarded, it took off in 80 m (250 ft), even though the aircraft was overloaded. The *Storch* involved in rescuing Mussolini bore the radio code letters, or *Stammkennzeichen*, of "SJ +LL" in the motion picture coverage of the daring rescue.

On 26 April 1945, a *Storch* was one of the last aircraft to land on the improvised airstrip in the Tiergarten near the Brandenburg Gate during the Battle of Berlin and the death throes of the Third Reich. It was flown by the test pilot Hanna Reitsch, who flew *Generalfeldmarschall* Robert Ritter von Greim from Munich to Berlin to answer a summons from Hitler.



Air Vice Marshal Harry Broadhurst and his *Storch*, Italy, 1943

A *Storch* was the victim of the last dogfight on the Western Front and another was downed by a direct Allied counterpart of the Storch, an L-4 Grasshopper, the military version of the well-known American Piper J-3 Cub civilian training and sport aircraft. The pilot and co-pilot of the L-4, lieutenants Duane Francis and Bill Martin, opened fire on the *Storch* with their .45 caliber pistols, forcing the German air crew to land and surrender.<sup>1</sup>

Field Marshal Rommel used *Storch* aircraft for transport and battlefield surveillance during the North African desert campaign of World War II. During the war a number of *Störche* were captured by the Allies. One became the personal aircraft of Field Marshal Montgomery. Others were used as

the personal aircraft of Air Vice Marshal Arthur Coningham and Air Vice Marshal Harry Broadhurst, who acquired his *Storch* in North Africa, and flew it subsequently in Italy and North-West Europe. The British captured 145, of which 64 were given to the French as war compensation from Germany.

#### Post World War II



An Austrian-registered *Storch* fitted with spraying equipment at Stuttgart Airport in 1965

The French Air Force (*Armée de l'Air*) and the French Army Light Aviation (*Aviation Légère de l'Armée de Terre*) used the *Criquet* from 1945 to 1958 throughout the Indochina War and the Algerian War. The Swiss Air Force and other mountainous European countries continued to use the *Storch* for rescues in terrain where STOL performance was necessary, as with the historically significant Gauli Glacier crash rescue in November 1946, as a pair of *Flugwaffe*-flown Storches were the sole means to get its twelve survivors to safety.

After World War II, Storch aircraft were used in utility roles including agricultural spraying. Many Storches are still operational today and are commonly shown at air shows. In North America, both the Collings Foundation and the Fantasy of Flight museum have airworthy Fi 156 *Storch* aircraft in their collections.

#### **Design and Development**

In 1935, the RLM (*Reichsluftfahrtministerium*, Reich Aviation Ministry) invited several aviation companies to submit design proposals that would compete for the production contract for a new *Luftwaffe* aircraft design suitable for liaison, army co-operation (today called forward air control), and medical evacuation. This resulted in the Messerschmitt Bf 163 and Siebel Si 201 competing against the Fieseler firm's entry. Conceived by chief designer Reinhold Mewes and technical director Erich Bachem, Fieseler's design had a far better short take off and landing ("STOL") performance. A fixed slat ran along the entire length of the leading edge of the long wings, while a hinged and slotted set of control surfaces ran along the entire length of trailing edge. This was inspired by earlier 1930s Junkers *Doppelflügel*, "double-wing" aircraft wing control surface design concepts. For the Fi 156, this setup along each wing panel's trailing edge was split nearly 50/50 between the inboard-located flaps and outboard-located ailerons, which, in turn, included trim tab devices over half of each aileron's trailing edge length.



#### Fi 156 in flight

A design feature rare for land-based aircraft enabled the wings on the Storch to be folded back along the fuselage in a manner similar to the wings of the U.S. Navy's Grumman F4F Wildcat fighter. This allowed the aircraft to be carried on a trailer or even towed slowly behind a vehicle. The primary hinge for the folding wing was located in the wing root, where the rear wing spar met the cabin. The long legs of the main landing gear contained oil-and-spring shock absorbers that had a travel of 40 cm (15-3/4 inches), allowing the aircraft to land on comparatively rough and uneven surfaces; this was combined with a "pre-travel" distance of 20 cm, before the oleos began damping the landing gear shock.<sup>[3]</sup> In flight, the main landing gear legs hung down, giving the aircraft the appearance of a long-legged, big-winged bird, hence its nickname, Storch. With its very low landing speed, the *Storch* often appeared to land vertically, or even backwards in strong winds from directly ahead.

#### **German production**

About 2,900 Fi 156s, mostly Cs, were produced from 1937 to 1945. Main production was at the Fieseler Factory in Kassel, in 1942 production started in the Morane-Saulnier factory at Puteaux in France. Due to the demand for Fieseler as a subcontractor for building the Fw 190, Fi 156 production was shifted to Leichtbau Budweis in Budweis by the end of 1943.

#### **Soviet production**

In 1939, after the signing of the Molotov–Ribbentrop Pact, Germany provided several aircraft, including the Fi-156C,

to the Soviet Union. Oleg Antonov was made responsible for putting the aircraft into production to meet Soviet requirements, and given a choice between designing an equivalent aircraft or merely copying the German design, the latter was selected. Two versions were envisaged: the SS three seat liaison aircraft, and the N-2 air ambulance capable of carrying two stretchers plus a medic. A prototype was constructed in Kaunas, Lithuania, which flew before the end of 1940, and production was getting under way as the factory was lost to the German advance in 1941.

While Antonov's efforts had produced a heavier aircraft, which required as much as three times the field for landing and take off as the German Fi 156C, it also had much greater range and increased load capability. After the war Antonov went on to design the legendary An-2 STOL biplane, which was similarly famous for its excellent STOL performance.

#### Specifications (Fi 156C-2)



#### **General characteristics**

- **Crew:** 2
- Length: 9.91 m (32 ft 6 in)
- Wingspan: 14.25 m (46 ft 9 in)
- Height: 3.05 m (10 ft 0 in)
- Wing area: 26.000 m<sup>2</sup> (279.86 sq ft)

- Empty weight: 930 kg (2,050 lb)
- Gross weight: 1,324 kg (2,920 lb)
- **Powerplant:** 1 × Argus As 10 V-8 inverted aircooled piston engine, 180 kW (240 hp)
- **Propellers:** 2-bladed variable-pitch propeller

#### Performance

- Maximum speed: 175 km/h (109 mph, 95 kn) at sea level
- Cruise speed: 130 km/h (81 mph, 70 kn) (econ. cruise)
- **Range:** 390 km (240 mi, 210 nmi) at 150 km/h (93 mph; 81 kn) and 1,000 m (3,280 ft)
- Service ceiling: 4,600 m (15,090 ft)
- Rate of climb: 4.60 m/s (905 ft/min)

#### Armament

• Guns: 1 × MG 15 machine gun



Photo by Paul Willett The Messerschmidt Bf 108 instrument panel.



Photo by Paul Willett Interesting additions by the Germans: A cigarette lighter and an ash tray! Legendary Aviation Inventor Si Robin Honored for Revolutionizing Global Avionics...



Si Robin, CEO and Founder of Sensor Systems, Inc.

Aviation inventor and engineer Seymour "Si" Robin has received a *Living Legends of Aviation Award* for his lifelong accomplishments as the leading designer of antennas for commercial, business and military airborne applications used on nearly every aircraft in the world.

With many inventions and patents, 92-year-old Robin joins the ranks of aviation innovators, record-breakers and celebrities such as U.S. astronauts Neil Armstrong and Gene Cernan; actors John Travolta and Harrison Ford; entrepreneurs Jimmy Buffett and Sir Richard Branson; and other luminaries, including "Buzz" Aldrin, Tom Cruise, Clay Lacy, Joe Clark, Burt Rutan and Bob Hoover, who have been awarded *Living Legends of Aviation Awards* for their historic contributions to the industry.

"Being inducted in the Living Legends of Aviation is a personal honor, as well as a tribute to the nearly 300 employees who have provided us with remarkable moments of innovation and invention," said Robin, CEO and executive vice president of Sensor Systems, Inc. "This award is a celebration of those in the aviation and aerospace industries who have had the courage, passion and determination to dream the possibility and create the reality."

Sensor Systems, Inc. offers more than 250 products and manufactures over 1,100 antennas per day from its factory in Chatsworth, CA. Its Military Division is positioned to fight the global war on terror by providing antennas for installation on new and existing aircraft, missiles, guided munitions and unmanned air vehicles. Sensor Systems produces 40% of all aviation antennas used today.

Sensor Systems, Inc.'s customers include Airbus, Cessna, Boeing, General Atomics Aeronautical Systems, Northrup Grumman and Honeywell, as well as many other general aviation and aerospace companies across the globe.

Sensor Systems, Inc. maintains the industry's most technologically advanced design, engineering, manufacturing and test facilities. The company's unrivaled reputation for high quality, reliability and efficiency in the aircraft industry has made it the largest supplier of original equipment manufacturer antennas to airlines throughout the world.

Robin, an instrument multi-engine private pilot with seaplane rating, owns several vintage aircraft and still flies his J-3 Cub and Beechcraft Staggerwing on weekends. He used to compete in vintage automobile racing and is the Sports Car Champion of 2002 and 2004. Si still owns several of his favorite racing cars.

#### http://www.sensorantennas.com/

## Si & Betty Robin Donate to LAUSD's Aviaton Center at Van Nuys Airport



Si Robin of Woodland Hills, right, presents a check for \$100,000.00 to help save LAUSD's Aviation Center, which trains high school kids and young adults to be aircraft mechanics. Holding the check are, L to R; school board member Nury Martinez; Betty Robin, Si's wife; Congressman Tony Cardenas and principal Carlynn Huddleston.

Our CAF-SoCAWing is extremely fortunate to have donors such as Si and Betty Robin to help us to realize our dreams of a world-class aviation museum.

Reprinted and updated, thanks to Si Robin - with pride from "Flight Line," August, 2013.

#### Aviation Pioneer Joe Clark, an Innovator and Serial Entrepreneur, Dies at 78 After Final Flight

Thanks to: <u>Dominic Gates -</u> *Seattle Times* and Andrew McIntosh, *Puget Sound Business Journal* 



Joe Clark September 9, 1941 - March 30, 2020

Local aviation pioneer Joe Clark is the man most responsible for those elegant upswept wingtips now standard on new Boeing 737s. This nowubiquitous winglet technology, installed to increase range and save fuel on business jets as well as commercial airplanes, is just the latest legacy of Mr. Clark's long career in aviation.

After a start as a jet salesman, Mr. Clark became an aviation innovator and serial entrepreneur.

In the 1960s, Mr. Clark founded Jet Air, the first dealership in the Pacific Northwest for one of the first private business aircraft, the Learjet.

In the 1980s, he co-founded regional airline Horizon Air, which later became part of Alaska Air Group.

In the 1990s, he founded Aviation Partners to design and sell the performanceenhancing winglets.

And he flew his own private fleet of airplanes with passionate enthusiasm.

Mr. Clark, 78, died Monday at a hospital near Palm Springs, where he had a home.

He had been flying Saturday in his twoseater GameBird aerobatic airplane, and a couple of hours after landing, he fell backward and hit his head, causing bleeding on the brain. He never regained consciousness, said Judy Galfano his longtime personal assistant.



**GB-1** Gamebird aerobatic airplane

Friend and fellow aviation enthusiast Bruce McCaw, co-founder of McCaw Cellular, said Mr. Clark "lived life full throttle all the time."

"He was a high-energy innovator, an adventurer, an explorer," said McCaw. "He always wanted to do something interesting and exciting. People just loved Joe."

#### Forming a New Airline

Mr. Clark was born in Calgary, Alberta, on Sept. 9, 1941, but his family moved to Seattle before he was a month old. He took his first flying lessons while a student at the University of Washington, and earned his private pilot's license in 1961.

In 1964, he traveled to the annual Reno Air Races, where he met Clay Lacy, a legendary pilot who took him up in a Learjet. Lacy embellished the ride with multiple aerobatic rolls, and the two became lifelong friends.

That flight fixed Mr. Clark's career trajectory. He took a job in sales with Learjet in Chicago and became one of the young guys along with McCaw who would be inspired by the technological innovation and entrepreneurial drive of Learjet founder Bill Lear.

Seeing an opportunity to expand sales, Mr. Clark founded the Learjet dealership in Seattle. He later sold Jet Air to McCaw.

Following the deregulation of the U.S. airline industry in 1978, Mr. Clark and McCaw joined

#### Joe Clark, cont'd...

with Milt Kuolt to co-found Horizon.

Lacy said Kuolt's initial idea was for flights to Hawaii, but Clark convinced him it would make more sense to fly within Washington state. In the spring of 1981, Mr. Clark assembled the startup team out of a small office on Boeing Field, planning initially for a couple of airplanes flying among three cities.

That September, Horizon's first flight took off from Seattle-Tacoma International Airport to Yakima, in a Fairchild F-27 turboprop with about 25 passengers.



Horizon Air's first plane, a Fairchild F-27 turboprop

"Joe had more to do with that outcome than anyone," said Lacy.

Within five years, Horizon built a greatly expanded network by acquiring several other small regional airlines, including Air Oregon and Utah-based Transwestern Airlines.

The rapid expansion strained the airline's finances and caused a \$4.9 million loss in 1985. The following year, Horizon was sold to Alaska Air Group, parent company of Alaska Airlines. When the entrepreneurs sold Horizon to Alaska Airlines, they had grown the regional airline from 35 workers operating three aircraft to 54 aircraft and 1,500 employees. It remains flying today, with about 4,000 employees serving more than 45 cities and feeding passenger traffic to its big-sister airline.

#### Saving fuel and carbon emissions

In 1991, Dennis Washington, a friend who owned a Gulfstream II business jet, asked Mr. Clark to develop a way to extend its range. Mr. Clark formed Aviation Partners and hired a team of retired Boeing and Lockheed aerospace engineers led by aerodynamicist Dr. Bernie Gratzer, who patented the technology for the "blended winglet," the upswept wingtip.



## Joe Clark next to the upswept wingtip that made him famous

Made of light carbon fiber composite, the winglets move the air turbulence at the tip of the wing away from the horizontal part of the wing that provides lift, reducing drag and thereby saving fuel and increasing the jet's range.

Those devices worked so well that the Boeing executive in charge of the Boeing Business Jet division asked him to develop winglets for those 737-based private jets. Soon, airlines were asking for winglets to be retrofitted to their 737s, 757s and 767s.

Eventually Boeing and Mr. Clark formed a joint venture, Aviation Partners Boeing, to fit the winglets on new 737s on the production line. Later the company developed a new refined version called the Split Scimitar Winglet, with one piece of the wingtip bending downward and the other upward.

"Joe was very good at putting things together, getting along with people and making things work," said Lacy. As a businessman, "he was very straightforward and never took advantage of anyone."

The technology is estimated at having saved more than 10 billion gallons of fuel since its introduction by Aviation Partners, with a corresponding reduction in carbon emissions.

#### Joe Clark, cont'd...

#### Magical flying

Through these enterprises he made enough money to fund his passion for flying. In the late 1990s he acquired a fleet of old and new airplanes, most of them stored at his ranch in Idaho, where he built a 7,500-foot runway.

Chief support pilot Mark Ranz said Mr. Clark regularly hosted friends at the ranch for flying weekends where they'd go "ripping around the valleys."

He also let Navy SEALs train at part of his ranch, so C-130 military transports and Black Hawk helicopters could be seen there too.

In 1988, he, Lacy and McCaw, buddies who'd become labeled The Three Musketeers in aviation circles, formed the Friendship Foundation and organized a round-the-world charity flight on a Boeing 747 chartered from United Airlines.

Lacy was captain on that flight, from Seattle to Athens, Greece, to Taipei, Taiwan, and back to Seattle in just under 37 hours. They persuaded 100 people to buy \$5,000 tickets, raising half a million dollars for children's charities. "It was magical," said McCaw.

In his private fleet of some 18 airplanes, Mr. Clark owned three Learjets and several military fighter trainers. He used a Learjet to commute between Seattle, Idaho and California, and a Gulfstream V long-range luxury business jet to travel the world.

In January, he and Ranz along with two other pilots flew nonstop in the G5 from Ft. Lauderdale to Riyadh in Saudi Arabia, where his friend Prince Sultan bin Salman had invited him to an air show. Prince Sultan, the Gulf nation's first and only astronaut, had met Mr. Clark at aviation shows and the two developed a bond over their love of flying, said Ranz.

Mr. Clark and his crew set an official speed record for that trip to Riyadh of 13 hours 46 minutes.

"Joe had a joy about aviation," said Ed Bolen, president of the National Business Aviation Association (NBAA). "He was recognized for his genius but loved for his passion."

Mr. Clark was a trustee at Seattle's Museum of Flight, which recognized his contributions with its Pathfinder Award. A huge 747 blended winglet is installed as an art piece on an exterior plaza of the museum. He was a board member emeritus at the Smithsonian's National Air and Space Museum in Washington, D.C.

Joe Clark won numerous awards during his life, including the Horatio Alger Award, Entrepreneur of the Year in 2004 and Lifetime Aviation Entrepreneur by the Living Legends of Aviation, and Professional Pilot's Innovator of the Year. He especially loved his National Business Aviation Association (NBAA) Meritorious Service to Aviation Award.

Clark was predeceased by his parents, Myra and Spencer Clark and his younger brother Charlie. He is survived by two sisters, Maggie Clark, of Seattle, and Linda Helsell, of Bellevue; and by his godson Chase Englehart, of Medina.

Mr. Clark will be cremated in California and his ashes transported back to Seattle, said Galfano. Once the coronavirus shutdown eases, it's expected there will be a memorial service at the Museum of Flight at some later date.



Joe Clark giving his acceptance speech after receiving the Lifetime Aviation Entrepreneur Award by the Living Legends of Aviation organization.

#### "The Secret War Over France:

USAAF Special Operation Units in the French Campaign of 1944"

**By Major Bernard V. Moore, II** School of Advanced Airpower Studies, Air University, U.S.A.F., Maxwell Air Force Base, Alabama – May, 1992 COI= Coordinator of Information (U.S.) OSS = Office of Strategic Services (U.S.) SIS= Secret Intelligence Services (Brit.) SO= Special Operations (Branch of OSS) SOE=Special Operations Executive (Brit.)

By 1943, a British organization, the Special Operations Executive (SOE), had been working with French resistance elements for two years. Since March 1941, SOE F-Section (France Section) agents had been infiltrating France, contacting resistance members, organizing sabotage efforts and generally preparing resistance forces to assist in the upcoming invasion. A major role for SOE agents was arranging for aerial delivery of weapons to arm the French irregulars. By early 1943 the SO Branches of OSS/London and OSS/Algiers were eager to join SOE in this effort.

With American industries beginning to turn out massive production of military supplies, the SO planners envisioned a major OSS contribution in arming the resistance forces. OSS also planned to send its own so agents into France to assist SOE's F-Section agents in organizing additional French resistance groups and to arrange for American supply drops.

The third and last type of SO element being prepared for' employment in the French campaign were the Operational Groups or OGs. Operational Groups were the largest OSS-SO elements. Each OG consisted of four officers and thirty enlisted men. OGs specialized in ambush and guerrilla warfare tactics and were intended to bolster resistance forces or for use in coup de main operations requiring more firepower than the smaller type teams offered.

When COI officers arrived in London in 1941, the British clandestine agencies immediately established close ties with the American newcomers. Throughout 1941 and 1942, the more experienced staffs of SIS and SOE allowed OSS officers to observe and study British operational methods. Among other things, OSS officers discovered that aircraft had become an essential element in British clandestine operations.

The British were using Royal Air Force (RAF) airplanes to parachute SOE and SIS agents into several Germanoccupied counties on the Continent and to drop military supplies to various resistance groups. It was apparent to the OSS observers that clandestine airlift had become a matter of routine and an essential element in the operations of the British secret agencies. Though a new concept to the Americans in the OSS, the use of airplanes for secret operations actually had its origins in the First World War.

There are several documented accounts from World War One that describe the employment of the early airplanes for covert missions. The secret agents of several combatant nations used airplanes to carry them safely over the lethal dangers of "no-mans-land," after which they would be landed in open fields well behind enemy lines. In a few cases, the agent would complete his planned operation and then be picked up by an airplane sent to fetch him back to base. In at least one incidence, a secret agent was dropped behind the lines by parachute, in this case, from an airship.



World War I British fighter Sopwith "Pup'

The widespread use of aircraft for clandestine operations did not begin, however, until Germany overran Western Europe in 1940. Hitler's conquests of Poland, Denmark, Norway, France, Belgium, Luxembourg and Holland created the situation which rapidly resulted in Britain's development of the first dedicated, specialized clandestine air capability.

With German forces in control of nearly all of Western Europe, the SIS needed aircraft to fly its intelligence agents deep into occupied territory. Also, in the summer of 1940, the British created the SOE to begin organizing anti-German resistance in the occupied nations and to undertake sabotage operations behind German lines. Like the SIS, the SOE needed the RAF to infiltrate its agents into the Continent. The SOE also needed the RAF to deliver supplies to resistance cells organized by its agents.

Aircraft were not the only means of clandestine travel. Other methods included use of fishing boats, motor torpedo boats, submarines, or on foot. Aircraft, however, offered great advantages over all other methods of infiltration. Airplanes could reach farther, travel faster, were more flexible, more reliable and more covert than all other means of agent transportation.

#### Secret War Over France, cont'd...

In August 1940 the British Air Ministry directed the RAF to organize a small flying unit to satisfy the special requirements of SOE and SIS. No.419 Flight was immediately established and equipped with two types of aircraft to handle the two basic types of clandestine air missions. Small single-engine **Westland Lysander** liaison airplanes were used for landings behind the lines.

For these "pick up" missions, the Lysander was equipped with a long- range external fuel tank and a ladder bolted to the side of the fuselage. After reaching its destination, usually a large open field, the Lysander would land and rapidly off-load its one or two passengers via the ladder from the cockpit. If required, up to two persons could then climb aboard for return to England.



RAF's Westland "Lysander" – note ladder & lights in wheel skirts

For missions not requiring a landing in enemy territory, two-engine **Whitley** bombers were used. The Whitleys were modified to allow agents to parachute through a hole in the fuselage floor. The Whitleys also could drop containers and packages of supplies for resistance groups. For the next two years the RAF continued to develop and refine the tactics and equipment for the mission they called "Special Duties."

An important development in October 1942 was the transition from Whitleys to four-engine **Halifax** strategic bombers as the standard parachute infiltration and supply drop aircraft. Operational experience had shown that only this category of aircraft (four-engine heavy bombers) possessed the requisite long range, heavy payload capacity and defensive armament needed for secret missions over the Continent.

As SOE and SIS needs increased, the RAF expanded its Special Duties force. The original Special Duties Flight became No.138 Squadron in August 1941, and a second Special Duties unit, No.161 Squadron, was formed in February 1942.



RAF's Armstrong Whitworth "Whitley" bomber

The RAF Special Duties force was growing in size and expanding its capabilities. By 1943 the British clandestine agencies were routinely being flown to dropping zones across the breadth of Europe, from Norway to Greece. Agents and supplies could be parachuted almost anywhere in German-occupied territory and agents could be exfiltrated from almost anywhere. These were the impressive air **capabilities** the eager OSS operations officers in London and Algiers were exposed to as they studied British operational methods during 1941 and 1942.

By early 1943, the OSS commanders were ready to begin their own large-scale operations into occupied Europe. Their plans were being developed, agents were being recruited and trained and arrangements were being made to procure the needed supplies. The last major element needed to begin operations on the Continent, and to France in particular, was their own clandestine air capability.

The RAF did not have enough Special Duties planes for SIS and SOE requirements alone, and could not begin to support OSS needs as well. OSS needed a dedicated air capability of its own, and it needed one fast. In accordance with the established procedure, the OSS staffs in Algiers and London sought the assistance of their respective theater US Army Air Forces commands.



RAF's Handley Paige "Halifax" bomber

Aircraft Drops to French Resistance Fighters in WWII: The Untold Story of the American Spy Who Helped Win WWII

Excerpted from "A Woman of No Importance," by Sonia Purnell, Penguin Books, 2019

The story of Virginia Hall, an extraordinary woman who was a spy for the French Resistance in German-occupied France during WWII



Virginia Hall April 6, 1906 – July 8, 1982

"Virginia got down to business. The men could hear the loud drone of a plane flying low above them to some other part of France as she fired questions one after another in a 'full-blooded accent.' 'What is your rank? Where do you operate? Who gives you orders? Have you set up parachute drop zones? Can you summon forty good men? What do you need?' And, lastly, with considerable force, she demanded 'Will you execute my orders without question?'

Astonished by this magisterial interrogation, Pierre Fayol, a Resistance chief, replied that he had a reconnaissance team which had drawn up a list of possible drop zones. Finding forty men would not be a problem – and there would be plenty more if only he had supplies to sustain them.



It was a quiet Thursday morning when Virginia, Fayol and two other Resistance fighters set off on their tour of nine possible drop zones. Virginia had a system – she would pace out the dimensions (the drop zone had to measure about half a mile across on flat, dry ground, with no obstacles or dips). She tested the strength of the wind by holding up a handkerchief by the corner – if it failed to fly fully horizontally then it was less than 15 mph, and good for parachuting. She noted the coordinates, chose a code name (after a fish), and a recognition letter to be transmitted by Morse code to the pilot of an approaching plane.

Each drop zone also had a specific message attached to it. Virginia's favorite drop zone on the highest part of the plateau was code-named *Bream,* had the recognition letter *R*, and the BBC French Service would announce '*Cette obscure claret tombait des etoiles'* ('*This dark light falling from the stars'*) a few hours ahead of a drop to allow a reception committee to prepare.

Every evening Virginia listened to the BBC, but while there were plenty of messages for other parts of France, none was for her. Until the Resistance fighters heard one of the pre-agreed phrases recited back to them, she had no proof of her authority in London. It was a nervous wait.

Finally, one night the BBC announcer said the awaited phrase- three times – meaning that three planes were now on their way to France and their drop zone.

The reception team rushed to the *Bream* zone, high on a vast open stretch of the plateau – where Virginia had radioed London to send the planes. Virginia was there, with all the welcoming Resistance fighters, and Pierre Fayol, who had been questioning Virginia's ability to get the drop.

The mysterious woman "English officer" they all referred to as *La Madone* had dressed herself in an army jacket and khaki trousers. She approached to check the bundles of sticks that had been placed 150 paces apart in a giant 'Y' shape. These would help pilots position their planes to drop their loads – flying into the wide end of the 'Y' and into the prevailing wind.

After listening quietly, the waiting men, and woman, finally heard a low, deep sound that grew louder, and Virginia signaled to start the fires. Soon they could

#### Aircraft Drops to French, Contd...

make out the snub-nosed silhouettes of three RAF Halifax bombers flying formation and heading for them. The planes banked to the right, lost altitude, and came straight for the zone – down to less than 600 feet – one after the other. When they each reached the center of the 'Y' they opened their bomb-bay doors, and showers of silk parachutes carrying huge cylindrical containers floated to the ground.



As the Halifax bombers flew off into the night, with a dip of their wings, there was much emotion on the ground. The long, lonely months of waiting for supplies to help them continue their fight against the occupying Nazis were over. This distant part of France was no longer forgotten. The woman known as *La Madone* had delivered!"



Virginia receiving the Distinguished Service Cross from General William "Wild Bill" Donovan, Head of the OSS. She also earned the Croix de Guerre.

Editor's Note: A painting of Virginia Hall, woman spy extraordinaire, showing her tapping out a message to London on her clandestine radio, with her Resistance comrade beside her, pedaling a bicycle to

#### power the radio – hangs in the halls of the CIA Headquarters in Langley, Virginia.



The painting, by Jeffrey W. Bass, of Virginia Hall transmitting vital information to intelligence headquarters in London on her clandestine radio in her hideout somewhere in German-occupied France during WWII. The radio is powered by a makeshift generator run by one of her French Resistance fighter comrades. She also used her radio to call in aircraft parachute drops of needed supplies – guns, ammo, food, boots, uniforms – for French Resistance fighters. She was the most-wanted Allied spy hunted by the German Gestapo.



Virginia in years after she retired from the CIA. She was married to Paul Goillot, one of her French Resistance fighters.

#### **Operation Vengeance**

### Thanks to *Wikipedia* and *Dead Reckoning* – by Dick Lehr (*HarperCollins Publishers, 2020*)

**Operation Vengeance** was the name given to the American military operation to kill Admiral Isoroku Yamamoto of the Imperial Japanese Navy on April 18, 1943, during the Solomon Islands campaign in the Pacific Theater of World War II. Yamamoto, commander of the Combined Fleet of the Imperial Japanese Navy, was killed on Bougainville Island when his transport bomber aircraft was shot down by United States Army Air Forces fighter aircraft operating from Kukum Field on Guadalcanal.



The mission of the U.S. aircraft was specifically to kill Yamamoto and was based on United States Navy intelligence on Yamamoto's itinerary in the Solomon Islands area. The death of Yamamoto reportedly damaged the morale of Japanese naval personnel, raised the morale of the Allied forces, and was intended as revenge by U.S. leaders, who blamed Yamamoto for the attack on Pearl Harbor that initiated the war between Imperial Japan and the United States.

The U.S. pilots claimed to have shot down three twin-engined bombers and two fighters during the mission, but Japanese sources show only two bombers were shot down. There is a controversy over which pilot shot down Yamamoto's plane, but most modern historians credit Lieutenant Rex T. Barber.

Admiral Isoroku Yamamoto, commander of the Imperial Japanese Navy, scheduled an inspection tour of the Solomon Islands and New Guinea. He planned to inspect Japanese air units participating in Operation I-Go that had begun April 7, 1943; in addition, the tour would boost Japanese morale following the disastrous Guadalcanal Campaign and its subsequent evacuation during January and February. On April 14, the U.S. naval intelligence effort code-named "Magic" intercepted and decrypted orders alerting affected Japanese units of the tour.

The original message, NTF131755, addressed to the commanders of Base Unit No. 1, the 11th Air Flotilla, and the 26th Air Flotilla, was encoded in the Jaanese Naval Cipher JN-25D, and was picked up by three stations of the "Magic" apparatus, including Fleet Radio Unit Pacific Fleet. The message was then deciphered by Navy cryptographers (among them future Supreme Court Justice John Paul Stevens); it contained time and location details of Yamamoto's itinerary, as well as the number and types of planes that would transport and accompany him on the journey.

The decrypted text revealed that on April 18 Yamamoto would be flying from Rabaul to Balalae Airfield, on an island near Bougainville in the Solomon Islands. He and his staff would be flying in two medium bombers (Mitsubishi G4M Bettys of the Kōkūtai 705), escorted by six navy fighters (Mitsubishi A6M Zero fighters of the Kōkūtai 204), to depart Rabaul at 06:00 and arrive at Balalae at 08:00, Tokyo time.



#### **Operation Vengeance, cont'd.**

President Franklin D. Roosevelt may have authorized Secretary of the Navy Frank Knox to "get Yamamoto," but no official record of such an order exists and sources disagree whether he did so. Knox essentially let Admiral Chester W. Nimitz make the decision. Nimitz first consulted Admiral William F. Halsey, Jr., Commander, South Pacific, and then authorized the mission on April 17.



To avoid detection by radar and Japanese personnel stationed in the Solomon Islands along a straight-line distance of about 400 miles between U.S. forces and Bougainville, the mission entailed an over-water flight south and west of the Solomons. This roundabout approach was plotted and measured to be about 600 miles. The fighters would, therefore, travel 600 miles out to the target and 400 miles back. The 1,000-mile flight, with extra fuel allotted for combat, was beyond the range of the F4F Wildcat and F4U Corsair fighters then available to Navy and Marine squadrons based on Guadalcanal. The mission was instead assigned to the 339th Fighter Squadron, 347th Fighter Group, U.S. Army Air Force, whose P-38G Lightning aircraft, equipped with drop tanks, had the range to intercept and engage.

339th Squadron Commander Major John W. Mitchell, already an ace pilot, was chosen to lead the flight. For better navigation, Mitchell asked for a navy compass, which was provided by Marine Corps Lt. Col. Luther S. Moore, and installed in Mitchell's P-38 the day before the attack. All of the P-38 fighters mounted their standard armament of one 20 mm cannon and four .50-caliber (12.7 mm) machine guns, and were equipped to carry two 165-US-gallon (620 L) drop tanks under their wings. A limited supply of 330-US-gallon (1,200 L) tanks was flown up from New Guinea, sufficient to provide each Lightning with one large tank to replace one of the small tanks. Despite the difference in size, the tanks were located close enough to the aircraft's center of gravity to avoid any performance problems.

Eighteen P-38s were assigned the mission. One flight of four was designated as the "killer" flight, while the remainder, which included two spares, would climb to 18,000 feet (5,500 m) to act as "top cover" for the expected reaction by Japanese fighters based at Kahili. A flight plan was prepared by the Command Operations Officer, Marine Major John Condon, but this was discarded by Mitchell, who thought the airspeeds and time estimates were not best for intercepting Yamamoto.

With several of his pilots assisting, Mitchell calculated an intercept time of 09:35, based on the itinerary, to catch the bombers descending over Bougainville, 10 minutes before landing at Balalae. He worked back from that time and drew four precisely calculated legs, with a fifth leg curving in a search pattern in case Yamamoto was not seen at the chosen point. In addition to heading out over the Coral Sea, the 339th would "wave-hop" all the way to Bougainville at altitudes no greater than 50 feet (15 m), maintaining radio silence.

Although the 339th Fighter Squadron officially carried out the mission, 10 of the 18 pilots were drawn from the other two squadrons of the 347th Group. The Commander AirSols, Rear Admiral Marc A. Mitscher, selected four pilots to be designated as the "killer" flight:

- Capt. Thomas G. Lanphier, Jr.
- Lt. Rex T. Barber
- Lt. Jim McLanahan (dropped out with flat tire)
- Lt. Joe Moore (dropped out with faulty fuel feed)

The remaining pilots would act as reserves and provide air cover against any retaliatory attacks by local Japanese fighters:

#### Operation Vengeance, cont'd.

- Maj. John Mitchell
- Lt. William Smith
- Lt. Gordon Whittiker
- Lt. Roger Ames
- Capt. Louis Kittel
- Lt. Lawrence Graebner
- Lt. Doug Canning
- Lt. Delton Goerke
- Lt. Julius Jacobson
- Lt. Eldon Stratton
- Lt. Albert Long
- Lt. Everett Anglin
- Lt. Besby F. Holmes (replaced McLanahan)
- Lt. Raymond K. Hine (replaced Moore)



#### Photo courtesy of the Mitchell family' Lanphier, Holmes and Barber

A briefing included a cover story for the source of the intelligence stating that a coastwatcher had spotted an important high-ranking officer boarding an aircraft at Rabaul. Several historians say that the pilots were not specifically briefed on the identity of their target, but Thomas Alexander Hughes wrote that Mitscher told the assembled pilots it was Yamamoto, to "provide additional incentive" to the fliers.



The specially fitted P-38s took off from Kukum Field on Guadalcanal beginning at 07:25 on April 18. Two of the Lightnings assigned to the killer flight dropped out of the mission at the start, one with a tire flattened during takeoff (McLanahan) and the second when its drop tanks would not feed fuel to the engines (Moore).



In Rabaul, despite urgings by local Japanese commanders to cancel the trip for fear of ambush, Yamamoto's airplanes took off as scheduled for the trip of 315 miles (507 km). They climbed to 6,500 feet (2,000 m), with their fighter escort at their 4 o'clock position and 1,500 feet (460 m) higher, split into two V-formations of three planes.

Mitchell's flight of four led the squadron at low altitude, with the killer flight, now consisting of Lanphier, Barber, and spares 1st Lt. Besby F. Holmes and 1st Lt. Raymond K. Hine, immediately behind. Mitchell, fighting off drowsiness, navigated by flight plan and the navy compass. This has been called the longest-distance fighter-intercept mission of the war.

Mitchell and his force arrived at the intercept point one minute early, at 09:34, just as Yamamoto's aircraft descended into view in a light haze. The P-38s jettisoned the auxiliary tanks, turned to the right to parallel the bombers, and began a full power climb to intercept them.

The tanks on Holmes's P-38 did not detach and his element turned back toward the sea. Mitchell radioed Lanphier and Barber to engage, and they climbed toward the eight aircraft. The nearest escort fighters dropped their own tanks and dived toward the pair of P-38s. Lanphier, in a sound tactical move, immediately turned head-on and climbed towards the escorts while Barber chased the diving bomber transports. Barber banked steeply to turn in behind the bombers and

#### **Operation Vengeance, cont'd.**

momentarily lost sight of them, but when he regained contact, he was immediately behind one and began firing into its right engine, rear fuselage, and empennage. When Barber hit its left engine, the bomber began to trail heavy black smoke. The Betty rolled violently to the left and Barber narrowly avoided a mid-air collision. Looking back, he saw a column of black smoke and assumed the Betty had crashed into the jungle. Barber headed towards the coast at treetop level, searching for the second bomber, not knowing which one carried the targeted high-ranking officer

Barber spotted the second bomber, carrying Chief of Staff Vice Admiral Matome Ugaki and part of Yamamoto's staff, low over the water off Moila Point, trying to evade an attack by Holmes, whose wing tanks had finally come off. Holmes damaged the right engine of the Betty, which emitted a white vapor trail, but his closure speed carried him and his wingman Hine past the damaged bomber. Barber attacked the crippled bomber and his bullet strikes caused it to shed metal debris that damaged his own aircraft. The bomber descended and crash-landed in the water. Ugaki and two others survived the crash and were later rescued.



Wreckage of Yamamoto's bomber in the Bougainville jungle. Note No. 323 on the rudder.

Barber, Holmes and Hine were attacked by Zeros, Barber's P-38 receiving 104 hits.<sup>[10]</sup> Holmes and Barber each claimed a Zero shot down during this melee, although Japanese records show that no Zeros were lost. The top cover briefly engaged reacting Zeros without making any kills. Mitchell observed the column of smoke from Yamamoto's crashed bomber. Hine's P-38 had disappeared by this point, presumably crashed into the water.

Running close to minimum fuel levels for return to base, the P-38s broke off contact, with Holmes so short of fuel that he was forced to land in the Russell Islands. Hine was the only pilot who did not return. Lanphier's actions during the battle are unclear as his account was later disputed by other participants, including the Japanese fighter pilots. In his landing, Lanphier's plane was so short on fuel that one engine quit during the landing rollout. Immediately on landing he put in a claim for shooting down Yamamoto



An artist's depiction of Rex Barber's P-38 shooting down the Japanese Betty bomber with Admiral Yamamoto inside.



An artist's depiction of the Japanese Betty bomber that carried Admiral Yamamoto on his last fateful flight.



This is what the two "killer" P-38 Lightnings may have looked like as they zeroed in on Yamamoto's flight of Betty bombers. Capt. Thomas G. Lanphier, Jr. went after the Zeroes, and Lt. Rex T. Barber continued on for the "kill" on Admiral Yamamoto's Betty bomber. Operation Vengeance was a highly successful joint mission involving three USA armed services.

#### September, 2020 Photo Page Our Bearcat Enroute to CMA – 1991/1992 Photos by Frank Mormillo



Steve Hinton, famed warbird pilot, taking our Bearcat off from Chino, CA airport for testing, December 7, 1991.



Steve putting the Bearcat through its paces over the Chino area.



Our Bearcat (before getting its Navy blue paint job) flying with P-51 FF-553 "Miss Fit" out of Van Nuys, CA



March 29, 1992 – at Chino before taking off for CMA. Lefty Gardner in cockpit – with Steve and Gary Barber and Mark Foster.



Lefty Gardner giving the "thumbs up" sign, with Steve Barber on the wing behind him. Ready for takeoff to CMA!



Our Grumman F8F-2 Bearcat on its way to CMA – escorted by our Curtiss C-46 "China Doll." Welcome Home!

#### Point Mugu 2020 Airshow Canceled

#### By Gretchen Wenner Ventura County Star USA TODAY NETWORK

The Blue Angels will not fly over Ventura County in October after all.

On Monday night, officials from Naval Base Ventura County announced the 2020 Airshow had been canceled due to ongoing concerns about the coronavirus. The two-day show at the Point Mugu airfield, which typically brings in more than 100,000 spectators, had been planned for Oct. 3-4.

"The health and safety of our audience were primary factors when making the difficult decision to cancel the air show this year," said Capt. Jeff Chism, commanding officer at the base, in a statement. "We appreciate the support of our local communities and hope to bring an airshow here in the years ahead."

The Blue Angels, the Navy's flight demonstration squadron, were the show's headlining event. Melinda Larson, spokeswoman for the base, said in an email it's unknown when the squadron might return here as the Blue Angels book their performance schedule two years in advance.

Two members of the squadron flew to Point Mugu in January to prepare for the upcoming show. It would have been the Blue Angels' first appearance here since 2015.

The event was also to have featured the Golden Knights, the Army's parachute team, along with a variety of military and civilian aerial performances



Photo by Juan Carlo, *VC Star* Lt. Cmdr. Adam Kerrick , top, and Lt. Julius Bratton at CMA to promote the planned Point Mugu Airshow originally planned for October.

## More Photos of Our Wing's New Messerschmidt Bf-108 "Taifun"

#### Photos by John Cutright & Lucien Pillai







#### Editor's Note:

A correction must be made to the cover page of the August issue of "Flight Line." The manufacturer of the F-16 Fighting Falcon should have been listed as General Dynamics / Lockheed Martin, not McDonnell Douglas.

Also – the plane flown by the Blue Angels is an F/A-18 Hornet, not a Super Hornet.

#### Wing Maintenance Report

By Trace Eubanks, Wing Maintenance Officer

The purpose of this report is to keep our members up-to-date on the progresses and changes within the Maintenance Department. I hope this information proves to be helpful.

#### Staff Meeting:

We truly hope that everyone who attended last week's Staff Meeting now has a better understanding about the direction the Wing is heading and the financial adjustments that were implemented taking into consideration the current economic circumstances. During the open floor, some of you expressed a need for better communications between Members and Staff. I'm confident that Staff will work harder in this area to ensure that all Staff Meetings are adequately announced so members may participate and become more informed. That being said, should you ever have any questions or concerns pertaining to the operations or finances related to the Maintenance Department, I would be more than happy to sit down with you and discuss your concerns. Remember, I'm here for you...not the other way around.



#### **Bearcat Project:**

The Bearcat restoration project is in progress. Crews are methodically removing all panels and hardware to begin a thorough inspection of the entire airframe and its components. The propeller and engine will also be removed and stored during this year-long endeavor. All parts will be photographed and categorized during disassembly to simplify the reassembly process. The aircraft will also receive newly covered primary flight controls and a fresh coat of paint. Anyone interested in assisting with this restoration is asked to contact me or John McMahon, the aircraft Crew Chief.

#### Spitfire Engine:

Crew Chief Ned Grabowski and his crew; Ernest Acosta, Rob Moverly, Rob Seeger and Paul Meyer are aggressively moving forward with the engine installation. Bill Carbony is finishing up on a few former repairs and the propeller installation will soon follow. Hopefully we'll have the engine running within a few weeks.



#### Blue Bird:

Monday July 26<sup>th</sup>, 2020 the flight insurance on SNJ-4 Blue Bird was reinstated to allow flight operations to commence. This is for the purpose of break-in procedures for the newly overhauled 1340 engine. Pilots are to check with Mike Hohls (Ops) for a copy of the proper break-in procedures for this engine. Please, discontinue additional ramp run ups until the engine has at least 5 flight hours.

#### **Repairs and Procedures:**

Questions have recently come up regarding what mechanical procedures are acceptable when performing repairs and services to our aircraft. The Federal Aviation Administration (FAA) requires that all aircraft maintenance personnel must follow at minimum, all "Standard" aircraft maintenance procedures when performing repairs or services to any aircraft. These standard maintenance procedures can be found in the FAA Advisory Circulars (AC) 43.13-1. (A copy of this book is always available in the Maintenance Office). However, the procedures in the AC 43.13 are not specific to any "one" aircraft or component. Therefore, the Aircraft **Maintenance Manual should always** supersede the general procedures found in AC 43.13 book. Again, the AC 43.13 is only used as a reference should the Aircraft Maintenance manual become missing or it fails to offer the information you desire.

Thanks to Ned Grabowski for bringing this subject to my attention.



#### FAA Directive:

The FAA has issued an Airworthiness Directive (AD) in reference to AD 2016-17-08. This AD requires that ALL hardware; (bolts, washer, nylon nuts, castle nuts, cotter pins, etc) used to attach "Push-Pull" rods to any primary flight control MUST be replaced with NEW hardware. This should go without saying. However, several fatalities in aviation have occurred from securing primary flight controls using old hardware. Please review the document below.



#### Grease - Which one?:

For some of you this may be a refresher course: You may have noticed that we have (2) different types of grease available in our Maintenance Department. These include AeroShell 22 and AeroShell 33.

So, what makes up grease away? When we visit the basics of grease we learn that grease is not thick oil, but rather an oil base that is thickened with specific thickening agents. The two types of grease mentioned, 22 & 33 are similar but have different base oils and agents and should never be mixed together. Currently we use AeroShell 22 for wheel bearings where high temperatures up to 390F can be present and AeroShell 33 (which was developed at the request of Boeing) for most of our airframe application points.

Always check the aircrafts Maintenance Service Manual for the proper grease for any specific component. If you're not sure which grease to use, please check with the aircraft Crew Chief before the application. This will also remove the possibility of cross contamination.

Thanks to Joe Fragala for bringing this subject to our attention.



#### **Educational Videos**

Below are links to two very informative videos.

The first is how to perform a "Double Wrap Spiral Safety Method on a Turn Barrel". This method is normally performed on primary flight control cables following cable replacements and tension adjustments. (Always check the Aircraft Maintenance Manual for approved techniques and procedures). Many members are having an opportunity to use this method on our SNJ-4 following cable tension adjustments. Following through on a request and for all new members, below is a link to review the Basic CAF Approved Marshalling Hand Signals and Techniques. This video will help you understand the proper ramp marshalling procedures that we use on our ramp when launching or retrieving our aircraft. Note: This video does not cover the duties of a "Fire Guard". Only qualified members with proper training may perform Fire Guard Duties. https://www.youtube.com/watch?v=Frkt6b9usIA

#### Zamboni:

Finally established a better location to park the Zamboni Floor Cleaner. This location will place the machine out of the way of our work area and directly under the charger. Please work to keep this area clear of parts, tables and other items that will block its access. The oil carts will also be stored in this location to keep them out of our work areas.



#### Moving Parts:

Ron Missildine, Keith Bailey, Mike Bailey and Mario Rodriguez are spearheading the process of transferring the aircraft parts temporarily stored in the West Hangar from the Annex move to the new conex containers on the east end of our grounds. Heavy duty shelves were installed in each conex so the parts and components can be easily stored. We are looking for volunteers willing to help with this task. Please contact me if you can assist.

#### New Library:

Bob Fischer and Rob Mawer (Woodshop Crew) and with the assistance of Mike Hodson, Chris Hodson, and Nabi Hemmatyar the construction of our new Library is almost complete. This will be an excellent addition to our Museum and heighten the overall experience for our visitors. Thanks to Kathy Newhard for supervising the project.



#### Paint Shop:

The Paint Shop and Crew are going through a transition in preparation for the re-covering of the F8F primary flight controls. A new water base paint stripper is being tested as are new fabric application procedures. Overhead lights will soon be installed to help with poor lighting conditions. NOTE: A small office desk on wheels and a chair was recently removed from the Paint Shop area without permission. If you know where they are, please notify me so they can be returned.

#### **Closed Quarters:**

All Maintenance Personnel....If you find yourself next to the last to leave the Wing, please check to see if you can help close the larger Maintenance Hangar doors and the West Hangar doors before you depart. There are some who have a very difficult time muscling these heavy doors. Recently one of our lady members had to close the doors all by herself.

If you have any questions, please contact me anytime.

Hope to see you all soon.

#### Trace

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