

# THE AVIATION MAGAZINE

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No: 35 June - July 2015

Volume 6, Issue 5



- ✈ Aircraft of the Red Bull Air Race World Championship
- ✈ El Centro Photocall, NAS El Centro, CA
- ✈ Yuma Air Show, MCAS Yuma, AZ
- ✈ RAF Museum visit Part 2, London, UK
- ✈ SAR Training in Malta
- ✈ HGL-Kurs 2015 Exercise Aigen, Austria
- ✈ And so much more...

2015 CF-18 DEMO





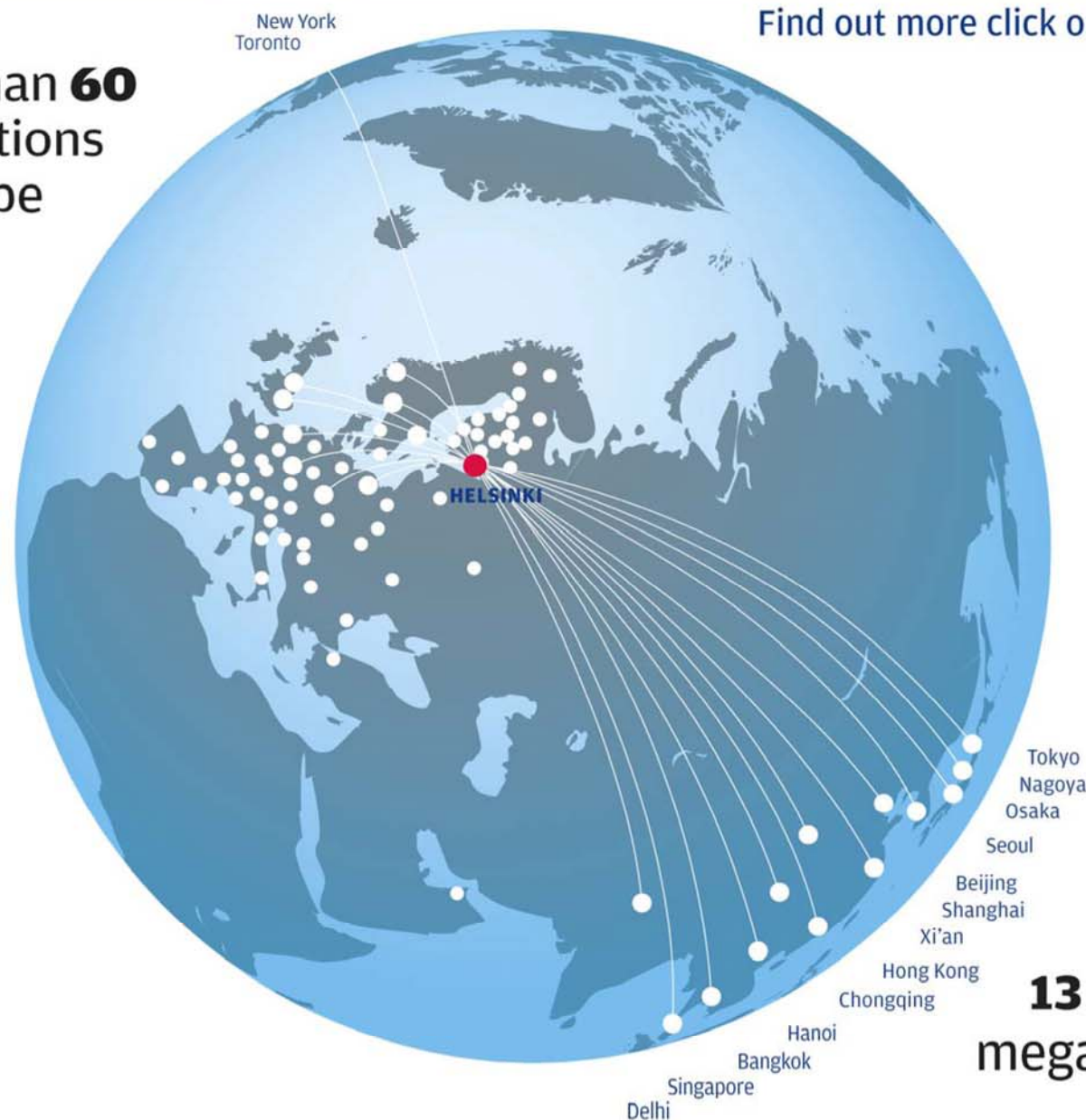
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No: 35 June -July 2015 Volume 6, Issue 5

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Cover: 2015 CF-18 Demo Team Jet over Comox, B.C., Canada, photo by Steve Bigg

Index page: Swiss Air-Ambulance Canadair CL-600 Challenger 2B16 photo by Christopher Mifsud



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# THE AVIATION MAGAZINE

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NEWS FROM THE EDITOR

The disappearance of Waterloo Air Show in Ontario, Canada, scheduled for June 27-28, is a sad event for many fans in southern Ontario, although not surprising due to poor weather, not enough in attendance, lack of sponsorship and to poor marketing.

One lesson that can be learned by media person in charge of air shows is that never to over look the potential of foreign aviation enthusiast from the neighbouring States, and from countries like France, UK, Germany, and Finland. There are many who are willing to spend \$\$\$ to travel to see performers which they cannot see in their own countries. When THE AVIATION MAGAZINE offered to help to get word out to our worldwide readership, the media person in charge scoffed at the idea "not interested in readers (potential visitors) from France, Turkey, etc... I rather appeal to locals" ... a short-sighted view for sure!

THE AVIATION MAGAZINE is looking forward to cover many air shows as well as military exercises throughout the season. We need your support by spreading the name of our world class publications to all your friends, by purchasing our patches and zap stickers to keep THE AVIATION MAGAZINE free, remember we all are unpaid volunteers, and it would cost thousands of dollars to produce each issue of the BEST and FREE aviation publication on the internet! **Donate \$25 or more and you will get an exclusive gift of (2) high quality 4" dia. Zaps stickers and (2) 4" dia. Patch with Velcro, randomly selected from our remaining stock while supplies last.** Click here for the form: <http://www.theaviationmagazine.com/Donation-Free-patch-form.pdf>





## The Aircraft

### CORVUS RACER 540 CORVUS AIRCRAFT KFT, HUNGARY



Designed in 2007 by Andras Voloscsuk and the Hungarian University of Aviation specifically for Peter Besenyi, the Corvus Racer is a relatively new plane on the block. Despite only debuting during the last World Championship, the aircraft has already attracted attention from other race teams, including Team Bonhomme.

Built using chrome-molybdenum tubes in a TIG welded construction, the plane is a high-performance rocket. The wing, empennage and fuselage covers are high-strength composite parts primarily composed of carbon fibre.

#### CORVUS RACER 540

LENGTH	6.57m
WINGSPAN	7.4m
ROLL RATE	440°/sec
CLIMB RATE	4,300ft/min
TOP SPEED	444kph (240kts)
MAX G	+12G/-10G
WING DESIGN	Symmetric, carbon fibre
PILOT	Besenyi

### EDGE 540 ZIVKO AERONAUTICS, USA

The Edge 540, manufactured by Zivko Aeronautics, is as precise and controllable as it is aggressive. The small, one-seater aircraft is a favourite amongst Red Bull Air Race pilots, largely due to its fuselage. The computer optimised, steel tube frame makes the Edge 540 an extremely light, very durable and easily repairable plane.

Using an unconventional straight-edged wing, the Edge 540 sparked much interest in flying circles around the world, particularly after Kirby Chambliss began using it for aerobatic competitions. The plane has since evolved into the highly refined and technologically advanced version of the original prototype, with the radical wing now acknowledged as a pioneering feat of design.

#### EDGE 540 V2

LENGTH	6.3m
WINGSPAN	7.44m
ROLL RATE	420°/sec
CLIMB RATE	3,700ft/min
TOP SPEED	425.97kph (230kts)
MAX G	+/-10G
WING DESIGN	Symmetric, carbon fibre
V2 PILOTS	Bonhomme, Goulian, Ivanoff and Muroya
V3 PILOTS	Arch, Chambliss, Dolderer, McLeod and Sonka



#### EDGE 540 V3

For 2015, a number of the pilots have upgraded to the race-bespoke Edge V3. The V3 is different from the 540 in various ways:

- It has an increased tolerance of G-loads
- The body has been finely tuned to increase aerodynamics and reduce drag
- Modifications range from a sleeker canopy design and improved exhaust, wing root and rear wheel fairings to enhanced winglets, shorter landing gear legs and upgraded cowlings



# MXS-R MX AIRCRAFT, USA

The MXS-R represents the latest in state-of-the-art design and technology. The 'Edge beater', as it's been named due to being a worthy match for the Edge 540, was designed using advanced computer solid modelling with an emphasis on aerodynamic efficiency. As a result, it has already gained much respect in the racing arena and is considered a work of art among pilots due to its graceful, flowing lines.

What makes the MXS-R a stand-alone plane is that it is constructed entirely of aerospace-grade carbon fibre, which gives it superior strength and durability unlike any other.

## MXS-R

LENGTH	6.51m
WINGSPAN	7.32m
ROLL RATE	420°/sec
CLIMB RATE	3,500ft/min
TOP SPEED	425.97kph (230kts)
MAX G	+/-12G
WING DESIGN	Symmetric, carbon fibre
PILOTS	Hall and Lamb



## Aviator Gear

phone: 888 376 2256

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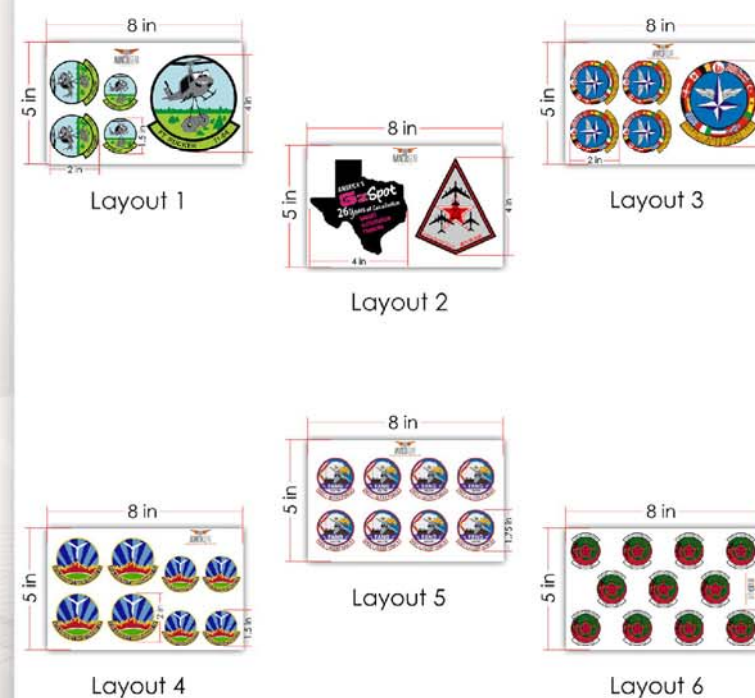
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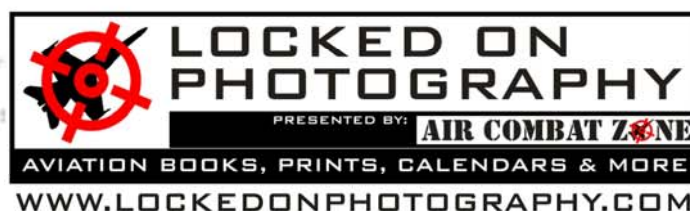


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## PACIFIC AVIATION MUSEUM

FORD ISLAND, HAWAII



## PEARL HARBOR

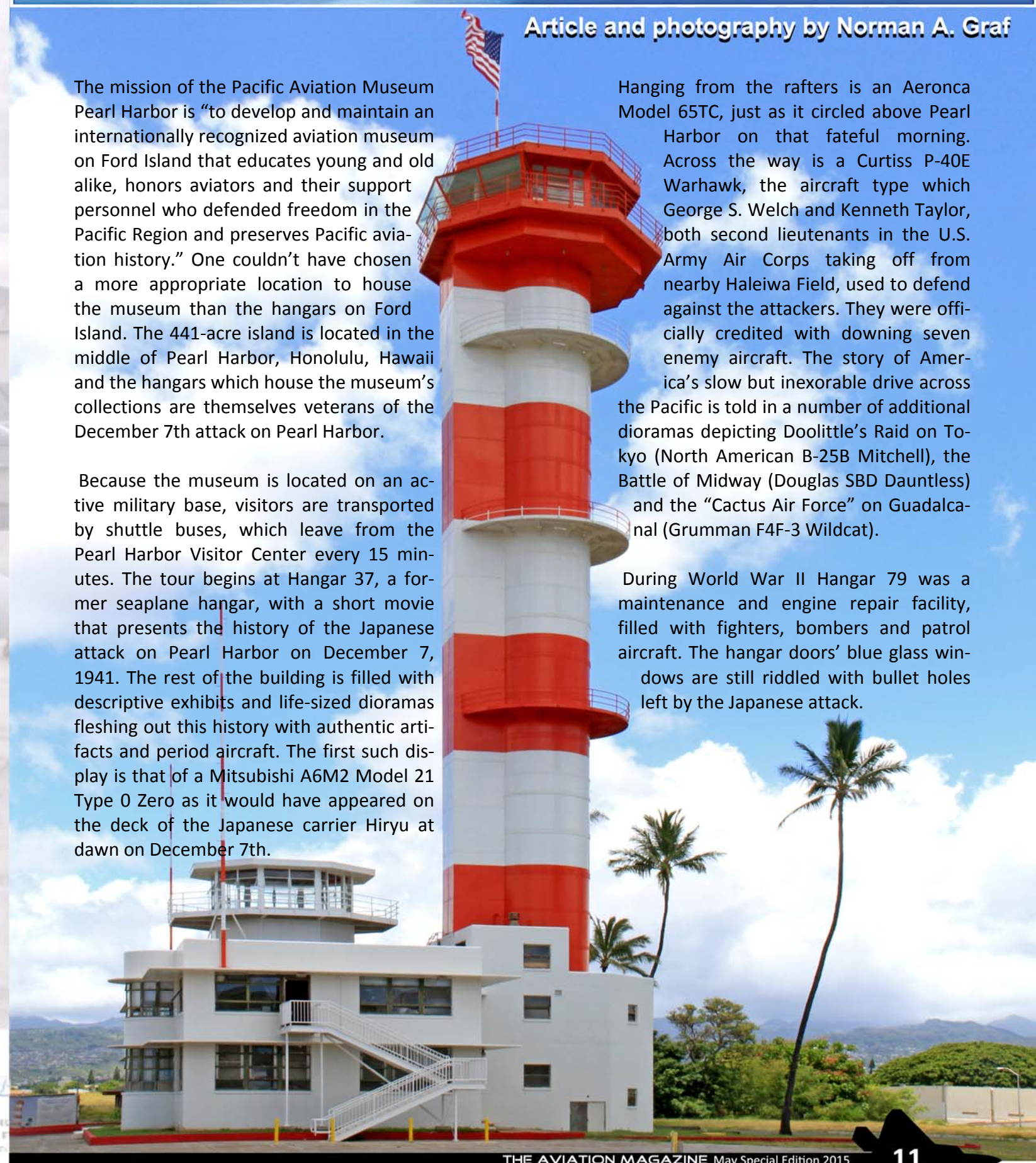
Article and photography by Norman A. Graf

The mission of the Pacific Aviation Museum Pearl Harbor is "to develop and maintain an internationally recognized aviation museum on Ford Island that educates young and old alike, honors aviators and their support personnel who defended freedom in the Pacific Region and preserves Pacific aviation history." One couldn't have chosen a more appropriate location to house the museum than the hangars on Ford Island. The 441-acre island is located in the middle of Pearl Harbor, Honolulu, Hawaii and the hangars which house the museum's collections are themselves veterans of the December 7th attack on Pearl Harbor.

Because the museum is located on an active military base, visitors are transported by shuttle buses, which leave from the Pearl Harbor Visitor Center every 15 minutes. The tour begins at Hangar 37, a former seaplane hangar, with a short movie that presents the history of the Japanese attack on Pearl Harbor on December 7, 1941. The rest of the building is filled with descriptive exhibits and life-sized dioramas fleshing out this history with authentic artifacts and period aircraft. The first such display is that of a Mitsubishi A6M2 Model 21 Type 0 Zero as it would have appeared on the deck of the Japanese carrier Hiryu at dawn on December 7th.

Hanging from the rafters is an Aeronca Model 65TC, just as it circled above Pearl Harbor on that fateful morning. Across the way is a Curtiss P-40E Warhawk, the aircraft type which George S. Welch and Kenneth Taylor, both second lieutenants in the U.S. Army Air Corps taking off from nearby Haleiwa Field, used to defend against the attackers. They were officially credited with downing seven enemy aircraft. The story of America's slow but inexorable drive across the Pacific is told in a number of additional dioramas depicting Doolittle's Raid on Tokyo (North American B-25B Mitchell), the Battle of Midway (Douglas SBD Dauntless) and the "Cactus Air Force" on Guadalcanal (Grumman F4F-3 Wildcat).

During World War II Hangar 79 was a maintenance and engine repair facility, filled with fighters, bombers and patrol aircraft. The hangar doors' blue glass windows are still riddled with bullet holes left by the Japanese attack.



THE AVIATION MAGAZINE May Special Edition 2015





Douglas SBD Dauntless hanging from the rafters

Today, it showcases the jets and helicopters that represent the history of Pacific aviation since the end of the Second World War. Over two dozen aircraft are on display. Korean War adversaries, the Mikoyan-Gurevich MiG-15 Fagot and the North American Aviation F-86E Sabrejet are paired up in a nice MiG Alley diorama. Elsewhere their Vietnam War counterparts, the Mikoyan-Gurevich MiG-21 Fishbed and the McDonnell Douglas F-4C Phantom II, can be found. A new addition is an ex-Hawaii ANG McDonnell Douglas F-15C Eagle, since replaced at Hickam Field by the F-22 Raptor. The latest addition is a Boeing Vertol CH-46E Sea Knight, retired just last year.

Although the exhibits are very well documented, it is worth every penny to sign up for the Aviator's Tour. Veteran docents take you behind the scenes on an in-depth, personalized tour through the hangars and the restoration shop. Our guide, Ron Murashige, is a founding volunteer, and he did an exceptional job of pointing out noteworthy exhibits and answering all of our many aviation-related questions. Many thanks for the tour! Unfortunately the historic Ford Island Control Tower was closed for repairs. I look forward to returning to climb its stairs and look out over Pearl Harbor.

More information about the museum can be found at <http://www.pacificaviationmuseum.org/>



- Curtiss P-40E Warhawk , top left
- Mitsubishi A6M2 Model 21 Type 0 Zero top right
- Grumman F4F-3 Wildcat , mid left
- Doolittle's Raid on Tokyo (North American B-25B Mitchell), below.







Displays in Hangar 79



Ron Murashige is a founding volunteer



MiG-15 Fagot and the NA F-86E Sabrejet



Mikoyan-Gurevich MiG-21 Fishbed



Lockheed F-104A Starfighter



General Dynamics F-111C Aardvark in RAAF markings





Boeing B-17E Flying Fortress "Swamp Ghost" will be exhibited as it was found after over 70 years.



Convair F-102A Delta Dagger



Douglas A3D/NTA-3B Skywarrior sports a bigger nose cone for conducting radar and avionics testing for the Grumman F-14 and the B-2A Spirit Stealth Bomber



# RAF Museum visit Part 2

Photography by Ray Biagio Pace with notes by the Editor



**Westland Lysander III**, was designed to operate closely with the Army and had a remarkable performance which allowed it to get into and out of extremely small fields. It was often used in covert actions ferrying Allied agents in and out of enemy occupied Europe. Late in 1940 Lysanders began air-sea rescue duties in the Channel and North Sea. (above)

**Messerschmitt Bf 110G-2** This aircraft is fitted with FuG220b Liechtenstein SN-2 radar, the G-series being specially developed as night fighters. This particular aircraft served with 1/NJG3 in the night defence of Denmark and Northern Germany, 1st Staffel (Squadron) of Nachtjagdgeschwader 3. The Bf110 when it was converted into a night fighter it proved to be one of the most successful in this role during World War Two. (below)



The Royal Air Force Museum in London is a fun and educational place to visit for any aviation enthusiast: and the best of all, admission is **free**.

In Part 2 of our visit, which was actually our second visit, we try to bring additional exhibits to light, which we could not just in one visit. With over 100 aircraft on site, to view all of them takes time, and if one can afford it, more than one day is necessary. You can see our images from our previous visit by downloading [The April– May 2015 issue of The Aviation Magazine](#).

Page 19 images:

**Hawker Hurricane 1** played a vital role during the Battle of Britain. Later in the War Hurricanes made a significant contribution to the defence of Malta, the desert war in North Africa and war against the Japanese in the Far East. (top right image)

**Heinkel He111H-20** provided the Luftwaffe with a fast, manoeuvrable medium bomber which it used as a spearhead for the Blitzkrieg tactics so successfully employed during the early campaigns of World War Two, but during the Battle of Britain it was a dismal failure against the Spitfires and the Hurricanes. (mid right image)

**Fieseler Fi 103 V-1 flying bomb** also known to the Allies as the buzz bomb, was the first

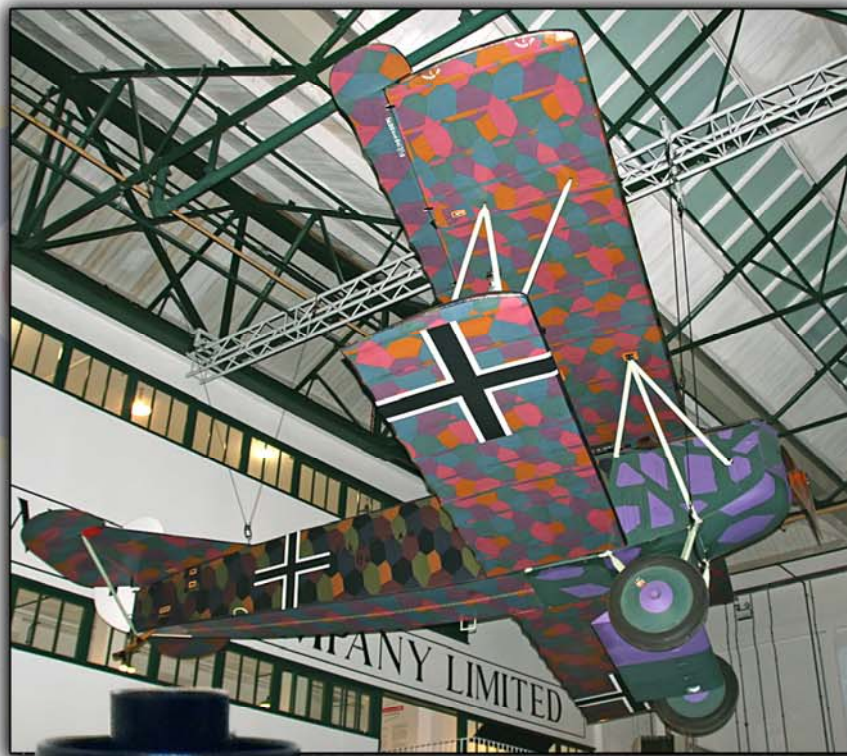


pulsejet powered cruise missile. The V-1 was developed at Peenemünde Army Research Center by the Nazi German Luftwaffe during WWII. The German Propaganda Ministry called the Fi 103 Vergeltungswaffe Eins ("Vengeance Weapon 1"), or "V1" for short, and V1 is the name by which it is best remembered. (bottom right)

**Junkers Ju88** was the most versatile German combat aircraft in WWII. As shown on the cover of the German magazine "Der Adler" from 1940. (below)







**Fokker D.VII** Built at the Ostdeutsche Albatros Werke GmbH (OAW) factory at Schneidemühl, Pomerania (now Pia in Poland). Serial batch 8300 - 8649/18. Probably never issued to a front line unit. Left at Ostend, Belgium by the retreating German forces, it was used by the Belgian Air Force after WWI for a while it was sold off onto the Belgian civil register. (top left)

**Boulton Paul Defiant Mk 1** This is the sole surviving intact example of its type. The Defiant was a two-seat turret fighter, operated with mixed fortunes during the Battle of Britain period but finding its niche as a night fighter in the 1940-42 period. N1671 was operated by No 307 (Polish) Squadron RAF, thus the Polish insignia under the pilots window. (top right)



**Junkers Ju87G-2 "Stuka"**  
The "Stuka" name derived from the German word for dive-bomber (Sturzkampfflugzeug). There are no flying Stukas around anymore, and to see one in a Museum is a very rare sight, left.

**Supermarine Seagull V**  
Known to the Australians as the Seagull V, the type was also ordered for the Royal Air Force under the name Walrus, right.





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## EL CENTRO PHOTOCALL

Article and photography by Norman A. Graf



El Centro, located in the Imperial Valley of southern California more than 100 miles inland from the Pacific Ocean and 42 feet below sea level, seems an unlikely place for a Navy installation. However, the year-round good weather (over 350 days of sunshine and less than 3 inches of rain) and proximity to hundreds of square miles of bombing and gunnery ranges make it an ideal location for a Naval Air Facility. Unlike Naval Air Stations, which have permanently assigned squadrons, NAF El Centro (NAFEC) is home only to temporarily assigned and transient aircraft. Nevertheless, NAFEC is a very busy airfield, attracting Army, Navy and Marine units from around the US and foreign aircraft from Canada and various European allies. The British Army Air Corps, in particular, conducts a lot of flight and live-fire training with their Apache helicopters. As a consequence, you never know what you might see there, but it's almost always worth a visit.

Of additional interest to airshow enthusiasts is the fact that since 1967 the facility has served as the "winter home" of the US Navy and Marine Corps Flight Demonstration Squadron, the Blue Angels. Starting every January the team conducts over two months of intensive training and practice, honing their flying and maintenance skills and building the cohesiveness required to safely and successfully complete the upcoming air show season.

Naturally, this profusion of aircraft also draws aviation enthusiasts from all over the world. Despite the fact that there are no permanently assigned squadrons at the facility, plane spotters can be found outside the base at any time of the year, hoping to photograph one of the training aircraft or a transient passing through. The small size, flat, treeless topography, and a close-in perimeter road provide excellent views of the activities on the facility. Incredibly, the base actually invites photographers on board roughly twice a year to get even closer to the action. The Aviation Magazine was invited to participate in the first NAFEC Photocall of 2015.





On the morning of February 19 at 1100 approximately 50 photographers assembled outside the main gate of NAFEC. We were transported on board and met by Kris Haugh, Public Affairs Officer (PAO), and members of his team. We had all received detailed safety instructions via email but Kris went through each of the items once again. We would be photographing high-performance jets taking off and landing from a distance of only fifty feet, so safety, both ours and the pilots', was the number one concern. "Think safety!" was Kris' mantra. Second on the list was "BE MINDFUL OF FOD!" Foreign Object Debris is any object in an inappropriate location that can damage equipment or injure airplane or ground personnel. The resulting Foreign Object Damage is estimated to cost the aerospace industry over \$4 billion a year. We were warned to be extremely careful of any loose items, including clothing, that could be either sucked in or blown about by the extremely powerful exhaust of jet aircraft or prop wash from rotorcraft. "Your hat for example should be securely bolted, nailed, glued, welded, stapled or otherwise permanently fastened to your head. I will have duct tape for those of you who may have difficulty understanding this important rule." The last item in the long list of do's and don'ts was "be prepared for a truly awesome experience!"

After this detailed safety briefing, we were warmly greeted by Cmdr. Adam Schlismann, the Executive Officer. Buried deeply in the Photocall Safety Brief had been a reference to a brown M&M clause. When questioned about this, Cmdr. Schlismann recounted the story of how the rock band Van Halen used such a clause to ensure that all elements of their standard contract had been attended to (see <http://www.snopes.com/music/artists/vanhalen.asp> for details). It was a light hearted moment but underscored how seriously he took his responsibilities to safeguard both the resources under his command and the visitors he was welcoming on board. We were expected to have read and understood all of the rules of engagement. After lunching on chicken mega burritos bought from the Chief Petty Officer's Association and visiting the Facility's facilities (there are no porta-potties at the runway) we departed for the flightline.



T-45C Goshawks of VT-9 from NAS Meridian



Cmdr. Adam Schlismann, with the M&Ms



We arrived on the airfield just as the Blue Angels were taxiing out for their afternoon practice flight over the base. With less than a month to go before the beginning of their air show season, and well into the 120 flights required for show qualification, they were already flying the full delta demonstration routine. Extra effort is, however, devoted to a few of the more difficult maneuvers to get the timing and precision nailed down. Emphasis is also placed on safety. At any time during the flying, team members must be prepared to instantaneously react to unsafe conditions. Flying mere inches apart at hundreds of knots of airspeed does not allow time for any delay.

In the unlikely event that an aircraft were to suffer an engine malfunction, even Blue Angel #1 during the transition into the diamond formation on takeoff, the other pilots should know almost instinctively how to disperse if anyone were to call "Knock it off!" The team members also practice how to land, transition to another waiting aircraft, and rejoin the demonstration after encountering difficulties, such as a mechanical malfunction or bird strike. Millions of spectators who thrill to the demonstrations may never be aware of all the time and effort which goes into these preparations, but they will be safer for it. On the scanner we heard "Off brakes, now!" and the Blue Angels show began. Their performances are amazing viewed from the distance of a normal air show fence line: being this close to the action was thrilling, to say the least!

Our next stop was at the helicopter ramp where a number of Marine Corps choppers were preparing to depart. Alerted to our presence and cleared to depart in our direction, a pair of Sikorsky AH-1Z Super Cobras of HMLA-267 "Stingers" from MCB Camp Pendleton gently lifted off and slowly approached. The gunships bristled with armaments and passed so closely that the bright green reflection from the helmet-mounted "Top Owl" sight and display system glowed menacingly in the bright sunlight. To the delight of the photographers the pilots deliberately pirouetted, showing off their aircraft to good advantage. Not to be outdone, the pilots of the UH-1Y Super Hueys, Super Hueys, of HMLA-369 "Gunfighters" from MCB Camp Pendleton, likewise passed close by before departing. However, the best was saved for last. An AH-1W Cobra, also from HMLA-369 "Gunfighters", now arose. Its fuselage was painted with the image of an enormous Cobra, stretching from the engine nacelle to the tail. Judging from the cacophony of camera shutter clicks, "Gunfighter 23" was clearly the highlight of the day for most of the photographers.

Our final location was along runway 8/26. This 9,500 foot runway is set up to emulate the deck of an aircraft carrier, complete with a Fresnel Lens Optical Landing System which helps the aviator maintain the correct glide slope. A Landing Signal Officer (LSO) will normally provide additional guidance over the radio. We were set up across from the LSO shack fifty feet from the runway, positioning us right between where cables two and three would be located on a real carrier deck, i.e. the sweet spot for landings.

Our first visitors were the pairs of Vipers and Venoms which had taken off earlier. They returned for a high-speed, low-level pass along the runway, zoom-climbing right in

front of us to provide some dramatic photographs of unique angles. Shortly thereafter we listened in as an MH-60 Seahawk on its way to NAS North Island requested clearance south of NAFEC. Informed of the presence of a large number of photographers and given clearance to pass over the field, the crew did us the favor of flying overhead. VAQ-129, the "Vikings" from NAS Whidbey Island had been training at NAFEC the week before. One of their EA-18G Growlers had experienced mechanical difficulties and had not departed with the rest of the squadron.

We were lucky to be there when it finally taxied out and departed. Even at a distance of fifty feet and with ear protection, the roar of the two F414-GE-400 turbofan engines was incredible. The rest of the afternoon was filled with departures and landings of student pilots from Training Squadron Nine, either with an instructor pilot in the rear or flying solo. Based at NAS Meridian, VT-9 flies brightly painted T-45C Goshawks. A-109 was particularly resplendent, painted in "Tigers" markings complete with angry eyes, a toothy mouth and tiger stripes on the tail. We stayed at the runway until the light failed shortly after dusk. A short pit-stop at the base exchange allowed participants to stock up on NAFEC and Blue Angels memorabilia before we were all bused back to the entrance. What a truly awesome experience!

The Aviation Magazine would like to thank Kristopher Haugh and the members of his team in the Public Affairs Office for arranging this visit, and Commanding Officer Capt. William Doster and Executive Officer Cmdr. Adam Schlismann for their hospitality in allowing this photocall to take place. It's hard to imagine a military base more welcoming and accommodating to aviation photographers.



"Gunfighter 23" AH-1W Cobra, of HMLA-369 "Gunfighters" from MCB Camp Pendleton





(2) Sikorsky AH-1Z Super Cobras of HMLA-267 "Stingers" left and right, with a Super Huey of HMLA-369 "Gunfighters," all from MCB Camp Pendleton, in the foreground.







# AIRPORT SPOTTING

Spotting at airports is a huge hobby for many. It is interesting to see the variety of aircraft arriving and departing, here are some which may not be your usual ones you see everyday at your local airport.



RAF Aerospace 146-200QC, above at MLA / LMML ©2015 Christopher Mifsud



Egyptian Air Force Casa C295 CASA930 on delivery flight from Spain, above, and Medavia Dornier Do-328 below, both at MLA / LMML ©2015 Christopher Mifsud



Vietnamese Air Force Casa C295 CASA928 on delivery flight from Spain, above, and the Niki Embraer ERJ-190LR







Libyan Air Ambulance --- Beech 200C Super King Air above, and the Armed Forces of Malta King Air B200 below, both at MLA / LMML ©2015 Christopher Mifsud



SAS Airbus A340 below, at MLA / LMML ©2015 Christopher Mifsud



Swiss Air-Ambulance Canadair CL-600-2B16 Challenger above, at MLA / LMML ©2015 Christopher Mifsud



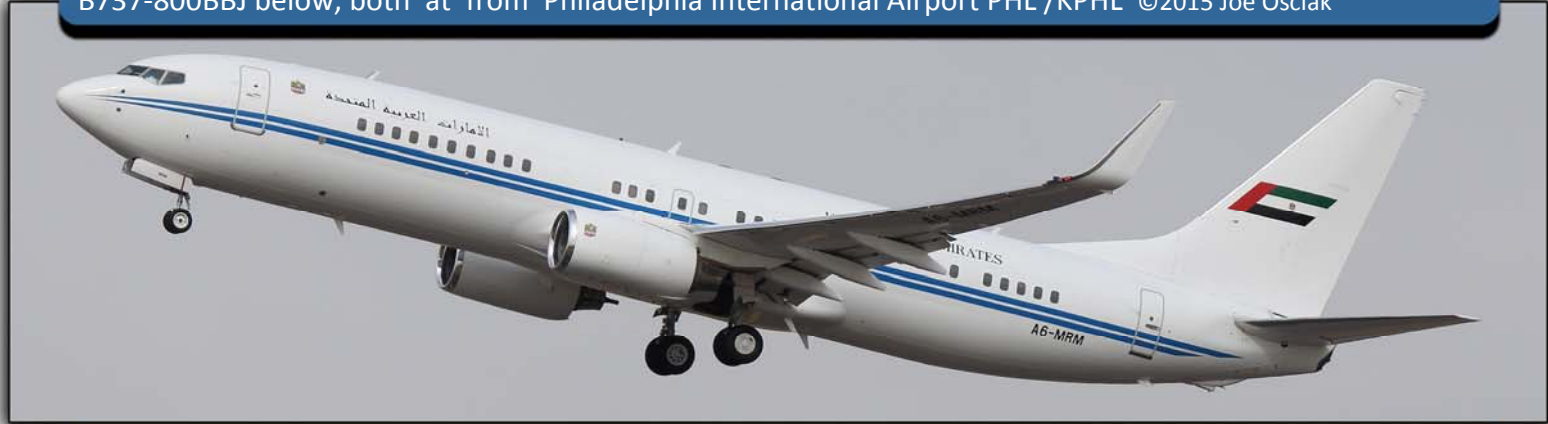
Saudi Arabian Airlines Boeing 747-481(BCF) landing above, and Thomson Airways Boeing 737 Next Gen landing below, both at MLA / LMML ©2015 Christopher Mifsud







Southwest Airlines "Maryland" Boeing 737-7H4(WL) taking off above, and United Arab Emirates Boeing B737-800BBJ below, both at from Philadelphia International Airport PHL /KPHL ©2015 Joe Osciak



Frontier Airlines Airbus A319 below, at PHL / KPHL ©2015 Joe Osciak



Qatar Airways Boeing 777-3DZ(ER) taking off above, and American Airbus A319 in Piedmont livery landing below, both at PHL/ KPHL ©2015 Joe Osciak

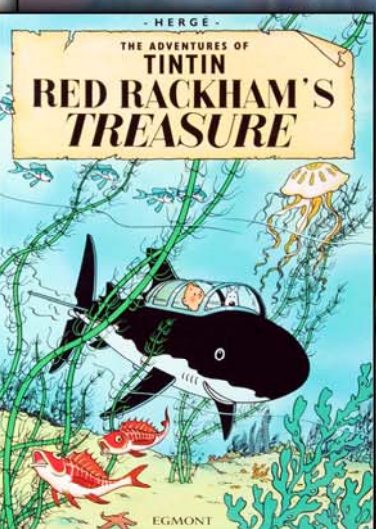


Alaska Airlines Boeing 737-800 in 75th Anniversary livery landing below at PHL/ KPHL ©2015 Joe Osciak





An A320 of Brussels Airlines with a special livery inspired by the Tintin comic book "Red Rackham's treasure" has landed on March 16, 2015 at Toulouse-Blagnac airport. The livery was unveiled at the airlines' Brussels Airport home base in Belgium. The aircraft is named "Rackham" after one of Tintin's most popular adventures. The unique livery represents a great black shark, based on the shark shaped submarine invented by popular character Professeur Tournesol in the comic. The painting was carried out by aircraft paint artist Andre Eisele in Ostrava, Czech Republic and took 1,500 man hours in total. The special livery will remain until 2019. All images ©2015 Manuel BELLELI <http://www.manuelbelleli.com/airbus/a320-tintin-00-snb/>







# Yuma Air Show

ARTICLE AND PHOTOGRAPHY BY NORMAN A. GRAF



Since its founding in 1962, Marine Corps Air Station Yuma has been opening its doors and inviting the public on board during its yearly Open House. The 53rd annual Yuma Air Show was held on the last weekend in February, 2015, and it just keeps getting better every year. The theme was “Yuma Air Circus,” but it could just as easily have been “HoverFest.” It featured full military tactical demonstrations of many of the Marine’s aircraft types capable of hovering flight. Rotorcraft were represented by the HH-1N Huey and MV-22 Osprey, while the fixed wing aircraft demos consisted of the venerable AV-8B Harrier II and the brand-new F-35B Lightning II. A twilight show on Friday night was added last year and it was so well received that it was expanded this year.

Unlike last year, when the Yuma Air Show conflicted with two other air shows on the same weekend and Arizona played host to shows at three different military bases, MCAS Yuma’s 2015 show stood alone, and will be the only air show at a military base in the Grand Canyon State this year. The gates for Friday night’s Twilight Show & Concert opened at 5PM. The activities started at 18:30 with the playing of the National Anthem, followed by a Flightline Fun Run. A number of acts were scheduled to perform during the course of the evening, but just after dusk a number of rescue vehicles rushed out to the runway and crews could be seen setting up an arresting cable. Unbeknownst to the spectators, an E-2C had declared an in-flight emergency and had requested an immediate landing. After a while, the Hawkeye appeared with hook extended and caught the cable in a shower of sparks. After the aircraft had been recovered and moved off the runway, an F-35B took off and put on a number of incredible afterburner passes. This demonstration would have been much more impressive to photograph at twilight, but the audience clearly enjoyed it. This display was followed by a Search and Rescue demonstration. Seeing this play out in almost complete darkness really demonstrated to the crowd how difficult real-life rescue situations can be. The remainder of the evening’s activities featured aerobatic performances by Gene Soucy, Dan Buchanan, and Steve Oliver and a spectacular night run by the Shockwave jet truck.

On Saturday morning, the gates opened at 0800, although cars had started lining up outside the main gate an hour earlier. The layout was similar to last year’s: grandstand and assigned seating at show left; corporate sponsor chalets extending to show right; concessions, vendors, a large kid’s area and many display booths set up behind them. Nevertheless there was plenty of room along the fence to set up folding chairs before going off to view the aircraft on static display. The media pit had been moved and was at show center right next to the announcer’s stand. It was a beehive of activity as Marine photographers and videographers brought in their images. Communications specialists sitting at their laptops quickly selected, captioned and uploaded video promos and photos to DVIDS and social media in near real-time. The USMC Drum & Bugle Corps got the show started with a half hour of patriotic music.





Col. Ricardo Martinez, Base Commander

High above, the Misty Blues, the world's only all woman skydiving team, exited their jump plane and began to descend. With impeccable timing Amanda Schefler, the team leader, trailing an enormous US flag, touched down just as "The Commandant's Own" concluded the National Anthem. Col. Ricardo Martinez, the commanding officer of MCAS Yuma, officially opened the show by welcoming everyone on board. He and Sgt. Maj. Delvin Smythe then honored Chief Warrant Officer 3 John Hermann for his exemplary combat service by passing to him a baton which the Misty Blues had just flown in. (Hermann received the Silver Star and Purple Heart for his heroic actions in Afghanistan.)

Steve Oliver started off the day's flying by putting on a very nice aerobatic demonstration in his de Havilland Chipmunk. He had been entertaining the crowds during the morning with his exceptional skywriting skills. The Search and Rescue unit from the Headquarters and Headquarters Squadron operates the last remaining HH-1N Hueys in the Marine's inventory, so it was a real

treat to see them repeating their SAR demo in the light of day. Capt. Patrick DeGraff and co-pilot Capt. Chris Fouts quickly brought their chopper to a hover over the bright red smoke signal being held aloft by a downed pilot. Navy Corpsman Alexander Camacho quickly exited the aircraft and rappelled to the ground as Crew Chief Lance Corporal Chad Kennett kept watch. The Huey then flew off, with HN Camacho and the downed airman suspended at the end of the cable, waving to the delighted spectators. Gene Soucy provided an aerobatic interlude in his Showcat biplane before the next military demonstration. Maj. John "Buster" Bailey led a flight of four F-5N Tiger II aircraft from the Marine Aggressor Squadron VMFT-401. Joining him in the finger-four formation flyover were Maj. Jason "Vandal" Garrison, Maj. Beau "TB" Wisdom and Maj. Andrew "Grill" D'Ambrogio. The "Snipers" are the only Marine Adversary squadron, and I'm sure it was no coincidence that each aircraft featured a different Aggressor paint scheme. With the retirement of the CH-46 Sea Knight helicopter last year, the MV-22 has now assumed all of the Marine's medium-lift capabilities. This year's Osprey demonstration was performed by Capt. Jason Treece (pilot), 1st Lt. Nick Possenti (co-pilot) and Cpl Alexander Morales (crew chief) of Marine Medium Tiltrotor Squadron 166 (VMM-166) "SeaElk" from MCAS Miramar.

If you've seen a helicopter performing backflips and barrel rolls in the US then Chuck Aaron was at the controls. "Malibu" is the first (and only) civilian pilot licensed to perform the type of helicopter aerobatics for which he has become famous. "I want to get young kids excited about aviation," said Aaron. "I want people to get energized about aviation." He definitely succeeded with the high-energy performance he put on at Yuma this year. The increasingly strong and gusty winds unfortunately kept Dan Buchanan grounded for the second year in a row. Luckily the conditions were not adverse enough to keep Gene Soucy and Teresa Stokes from completing their wingwalking routine. Nor were the crosswinds sufficiently strong to keep Chris Darnell from racing down the runway in the Shockwave jet truck.



Chris Darnell in the Shockwave jet truck



Four F-5N Tiger II aircraft from the Marine Aggressor Squadron VMFT-401, the "Snipers" are the only Marine Adversary squadron.

One of the Misty Blues, all woman skydiving team, left bottom.







Major Aric “Walleye” Liberman in the F-35B, Marine Fighter Attack Squadron 121 (VMFA-121) “Green Knights” performed a full Lightning II tactical demo, top and middle.

The MV-22 Osprey demonstration was performed by Capt. Jason Treece (pilot), 1st Lt. Nick Possenti (co-pilot) and Cpl Alexander Morales (crew chief) of Marine Medium Tiltrotor Squadron 166 (VMM-166) “SeaElk” from MCAS Miramar, bottom.

The next act was the AV-8B Harrier II tactical demo, put on by MCAS Yuma’s own VMA-214 “Blacksheep” with Maj. Luke Esposito at the controls. “Espo” opened with a rolling takeoff followed by a very high-speed pass before slowing the aircraft down, putting it into a hover, and using the vectored thrust from the engine and thrusters in the nose, tail and wingtips to control the aircraft. After dancing on a column of air Maj. Esposito slowly lowered the aircraft in a vertical landing. A brief cooling-down period was followed by a high-power vertical departure. Trails of sooty exhaust, created when cooling water is injected into the engine, marked the aircraft’s steep climbing trajectory.

Closing the show was the marquee performer and latest addition to the Marine’s STOVL (Short Take-Off, Vertical Landing) jet inventory, the F-35B. Marine Fighter Attack Squadron 121 (VMFA-121) is the first operational F-35 unit and the “Green Knights” were proud to perform the full Lightning II tactical demo. Major Aric Liberman swiftly taxied out to the runway and launched with a loud short rolling takeoff. “Walleye” made several high-speed passes with afterburner, his loud high-g maneuvers managing to coax vapor out of the dry desert sky. He returned in a loud, slow pass with a multitude of doors open ready to land. Did I mention that this aircraft is loud? Roughly half of the vertical thrust necessary for hovering flight is provided by the LiftFan located directly behind the cockpit. The remainder is provided by the 3-Bearing Swivel Module at the rear of the aircraft. This nozzle directs heated thrust from the engine exhaust and can swivel 95 degrees, allowing the aircraft to back up, albeit loudly. As if all of the open doors required by hovering flight didn’t already paint an ungainly and wholly un-stealthy look to this fighter, Maj. Liberman proceeded to open the weapons bay doors. It’s probably the first time airshow spectators have been treated to this view. Unfortunately, the winds exceeded the limits that had been placed on a safe display of a vertical landing, so Maj. Liberman went around for a conventional landing. It will be a while before the F-35 becomes a regular feature on the airshow circuit. Until that time MCAS Yuma will be one of the few places you can watch this demonstration. Just remember to bring your ear protection!

Rob Reider was terrific as announcer and Air Boss Mike Dalton did a great job of keeping the action flowing smoothly as acts were shuffled on account of the winds. Kudos to Maj. John Gibson, the operations officer for MCAS Yuma and organizer of the show, for arranging such a stellar lineup. And thanks to all the sponsors, volunteers and Marines on board MCAS Yuma for making the show such a success.

The Aviation Magazine would like to thank the staff of the MCAS Yuma Public Affairs Office for all of their support during our visit, in particular Capt. Jose Negrete and PFC Casey Scarpulla, as well as Capt. Melanie Salinas, Director, Public Affairs, 3rd Marine Aircraft Wing, MCAS Miramar.







- B-52H Stratofortress landing, top left.
- (2) F-5N Tiger II landing, VMFT-401 "Snipers", MCAS Yuma, bottom left.
- AV-8B Harrier II Tactical Demo, VMA-214 "Blacksheep", MCAS Yuma, top right.
- Static included: the MV-22 Osprey, VMM-166 "SeaElk", MCAS Miramar, UH-1Y Huey/Venom, and AH-1Z Super Cobra/Viper, HMLA-369 "Gunfighters", MCB Camp Pendleton, right bottom.







# F-35B PILOT INTERVIEW

INTERVIEW AND PHOTOGRAPHY BY NORMAN A. GRAF

**L**ockheed Martin's Joint Strike Fighter is being developed as a multipurpose, fifth-generation fighter and attack aircraft with models customized to meet the needs of the U.S. Air Force, Navy and Marine Corps. The F-35B incorporates Short Take-Off and Vertical-Landing (STOVL) technology and will be replacing the AV-8B Harrier II and F/A-18 Hornets currently in use by the Marine Corps. Although it might seem that the complicated engineering necessary to fulfill the STOVL requirements would mean this model would be the last to become operational, the Marines are leading the way towards Initial Operational Capability (IOC) for the Lightning II.

According to a 2013 report to Congressional defense committees: "Marine Corps F-35B IOC shall be declared when the first operational squadron is equipped with 10-16 aircraft, and US Marines are trained, manned, and equipped to conduct CAS [Close Air Support], Offensive and Defensive Counter Air, Air Interdiction, Assault Support Escort, and Armed Reconnaissance in concert with Marine Air Ground Task Force resources and capabilities. Based on the current F-35 JPO [Joint Program Office] schedule, the F-35B will reach the IOC milestone between July 2015 (Objective) and December 2015 (Threshold)."

Fighter Attack Squadron 121 (VMFA-121) was the first operational F-35 squadron and is well on its way towards fulfilling the IOC requirements on schedule. We spoke with Major Michael "Puffy" Wyrsh during the Yuma Air Show to learn more about the Lightning II program at MCAS Yuma. Right now the only pilots in the Marine Corps that are flying the F-35 are former Harrier or former Hornet pilots. Maj Wyrsh started out his Marine career as an artillery officer, has flown the Harrier for five years, and completed a year long stint with the C-130 Harvest Hawk program. So he's had a pretty decent exposure to the Marine Corps. The process for selecting the transition pilots involved not just looking at flight qualifications but also considered whether candidates were up to the challenge of taking an aircraft which is in its infancy and developing it to the point where it's operational. "I was a little worried at first because the F-35 is very different from the Harrier, especially when it comes to the STOVL environment. But it's a very easy plane to fly. It's fly-by-wire and extremely easy to fly. It was literally 10 sims (flights in a simulator) at Eglin for us (since moved to MCAS Beauford). So ten hours as a transition guy then you start flying the aircraft. This year we'll be having our first few pilots coming through from Prowler transitions. In 2016 we expect to have "Cat 1's" ("Category One" replacement aircrew who enter the squadron straight from flight school) folks coming over when we are forward deployed and when we bring up our next squadron, VMFA-211."







The Harrier and Hornet are both extremely capable combat platforms, but put a lot of responsibility on the pilot to correlate information coming from multiple systems. With the F-35 everything is integrated: the buzzword is fusion. For instance, there isn't a standalone radar that does what it does by itself and has to be monitored by the pilot. All the systems that make up the F-35 talk to each other and they say "what are you seeing, this is what I'm seeing." They provide an outstanding picture for the pilot to develop his situational awareness that's unparalleled anywhere else. For instance, the aircraft no longer has a Head-Up Display, or HUD: all of the information is presented to the pilot as a virtual reality projection inside the visor of his helmet. In fact, when looking down, the pilot sees not the floor of the plane, but a depiction of the battlefield below.

"It's an outstanding aircraft, it brings a lot of capabilities to the fight, lots of things that a Harrier pilot can't even imagine. As a pilot it's very easy to use and it's incredible the capabilities it brings to the battlefield. The Harrier was a lot of fun to fly, but it's very difficult to fly. The F-35 is easy to fly and it allows you more time to focus on the [warfighting] tasks. The F-35 is a digital fly-by-wire, and we [pilots] are a voting authority in the process of doing vertical landings or vertical or short take-offs. If you push the power forward and the aircraft doesn't want to go forward we know when to put a control input in and it does the rest for us. This keeps us out of dangerous situations, whether it's a lateral limit, or a weight limit. In the Harrier it's all stick and throttle, you can get on the back side of the power curve very quickly, which is why we have a two-seat trainer version of the Harrier. With the F-35, the way the control laws are built, and the way that the software is developed, it's extremely easy to actually become qualified to be a STOVL pilot in the F-35."

In addition to developing pilot skills, there are hardware and maintenance standards that must also be met for the IOC milestone. One of these is reducing the Interoperating Service (IOS), which is the time it takes to complete routine maintenance between the end of one flight and the takeoff of the next. VMFA-121 is the only organic F-35 maintenance department in the Department of Defense and is learning as it goes.

"We're really making strides and our Marines are developing ways that are setting the tone for how the F-35 will be employed, maintained and ultimately brought to combat in the Marine Corps and DOD. We talk about it all the time at the leadership level that the ones that make the difference are the Marines that are 19 or 20 years old. They're out on the flightline using wrenches in ways that turn around the aircraft faster. We fly a flight, we come back and talk about the things that we've seen and we're pressing on. We're taking input from operational and developmental tests. A lot of folks are very excited to make this aircraft deployable." By streamlining procedures, ground crews were able to reduce IOS by over two hours within the first few months of 2014. The "Green Knights" are well on their way towards meeting an early IOC timeline.

"It's exciting, we enjoy it. Every workday of the year we are flying our aircraft, we are flying over Yuma. The people that live in Yuma or that come down, whether they are year-round or winter visitors, they see us flying and it's great for us to bring the aircraft out here and show them "up close" what the aircraft looks like and answer their questions, show them the demonstration, and show them what the F-35 is capable of because this'll be here for the next 30 years in Yuma. But more importantly, we're excited about bringing this aircraft to the Marines on the ground."

The Aviation Magazine would like to sincerely thank Major Wyrsh for taking the time to grant us an interview during the air show. We would also like to thank the staff of the MCAS Yuma Public Affairs Office for all of their support during our visit, in particular Capt. Jose Negrete and PFC Casey Scarpulla, as well as Capt. Melanie Salinas, Director, Public Affairs, 3rd Marine Aircraft Wing, MCAS Miramar.







F-35B

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# SAR TRAINING EXERCISE BY THE ARMED FORCES OF MALTA

ARTICLE AND PHOTOGRAPHY BY CHRISTOPHER MIFSUD



## SAR helicopter AW139, Air Wing, AFM, Malta, Friday, 13th March 2015

Fort Campbell, Selmun, Malta: The last major British fortress built in the north of Malta and standing on a headland 300ft above sea level. On one side lies the island of St. Paul, last inhabited during World War 2, and cited in the Acts of the Apostles as being St. Paul's shipwreck site, wherefrom he was miraculously saved from the savage Mediterranean Sea whilst en route to Rome in 60 AD.

Almost two millennia have passed, and saving of human lives remains in the forefront of the Maltese Islands' role as its geographical position straddles the central Mediterranean sealanes. The Armed Forces of Malta (AFM) today boast of having state of the art equipment with which they assist persons in distress out at sea. The current day inventory of the AFM Air Wing includes two dedicated surveillance Hawker Beechcraft B200 King Airs and two AgustaWestland AW139 SAR/Medevac capable helicopters.

Each of the AW139's aircrew is expected to have at least 600 hours of all-weather SAR/Medevac training under their belt before one could even be considered to attempt to carry out a 'live' rescue. Rescue missions vary from an offshore ship-to-shore medevac airlift, to swimmers or boatsmen in distress just off the Maltese coast. In keeping with a rigorous and professional rescue service, the capability of both the AW139's crews can be seen performing tight figure-eight manoeuvres and bringing the helicopter to a complete hover over parts of the Fort. Come rain or shine, rescuers, are lowered down into position and winched back up onboard, repeating the drill over and over for at least two whole hours during each training session.





With a maximum takeoff weight of almost 7 tonnes, the Italian designed and built AW139 is more than capable of handling almost any conditions thrown at it, and it can operate over any kind of terrain. It has an endurance of four hours, and the helicopter can go higher than any other machine of its kind in its class (relying on less oxygen levels in the atmosphere as it ascends). The AW139's design gives it a clutterless cabin, free of any machinery. Hence, its gearbox is located over the cabin rather than inside it. It has a dual power plant and can fly efficiently and safely on just one of its two P&W turbo-shaft engines. A specially designed gearbox ensures that the AW139 can go on flying for at least thirty minutes, even in the event that a critical oil leakage occurs.







Ronnie, a life size training dummy being hoisted up to the AgustaWestland 319 helicopter during the SAR exercise.

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# HGL-KURS 2015

REPORT AND PHOTOGRAPHY BY WOLFGANG JARISCH

# IN AIGEN, ENNS VALLEY



Between the last week of February and the first week of March 2015 was quite busy at the Austrian Air Force helicopter base Fiala-Fernbrugg (located in the beautiful mountainous part of Northern Styria, Enns Valley). The so called HGL exercise (HGL stands for lofty mountains landing exercise). This very special exercise, which is very popular among Austrian but also German helicopter crews, provided the rather sleepy town of AIGEN a busy atmosphere. The air base Aigen in the Enns Valley is home of two squadrons equipped with Alouette III of the MzHSStaffel (multipurpose helicopter squadron). The MzHSStaffel in turn is part of the air support coordinated by the Fliegerhorst (Air base) Vogler in Hoersching. The maintenance of the Alouette III is carried out on this base as well.

The geographical location of the airbase Aigen with its proximity to the mountains makes this place an ideal starting point for such a exercise. Since the German helicopter training grounds do not offer similar conditions, this exercise is a key component in the training program of the German Army Aviation as well.

Every year one exercise is held in winter, another one in summertime. The aim is to make the pilots familiar with the specificities of mountain flying to identify suitable landing sites and ultimately landing themselves always safely (and to be able to abort the landing whenever it is necessary). Even night flying is part of this training program. Flying in extremely high alpine conditions is definitely a special challenge for all helicopter crews. In the summer the crews are challenged by the thermals on the steep mountain slopes, in winter there are avalanches and snow drifts on to pay special attention to. Another big issue is the loose snow, which kicks up when landing, this is called "whiteout" by the pilots. The danger with this whiteouts is, that the pilot suddenly loses any reference to the landing area. Additional factors, such as lack of oxygen in high altitude and the psychological burden of flying close to the steep slopes and over the abyss makes this kind of flying very special. Therefore, it requires a minimum of 200 flying hours in the logbook, before a pilot is allowed to participate in this exercise. To be certified for high altitude landing the helicopter pilot must have attended at least one summer as well as one winter exercise.

This year's exercise was held under difficult weather conditions. Only two days out of the two weeks favored perfect flying conditions. Very limited flying

was possible on the remaining days. The exercise includes lots of theory (around 40 hours in total) but when taking everything into consideration the participants were able to fulfill their tasks successfully.

Due to the good relationship with the Austrian Air Force, "The Aviation Magazine" received an invitation to cover this exercise. We took off with one of the Sikorsky SH-70 Blackhawks early in the afternoon from Aigen heading directly to the Grossglockner, which is Austria's highest mountain (3798 m above sea level). We circled around this fantastic mountain for several times - perfect landing spot we saw some other participants every now and then just to disappear immediately behind the massive

peaks and steep slopes. The two flight engineers play a significant part in the landings, as they have to watch the surroundings of the landing site left and right from the helicopter. It is their thumbs up which allows the pilot a safe landing. The pilot needs a good portion of sensitivity to land a 5.3 ton heavy helicopter in the snowy mountains. After several landings and all together 2.5 hours of flying time we landed safely back on the air base. With the beauty of the Alps, the Grossglockner glacier the Hohe Tauern National Park in our mind we really enjoyed this special day.

Our special thanks goes to the helicopter squadron, its commanding officer for the invitation and the local support. Special thanks for this great flying experience goes to the crew of the Blackhawk; Co-pilot Sergeant Major Brandhofer; Pilot Lieutenant Holzer; Flight Engineer Warrant Officer Kronawetter and flight engineer Staff Sergeant Barth.





German Eurocopter EC-135T1 (HfIlgAusbZ "B" from Bückeburg), above Austrian Bell OH-58B "Kiowa" (from Langenlebarn) below.



Austrian Sikorsky S-70A-42 "Blackhawk" (from Langenlebarn) above Austrian Sud-Aviation Alouette III (based in Aigen im Ennstal) below.







The magnificent view from the Blackhawk and the view of the cockpit



The Aigen Air Base above and below, on the landing pad some of the helicopters from the exercise



The German MBB Bo 105 P1A1M helicopter



L to R: Flight engineer Warrant Officer III Barth; Copilot Warrant Officer I Brandhofer; Pilot Second Lieutenant Holzer; Flight Engineer Warrant Officer II Kronawetter





# MCAS BEAUFORT AIR SHOW

REPORT AND PHOTOGRAPHY BY CLIFFORD MARTIN







**W**hen you attend an air show at a military base with the nickname of FighterTown East, there is a high expectation that you will get to see some of the military's fighter aircraft strut their stuff. The MCAS Beaufort Air Show 2015 didn't disappoint. Aircraft and rotorcraft from the US Marine Corps, US Navy, and US Air Force all performed demonstrations during the air show.

MCAS Beaufort is one of two Centers of Excellence for the Marine Corps F-35B program. The other one being located at MCAS Yuma. Marine Fighter Attack Training Squadron 501 (VMFAT-501), known as the Warlords, is based at MCAS Beaufort and has the mission to conduct effective training and operations in the F-35B in coordination with joint and coalition partners. Currently the squadron has members from the USMC and from Great Britain's Royal Air Force.

The MCAS Beaufort Air Show 2015 used the event as a sort of "Coming Out" party for the East Coast public to meet and view the newest fifth generation fighter, the F-35B Lightning II. The F-35B flew three times each day, once as part of the Marine Legacy Flight, once as part of the MAGTF demo and the third as a solo demo of the planes capabilities. There was also an F-35B on static display for public view.

The air show was long by North American standards. Flying started each day shortly before 11 a.m., with a pre-show teaser and continued through the Blue Angels performance which completed approximately 4:30 p.m. The pre-show started off with the Parris Island Marine Band entertaining the audience. Civilian aerobatic pilots Michael Goulian, Rob Holland, and Patty Wagstaff was next in the pre-show with a formation flyby, that highlighted the fact that all either have new paint schemes, sponsors, or airplanes for the 2015 season. Michael Goulian's lead sponsor for 2015 is Whelen Electronics and the red/silver paint scheme highlights that. Rob Holland is once again sponsored by Window World and his plane has a new wrap showcasing his sponsor's name. Patty Wagstaff is flying an Extra 330LX this season, which is different than the plane she has flown in prior years. According to Patty, the plane she used at MCAS Beaufort was leased from a friend but after April she will be flying a 330LX demonstrator from Southeast Aero. Michael Goulian and Rob Holland did an aerobatic performance together as part of the pre-show, followed by Patty Wagstaff also doing an aerobatic teaser. All three performers would come back later during the main show and each perform their full solo routines.

The official show opening involved members of the U.S. Special Operations Command (USSOCOM) Parachute Team jumping from a Marine MV-22 Osprey. One parachute jumper carried a supersized, 1500 sq. ft. American Flag. While the jumper with the American Flag came down, the national anthem was song by Candice Glover. Candice Glover was the winner of season 12 of the American Idol TV show and she is a native of Beaufort, S.C.



Following the national anthem, the Marine Legacy Flight made a single banana pass in front of the spectators. The formation consisted of an F-35B in the lead with an AV-8B Harrier on right wing and an F/A-18D on the right wing. All three fighter aircraft were from units based at MCAS Beaufort.

The F-35B Lightning II came back around and did a solo presentation. The presentation demonstrated the STOVL capabilities of the F-35B. The plane also did an extended low hover near the spectator fence. This hover gave proof to the claims that the F-35B is a very loud aircraft. It was much louder than the AV-8B Harrier that also did an extended low hover in the same location, later on in the air show. The F-35B showed almost all of the capabilities except it didn't do a full vertical landing. Nor did it do an open/close of the weapons bay doors, showing where it carries weapons internally and like we are used to seeing in the F-22 Raptor demo. Following the F-35B demo were demonstrations from the two classic warbirds. Jim Tobul did his solo routine with the Korean War Hero F-4U Corsair. The Disabled American Veterans had the B-25 bomber, Pan-chito, fly their normal demonstration. Then the F-4U Corsair and B-25 Bomber joined up and flew several formation passes. When both warbirds weren't flying, they were parked in the static display area and available to view up close.

The Marine Air Ground Task Force (MAGTF) demonstration was much anticipated. This demonstration combined forces from multiple Marine units and bases to present to the public how all these units would work together in real world battlefield scenarios. Units from MCAS New River, MCAS Beaufort and Marine Corps Base Camp Lejeune made up the Marine Expeditionary Force for the demonstration. The MAGTF scenario presented was a downed pilot located behind enemy lines and the Marine Expeditionary Force showed the recovery of the pilot using both fixed and rotary winged aircraft, along with a tactical insertion of Marines by parachute. Equipment used during the MAGTF included a KC-130J Hercules demonstrating inflight refueling of an F-35B and F/A-18. An MV-22 Osprey was used as a jump platform for the parachute forces. A CH-53E helicopter landed near the downed pilot to deploy ground forces to secure the area while an AH-1 Cobra flew close air support over the immediate area. When the area was secure, a MV-22 Osprey landed to retrieve the downed pilot and the para-commandos. All the time high cover was flown by an F-35B and two F/A-18 Hornets. The presentation included ground based pyro to simulate gun fire and bombing runs. The demonstration ended when the second F/A-18 Hornet made the last pass over the area and a wall of flames was fired off. The MAGTF presentation was followed by the solo aerobatic performers mentioned earlier for the pre-show teasers and a full parachute demonstration by the USSOCOM Para-Commandos parachute team.

The US Air Force was represented by the F-16 Viper demonstration team from Shaw AFB in Sumter, S.C. The 2015 F-16 demo pilot is Captain Craig "Rocket" Baker and he showed the crowd what we have all missed for the past couple of years while Air Combat Command dealt with budget constraints that kept the team off the air show circuit. Teaming up with a P-51 Mustang, the F-16 performed the standard Air Force Heritage flight after the F-16 solo demo.



The Geico Skytypers in their SNJ-2 thrilling the crowds

The Geico Skytypers team performed a team aerobatic routine using their SNJ-2 classic warbirds. During the weekend the Skytypers were unable to do any of their trademark aerial messaging due to thick cloud cover and low ceilings.

The second demonstration of Marine VTOL capabilities came courtesy of the AV-8B Harrier demonstration. While this was the normal Harrier demo that has been performed for a few years, it did provide a sharp contrast to the Harrier's replacement, the F-35B. The biggest difference is the Harrier is quieter than the F-35 and carries the weapons under the wing. It won't be long until the Harrier enters retirement, so take any opportunity you can to view a Harrier demo wherever you can.

It was then time for the main attraction, the United States Navy Demonstration Team, The Blue Angels. This year's Blue Angel team has close ties with MCAS Beaufort. Blue Angel #7, Captain Jeff Kuss, the team's narrator, is a Marine and was stationed at MCAS Beaufort just prior to joining the Blue Angels.



2015 F-16 demo pilot is Captain Craig "Rocket" Baker



USSOCOM Parachute Team

M. Goulian, R. Holland and P. Wagstaff

Michael Goulian and Rob Holland

O-2A Cessna

OV-10D Bronco as mosquito sprayer

C-45G Expeditor



Several other members of the Blue Angels were also stationed at MCAS Beaufort at one time in their careers. The Blue Angels performance was kicked off by the all Marine crew of the C-130T known as Fat Albert, doing a demonstration of the plane's capabilities. Fat Albert was piloted by Captain Katie Higgins, who is the first female demonstration pilot for the Blue Angels.

The Blue Angels fly some of the oldest F/A-18 airplanes in the fleet. Along with age comes increased maintenance and mechanical problems. The team experienced some of those mechanical problems during the Saturday performance. Blue Angel #2 left the diamond shortly after takeoff and quietly landed the plane. The pilot transferred to the #7 plane and quickly rejoined the diamond formation. Near the end of the demonstration, Blue Angel #3 was seen to separate from the diamond and eventually also quietly landed using the arresting wire system. It was learned later from team members that both planes experienced warning indications and as the policy is one of safety first, both planes landed. In both cases I was told faulty computer boards caused the warning indications. The reason Blue Angel #3 used the arresting wire equipment was the faulty computer board was one that had some control over the nose gear steering and the use of the arresting wire to better control the landing was the safer option.

The MCAS Beaufort Air Show had a very large ramp area for static displays. The USAF provided a B-52 bomber, a C-17 cargo jet and two F-16 Vipers for static display. The US Navy provided a P-3C Orion for public viewing. The ARMY was represented by an AH-64 Apache and UH-60 Black Hawk helicopters. The remaining active military aircraft on static display were from the Marine Corps, including AH-1 Cobra, CH-53E Super Stallion, HH-46E Sea Knight and MV-22 Osprey rotorcraft. Marine jet aircraft included a F-35B Lightning II, two F/A-18D Hornets, a AV-8B Harrier, and EA-6B Prowler. There was also a Marine KC-130J Hercules tanker on static display. Privately owned static display aircraft included a C-45G Expeditor, F-4U Corsair, B-25 Mitchell Bomber, O-2A Cessna, P-149D Focke Wulf, O-2A Cessna, and OV-10D Bronco. Also on display were various classic automobiles.

Attendance for the two public days and one rehearsal day was estimated to be 140,000 – 150,000. The base did an excellent job of efficiently moving people on and off the air show grounds. There were adequate food vendors and portable rest room facilities. A common spectator complaint was that they were all concentrated near the flight line area and not spread out throughout the grounds, including the static display area. Food prices were on the high end of prices common at air shows with bottles of water costing \$3 each, soft drinks for \$4 and a chicken finger plate going for \$9.

A lot of spectators were upset that the paid premium seating pavilions and VIP chalets were set up right in front of the Blue Angels aircraft and blocked the view for general admission, of the Blue Angels ground show. Part of this discontent was countered by the Blue Angels narrator, #7 Capt. Jeff Kuss, who left the announcer's stand and walked around in front of the general admission crowd during the performance. After the performance, the Blue Angels signed autographs in front of the general admission areas.

Over all it was a great event to attend, and we thank the PAO and all the personnel involved hosting this year's event!



- The Blue Angels demonstrating their precision (and our photographer's as well) in this mirror image of each other, although they are just flying side by side, above image.
- Blue Angels narrator, #7 Capt. Jeff Kuss, on the left.
- Blue Angels #3 used the arresting wire equipment to land safely, seen rarely at air shows.





AH-1 Cobra and the CH-53E helicopters



Air2Air refuel demo: KC-130J Hercules, F-35B and F/A-18C



AH-1Cobra & MV-22B Osprey      AV-8B Harrier      AV-8B Harrier      F-4U Corsair & B-25 J Mitchell      Marines F-35B, AV-8B & F/A-18C      USAF Heritage Flight: F-16 & P-51D

The MAGTF demo with the A CH-53E



KC-130J Hercules





by Peter Thivessen and Ralf P Walter with photography as noted

The Leeuwarden Air Base, The Netherlands, was home to Frisian Flag 2015. From April 13th to April 24th, about 55 aircraft from six nations took part in this exercise, being one of the largest exercises in Europe this year.

#### Participants:

**USA** F-15C Eagles from 159th Expeditionary Fighter Squadron, 125th FW, Florida ANG: 81-0023, 85-0155, 86-0161, 86-0162

F-15C/D Eagles from 123rd FS, 142nd FW, Oregon ANG: 80-0024, 82-0016, 84-0031, 85-0132, 85-106, 86-151

**Finland** F/A-18C Hornets from AB Kuopio, HAVLLV 31: HN-407, HN-429, HN-432, HN-440, HN-441, HN-450

**Germany** EF2000 Eurofighters from Nörvenich, Taktisches Luftwaffengeschwader (TaktLwG) 31 "Boelcke": 30-53, 30-55, 30-57, 30-64, 30-65, 30-75, 30-80, 30-94, 30-97, 31-04, 31-10,

**Poland** F-16C from AB Lask, 10 ELT 4066, 4069, 4071, 4075, 4086

**Spain** EF-18AM/BM Hornets from AB Madrid—Torejon, Ala 12: CE.15-12/12-75, C.15-34/12-50, C.15-57/12-15, C.15-60/12-18, C.15-62/12-20, C.15-66/12-24

**Netherland** F-16AM/BM from AB Volkel 312, 313 Sqn and AB Leeuwarden 322, 323 Sqn

**Support aircraft:** NATO AWACS E-3A, NAB Geilenkirchen  
Falcon 20 Cobham, Electronic warfare and jamming,  
Air to Air Refueling (AAR): GAF (German Air Force) A310 MRTT  
ITAF (Italian Air Force) KC-767A  
FAF (French Air Force) C-135 RF  
RNLAf (Royal Netherland Air Force) KDC-10

Other aircraft involved in the exercise was the RNLAf C-130, while the Finnish PC-12 was a support aircraft.

The organisation of Frisian Flag was the responsibility of the 322nd Sqn at Leeuwarden Air Base, usually it was the responsibility of the 323rd Squadron, which has moved to Eglin AFB, USA, for their transition to the F-35.

Mission sorties were flown twice a day by 40 aircraft approximately. It was a valuable experience for the US ANG from Florida and Oregon, as this was their first participation in Frisian Flag. The objective of Frisian Flag is to provide realistic training of fighter pilots at planning, executing and analyzing multinational missions. The key to success is precise coordination and communication between all participants, be it in the air, on the ground or at sea. There are a wide variety of daily changing missions flown, based on experiences in recent conflicts as Iraq, Afghanistan or Libya. These missions included air defence missions, offensive missions, missions to protect other aircraft (air transport, AWACS or other aircraft that do not have self-protection equipment) and the elimination of static and dynamic targets on the ground and at sea. The pilots are even challenged with changing tactical scenarios during their mission, usually, they last 1.5 hours.



RNLAf C-130H

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Film strip images  
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F-15C of Oregon ANG

Spanish AF EF-18M

Polish AF F-16C

Finnish AF A/F-18C

GAF EF2000 Eurofighter

RNLAf F-16AM





F-15C of ANG



EU-2000 of GAF



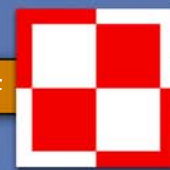
F/A-18C of FiAF







EF-18BM of SPAF



F-16Cs of PAF



PC-12 support aircraft from FIAF above, (2) F-15C from Oregon and Florida ANG, below

EF-18AM Hornet, of the SPAF, below







While the RNLAf F-16 J-066 was not part of the exercise it looked too good to miss, it is used for flight testing.



EF-18AM SPAF



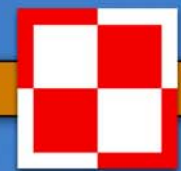
F-15C Pilot, Florida ANG



Pilot of the EF2000 GAF



F-16D of PAF



RNLAf F-16AM



F-15C from Oregon



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EF-18AM SPAF



RNLA F-16AM



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# 2015 CF-18 DEMO

ARTICLE AND PHOTOGRAPHY BY STEVE BIGG

The air show season in North America is well underway now and the Royal Canadian Air Force (RCAF) CF-18 Hornet Demonstration Team has hit the skies with another high energy “turn and burn” show. The team’s theme for 2015 commemorates the 75th anniversary of the Battle of Britain (BoB) and their CF-18 Hornet has been given a spectacular olive green and beige camouflage paint job similar to that of the aircraft flown by Canadians that fought in England’s skies in 1940. The team’s demo pilot for 2015, Captain Denis “Cheech” Beaulieu from 425 Tactical Fighter Squadron located at 3 Wing Bagotville in Quebec, is a combat veteran in the Hornet with over 1,100 flying hours, 780+ in the Hornet. He makes flying the jet to the edge of its capabilities look easy during the show. The truth is that he and the rest of his team did a great amount of work to get ready to showcase the professionalism and capabilities of the Canadian Armed Forces and the RCAF in particular on the air show circuit throughout North America during the 2015 season.





Not long after the end of a show season, the 1 Canadian Air Division's Special Events team is hard at work preparing for the next. An appropriate theme for the season, the pilot, the East and West Maintenance Teams and the team's Public Affairs Officer all have to be chosen before heading to the International Council of Air Shows annual convention in December where prospective show organizers hope to engage the team to fly at their shows. Assessments and decisions are made on which lucky shows will go onto the team's schedule. The new demo pilot works with the previous year's team pilot to create a new show routine for the season. Meanwhile the team's graphic design team, led by Mr. Jim Belliveau, work on developing a paint scheme based on the team's new theme. Once it's approved and the jet is ready, the hard and detailed work of preparing and painting the new demo jet begins. The first real public event for the team is the unveiling of the paint scheme; this year it took place on March 27th at 3 Wing in Bagotville Quebec. Designed to be engaging both in the sky and up close, the paint scheme this year includes black and white murals on each tail featuring important scenes and people related to the BoB. The first image of the painted demo jet to hit the internet quickly racked up over 100,000 views - a testament to the popularity of Jim's design.



Top Left: Colonel Sylvain "GoGo" Ménard, Wing Commander at 3 Wing in Bagotville, speaks at the demo jet paint scheme unveiling ceremony. Above: Cheech introduces the Demo Team's eastern maintenance crew. Below: CF-18 Hornet AC# 188761 is the Demo Team jet for a second year in a row with a brand new Battle of Britain commemorative paint job.







A close look at the right tail art reveals Canadian BoB Ace F/L Gordon MacGregor

and on the left the iconic face of Sir Winston Churchill.







After more practice flights and an air to air photo shoot to capture imagery for the team's posters and other printed materials to be given out at air shows, it's time to hit the road. The whole team heads west to 19 Wing Comox on Vancouver Island to complete the final work ups before hitting the air show circuit. That includes both the East and West Maintenance Crews from 3 Wing Bagotville, Quebec and 4 Wing Cold Lake, Alberta, the team co-ordinators from 1 Canadian Air Division in Winnipeg, and the team's Public Affairs Officer, also from 4 Wing. Adam "Manik" Runge, last year's Demo Team pilot, was also working with the team in Comox to offer advice and allow the team to take advantage of the lessons learned by the 2014 team. This first "road trip" to Comox is an important opportunity for the maintenance crews to get used to maintaining the Hornet without all of the benefits of working in their squadron hangars. Both the East and West Crews have just a trailer and crew truck to carry what they need to shows. Issues with the demo jet forced Cheech to use the backup jet for some of his training flights this year but the situation provided the maintenance crews with exactly the experience that the Comox trip is meant to provide.







At the same time as the Hornet team are finishing their preparations, 431 Air Demonstration Squadron, the Snowbirds, are also in Comox getting ready for the start of the season. For the two weeks that the teams are both working in Comox they each perform their show twice a day over the airfield or the waters of the neighbouring Georgia Strait. The base opens its gates to the public to allow them to watch the two "air shows" held each day as the teams nail down the details of their high, low and flat shows to be ready for possible bad weather days on the show circuit.

Having both teams practising at the same location provides the opportunity to hold a media photo flight that provides the media the opportunity to take air to air photos of the teams both individually and together. The Aviation Magazine will be publishing an upcoming special edition on demonstration teams including imagery from the flight that clearly demonstrates that the teams will, without a doubt, achieve their goals of showcasing the skill, professionalism and teamwork inherent in the women and men of the Royal Canadian Air Force (RCAF) and the Canadian Armed Forces as a whole, as they head out onto the show circuit.

- Cheech pulling vapour, this phenomenon can occur when the air is humid and an aircraft reaches transonic speeds just shy of Mach 1, the speed of sound, left.
- The demo jet taxis in the pouring rain to parking beside the Snowbirds at CFB Comox, below.





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