

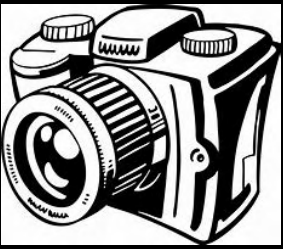


Views of Nature
Images of Nature - Instruction - Workshops
Nadine and Bob Dean

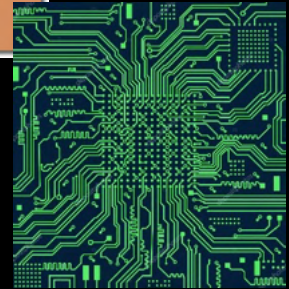
Airshow Photography

A photographer's survival guide to airshows





A little about us.



- High tech/therapist backgrounds.
- Photography/Travel was a way of de-compressing
- Turned p/t pro in the nineties
- Do it more since we retired from our “real” jobs in 2010
- “Focus” on nature, wildlife and travel photography
- We have a passion for airshows
- We do programs, classes and workshops.
- Written a series of eBooks

With a history flair

<https://www.viewsofnaturephoto.com/>

A little shameless marketing


Rocky Mountain Conservancy

(previously the Rocky Mountain Nature Association)
has continued to present classes through their Field
Institute.

It had suspended operations due to COVID

Website: <https://rmconservancy.org/learn-with-us/>

Oh, by the way, I'm teaching two classes this summer
and fall, Wildflowers and Fall Color 😊



June
28/29



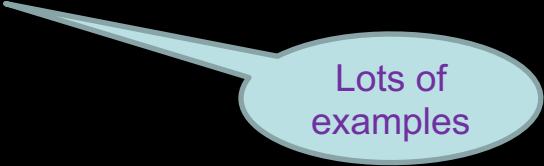
Sept
27/28

Some general thoughts about photographing airshows

- It takes practice!
- This program contains images from about 10-12 different Airshows. I've lost track 😊.
- Planning is important – these events often sell out!
- Action can be fast – need to stay “focused” on the flying aircraft.
- Be careful – airshows can be addictive.

(good training for bird photography and vice versa)

What we'll talk about

- What goes on at airshows
 - Locating airshows
 - Safety and Precautions
 - Equipment and Techniques
 - Logistics – how to make the experience really fun
 - Types of images!
 - Post Processing
- 
- Questions anytime (or at the end)

- What goes on at airshows?
 - Lots of flying of course
 - Static displays
 - Information booths
 - Food
 - Don't expect gourmet.
 - The lines can be long.
 - Some airshows restrict what you can bring in – like food.
 - A chance to meet the other nuts who love this activity (airshows are second only to baseball for attendance in the U.S.)



Locating airshows

<https://www.airshowcenter.com/>

(Good resource for U.S. and Canada events)

<https://www.airforce.com/thunderbirds/overview>

(USAF Thunderbirds)

<http://www.blueangels.navy.mil/>

(USN Blue Angels)



Local Air Shows

- USAF Academy graduation (invite) Thunderbirds - May
- Cheyenne Frontier Days – Wyoming ANG (sometimes) and the Thunderbirds, Wednesday of CFD (July 24th in 2024)
- Western Colorado Air Show in Grand Junction – usually in September or October - nothing planned for 2024.


August 17 and 18, 2024
Pike's Peak (Colorado Springs)
Airshow-Blue Angels



Safety

Spectator injuries/deaths from flight operations at U S Airshows are almost non-existent.

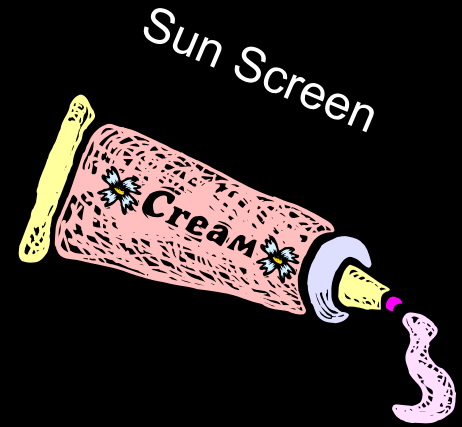
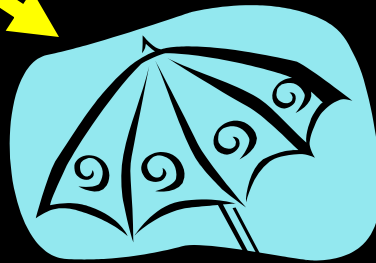
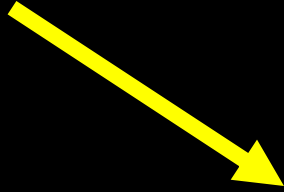
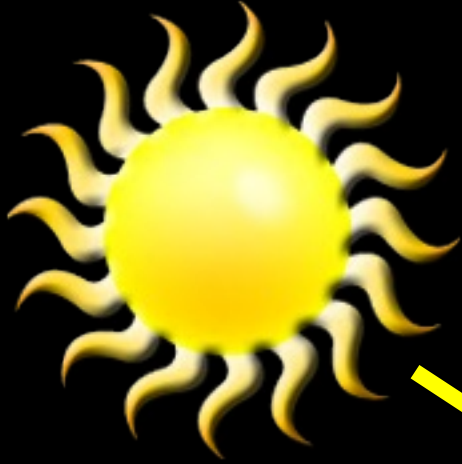
Since current rules were implemented well over 60 years ago, there has not been a single flight related spectator fatality at a North American Air Show – an enviable safety record.



Reno Air Races
are more like
NASCAR

Precautions

Although not life threatening, traffic, sunburn, tripping, noise, etc. are another matter.



Equipment for Comfort!

Water, sunscreen, hat, sunglasses, ear plugs, and comfortable shoes



Bring a light-weight folding chair that supports a sun umbrella.

Most airshow spectator areas are on a paved tarmac.



Camera Equipment



My gear for airshows

- Camera with APS-C sensor for the 1.6 crop factor with a 100-400 mm or a 150 to 600 mm lens
- Full frame camera with a 24-105 mm lens

Other “gotta haves”

A good carrying bag, I use a pretty generous fanny pack*

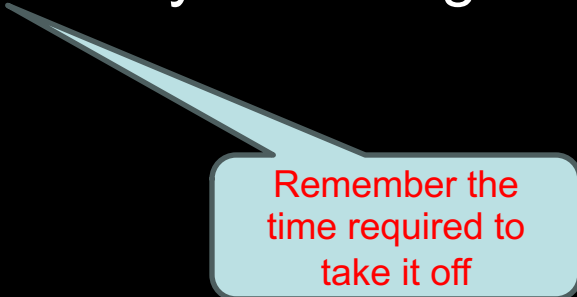
Monopod or tripod (?) I don’t use one, some people do.

* When you walk around, unless you have a “helper” you’ll need to carry all your gear.

Memory cards,
lens cleaning tools,
extra batteries

Photo Hints

- Light is usually pretty good - ISO 400 or less
- Shutter priority for flying
 - 1/1500 or 1/2000 at a minimum.
- Matrix metering
- Aperture 5.6 or 8, Required depth of field for flight shots is pretty shallow
- Consider a polarizing filter if you want great cloud shots.



Remember the
time required to
take it off

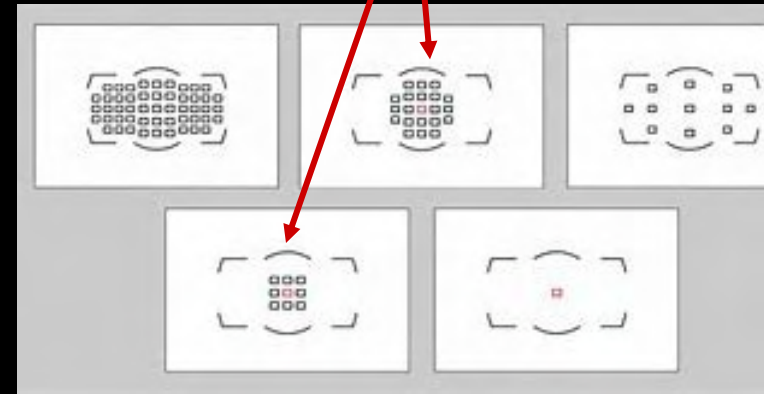
Photo Hints

- High speed continuous drive for sequences or fast action
- AF in Servo mode (Canon) – Continuous AF (Nikon and Sony)
- Practice panning before going
- Anticipation (practice schedule)
- Shoot more than the just the flying.

Photo Hints

Autofocus

Autofocus point choice



Use back button autofocus **ONLY** IF you have practiced and are comfortable.

Photo Hints - Video

DSLR camera body with your choice of lens

Tripod with fluid head

Drawbacks of video with a DSLR/Mirrorless

- Extra equipment means more weight.
- Security – lots of people means chances for theft and/or damage.

OR

Smartphone!

Composition

- Propeller blur – more on this later
- Rule of thirds
- Space in front (just like wildlife)
- Backgrounds
- People's heads!
- Photograph aircraft doing things as well as level flight.

Post Processing*

- Shooting RAW requires sharpening
 - Fast shutter speed and decent light for lower ISO reduce sharpening requirements, but....
 - Choose Unsharp Mask or Smart Sharpen
- Saturation, Clarity and Contrast can add pop to your images. (Filter - Camera Raw Filters)

* Reference for Photoshop™

Post Processing*

- Adjusting Highlights and Shadows to bring out the aircraft and clouds.
- Watch your use of color correction.
- Composition can be tricky, so cropping is a handy tool.

* Reference for Photoshop™

Post Processing*

Sky Replacement Tool

- Great when the sky at the airshow is flat and/or high overcast.
- Recommendation is to use basic blue or minimal clouds to start, then experiment.



* Reference for Photoshop™

The photographer's survival guide recommended timeline - Advance Planning

Well in advance:

- Consider advance tickets (VIP section? \$\$\$)
- See about a photographer's location

A few days before:

- Check the times and locations
- See if there will be a practice day
- Scout the airport if you can

The photographer's survival guide recommended timeline - Day of the Airshow

7:00 AM
Be at the entrance
to the parking area



Enjoy the show
←————→
9:00 to 4:00

Take advantage
of the photo ops
after the show

Final day:
- Statics go live
- Departures
- Human interest

The timeline of a typical airshow

9:00 AM
Gates Open

10:00 AM
The flying
starts

3:30 PM
Military
Demo Team

4:00 PM
Show Ends (and the
traffic begins)



Most shows are a weekend event (Saturday and Sunday identical shows)
Friday is a typical practice day and/or evening show

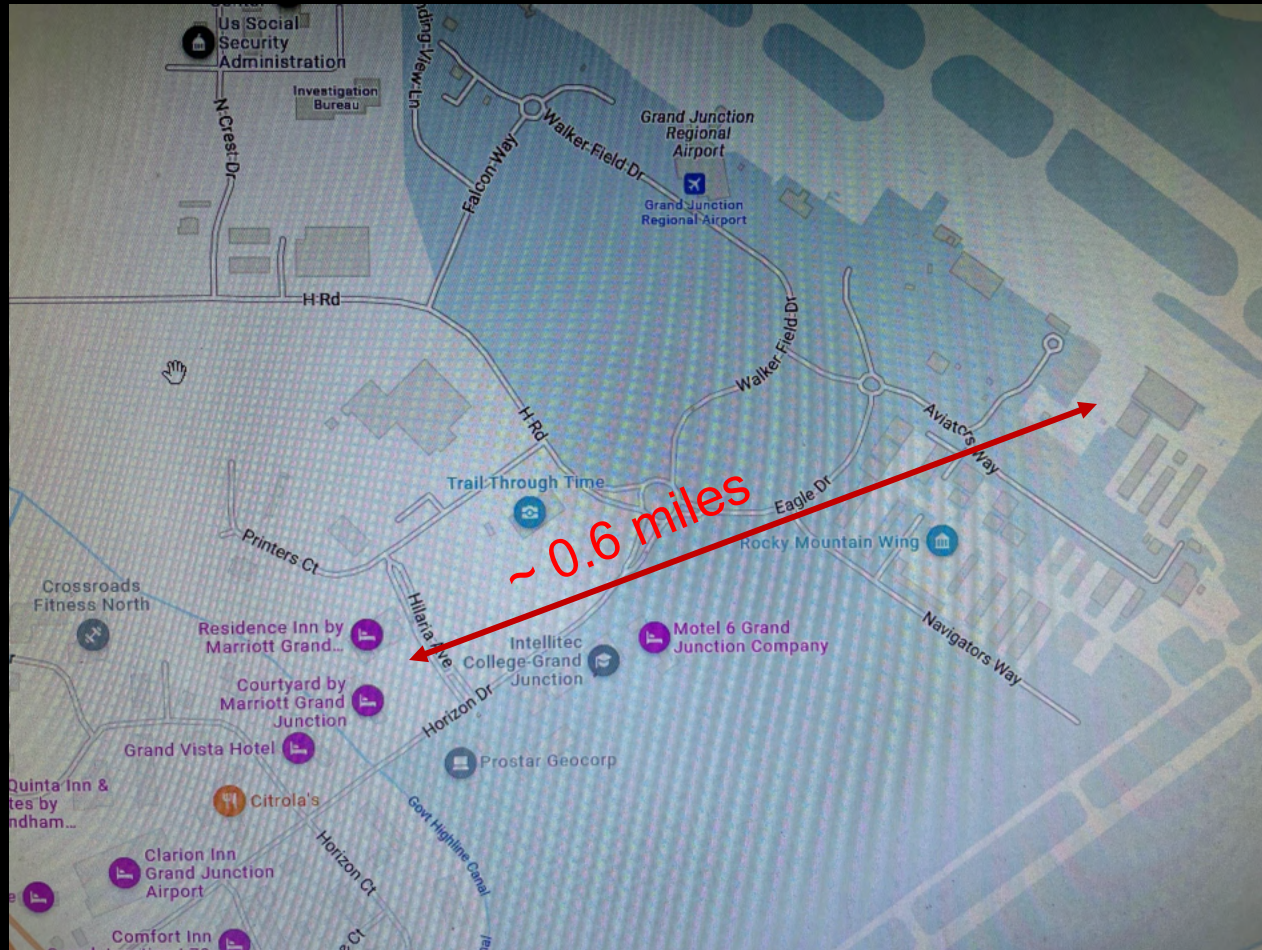
How to Avoid Traffic

Caveat: If the Airshow is being held at a regional airport.

Consider staying at a hotel located at the airport:

Check the walking distance between the hotel and the airshow entrance.

Example: Grand Junction Regional Airport



Let's jump into airshow photography

U S Army Golden Knights free fall parachute team



As technology evolves so
does the air show
performer's "equipment"



Vintage Aircraft



Stearman





Vintage Military (Warbirds)

Sea Fury





“Atmospherics” enhancing
the smoke

Shutter speed and propeller driven planes

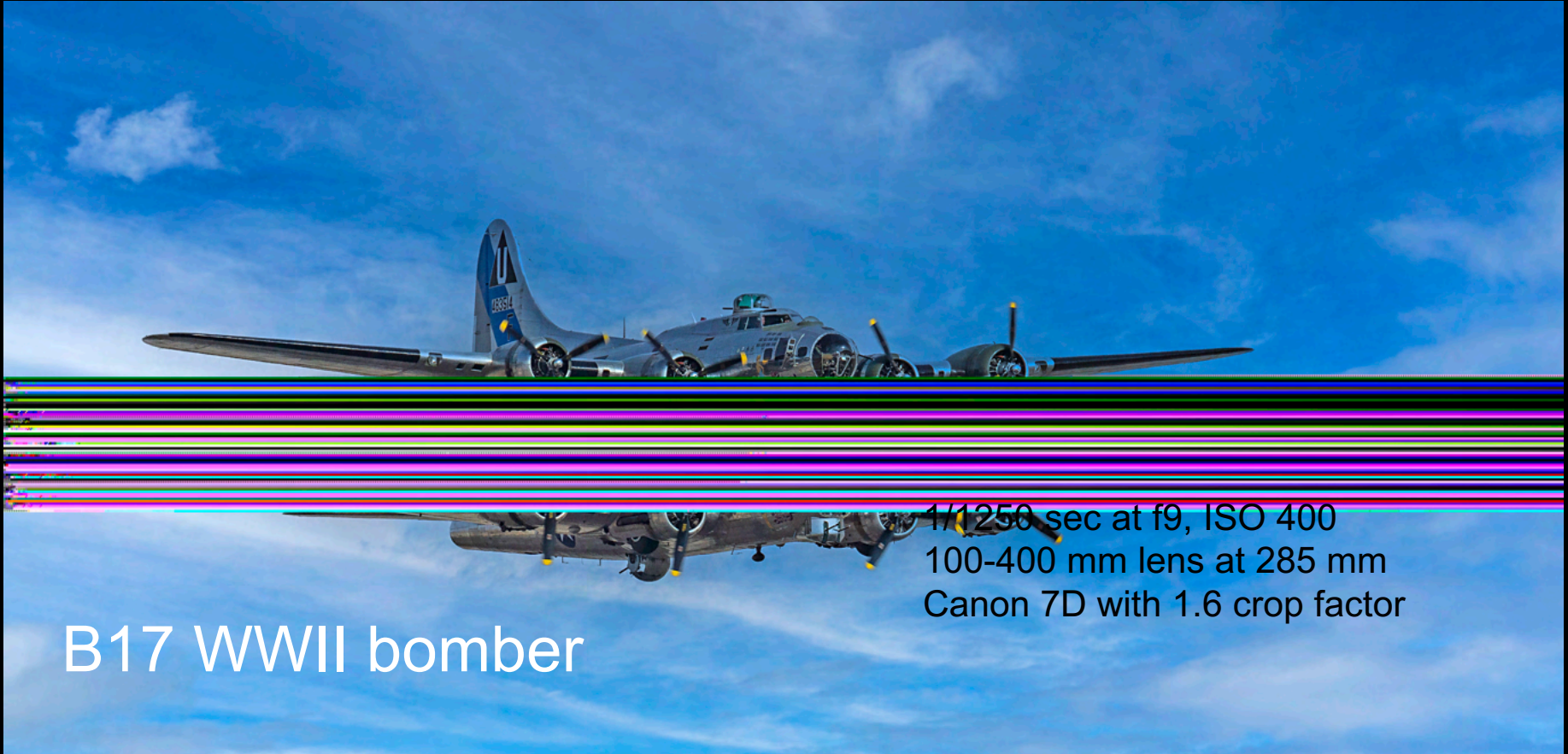
Tradeoff between fast shutter speed and propeller motion.

Freezing propellers happens when fast shutter speed is used.

My preference is to maximize sharpness with fast shutter speed and live with the “frozen” props.

If possible, I try to show a slight amount of motion vs. a fully “stopped” propeller.

Propellers ~ “frozen”



1/1250 sec at f9, ISO 400
100-400 mm lens at 285 mm
Canon 7D with 1.6 crop factor

B17 WWII bomber

Propellers start to blur



1/800 sec at f9, ISO 400
100-400 mm lens at 180 mm
Canon 7D with 1.6 crop factor

F4U Corsair



1/640 sec



Chinese Mig 17



P51 Mustang WWII and Korean War

USN *Grumman TBF* Avenger



WWII Torpedo bomber used by the Navy and Marine Corps starting in 1942

T6 "Texan" trainer aircraft for military pilots in 34 different countries.
First flew in 1937







F80/T33 1950's and 1960's



(in Thunderbird Paint but....)





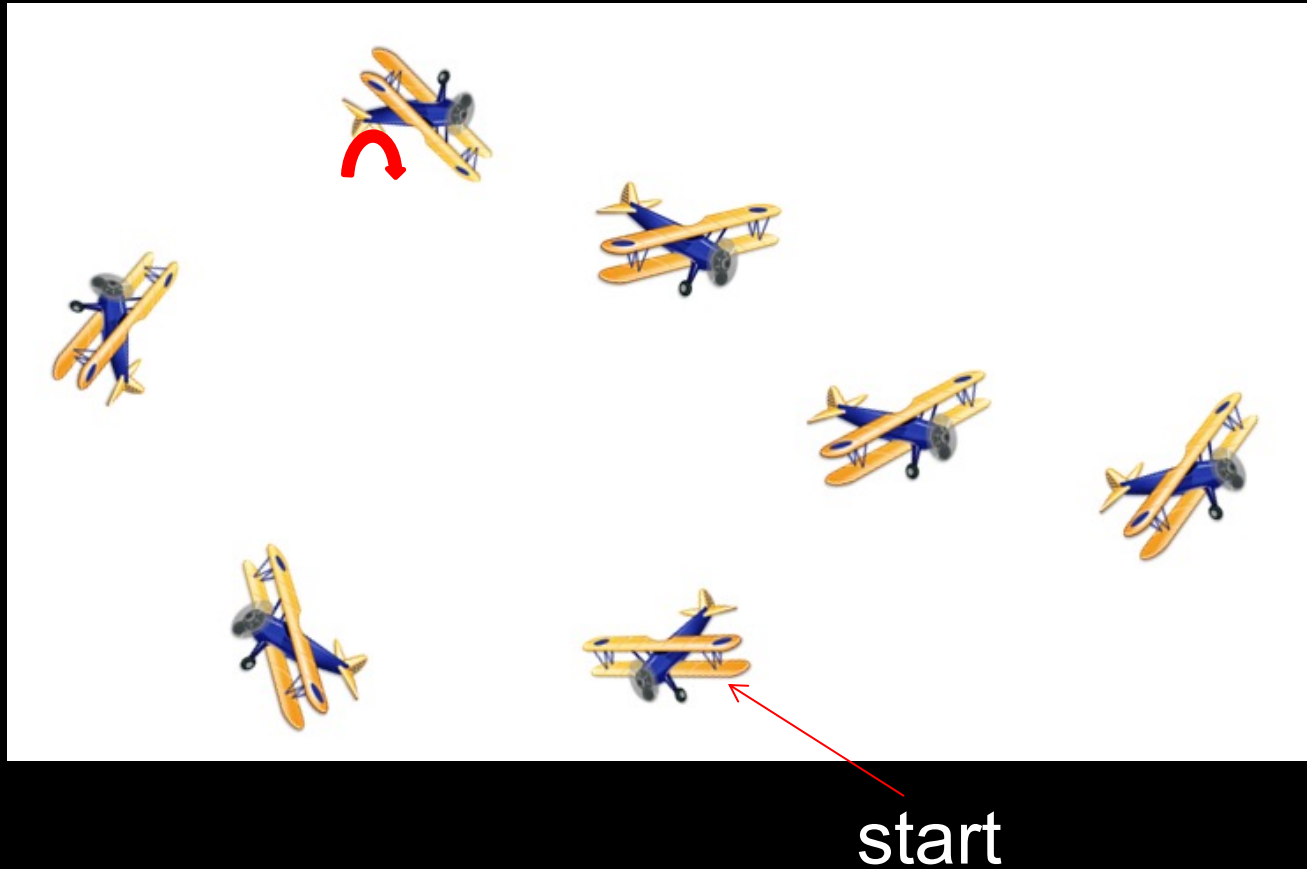


Aerobatic performers



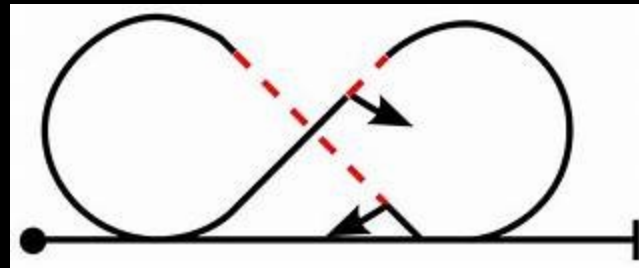


Terminology - 1/2 Cuban 8



Terminology - 1/2 Cuban 8

Full Cuban 8 would be a complete figure 8.



- In 1936 a pilot named Glen Povey first performed this maneuver.
- It was not planned – was a result of going too fast for a snap roll at the top.
- When asked about it, he shrugged and said, “just a Cuban Eight.”



Civilian aerobatic team - Rocky Mountain Renegades





Recent addition – WWII Recreations – Tora Tora Tora



Every once in a while.....

This one happened at the airshow
at DIA before the airport opened.



Better lucky than good







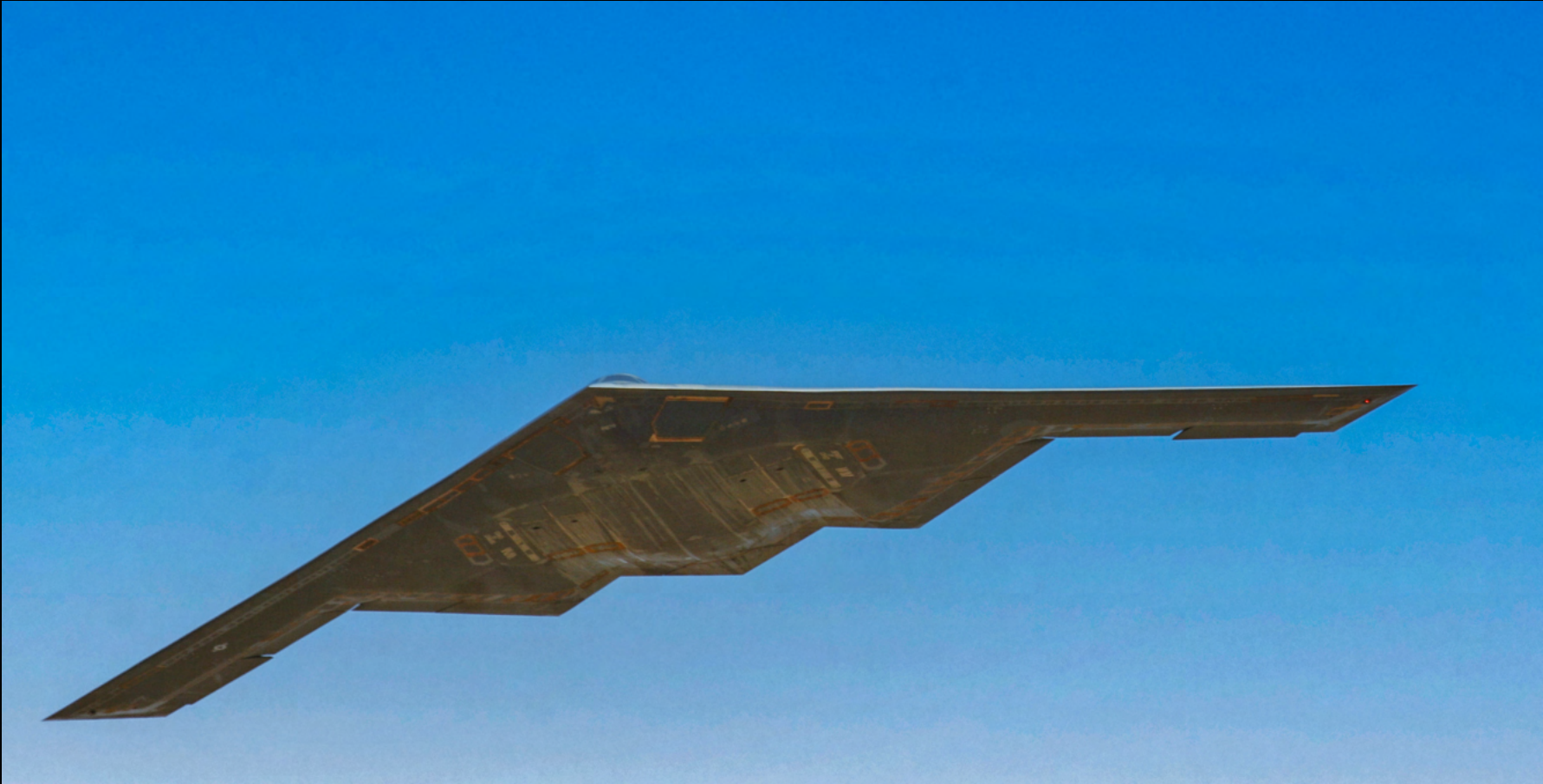
Current or recent military planes



British Aerospace AV8 Harrier VTOL



B2 Stealth Bomber



Lockheed

F/A18F Super Hornet



F/A18E and F models replaced the F14 Tomcat (remember Top Gun?) and supplement the F/A 18C and D models on board U.S. Navy carriers



RIO- Radar Intercept Officer

Pilot

Lockheed Martin/Boeing



F22 Raptor Very small radar profile \$160M per copy +/-
Arguably the best air superiority fighter in the world



Google the F22 Raptor demo files on YouTube to see this aircraft do things you didn't think a jet could do!



F35 Lightning II

**stealthy, supersonic,
multi-role fighter**



Development name was
Joint Strike Fighter.

Deployed with the Air
Force, Navy and Marines

Basic model \$182M (Air Force)
Carrier qualified \$299M (Navy)
Vertical Takeoff/Landing \$250M (Marines)





C17 Globemaster short takeoff and
landing heavy transport



V22 Osprey Tilt-Rotor
Vertical and Short
Takeoff



Military Demonstration Teams

RCAF Snowbirds
British Red Arrow
U S Navy Blue Angels
and
U S Air Force Thunderbirds



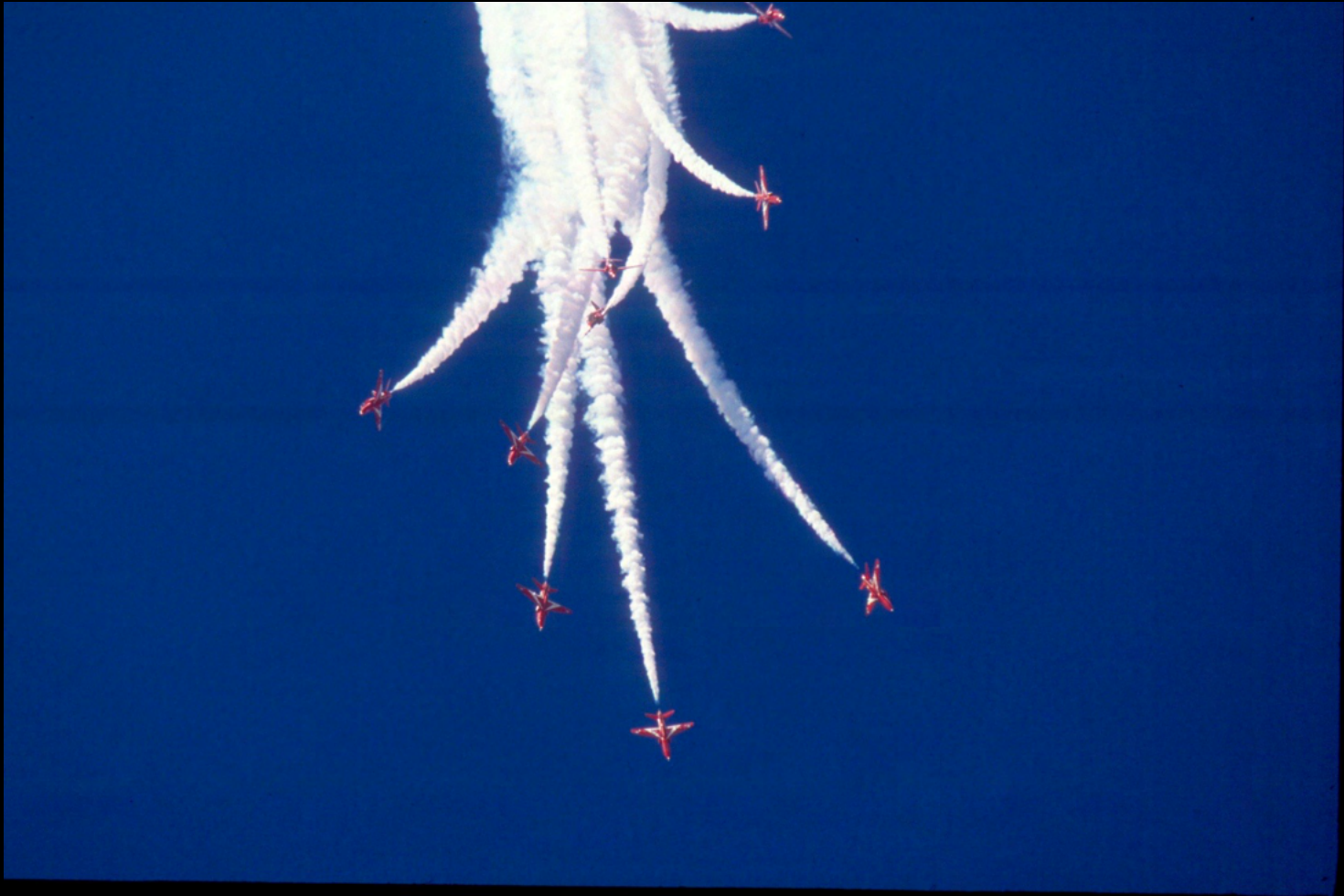
RCAF SNOWBIRDS CT114 Tutor trainer





British Royal Air Force Red Arrow Hawk T1A supersonic trainer





United States Navy's Flight Demonstration Squadron

The Blue Angels



Formed in 1946





F/A 18 E Super Hornet
Boeing

Top speed 1400 mph
Rate of climb ~45000 ft per minute
2021 cost \$67M, weapons extra





Diamond formation take off roll in Grand Junction, Colorado

Terminology

“Diamond formation”
Flight Leader – Blue Angel 1
Right Wing
Left Wing
Slot

Lead solo

Opposing solo

The smoke is produced by pumping biodegradable, paraffin-based oil directly into the exhaust nozzles



Practice day and the VIP flight



Solo pilots over the
crowd, from behind

To get a shot like this:

- Anticipation
- High speed frame rate (6-8 fps min)
- Luck!.



Followed by a Crossover in front of the crowd

Delta formation



Clouds can offer nice accents

18-inch separation



Diamond formation and “as close as it gets”



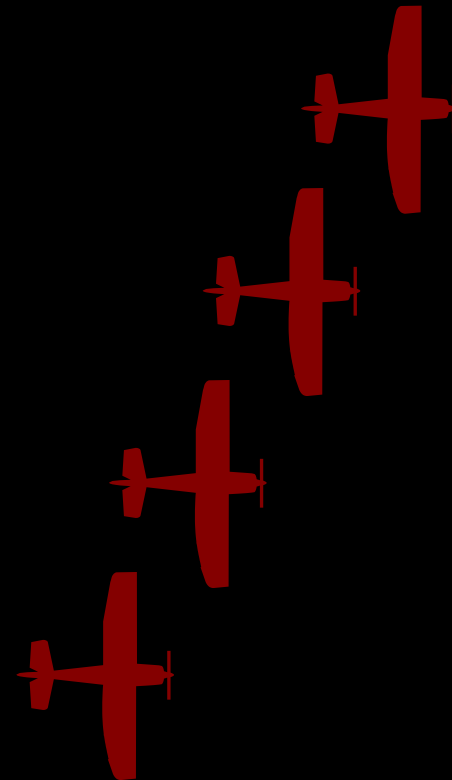


Echelon roll

Terminology - Rolls

Echelon roll

Multiple aircraft do a 360 degree roll in echelon formation





Raw power with little aerodynamic lift

Approach with separation



Pass show center with minimal separation



Opposing knife edge pass



1000 knot closure speeds means fast shutter speed, 6-8 fps ... and luck!



Star burst



Up or down!

Solo pilots and a “high alpha” pass



Use of clouds for a different look.







Profile of the Hornet during an 8-point hesitation roll

Terminology - Rolls

Hesitation or snap roll

Level flight roll maneuver (typically)

Stop at multiple angles during the roll

Typically, every 45 or 90 degrees

Aileron roll

Level or climb maneuver

Continuous roll – multiples of 360 degrees



“Fat Albert”

Marines can fly too!





Now to the best of the best*



* Opinion of a former USAF Officer

The United States Air Force Air Demonstration Unit

“The Thunderbirds”



Formed
in 1953



F16 C Fighting Falcon
Lockheed

Top speed 1500 mph
Rate of climb 50000 ft per minute
2021 cost \$32M,





Begin the performance



The solo pilots break left and right from the delta formation

Pulling streamers on a vertical climb



High Altitude Images









Atmospheric effect of some humid air on the trailing edge



Formation climb





Solo “sneaky” pass over the crowd at 500 knots

Here is where earplugs are great!





Solo pilots join the diamond

Sequences

- Shutter Priority : 1/2000
- ISO 400
- 8 fps
- Image stabilization
- Lots of luck – based on preparation!

Crossing



















Aircraft performance demo – “dirty configuration”
Landing gear, flaps and air brakes all deployed













Back to base



Static displays and fun, nonflying shots

Look for opportunities – like framing elements







Some images are brutally honest!









U.S. AIR FORCE C-130H
A.F. SERIAL NO 92-1536
SERVICE THIS AIRCRAFT WITH
GRADE JP-8 FUEL
REFERENCE T.O. 42B1-1-14



1536

153 AW







Photograph 'em when you can, they may not be around later!



Look behind you!





The End - Thanks!



Any (more)
questions or
comments?