



2025 COMACC Certification Guide



Table of Contents

Section I: Certification Guide

2025 Thunderbirds Biographies	Page 3
2025 Thunderbirds Show Schedule	Page 17
2026 Thunderbirds Show Schedule	Page 18

Section II: 2024 Maneuvers Package

Maneuvers Package FAA Memorandum	Page 19
Demonstration Sequences	Page 21
Demonstration Maneuver Diagrams	Page 23

<u>Section III: Aerobatic Container Layout</u>	Page 48
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LIEUTENANT COLONEL NATHAN C. MALAFA

Lt. Col. Nathan C. Malafa is the Commander/Leader for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. He is responsible for a 135-person squadron that plans and presents precision aerial maneuvers to exhibit the capabilities of the F-16 and the high degree of professional skill required to operate those aircraft. As Thunderbird 1, he flies the #1 jet and leads the Thunderbirds' signature flying formations to inspire communities across the world. He is in his second season with the team.

Lt. Col. Malafa commissioned in 2005 from Purdue University's Air Force Reserve Officer Training Corps as a distinguished graduate. He attended Euro-NATO Joint Jet Pilot Training and completed F-15E formal training. After serving in four fighter squadrons, he graduated in the U.S. Air Force Weapons School with honors and transitioned to F-35A Operational Test. He is a command pilot who has led combat missions in support of Operations Enduring Freedom, Inherent Resolve and Resolute Support. Prior to joining the Thunderbirds, Lt. Col. Malafa served as the Commander for the 59th Test and Evaluation Squadron, Nellis Air Force Base, Nevada.



EDUCATION

2005 Bachelor of Science, Aviation Science, Purdue University, West Lafayette, Ind.

2012 Squadron Officer School, Maxwell Air Force Base, Ala.

2012 Master of Aeronautical Science, Embry-Riddle Aeronautical University Worldwide

2014 U.S. Air Force F-15E Weapons Instructor Course, Nellis AFB, Nev.

2017 Air Command and Staff College, Maxwell AFB, Ala., by correspondence

2019 Combat Air Force 11F Fellowship, HQ Pacific Air Forces, Joint Base Pearl Harbor-Hickam, Hawaii

ASSIGNMENTS

1. June 2005–July 2006, Student, Euro-NATO Joint Jet Pilot Training, Sheppard Air Force Base, Texas

2. July 2006–August 2006, Student, Introduction to Fighter Fundamentals, Sheppard AFB, Texas

3. August 2006–August 2007, Student, F-15E Formal Training Course, Seymour Johnson AFB, N.C.

4. August 2007–May 2010, Training and Weapons Officer, 335th Fighter Squadron, Seymour Johnson AFB, N.C.

5. May 2010–February 2013, F-15E Instructor Pilot, 334th Fighter Squadron, Seymour Johnson AFB, N.C.

6. February 2013–June 2014, Chief F-15E Evaluator Pilot, 492nd Fighter Squadron, Royal Air Force Lakenheath, England

7. June 2014–October 2015, Weapons and Tactics Chief, 494th Fighter Squadron, RAF Lakenheath, England

8. October 2015–August 2018, Assistant Director of Operations, 422nd Test and Evaluation Squadron, Nellis AFB, Nev.

9. August 2018–August 2019, Student, CAF 11F Fellowship, PACAF, Joint Base Pearl-Harbor-Hickam, Hawaii

10. August 2019–October 2020, Chief of Advanced Fighter/Bomber Requirements and Operations, PACAF, Joint Base Pearl Harbor-Hickam, Hawaii

11. October 2020–October 2021, Director of Operations, 59th Test and Evaluation Squadron, Nellis AFB, Nev.

12. October 2021–December 2023, Commander, 59th Test and Evaluation Squadron, Nellis AFB, Nev.

13. December 2023–present, Thunderbird 1, Commander/Leader, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

FLIGHT INFORMATION

Rating: command pilot

Flight Hours: more than 3,500, including more than 844 combat hours

Aircraft Flown: T-37, T-38A/C, F-15E, F-35A, F-16C/D

MAJOR AWARDS AND DECORATIONS

Defense Meritorious Service Medal

Meritorious Service Medal with one oak leaf cluster

Air Medal with eight oak leaf clusters

Air and Space Commendation Medal with two oak leaf clusters

Air and Space Achievement Medal

EFFECTIVE DATES OF PROMOTION

Second Lieutenant June 1, 2005

First Lieutenant June 1, 2007

Captain June 1, 2009

Major Dec. 1, 2015

Lieutenant Colonel Oct. 1, 2019

MAJOR JOSHUA H. BURRESS

Maj. Joshua H. Burress is the Left Wing pilot for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 2, he flies the #2 jet and serves as the squadron's Aircrew Flight Equipment Officer and Safety Officer. He is in his first year with the team.

Maj. Burress commissioned in 2015 from the United States Air Force Academy. He was a distinguished graduate in both Undergraduate Pilot Training and Introduction to Fighter Fundamentals at Columbus Air Force Base, Mississippi. He went on to fly the A-10C at Davis-Monthan Air Force Base, Arizona, Whiteman Air Force Base, Missouri, and Osan AB, Korea. Prior to joining the Thunderbirds, he served as a Flight Evaluator in the T-38C as the Operations Group Chief of Standardizations and Evaluations assigned to the 14th Operations Group, Columbus AFB, Mississippi.

EDUCATION

2015 Bachelor of Science, Economics, U.S. Air Force Academy, Colorado Springs, Colo.

2021 Squadron Officer School, Maxwell Air Force Base, Ala.



ASSIGNMENTS

1. July 2015–April 2016, Instructor, Demonstration Skydiving, 98th Flying Training Squadron, United States Air Force Academy, Colorado Springs, Colo.
2. April 2016–July 2017, Student, Undergraduate Pilot Training, 50th Flying Training Squadron, Columbus AFB, Miss.
3. July 2017–January 2018, Student, Introduction to Fighter Fundamentals, 49th Fighter Training Squadron, Columbus AFB, Miss.
4. January 2018–September 2018, Student, A-10C Formal Training Course, Davis-Monthan AFB, Tucson, Ariz.
5. September 2018–August 2021, Chief of Training, A-10C 4-ship Flight Lead, 303d Fighter Squadron, Whiteman AFB, Mo.
6. August 2021–August 2022, Current Operations Flight Commander, A-10C Instructor Pilot/Mission Commander, 51st Operational Support Squadron, Osan Air Base, Korea
7. August 2022–July 2024, Chief of Operations Group T-38C Standardizations and Evaluations, IFF T-38C IP/DIP/SEFE, 14th Operations Group, Columbus Air Force Base, Miss.
8. July 2024–September 2024, Student, F-16C Senior Officer Course, 314th FS, Holloman AFB, N.M.
9. September 2024–present, Thunderbird 2, Left Wing, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

FLIGHT INFORMATION

Rating: senior pilot

Flight hours: more than 1,400 including more than 100 combat hours

Aircraft flown: T-6A, T-38C, A-10C, F-16C/D

MAJOR AWARDS AND DECORATIONS

Meritorious Service Medal

Air Medal with "C" Device

Air and Space Commendation Medal with 1 Oak Leaf Cluster

Air and Space Achievement Medal

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 28, 2015

First Lieutenant May 28, 2017

Captain May 28, 2019

Major Oct 1, 2024

LIETUENANT COLONEL IAN E. LEE

Lt. Col. Ian E. Lee is the Right Wing Pilot for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 3, he flies the #3 jet and serves as the squadron's Navigation Officer. He is in his first season with the team.

Lt. Col. Lee commissioned in 2010 from the United States Air Force Academy. He completed Undergraduate Pilot Training at Vance Air Force Base, Okla. He went on to fly the F-16 at Luke Air Force Base, Ariz. and various locations. He has flown more than 2,400 hours in the F-16. Prior to joining the Thunderbirds he was a Detachment Commander for the 144th Fighter Wing, March ARB, Calif.

EDUCATION

2006 U.S. Air Force Academy Preparatory School, U.S. Air Force Academy, Colorado Springs, Colo.

2010 Bachelor of Science, Economics, U.S. Air Force Academy, Colorado Springs, Colo.

2010 Bachelor of Science, Management, U.S. Air Force Academy, Colorado Springs, Colo.

2010 Air and Space Basic Course, Maxwell AFB, Ala.

2015 Squadron Officer School, Maxwell AFB, Ala.

2019 U.S.A.F. Weapons Instructor Course, Nellis AFB, Nev.

2023 Air Command and Staff College, Maxwell AFB, Ala.



ASSIGNMENTS

1. Aug. 2010-Nov. 2012, Student, Undergraduate Pilot Training, 71st Flying Training Wing, Vance AFB, Okla.
2. Nov. 2012-Oct. 2013, F-16 Initial Qualification Training, 309th Fighter Squadron, Luke AFB, Ariz.
3. Oct. 2013-May 2015, Assistant Chief of Scheduling, 77th Fighter Squadron, Shaw AFB, S.C.
4. May 2015-July 2016, Standardization and Evaluation Liaison Officer, 77th Fighter Squadron, Shaw AFB, S.C.
5. July 2016-Aug. 2017, Advanced Programs Program Manager, 8th Fighter Wing, Kunsan AB, Republic of Korea
6. Aug. 2017-June 2018, Flight Commander, 314th Fighter Squadron, Holloman AFB, N.M.
7. June 2018-Jan. 2020, Flight Commander, 8th Fighter Squadron, Holloman AFB, N.M.
8. Jan. 2020-Jan. 2021, Chief of Weapons and Tactics, 79th Fighter Squadron, Shaw AFB, S.C.
9. Jan. 2021-Jan. 2023, Thunderbird #2, Left Wing, U.S.A.F. Air Demonstration Squadron, Nellis AFB, Nev.
10. Jan. 2023-Oct. 2023, Director of Operations, 144th Fighter Wing – Detachment 1, March ARB, Calif.
11. Oct. 2023-Present, Commander, 144th Fighter Wing – Detachment 1, March ARB, Calif.

FLIGHT INFORMATION

Rating: senior pilot

Flight hours: More than 2,400

Aircraft Flown: T-6, T-38, F-16

MAJOR AWARDS AND DECORATIONS

Meritorious Service Medal with 1 oak leaf cluster

Air Medal with "C" device with 2 oak leaf clusters

Aerial Achievement Medal with 1 oak leaf cluster

Air Force Commendation Medal with 2 oak leaf clusters

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 2010

First Lieutenant May 2012

Captain May 2014

Major Jan. 2020

Lieutenant Colonel Feb. 2024

MAJOR TYLER C. CLARK

Maj. Tyler C. Clark is the Slot Pilot for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 4, he flies the #4 jet and serves as squadron's Diamond Instructor Pilot, Chief of Training, and Chief of Scheduling. He is in his second season with the team and is the first Air National Guard demonstration pilot.

Maj. Clark commissioned in 2009 from the United States Air Force Academy. He graduated undergraduate pilot training as a distinguished graduate at Laughlin Air Force Base, Texas where he won the USAF Flying Training Award, AETC Commander's Trophy. Maj. Clark has flown the F-15C in the European and Pacific theaters. He has also served as a Fighter Fundamentals instructor. Maj. Clark separated from active duty as an F-15C Evaluator Pilot and joined the Air National Guard as a B-Course Instructor Pilot. Prior to his current assignment, he served as Chief of Scheduling, 114th Fighter Squadron, Kingsley Field Air National Guard Base, Oregon.



EDUCATION

2009 Bachelor of Science, Systems Engineering Management, U.S. Air Force Academy, Colorado Springs, Colo.

2009 Air and Space Basic Course, Maxwell AFB, Ala.

2016 Squadron Officer School, Maxwell AFB, Ala.

2024 Air Command and Staff College, Maxwell AFB, Ala., by correspondence

ASSIGNMENTS

1. March 2010–April 2011, Student, Undergraduate Pilot Training, Laughlin Air Force Base, Texas
2. July 2011–September 2011, Student, Introduction to Fighter Fundamentals, Randolph AFB, Texas
3. October 2011–May 2012, Student, F-15C Formal Training Course, 114th Fighter Squadron, Kingsley Field Air National Guard Base, Ore.
4. May 2012–April 2015, Chief of Scheduling, F-15C 4-ship Flight Lead, 493d FS, RAF Lakenheath, England
5. April 2015–February 2019, Flight Commander, T-38 IFF IP/DIP, 49th FTS, Columbus AFB, Miss.
6. February 2019–April 2019, Student, F-15C Transition Course, 114th FS, Kingsley Field ANGB, Ore.
7. April 2019–June 2022, Wing Executive Officer/F-15C Evaluator Pilot, 18th Wing, Kadena AB, Japan
8. June 2022–August 2023, Chief of Scheduling, F-15C Instructor Pilot, 114th FS, Kingsley Field ANGB, Ore.
9. August 2023–September 2023, Student, F-16C Senior Officer Course, 314th FS, Holloman AFB, N.M.
10. October 2023–November 2024, Thunderbird 3, Right Wing, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.
11. November 2024–Present, Thunderbird 4, Slot/Diamond Instructor, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

FLIGHT INFORMATION

Rating: senior pilot

Flight Hours: more than 2,200

Aircraft Flown: T-6A, T-38C, F-15C/D, F-16C/D

MAJOR AWARDS AND DECORATIONS

Meritorious Service Medal with one oak leaf cluster

Aerial Achievement Medal

Air and Space Commendation Medal

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 27, 2009

First Lieutenant May 27, 2011

Captain May 27, 2013

Major Jan. 1, 2019

MAJOR JEFFREY W. DOWNIE

Maj. Jeffrey W. Downie is the Lead Solo for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 5, he flies the #5 jet and serves as the squadron's Solo Instructor Pilot, Evaluator Pilot, Imagery Officer, Assistant Director of Operations, and Chief of Safety. He is in his third season with the team.

Maj. Downie commissioned in 2013 from the United States Air Force Academy. He completed Undergraduate Pilot Training at Laughlin AFB, Texas in 2013 before transitioning to Holloman Air Force Base, New Mexico for the F-16 basic course. He went on to fly the F-16 at Shaw Air Force Base, South Carolina, and Kunsan Air Base, Republic of Korea. He is a senior pilot with more than 1,650 flying hours. Prior to joining the Thunderbirds, he served as an Instructor Pilot for T-38C Introduction to Fighter Fundamentals, assigned to the 435th Fighter Training Squadron at Joint Base San Antonio-Randolph, Texas.

EDUCATION

2013 Bachelor of Science, Aeronautical Engineering, U.S. Air Force Academy, Colorado Springs, Colo.

2019 Squadron Officer School, Maxwell Air Force Base, Ala.



ASSIGNMENTS

1. August 2013–July 2015, Student, Undergraduate Pilot Training, 47th Flying Training Squadron, Laughlin Air Force Base, Texas
2. July 2015–June 2016, Student, Introduction to Fighter Fundamentals, 311th Fighter Training Squadron, Holloman AFB, N.M.
3. June 2016–January 2017, Pilot, 77th Fighter Squadron, Shaw AFB, S.C.
4. January 2017–April 2018, Weapons and Tactics Academics Officer, 77th Fighter Squadron, Shaw AFB, S.C.
5. April 2018–May 2019, Chief of Scheduling, 77th Fighter Squadron, Shaw AFB, S.C.
6. May 2019–October 2019, Instructor/Evaluator Pilot, F-16, 8th Operational Support Squadron, Kunsan AB, Korea
7. October 2019–September 2020, Flight Commander, F-16 Evaluator Pilot, 80th Fighter Squadron, Kunsan AB, Korea
8. September 2020–August 2021, Assistant Director of Operations/T-38C IFF instructor pilot, 435th Fighter Training Squadron, Joint Base San Antonio-Randolph, Texas
9. August 2021–October 2022, Chief of Standardization and Evaluation, 435th Fighter Training Squadron, Joint Base San Antonio-Randolph, Texas
10. October 2022–October 2023, Thunderbird 8, Advance Pilot and Narrator, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.
11. October 2023–October 2024, Thunderbird 6, Opposing Solo, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.
11. October 2024–present, Thunderbird 5, Lead Solo, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

FLIGHT INFORMATION

Rating: senior pilot

Flight Hours: more than 2,200, including more than 377 combat hours

Aircraft Flown: T-6A, T-38C, F-16C/D

MAJOR AWARDS AND DECORATIONS

Meritorious Service Medal with one oak leaf cluster

Air Medal with "C" device and three oak leaf clusters

Air and Space Commendation Medal with one oak leaf cluster

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 29, 2013

First Lieutenant May 29, 2015

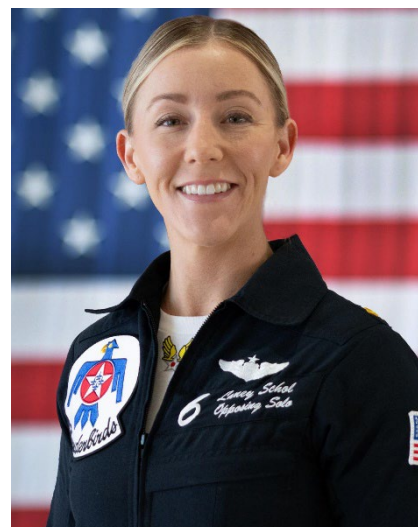
Captain May 29, 2017

Major Oct. 1, 2022

MAJOR LANEY M. SCHOL

Maj. Laney M. Schol is the Opposing Solo for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 6, she flies the #6 jet and serves as the squadron's Mission Planning Officer. She is in her first season with the team.

Maj. Schol commissioned in 2014 from the University of North Texas' Air Force Reserve Officer Training Corps as a distinguished graduate. She completed Undergraduate Pilot Training at Laughlin AFB, Texas in 2016 before transitioning to Davis Monthan Air Force Base, Arizona for the A-10C Formal Training Course. She went on to fly the A-10C at Moody Air Force Base, Georgia, and transitioned to the F-35A in 2021. She is a senior pilot who led combat missions in support of Operation Freedom's Sentinel and Resolute Support Mission Afghanistan. Prior to joining the Thunderbirds, she served as an Instructor Pilot and Executive Officer for the F-35A Formal Training Course, assigned to the 33rd Fighter Wing at Eglin Air Force Base, Florida.



EDUCATION

2014 Bachelor of Art, Radio, Television, Film, The University of North Texas, Denton, Texas

2021 Squadron Officer School, Maxwell Air Force Base, Ala.

ASSIGNMENTS

1. January 2015–January 2017, Student, Undergraduate Pilot Training, 47th Flying Training Squadron, Laughlin AFB, Texas
2. January 2017– March 2017, Student, Introduction to Fighter Fundamentals, 435th Fighter Training Squadron, Randolph AFB, Texas
3. March 2017–November 2017, Student, A-10C Formal Training Course, 357th Fighter Squadron, Davis-Monthan AFB, Ariz.
4. November 2017–May 2018, Weapons Tracking Officer, 74th Fighter Squadron, Moody AFB, Ga.
5. May 2018–July 2019, Electronic Combat Pilot, 74th Fighter Squadron, Moody AFB, Ga.
6. July 2019–July 2020, Chief of Mobility, 74th Fighter Squadron, Moody AFB, Ga.
7. July 2020–January 2021, Flight Commander, 74th Fighter Squadron, Moody AFB, Ga.
8. January 2021–October 2021, Flight Commander, 36th Electronic Warfare Squadron, Eglin AFB, Fla.
10. October 2021–April 2022, Student, F-35A Transition Course, 58th Fighter Squadron, Eglin AFB, Fla.
11. April 2022–February 2023, Student, F-35A Instructor Course, 60th Fighter Squadron, Eglin AFB, Fla.
12. February 2023–April 2024, Chief of Scheduling, F-35A Instructor Pilot, 60th Fighter Squadron, Eglin AFB, Fla.
13. April 2024–September 2024, Executive Officer, F-35A Instructor Pilot, 33rd Fighter Wing, Eglin AFB, Fla.
14. September 2024–present, Thunderbird 6, Opposing Solo, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

FLIGHT INFORMATION

Rating: senior pilot

Flight Hours: more than 1,500, including more than 300 combat hours

Aircraft Flown: T-6A, T-38C, A-10C, F-35A, F-16C/D

MAJOR AWARDS AND DECORATIONS

Meritorious Service Medal

Air Medal with "C" device and two oak leaf clusters

Air and Space Commendation Medal with "C" device and two oak leaf clusters

Air and Space Achievement Medal

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 9, 2014

First Lieutenant Sept. 10, 2016

Captain Sept. 10, 2018

Major Nov. 1, 2023

LIEUTENANT COLONEL TAYLOR R. WIGHT

Lt. Col. Taylor R. Wight is the Director of Operations for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 7, he flies the #7 jet and leads the Operations Section, which includes communications, computer systems analysts, scheduling, training, standardization and evaluation, aircrew flight equipment and airlift support. He is in his second season with the team.

Lt. Col. Wight commissioned in 2008 from the U.S. Air Force Academy as a distinguished graduate. He attended pilot training at Laughlin Air Force Base and was a T-6 Pilot Instructor Training course, distinguished graduate. He is a command pilot who led combat missions in support of Operation Inherent Resolve and has served as the F-15E Division Commander for the 422nd Test and Evaluation Squadron overseeing testing of the most advanced F-15E computer software, sensors, and weapons. Prior to joining the Thunderbirds, he served as the Chief of Advanced Programs Fighter/Bomber branch (A8Z) at Pacific Air Forces Headquarters, Joint Base Pearl Harbor-Hickam, Hawaii.



EDUCATION

2008 Bachelor of Science, Systems Engineering Management, U.S. Air Force Academy, Colorado Springs, Colo.

2012 Master in Education, Trident University International, Cypress, Calif.

2015 Squadron Officer School, Maxwell Air Force Base, Ala.

2021 Air Command and Staff College, Maxwell AFB, Ala., by correspondence

2022 Combat Air Force 11F Fellowship, HQ Pacific Air Forces, Joint Base Pearl Harbor-Hickam, Hawaii

ASSIGNMENTS

1. July 2008–April 2010, Student, Undergraduate Pilot Training, Laughlin Air Force Base, Texas, Pilot Instructor Training, Randolph Air Force Base, Texas
2. May 2010–March 2011, T-6 Instructor Pilot and Flight Scheduler, 85th Flying Training Squadron, Laughlin AFB, Texas
3. April 2011–November 2012, T-6 Category Check Pilot and Assistant Flight Commander, 85th FTS, Laughlin AFB, Texas
4. December 2012–May 2013, Flight Commander and T-6 Instructor Pilot, 85th FTS, Laughlin AFB, Texas
5. June 2013–March 2014, F-15E Student Pilot, 333rd Fighter Squadron, Seymour Johnson AFB, N.C.
6. April 2014–December 2016, F-15E Multi-Ship Flight Lead, Assistant Director of Operations, Flight Commander, Chief of Plans, and Training Officer, 335th Fighter Squadron, Seymour Johnson AFB, N.C.
7. January 2017–May 2017, F-15E Instructor Course Pilot, 334th Fighter Squadron, Seymour Johnson AFB, N.C.
8. June 2017–May 2019, F-15E Evaluator Pilot, Executive Officer and Assistant Director of Operations, 334th Fighter Squadron, Seymour Johnson AFB, N.C.
9. June 2019–July 2021, F-15E Division Commander, Operational Test Evaluator Pilot, 422nd Test and Evaluation Squadron, Nellis AFB, Nev.
10. July 2021–June 2022, Student, 11F Combat Air Force Fellowship, PACAF, Joint Base Pearl Harbor-Hickam, Hawaii
11. June 2023–February 2023, Chief of Advanced Programs Fighter/Bomber Branch, PACAF, JB Pearl Harbor-Hickam, Hawaii
12. February 2023–present, Thunderbird 7, Operations Officer, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

FLIGHT INFORMATION

Rating: command pilot

Flight hours: more than 3,000, including more than 355 combat hours

Aircraft flown: T-6A, T-38C, F-15E/D, F-16C/D

MAJOR AWARDS AND DECORATIONS

Meritorious Service Medal

Air Medal with "C" device and one oak leaf cluster

Aerial Achievement Medal

Air and Space Commendation Medal with one oak leaf cluster

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 28, 2008

First Lieutenant May 28, 2010

Captain May 28, 2012

Major Jan. 1, 2018

Lieutenant Colonel Feb. 1, 2023

MAJOR BRANDON J. MAXSON

Maj. Brandon J. Maxson is the Advance Pilot/Narrator for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 8, he flies the #8 jet and advances to show sites to coordinate the logistics for aerial demonstrations. Maj. Maxson also narrates the performances, conducts orientation flights to support Air Force strategic communication goals, and serves as the primary liaison between the Thunderbirds and the air show industry. He is in his first season with the team.

Maj. Maxson commissioned in 2014 from the United States Air Force Academy. He completed Undergraduate Pilot Training at Columbus Air Force Base, Mississippi in 2015 before transitioning to Klamath Falls, Oregon for the F-15 basic course. After serving in two fighter squadrons, he transitioned to the F-35 in 2021. He is a senior pilot with more than 1,640 flying hours. Prior to joining the Thunderbirds, he served as Aircrew Flight Equipment commander and F-35 Instructor Pilot at the 56th Operations Support Squadron, Luke AFB, Arizona.



EDUCATION

2014 Bachelor of Science, Economics, U.S. Air Force Academy, Colorado Springs, Colo.

2021 Squadron Officer School, Maxwell Air Force Base, Ala.

ASSIGNMENTS

1. August 2014–April 2015, Student, Undergraduate Pilot Training, 50th Flying Training Squadron, Columbus Air Force Base, Miss.
2. April 2015–April 2017, Student, Introduction to Fighter Fundamentals, Kingsley Field ANGB, Ore.
3. April 2017–April 2019, Assistant Chief of Weapons, 44th Fighter Squadron, Kadena AB, Japan
4. April 2019–October 2019, Chief of Mobility, 44th Fighter Squadron, Kadena AB, Japan
5. October 2019–October 2020, Flight Commander, 44th Fighter Squadron, Kadena AB, Japan
6. October 2020–November 2021, Student, F-35A Transition Course, 61st Fighter Squadron, Luke AFB, Ariz.
7. November 2021–September 2022, Assistant Chief of Scheduling, 61st Fighter Squadron, Luke AFB, Ariz.
8. September 2022–April 2023, Chief of Training, 63rd Fighter Squadron, Luke AFB, Ariz.
9. April 2023–September 2023, Aircrew Flight Equipment Flight Commander, 63rd Fighter Squadron, Luke AFB, Ariz.
8. December 2023–present, Thunderbird 8, Advance Pilot and Narrator, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

FLIGHT INFORMATION

Rating: senior pilot

Flight Hours: more than 1,600, including more than 190 combat hours

Aircraft Flown: T-6A, T-38C, F-15C/D, F-35A, F-16C/D

MAJOR AWARDS AND DECORATIONS

Air Medal with oak leaf clusters

Air Achievement Medal

Air and Space Commendation Medal

Air and Space Achievement Medal

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 28, 2014

First Lieutenant May 28, 2016

Captain May 28, 2018

Major Dec. 1, 2023

MAJOR (DR) JACOB R. HALL

Maj. (Dr.) Jacob R. Hall is the Flight Surgeon for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 9, he provides primary medical care for a 135-person squadron, to ensure the health and fitness of eight demonstration pilots. He is in his second season with the team.

Maj. Hall enlisted in the Air Force in 2004. He served as an Airborne Cryptologic Linguist for the 97th Intelligence Squadron, Offutt AFB, Nebraska. While assigned to the 97th Intelligence Squadron he served multiple combat deployments to Southwest Asia in support of Operation Enduring Freedom. Maj. Hall graduated from Bellevue University in 2008 and commissioned in 2011 through Commissioned Officer Training. He received his medical doctorate degree from the Uniformed Services University of the Health Sciences School of Medicine in 2015. Maj. Hall has logged more than 1000 flight hours across 5 different airframes, including 593 combat hours. Prior to joining the Thunderbirds, he served as a Dermatologist and Flight Surgeon for the 59th Medical Specialty Squadron, Lackland AFB, Texas.



EDUCATION

2008 Associate of Communication Applied Technology, Community College of the Air Force, Maxwell AFB, Ala.

2008 Bachelor of Science, Business, Bellevue University, Bellevue, Neb.

2015 Medical Doctorate, USUHS, Bethesda, Md.

2016 Transitional Year Residency, San Antonio Uniformed Services Health Education Consortium, Texas

2022 Dermatology Residency, SAUSHEC, San Antonio, Texas

ASSIGNMENTS

1. December 2005–January 2009, Airborne Cryptologic Linguist, Offutt Air Force Base, Neb. (July–October 2006, April–July 2007, February–April 2008, Airborne Cryptologic Linguist, 763d Expeditionary Reconnaissance Squadron, Al Udeid AB, Qatar)

2. January 2009–July 2011, Airborne Cryptologic Linguist Course Supervisor, Goodfellow AFB, Texas

3. July 2011–July 2015, Medical Student, Uniformed Services University of the Health Sciences, Bethesda, Md.

4. July 2015–July 2016, Transitional Year Intern, San Antonio Uniformed Services Health Education Consortium, San Antonio, Texas

5. July 2016–July 2019, Flight Surgeon, 359th Aerospace Medicine Squadron, Joint Base San Antonio-Randolph, Texas

6. July 2019–June 2022, Dermatology Resident, 59th Medical Specialty Squadron, JBSA-Lackland, Texas

7. July 2022–September 2023, Dermatologist/Flight Surgeon, 59th MSS, JBSA-Lackland, Texas

8. September 2023–present, Thunderbird 9, Flight Surgeon, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

FLIGHT INFORMATION

Rating: flight surgeon

Flight Hours: more than 1000, including more than 593 combat hours

Aircraft Flown: RC-135V, RC-135W, T-38C, T-1A, T-6A, F-16D

MAJOR AWARDS AND DECORATIONS

Air Medal with one oak leaf cluster

Air and Space Commendation Medal with three oak leaf clusters

2017 AETC Flight Surgeon of the Year

EFFECTIVE DATES OF PROMOTION

Second Lieutenant July 3, 2011

Captain May 16, 2015

Major May 16, 2021

CAPTAIN JANILIE A. VECCHIO

Capt. Janilie A. Vecchio is the Executive Officer for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 10, she leads the executive support, commander's support staff responsible for Thunderbirds' cyberspace and knowledge operations, budget and resource management, unit training and force support actions for 135 team members. Additionally, she exercises command authority on G-series orders for day-to-day oversight of squadron operations on behalf of the Commander while he is deployed for 300 days per year. She is in her first season with the team.

Capt. Vecchio commissioned in 2017 from the United States Air Force Academy. She has held various positions at the squadron, group, wing, and direct-reporting unit levels. While assigned to the 319th Force Support Squadron, she deployed to the Middle East in support of Operation Enduring Freedom and Operation Inherent Resolve. She also served a humanitarian mission in support of Operation Allies Welcome. Prior to joining the Thunderbirds, she served as the Operations Officer, 432nd Support Squadron, Creech AFB, Nev.



EDUCATION

2013 U.S. Air Force Academy Preparatory School, Colorado Springs, Colo.
2017 Bachelor of Science, Behavioral Science, U.S. Air Force Academy, Colorado Springs, Colo.
2019 Initial Force Support Officer Course, Keesler AFB, Miss.
2021 Master of Business Administration, Park University
2024 Squadron Officer School, Maxwell AFB, Ala.

ASSIGNMENTS

1. May 2017–June 2018, Admissions Advisor, U.S. Air Force Academy, Colo.
2. June 2018–June 2019, Executive Officer, 37th Training Group, Joint Base San Antonio-Lackland, Texas
3. June 2019–August 2020, Military Personnel Flight Commander, 319th Force Support Squadron, Grand Forks AFB, N.D.
4. August 2020–April 2022, Sustainment Services Flight Commander, 319th Force Support Squadron, Grand Forks AFB, N.D.
5. April 2022–July 2023, Executive Officer, 319th Reconnaissance Wing, Grand Forks AFB, N.D.
6. July 2023–September 2024, Operations Officer, 432d Support Squadron, Creech AFB, Nev.
7. September 2024–present, Thunderbird 10, Executive Officer, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

MAJOR AWARDS AND DECORATIONS

Meritorious Service Medal with one oak leaf cluster
Air and Space Commendation Medal with one oak leaf cluster
Air Force Achievement Medal with one oak leaf cluster

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 24, 2017
First Lieutenant May 24, 2019
Captain May 24, 2021

CAPTAIN NATALEE R. WINTON

Capt. Natalee R. Winton is the Maintenance Officer for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 11, she leads 91 personnel across 13 distinct logistics specialties to maintain the squadron's 13 assigned F-16 aircraft and associated support equipment. She is in her second season with the team.

Capt. Winton commissioned in 2016 from Wright State University's Air Force Reserve Officer Training Corps. She completed aircraft maintenance officer training the same year and has since held multiple positions supporting sortie production at the flight, aircraft maintenance unit, squadron, and group levels. She has maintenance and sortie production experience with the F-15E, F-35A, and F-16CJ in both in-garrison and deployed roles. Capt. Winton has also deployed as a Foreign Military Sales officer where she managed the Command, Control, Communication, Computers, Information, Surveillance, and Reconnaissance portfolio in support of Operation Freedom's Sentinel and as the Fighter Generation Squadron Operations Officer providing rotational support to the U.S. Indo-Pacific Command area of responsibility. Prior to joining the Thunderbirds, she was the Operations Officer for the 391st Fighter Generation Squadron, Mountain Home Air Force Base, Idaho.



EDUCATION

2016 Bachelor of Science, Biological and Agricultural Science, Wright State University, Ohio
2016 Aircraft Maintenance Officer Course, Sheppard AFB, Texas
2018 Jet Engine Mishap Investigation Course, Sheppard AFB, Texas
2019 Masters of Leadership, Embry Riddle Aeronautical University, Fla.
2023 Advanced Maintenance Munitions Officer School, Nellis AFB, Nev.
2024 Squadron Officer School, Maxwell AFB, Ala.

ASSIGNMENTS

1. July 2016–April 2017, Aerospace Ground Equipment Flight Commander, 48th Equipment Maintenance Squadron, RAF Lakenheath, England
2. April 2017–July 2017, Maintenance Flight Commander, 48th Equipment Maintenance Squadron, RAF Lakenheath, England
3. July 2017–August 2018, Assistant Officer in Charge, 492nd Aircraft Maintenance Unit, RAF Lakenheath, England
4. August 2018–July 2019, Fabrication Flight Commander, 33rd Maintenance Squadron, Eglin Air Force Base, Fla.
5. July 2019–September 2020, Maintenance Operations Officer in Charge, 33rd Maintenance Group, Eglin AFB, Fla.
6. September 2020–June 2021, Executive Officer, 33rd Fighter Wing, Eglin AFB, Fla.
7. June 2021–December 2021, Director of Maintenance, 391st Fighter Squadron, Mountain Home AFB, Idaho
8. December 2021–September 2023, Operations Officer, 391st Fighter Generation Squadron, Mountain Home AFB, Idaho
9. September 2023–present, Thunderbird 11, Maintenance Officer, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

MAJOR AWARDS AND DECORATIONS

Joint Service Commendation Medal
Air and Space Commendation Medal with three oak leaf clusters
Navy Achievement Medal
2022 ACC Lance P. Sijan Award Winner

EFFECTIVE DATES OF PROMOTION

Second Lieutenant April 30, 2016
First Lieutenant June 10, 2018
Captain June 10, 2020

MAJOR KRYSTAL V. JIMENEZ

Maj. Krystal V. Jimenez is the Public Affairs Officer for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. As Thunderbird 12, she leads a 6-person team to implement the team's extensive publicity, media, and community outreach programs. She is in her first season with the team.

Maj. Jimenez commissioned in June 2014 from the United States Air Force Academy. She earned a Bachelor of Science degree in Behavioral Science. She completed public affairs qualification training at Fort Meade, Maryland later in 2014. Maj. Jimenez has worked in a variety of roles as a public affairs officer to include Air Mobility Command, Air Combat Command, United States Air Forces in Europe and Air Forces Africa, Pacific Air Forces, and United States Cyber Command. Prior to her current assignment, she was the Chief of Public Affairs for the 366th Fighter Wing at Mountain Home AFB, Idaho.

EDUCATION

2014 Bachelor of Science, Behavioral Science, U.S. Air Force Academy, Colorado Springs, Colo.

2014 Public Affairs Qualification Course, Fort Meade, Md.

2019 Squadron Officer School, Maxwell AFB, Ala.



ASSIGNMENTS

1. July 2014–January 2015, Public Affairs Officer, 22nd Air Refueling Wing, McConnell Air Force Base, Kan.
2. January 2015–June 2016, Media Operations Section Chief, 22nd Air Refueling Wing, McConnell AFB, Kan.
3. June 2016–April 2018, Chief of Public Affairs, 501st Combat Support Wing, RAF Alconbury, England
4. April 2018–February 2021, Public Affairs Advisor, 618th Air Operations Center (TACC), Scott AFB, Ill.
(February 2020– December 2020, Public Affairs Advisor, Cyber National Mission Force and Election Security Group, Ft. Meade, Md.)
5. February 2021–October 2023, Chief of Public Affairs, 366th Fighter Wing, Mountain Home AFB, Idaho
6. October 2023–present, Thunderbird 12, Public Affairs Officer, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

MAJOR AWARDS AND DECORATIONS

Joint Service Commendation Medal
Air and Space Commendation Medal
Air Force Achievement Medal

EFFECTIVE DATES OF PROMOTION

Second Lieutenant May 28, 2014
First Lieutenant May 28, 2016
Captain May 28, 2018
Major Jan. 1, 2024

CHIEF MASTER SERGEANT RYAN A. SMITH

CMSgt Ryan A. Smith is the Chief Enlisted Manager for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. He serves as the principal advisor to the Commander on matters related to training, readiness, health, morale, and welfare of 135 Airmen serving in 31 Air Force Specialty Codes. CMSgt Smith provides oversight of 13 F-16s and communication equipment ensuring safety operations for 72 air demonstrations at domestic and international locations to showcase the Air Force and execute the unit's mission to recruit, retain, and inspire.

Chief Smith enlisted in the Air Force in September 2002 out of Cleveland, Ohio. He completed F-16 Avionics Systems Technical Training in July 2003 and has since held a variety of maintenance positions related to aircraft generation and quality assurance, as well as a special duty assignment as an Enlisted Accessions Recruiter. His maintenance background includes experience on the F-16C/D, F-15C/D, and F-35A aircraft and assignments that include bases in Germany, Arizona, South Korea, Ohio, Nevada, and the United Kingdom. Prior to his current position, Chief Smith was the Senior Enlisted Leader of the 492d Fighter Generation Squadron at Royal Air Force Lakenheath.



EDUCATION

2006 Airman Leadership School, Luke AFB, AZ
2011 Associate in Applied Science Degree in Human Resource Management, Community College of the Air Force
2016 Noncommissioned Officer Academy, Sheppard AFB, TX
2016 Senior Enlisted Joint Professional Military Education–Correspondence Course
2018 Bachelors of Science Degree in Organizational Security Management, University of Phoenix
2018 Professional Manager Certification, Community College of the Air Force
2018 Senior Enlisted Joint Professional Military Education II–Correspondence Course
2021 Senior Noncommissioned Officer Academy, Maxwell-Gunter AFB, Virtual Course
2022 Master's Degree, Business Administration in Aviation, Embry-Riddle Aeronautical University
2024 Chief Leadership Course, Maxwell-Gunter AFB, AL
2024 Leadership Development Course, Maxwell-Gunter AFB, AL

ASSIGNMENTS

1. November 2002–July 2003, Student, F-16 Avionics Systems Technical Training, Sheppard Air Force Base, TX
2. July 2003–July 2005, Avionics Journeyman, 52d Aircraft Maintenance Squadron, Spangdahlem Air Base, Germany
3. July 2005–February 2007, Avionics Journeyman, 756th AMXS, Luke AFB, AZ
4. February 2007–February 2008, Avionics Craftsman, 8th AMXS, Kunsan AB, Republic of Korea
5. February 2008–May 2010, Avionics Craftsman, 756th AMXS, Luke AFB, AZ
6. May 2010–May 2014, Enlisted Accessions Recruiter, 311th Recruiting Squadron, Cleveland, OH
7. May 2014–December 2015, Specialist Expediter, Quality Assurance Inspector, 8th Maintenance Group, Kunsan AB, Republic of Korea
8. December 2015–December 2018, Thunderbird Maintenance Flight Chief, Quality Assurance Chief Inspector, Production Superintendent, United States Air Demonstration Squadron, Nellis AFB, NV
9. January 2019–January 2020, Production Superintendent, 8th AMXS, Kunsan AB, Republic of Korea
10. February 2020–December 2022, Lead Production Superintendent, Assistant Superintendent, 748th AMXS, RAF Lakenheath, United Kingdom
11. January 2023–July 2024, Senior Enlisted Leader, 492d Fighter Generation Squadron, RAF Lakenheath, United Kingdom
12. August 2024–present, Senior Enlisted Leader, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev.

MAJOR AWARDS AND DECORATIONS

Air Force Meritorious Service Medal with three oak leaf cluster
Air and Space Commendation Medal with four oak leaf clusters
Air Force Achievement Medal with oak leaf cluster

EFFECTIVE DATES OF PROMOTION

Airman First Class November 1, 2002
Senior Airman September 1, 2004
Staff Sergeant June 1, 2006
Technical Sergeant November 1, 2012
Master Sergeant February 1, 2017
Senior Master Sergeant November 1, 2020
Chief Master Sergeant October 1, 2023

MASTER SERGEANT SIRIVIA R. RICE

MSgt Sirivia R. Rice is the First Sergeant for the United States Air Force Air Demonstration Squadron, the Thunderbirds, Nellis Air Force Base, Nevada. She oversees and mentors 135 Airmen serving in 31 Air Force Specialty Codes, deploying 300 days a year. Sergeant Rice provides a vital link to the squadron commander on quality-of-life issues that could affect mission accomplishment.

MSgt Rice entered the Air Force in September 2002. Following basic military training, she completed Services training at Lackland Air Force Base in October 2002. Throughout her career, she has filled a myriad of leadership roles including Noncommissioned Officer in Charge, Service and Plans, Fitness Section Chief, Dining Facility Manager, and Food Service Section Chief. As the food service section chief, she was responsible for a \$4.5 million-dollar, two facility operation, and overseeing \$345,000 in war reserve material assets. MSgt Rice also deployed to direct one of two food operations overseeing a \$1.8M contract and serving 130,000 meals to joint and coalition personnel in support of Operation Inherent Resolve. Prior to her current position, MSgt Rice served as the First Sergeant, 423rd Air Base Group, Royal Air Force Base Alconbury, England.



EDUCATION

2003 Air Force Basic Military Training, Lackland Air Force Base Air Force Base, Texas
2003 Intelligence Network Analyst Apprentice Course, Goodfellow AFB, TX
2008 Airmen Leadership School, Shaw AFB, S.C.
2010 Associate of Applied Science, Intelligence Analysis, CCAF, Maxwell-Gunter AFB, Ala.
2011 Associate of Applied Science, Instructor of Technology and Military Science, CCAF, Maxwell-Gunter AFB, Ala. 2015 Noncommissioned Officer Academy, Air University, Maxwell-Gunter AFB, Ala., by correspondence
2016 Senior Enlisted Joint Professional Military Education Course-Level I, by correspondence
2018 Senior Noncommissioned Officer Academy, Air University, Maxwell-Gunter AFB, Ala., by correspondence
2019 Senior Enlisted Joint Professional Military Education Course-Level II, by correspondence
2020 First Sergeant Academy, Air University, Maxwell-Gunter AFB, Ala.

ASSIGNMENTS

1. October 2002–January 2003, Student, 345 TRS, Food Service Course, Lackland AFB, Medina Annex, TX
2. January 2003–September 2005, Fitness Specialist, 88th Mission Support Group, Wright-Patterson AFB, Ohio
3. September 2005–October 2006, Lodging Technician, 88th Mission Support Group, Wright-Patterson AFB, OH
4. October 2006–October 2010, Service Supervisor, Deployment Cell (D-Cell), Center for Special Operations, Headquarters, United States Special operations Command (USSOCOM), MacDill AFB, Fla.
5. October 2010–January 2015, Food Services Craftsman and Non-Commissioned Officer (NCOIC), Readiness, 319th Force Support Squadron, Grand Forks AFB, N.D.
6. February 2015–February 2016, Guest Services Manager and NCOIC, Readiness and Plans, 8th Force Support Squadron, Kunsan Air Base (AB), Republic of Korea
7. March 2016–May 2017, NCOIC, Services and Plans and Flight Kitchen Manager, Headquarters Twelfth Air Force (Air Forces Southern) Air Combat Command (ACC), Davis-Monthan AFB, Ariz.
8. May 2017–February 2019, Fitness Section Chief, 355th, Davis-Monthan AFB, Ariz. (January 2018–June 2018, Dining Facility Manager, 332nd Expeditionary Force Support Squadron, Al-Azraq AB, Jordan)
10. February 2019–February 2020, Dining Facility Manager, 51st Force Support Squadron, Osan AB, Republic of Korea
11. February 2020–July 2021, Food Service Section Chief, 718th Force Support Squadron, Kadena AB, Okinawa, Japan
12. July 2021–July 2022, First Sergeant, 18th Maintenance Group Staff, Kadena AB, Okinawa, Japan
13. July 2022–October 2023, First Sergeant, 423rd Security Forces Squadron, RAF Alconbury, England
14. October 2023–May 2024, First Sergeant, 423rd Air Base Group, RAF Alconbury, England
15. May 2024–present, First Sergeant, U.S. Air Force Air Demonstration Squadron, Nellis AFB, Nev

MAJOR AWARDS AND DECORATIONS

Meritorious Service Medal with one oak leaf cluster
Air and Space Commendation Medal with one oak leaf cluster
Joint Service Achievement Medal
Air Force Achievement Medal with one oak leaf cluster

EFFECTIVE DATES OF PROMOTION

Airman First Class August 26, 2003
Senior Airman December 26, 2005
Staff Sergeant April 1, 2009
Technical Sergeant November 1, 2015
Master Sergeant February 1, 2019

2025 Show Schedule

(CAO February 1, 2025)

February 16: Daytona 500, Florida - "Daytona 500"
March 22-23: Davis-Monthan AFB, Arizona – "Thunder & Lightning Over Arizona"
March 29-30: Barksdale AFB, Louisiana – "Defenders of Liberty Air Show"
April 5-6: Nellis AFB, Nevada – "Aviation Nation"
April 12-13: March ARB, California – "Southern California Airshow"
April 19-20: Dyess AFB, Texas – "Dyess AFB Open House"
April 26-27: JB Langley-Eustis, Virginia – "Air Power Over Hampton Roads"
May 3-4: Seymour Johnson AFB, North Carolina – "Wings Over Wayne Air Space & Technology Expo"
May 10-11: Toledo, Ohio – "Toledo Airshow"
May 17-18: JB McGuire-Dix-Lakehurst, New Jersey – "Power in the Pines Open House & Expo"
May 24-26: Wantagh (Jones Beach), New York – "Bethpage Air Show at Jones Beach Park"
May 29: US Air Force Academy Graduation, Colorado – "USAF Academy Graduation 2025"
June 7-8: Beale AFB, California – "Beale AFB Open House"
June 21-22: Dayton, Ohio – "Dayton Airshow"
June 28-29: Tinker AFB, Oklahoma – "Tinker Air Show"
July 4-6: Battle Creek, Michigan – "Battle Creek Field of Flight Air Show & Balloon Festival"
July 12-13: Ft. Wayne ANGB, Indiana – "Fort Wayne ANGB Open House/Airshow"
July 19-20: Kingsley Field ANGB (Klamath Falls), Oregon – "Sentry Eagle 2025 Open House"
July 23: Cheyenne, Wyoming – "Wings Over Warren/Cheyenne Frontier Days"
August 9-10: Gary, Indiana – "Gary Air Show"
August 16-17: Chicago, Illinois – "Chicago Air & Water Show"
August 23-24: Davenport, Iowa – "Quad City Air Show"
August 30-September 1: Cleveland, Ohio – "Cleveland Nation Air Show"
September 6-7: Mirabel (Montreal, Quebec), Canada – "Festival Aérien VOLARIA Airshow"
September 13-14: JB Andrews, Maryland – "JB Andrews Air Show"
September 20-21: Loveland, Colorado – "The Great Colorado Air Show"
September 27-28: Pueblo, Colorado – "Pueblo Wings of Pride Airshow"
October 4-5: Huntington Beach, California – "Pacific Airshow"
October 11-12: Peachtree, Georgia – "Air Dot Show Atlanta"
October 18-19: Houston, Texas – "Wings Over Houston Airshow"
October 25-26: Sanford, Florida – "Air Dot Show Orlando"
November 1-2: Keesler AFB, Mississippi – "Thunder Over the Sound: Keesler/Biloxi Air & Space Show"

2026 Show Schedule

(CAO February 1, 2025)

February 15: Daytona 500, Florida - "Daytona 500"
March 15: Las Vegas Motor Speedway, Nevada – "Pennzoil 400"
March 21-22: Luke AFB, Arizona – "Luke Days Airshow and Open House"
March 28-29: Shaw AFB, South Carolina – "Shaw Air Expo /Thunder Over the Midlands"
April 4-5: Brunswick, Georgia – "The Golden Isles Airshow"
April 11-12: Panama City, Florida – "Gulf Coast Salute Air Show, Panama City Beach"
April 18-19: Lakeland, Florida – "SUN 'n FUN Aerospace Expo"
April 25-26: Travis AFB, California – "Wings Over Solano"
May 2-3: JB San Antonio-Randolph, Texas – "The Great Texas Air Show"
May 9-10: Fort Lauderdale, Florida – "Air Dot Show Fort Lauderdale"
May 16-17: Mountain Home AFB, Idaho – "Mountain Home AFB Airshow"
May 23-24: Miami, Florida – "Hyundai Air & Sea Show"
May 28: US Air Force Academy Graduation, Colorado – "USAF Academy Graduation 2025"
June 13-14: Ocean City, Maryland – "Air Dot Show Ocean City"
June 20-21: Niagara Falls, New York – "Niagara Falls Airshow"
June 27-28: Hill AFB, Utah – "Warriors Over the Wasatch Air Show"
July 11-12: Duluth, Minnesota – "Duluth Airshow"
July 18-19: Sioux Falls, South Dakota – "Sioux Falls Airshow, Sioux Falls"
July 22: Cheyenne, Wyoming – "Wings Over Warren/Cheyenne Frontier Days"
August 8-9: Rochester, New York – "Rochester International Airshow"
August 15-16: Montgomery, New York – "Air Dot Show New York"
August 22-23: Terre Haute, Indiana – "Terre Haute Air Show"
August 29-30: Grissom ARB, Indiana – "Grissom Air & Space Expo"
September 5-6: Branson, Missouri – "Branson Airshow"
September 12-13: Owensboro, Kentucky – "Owensboro Air Show"
September 19-20: Roswell, New Mexico – "Roswell Airshow"
September 26-27: Salinas, California – "California International Airshow"
October 3-4: Huntington Beach, California – "Pacific Airshow"
October 10-11: Sacramento, California – "California Capital Airshow"
October 17-18: Wichita, Kansas – "Frontiers in Flight Open House & Air Show"
October 31- November 1: Houston, Texas – "Wings Over Houston Airshow"



DEPARTMENT OF THE AIR FORCE
USAFADS "THUNDERBIRDS" (ACC)
NELLIS AIR FORCE BASE NEVADA

3 February 2025

MEMORANDUM FOR FAA Representatives

FROM: USAFADS/CC

SUBJECT: 2025 Thunderbirds Maneuver Package

1. This United States Air Force Air Demonstration Squadron "Thunderbirds" Maneuver Package provides you with a pictorial display of demonstration maneuvers performed by the team.
2. The Thunderbirds have three show types depending upon weather or terrain considerations. A high show, which includes formation rolls and loops, may be flown with a minimum ceiling of 6,500' and 5 nautical mile visibility. A low show, which has formation rolls only, may be flown with a minimum ceiling of 3,500' and 5 nautical mile visibility. A flat show, which includes no loops or rolls, may be flown with a minimum ceiling of 2,000' and 5 nautical mile visibility (USAFADS/CC may waive the flat show minimum ceiling to 1,500'). Transitions between show types and maneuvers occur on occasion if weather or other conditions prohibit safe execution of a given maneuver. Additionally, in the interest of pilot and public safety, show-site conditions, hazards within the TFR, and weather may drive resequencing of maneuvers or truncation of show sequence.
3. The Department of Defense accepts full responsibility for the operation of Thunderbird demonstration maneuvers as described herein. Lieutenant Colonel Nathan Malafa, Commander/Leader, USAF Air Demonstration Squadron, is the designated representative for the Department of Defense for the execution of these maneuvers and prioritizes safety over visual appeal or presentation.
4. Thunderbird maneuvering airspace and minimum dimensions for an aerobatic box are depicted in section III. The team will review and approve modification or truncation to the aerobatic box on a case-by-case basis. FAA guidelines currently permit non-aerobatic passes flown no closer than 500' from the crowd. Aerobatic maneuvers shall occur at the 1500' show line; however, non-aerobatic maneuvers may take place on the 500' show line. Non-aerobatic passes over the crowd will be a minimum of 500' AGL. Thunderbird formations in the transition area may descend from 500' to be at their minimums at 1NM from show center, even over occupied buildings. All maneuvers can transition to a flat pass if conditions dictate.
5. The Thunderbirds may fly a demonstration with less than six aircraft. Fallout of the left and right solos is depicted in the maneuvers package as 5-ship shows; any other fallout scenarios will result in an incomplete diamond with or without solos as part of the formation. The Thunderbirds will occasionally fly a seventh aircraft during Thursday or Fridays which are classified as practice demonstrations days and arrival site surveys in a photo-chase profile. This aircraft will be flown by Thunderbirds 7 or 8 upon completion of syllabus-directed training. If the seventh aircraft is a 2-seat F-16, the Thunderbirds will continue the back-seat flyer program with a designated Thunderbird team member, distinguished visitor, hometown hero or national media member upon annual approval from the FAA. The photo-chase aircraft will maneuver as required to achieve the desired photographic position relative to the diamond, solos, or delta. The same rules and regulations governing the 6-ship within the TFR and aerobatic box also apply to the seventh aircraft. The photo chase aircraft will never fly during an official demonstration.

Recruit – Retain – Inspire

6. My point of contact to address any questions concerning these maneuvers is Lieutenant Colonel Taylor Wight, Thunderbird Operations Officer, at (702) 271-6627 or DSN 682-9931.

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NATHAN C. MALAFA, Lt Col, USAF
Commander/Leader

1st Ind, 57 WG/CC

07 February 2025

MEMORANDUM FOR USAFWC/CC

Recommend: Approve/~~Disapprove~~

SULLIVAN.LAWRENCE.T.10843
NCE.T.1084393092

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LAWRENCE T. SULLIVAN
Brigadier General, USAF
Commander



DEPARTMENT OF THE AIR FORCE
USAFADS "THUNDERBIRDS" (ACC)
NELLIS AIR FORCE BASE NEVADA

24 February 2025

MEMORANDUM FOR RECORD

FROM: USAFADS/CC

SUBJECT: 2025 USAFADS "Thunderbirds" Demonstration Pilots

1. I appoint the following USAF Air Demonstration Pilots for the 2025 season:
 - #1 Commander/Leader – Lt. Col. Nathan Malafa
 - #2 Left Wing – Maj. Joshua Burress
 - #3 Right Wing – Lt. Col. Ian Lee
 - #4 Slot – Maj. Tyler Clark
 - #5 Lead Solo – Maj. Jeffrey Downie
 - #6 Opposing Solo – Maj. Laney Schol
 - #7 Operations Officer – Lt. Col. Taylor Wight
 - #8 Advance Pilot/Narrator – Maj. Brandon Maxson
2. For questions or concerns, please contact Capt. Janilie Vecchio at DSN 682-9584, commercial (702) 652-9584.

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Date: 2025.03.03 13:04:15
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NATHAN C. MALAFA, Lt Col, USAF
Commander/Leader

2025 6-SHIP SHOW

HIGH SHOW

LOW SHOW

FLAT SHOW

Diamond Takeoff / Loop on Takeoff	Low Transition Formation Takeoff	Low Transition Formation Takeoff
(6) Roll on Takeoff	(6) Roll on Takeoff	(6) Roll on Takeoff
(5) Max Climb / Split S	(5) Max Climb / Split S	(5) Low Trans Takeoff
Diamond Cloverloop Opener ↗←	Low Opener ↗←	Flat Opener ↗←
Crossover Break ←↗→	Crossover Break ←↗→	Crossover Break ←↗→
Diamond PIR ←	Diamond PIR ←	Diamond PIR ←
(5) Knife Edge →	(5) Knife Edge →	(5) Knife Edge →
Diamond Roll ⇒	Diamond Roll ⇒	Diamond Flat Pass ⇒
Calypso Pass ←	Calypso Pass ←	Calypso Pass ←
Echelon Pass in Review ⇒	Echelon Pass in Review ⇒	Echelon Pass in Review ⇒
(6) Sneak Pass →	(6) Sneak Pass →	(6) Sneak Pass →
(5) Slow Roll →	(5) Slow Roll →	(5) Slow Roll →
(6) Aileron Rolls ←	(6) Aileron Rolls ←	(6) Aileron Rolls ←
Bon Ton Roule ←	Bon Ton Roule ←	Bon Ton Roule ←
Opposing Knife Edge →←	Opposing Knife Edge →←	Opposing Knife Edge →←
Trail to Diamond BUP ⇒	Trail to Diamond BUP ⇒	Trail to Diamond BUP ⇒
Opposing Inverted →←	Opposing Inverted →←	Opposing Inverted →←
Trail to Diamond Cloverloop ↘←	High Low Hit ←	High Low Hit ←
(5) Rejoin to Stinger (via Chaos) ←	(5) Rejoin to Stinger ←	(5) Rejoin to Stinger ←
Low Bomb Burst ↘	Low Bomb Burst ↘	Low Bomb Burst ↘
(5) Rejoin to Stinger (via LBB hit) ↑	(5) Rejoin to Stinger (via LBB hit) ↑	(5) Rejoin to Stinger (via LBB hit) ↑
(6) High Alpha/Climb ←	(6) High Alpha/Climb ←	(6) High Alpha/Climb ←
5-Card Loop ←	5-Card Flat Pass ←	5-Card Flat Pass ←
(6) Vertical Rolls →	(6) 8-Point Roll →	(6) 8-Point Roll →
Line Break Loop ⇒	Stinger Break Cross ⇒	Stinger Break Cross ⇒
(6) Max Turn, 1/2 Cuban →	(6) Max Turn/Cuban →	(6) Max Turn →
Burner 360 ↗	Burner 360 ↗	Burner 360 ↗
Solo Rejoin to Delta ↗	Solo Rejoin to Delta ↗	Solo Rejoin to Delta ↗
Delta BUP ←	Delta BUP ←	Delta BUP ←
Delta Roll ⇒	Delta Roll ⇒	Delta Flat Pass ⇒
Delta Loop ←	Delta 360 ←	Delta 360 ←
Delta Burst ↘	Delta Burst ↘	Delta Burst ↘
Opposing Split S →←	Opposing Split S / 4-Point →←	Opposing 4 Point →←
High Bomb Burst ⇒	Rapid Recovery ↗	Rapid Recovery ↗
Thunderbird Pitch ←	Thunderbird St-In	Thunderbird St-In
Reflection Pitch (Reflection Pass) ←	Solo St-In	Solo St-In

2025 5-SHIP SHOW

HIGH SHOW

LOW SHOW

FLAT SHOW

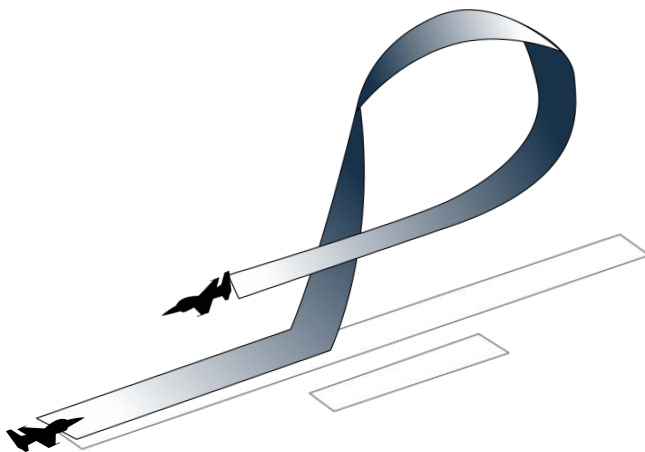
Diamond Takeoff / Loop on Takeoff		Low Transition Formation Takeoff		Low Transition Formation Takeoff	
(6) Roll on Takeoff	(5) Max Climb / Split S	(6) Roll on Takeoff	(5)Max Climb/Split S	(5 & 6) Roll on Takeoff	
Diamond Cloverloop Opener	⤴	Low Opener	⤴	Flat Opener	⤴
Max Climb	↑	Immelmann	↑	Left Pitchback	↑
Diamond PIR	←	Diamond PIR	←	Diamond PIR	←
Knife Edge	→	Knife Edge	→	Knife Edge	→
Diamond Roll	⇒	Diamond Roll	⇒	Diamond Flat Pass	⇒
4-Point Roll	←	4-Point Roll	←	4-Point Roll	←
Echelon Pass in Review	⇒	Echelon Pass in Review	⇒	Echelon Pass in Review	⇒
Sneak Pass	→	Sneak Pass	→	Sneak Pass	→
Aileron Rolls	←	Aileron Rolls	←	Aileron Rolls	←
Bon Ton Roule	⇐	Bon Ton Roule	⇐	Bon Ton Roule	⇐
8-Point	→	Inverted to Inverted	→	Inverted to Inverted	→
Trail to Diamond BUP	⇒	Trail to Diamond BUP	⇒	Trail to Diamond BUP	⇒
Inverted to Inverted	←	Repo for High Low Hit		Repo for High Low Hit	
Trail to Diamond Cloverloop	⤵	High Low Pass	←	High Low Pass	←
Chaos Rejoin to Stinger	↑	Rejoin to Stinger	↑	Rejoin to Stinger	↑
Low Bomb Burst	⤵	Low Bomb Burst	⤵	Low Bomb Burst	⤵
High Alpha / Muscle	←	High Alpha / Muscle	←	High Alpha / Muscle	←
4 Card Loop	⇐	4 Card Flat Pass	⇐	4 Card Flat Pass	⇐
Vertical Rolls	→	8-Point Roll	→	8-Point Roll	→
Line Break Loop (Slot)	⇒	Slot Break Cross	⇒	Slot Break Cross	⇒
Max Turn, 1/2 Cuban	→	Max Turn, 1/2 Cuban	→	Max Turn	→
Burner 360	⤴	Burner 360	⤴	Burner 360	⤴
Solo Rejoin to Wedge	⤴	Solo Rejoin to Wedge	⤴	Solo Rejoin to Wedge	⤴
Wedge BUP	⇐	Wedge BUP	⇐	Wedge BUP	⇐
Wedge Roll	⇒	Wedge Roll	⇒	Wedge Flat Pass	⇒
Wedge Loop	⇐	Wedge 360	⇐	Wedge 360	⇐
Wedge Burst	⤵	Wedge Burst	⤵	Wedge Burst	⤵
Inverted (6) / Slow Roll (5)	→ or ←	Inverted (6) / Slow Roll (5)	→ or ←	Inverted (6) / Slow Roll (5)	→ or ←
High Bomb Burst	⇒	Rapid Recovery	⤴	Rapid Recovery	⤴
High Bomb Burst RJ	⇐	Thunderbird St-In		Thunderbird St-In	
Thunderbird Pitch	⇐	Solo St-In		Solo St-In	
KE (Top of jet)	←				

Thunderbird Demonstration Maneuvers



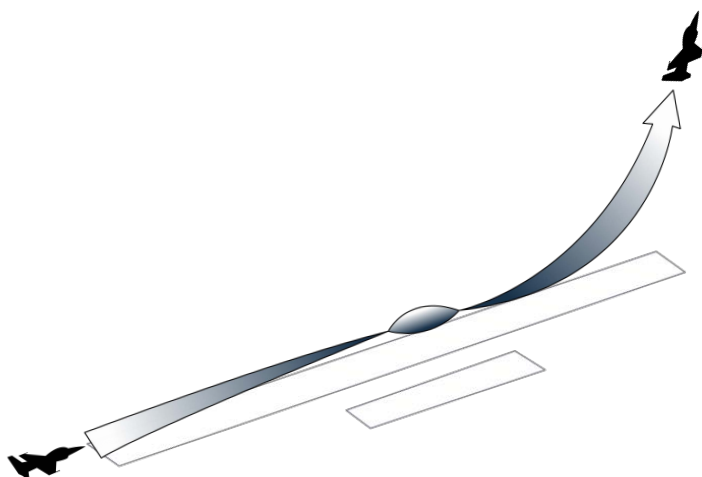
Entry A/S: 300-400kts
Exit A/S: 300-400kts
Entry Alt: N/A
Exit Alt: 300'

DIAMOND LOOP ON TAKEOFF
(EITHER DIRECTION)



Entry A/S: 170kts
Exit A/S: .95M
Entry Alt: N/A
Exit Alt: 100'

MAX CLIMB WITH
SPLIT-S ON TAKEOFF
(EITHER DIRECTION)



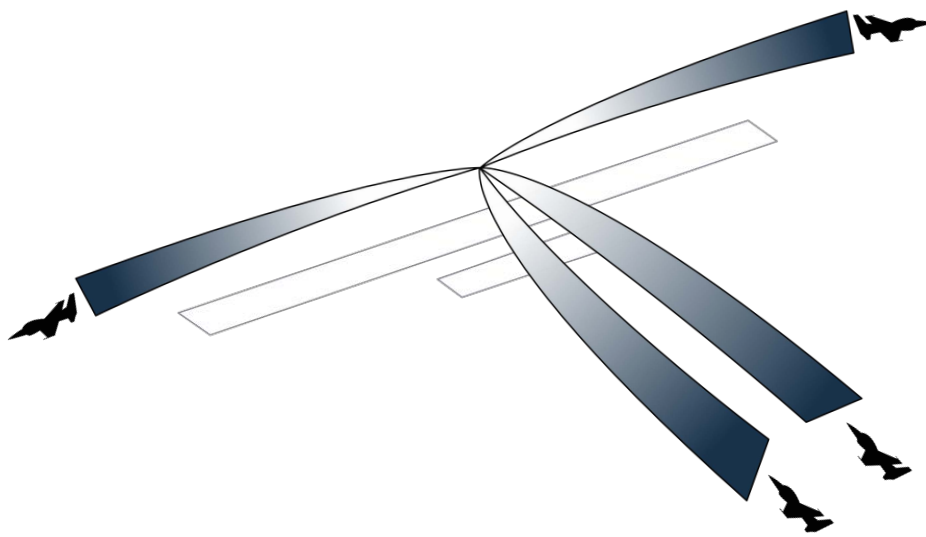
Entry A/S: 250-350kts
Exit A/S: 250-300kts
Entry Alt: N/A
Exit Alt: 100'

SOLO ROLL ON TAKEOFF
(EITHER DIRECTION)



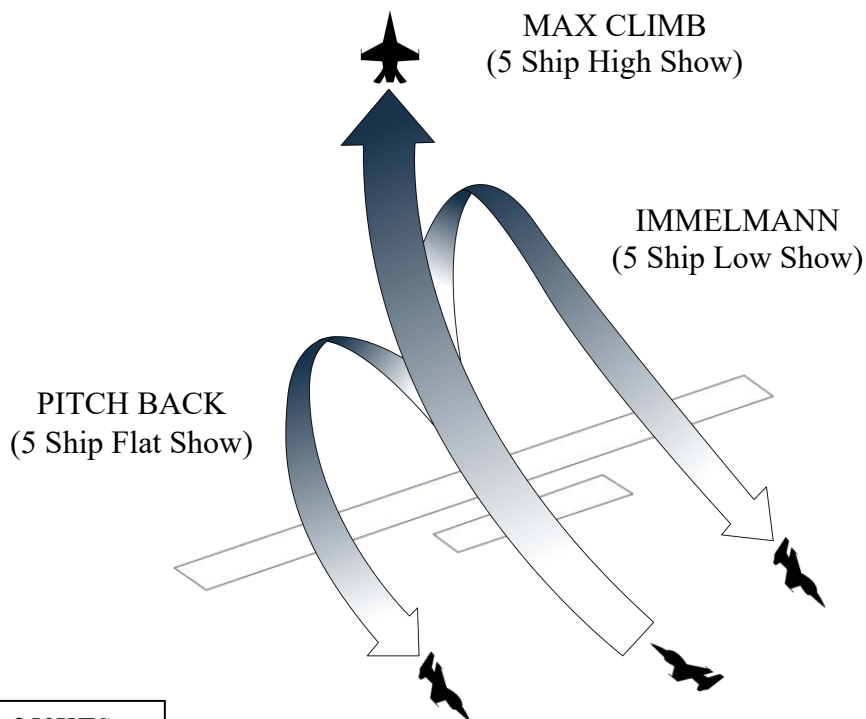
Entry A/S: 350-450kts
Exit A/S: 350-450kts
Entry Alt: 500'-150'
Exit Alt: 500'-150'

CLOVERLOOP
OPENER



Entry A/S: 250-500kts
Exit A/S: 250-500kts
Entry Alt: 500'-100'
Exit Alt: 500'-100'

CROSS OVER
BREAK



MAX CLIMB
(5 Ship High Show)

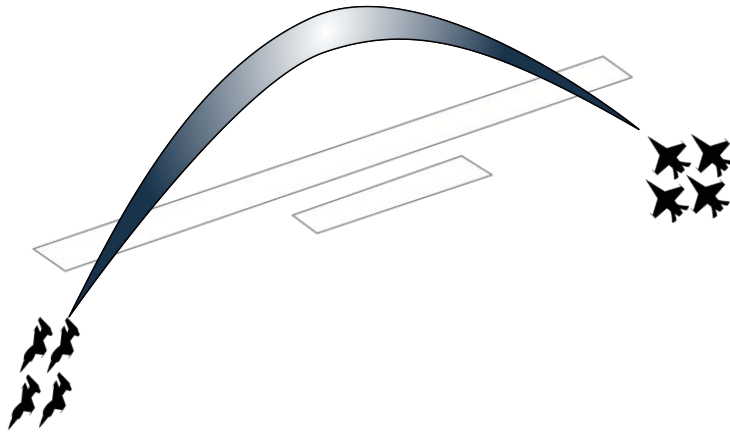
IMMELMANN
(5 Ship Low Show)

PITCH BACK
(5 Ship Flat Show)

Entry A/S: 250kts
Exit A/S: .95M
Entry Alt: 500'
Exit Alt: TFR ceiling

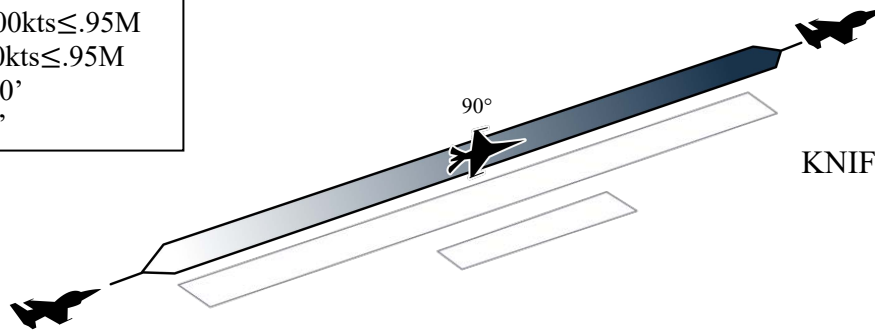
Entry A/S: 250KTS
Exit A/S: .95M
Entry Alt: 500'
Exit Alt: 100'

Entry A/S: 250-350kts
Exit A/S: 250-350kts
Entry Alt: 500'-100'
Exit Alt: 500'-100'



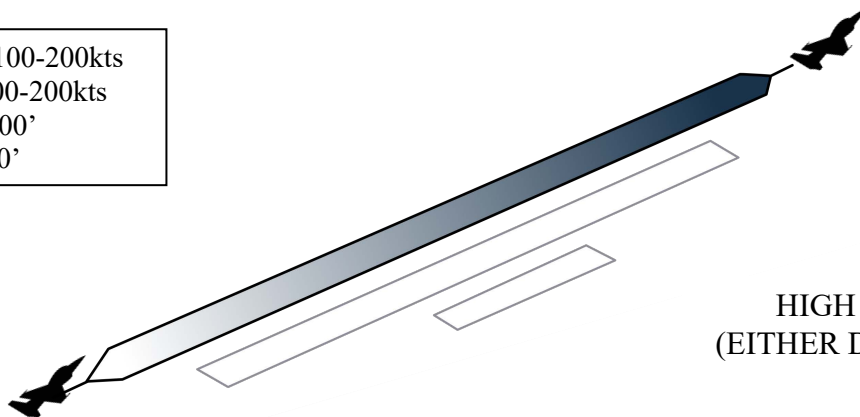
DIAMOND PASS
IN REVIEW

Entry A/S: 300kts \leq .95M
Exit A/S: 300kts \leq .95M
Entry Alt: 100'
Exit Alt: 100'



KNIFE-EDGE

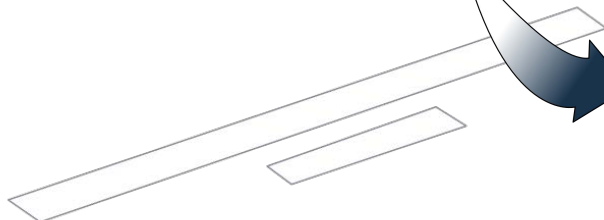
Entry A/S: 100-200kts
Exit A/S: 100-200kts
Entry Alt: 100'
Exit Alt: 100'



HIGH ALPHA
(EITHER DIRECTION)

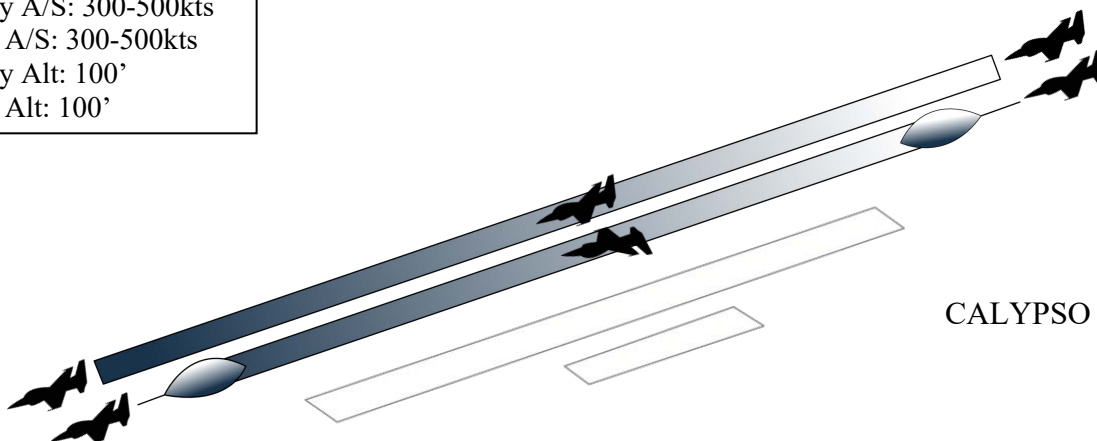


Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 250'-150'
Exit Alt: 250'-150'

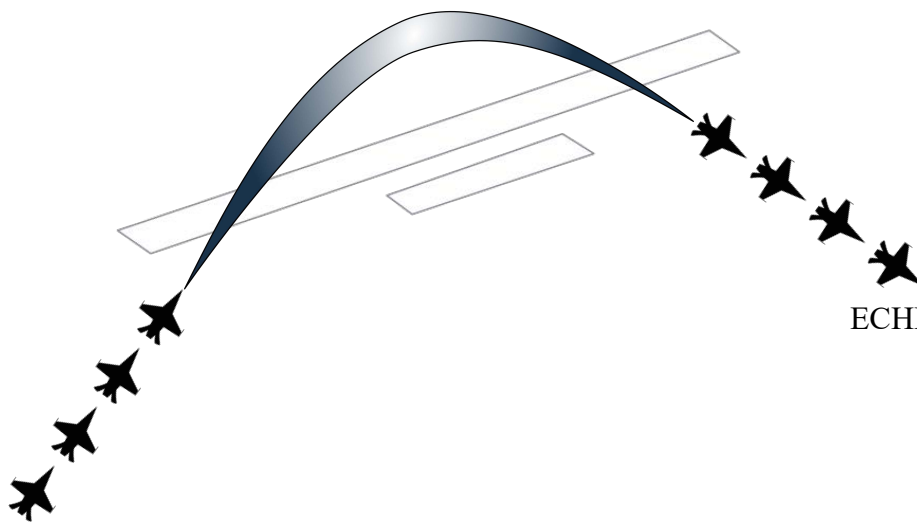


DIAMOND ROLL

Entry A/S: 300-500kts
Exit A/S: 300-500kts
Entry Alt: 100'
Exit Alt: 100'

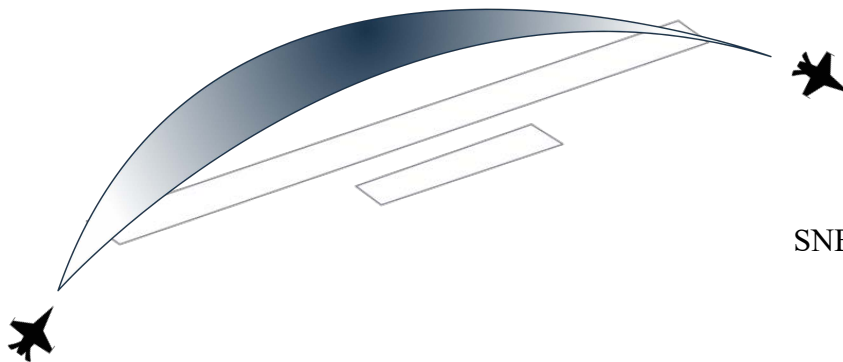


CALYPSO PASS



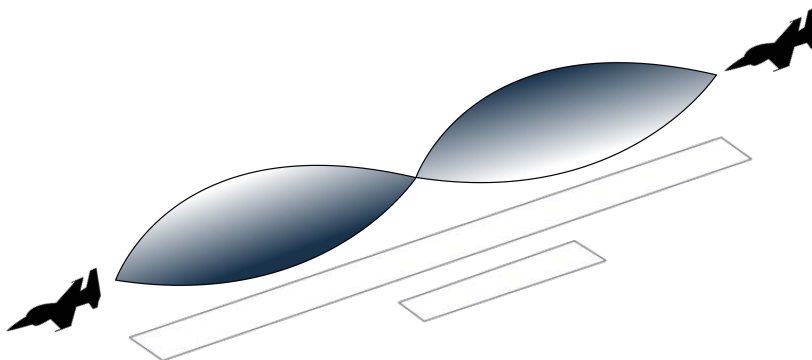
Entry A/S: 250-350kts
Exit A/S: 250-350kts
Entry Alt: 500'-150'
Exit Alt: 500'-150'

ECHELON PASS-IN-REVIEW



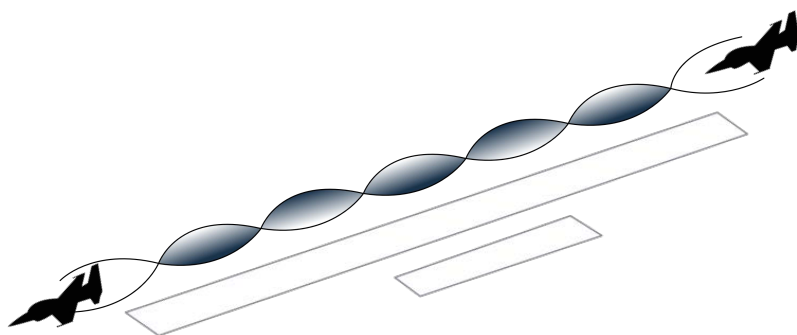
Entry A/S: $.8M \leq .95M$
Exit A/S: $.8M \leq .95M$
Entry Alt: 100'
Exit Alt: 100'

SNEAK PASS/AFTER BURNER ON
(EITHER DIRECTION)



Entry A/S: 300-550kts
Exit A/S: 300-550kts
Entry Alt: 100'
Exit Alt: 100'

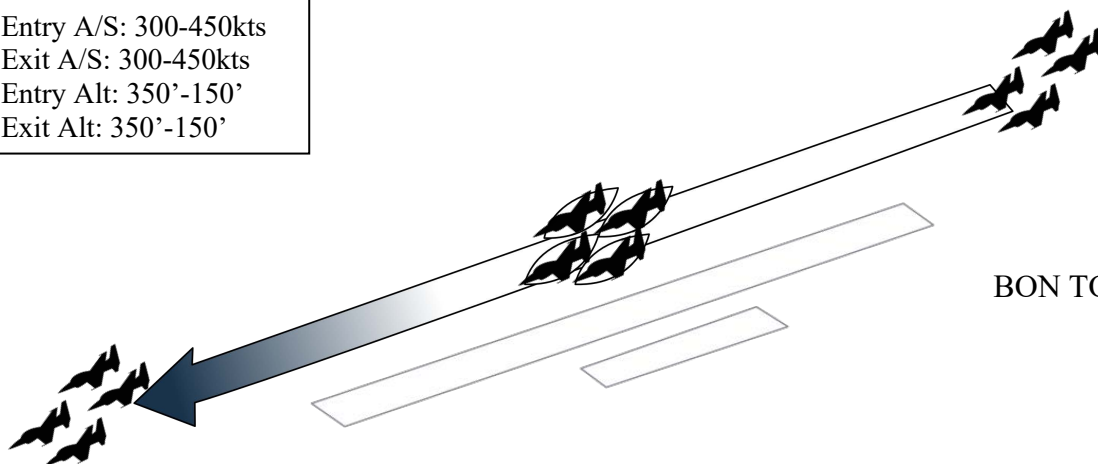
SLOW ROLL
(EITHER DIRECTION)



Entry A/S: 300-550kts
Exit A/S: 300-550kts
Entry Alt: 100'
Exit Alt: 100'

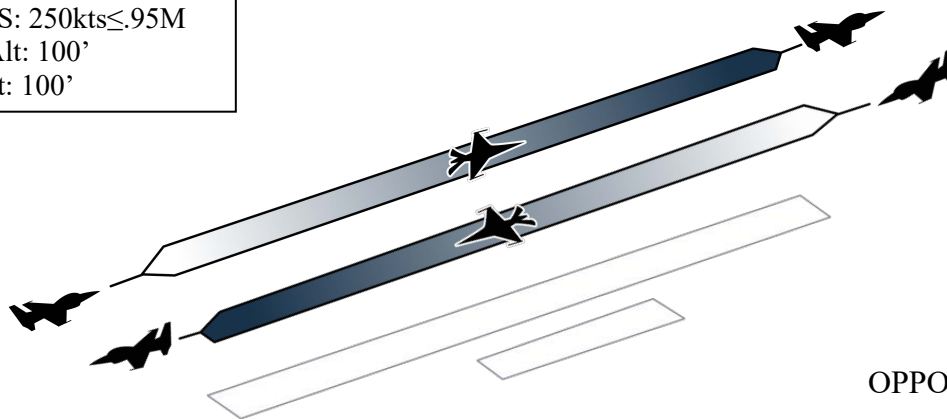
AILERON ROLLS
(EITHER DIRECTION)

Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 350'-150'
Exit Alt: 350'-150'

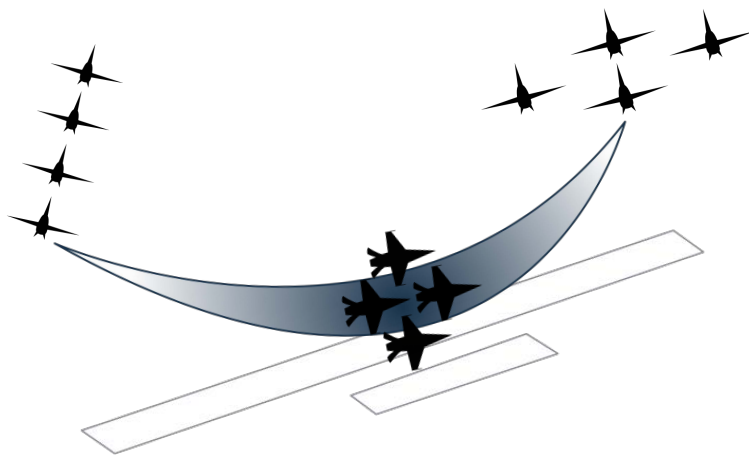


BON TON ROULLE

Entry A/S: 250kts \leq .95M
Exit A/S: 250kts \leq .95M
Entry Alt: 100'
Exit Alt: 100'



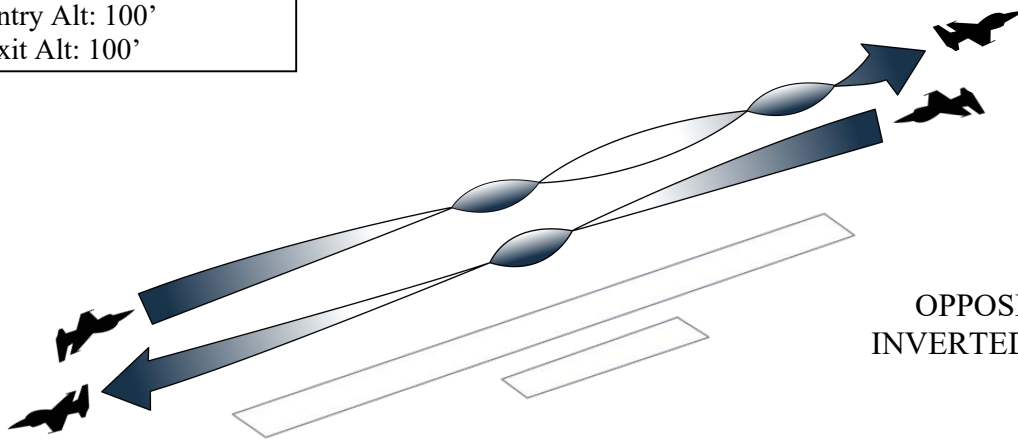
OPPOSING KNIFE-EDGE



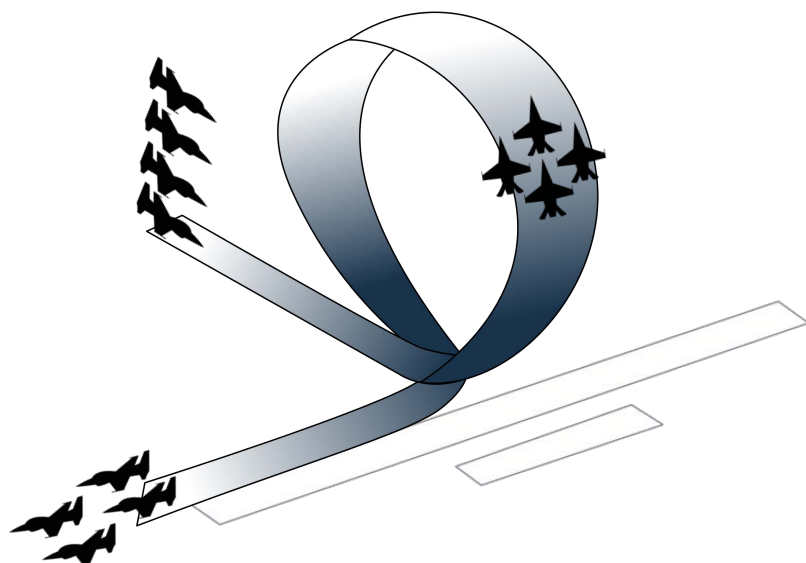
Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 250'-150'
Exit Alt: 250'-150'

TRAIL TO DIAMOND
BOTTOM UP PASS

Entry A/S: 250kts \leq .95M
Exit A/S: 250kts \leq .95M
Entry Alt: 100'
Exit Alt: 100'

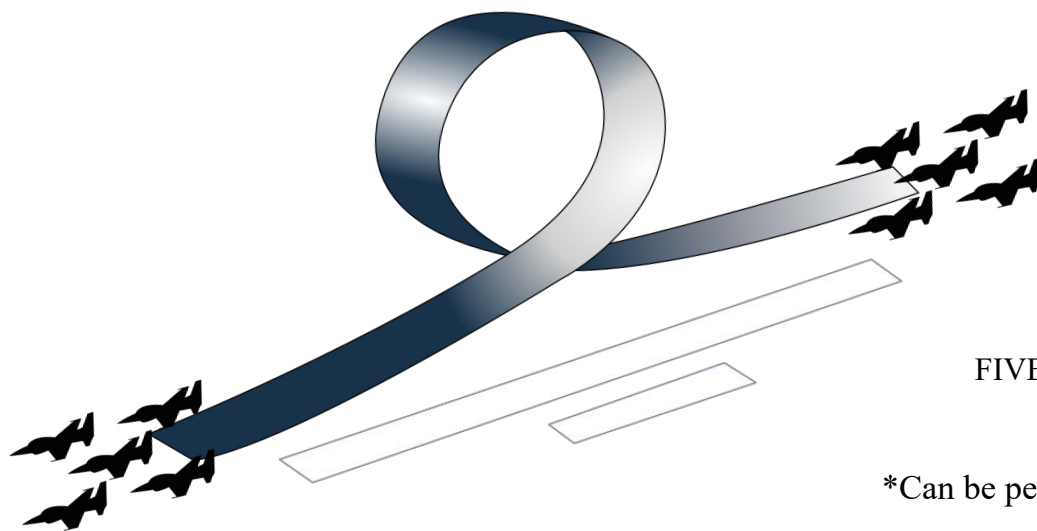


OPPOSING
INVERTED PASS



Entry A/S: 350-450kts
Exit A/S: 350-450kts
Entry Alt: 300'-150'
Exit Alt: 300'-150'

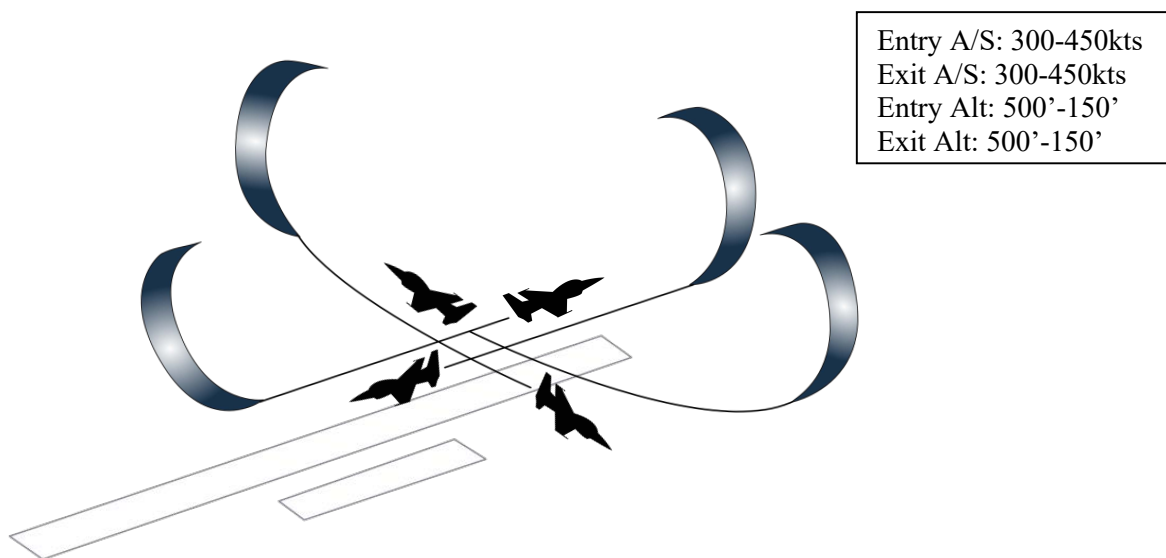
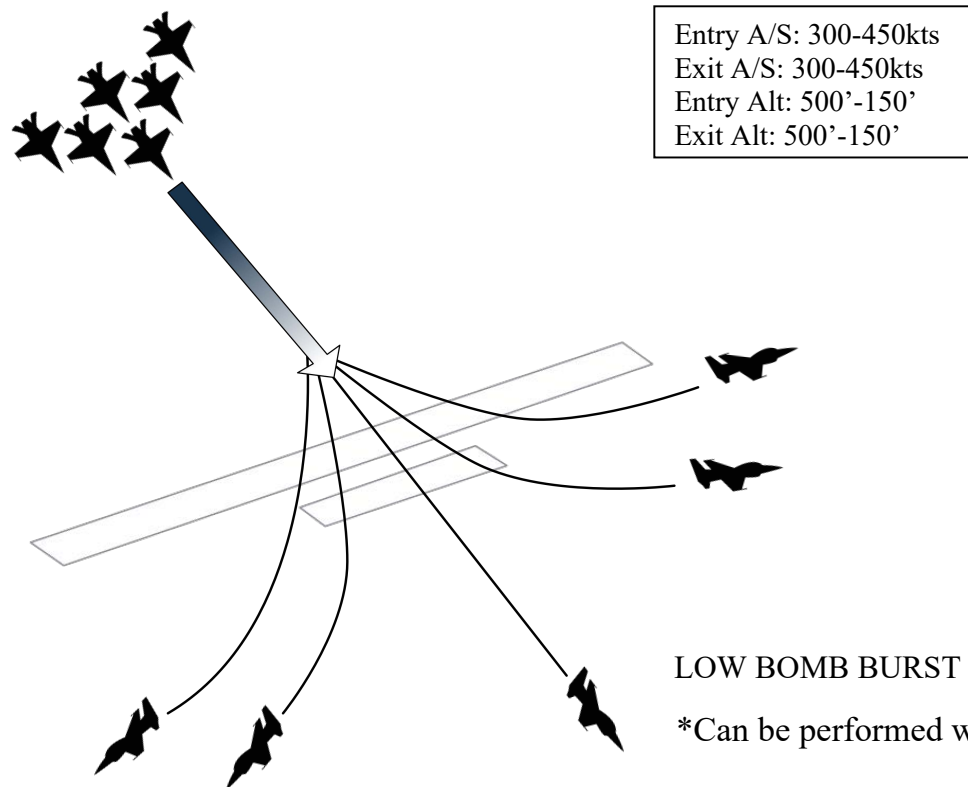
TRAIL-TO-DIAMOND CLOVERLOOP



Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'-200'
Exit Alt: 300'-200'

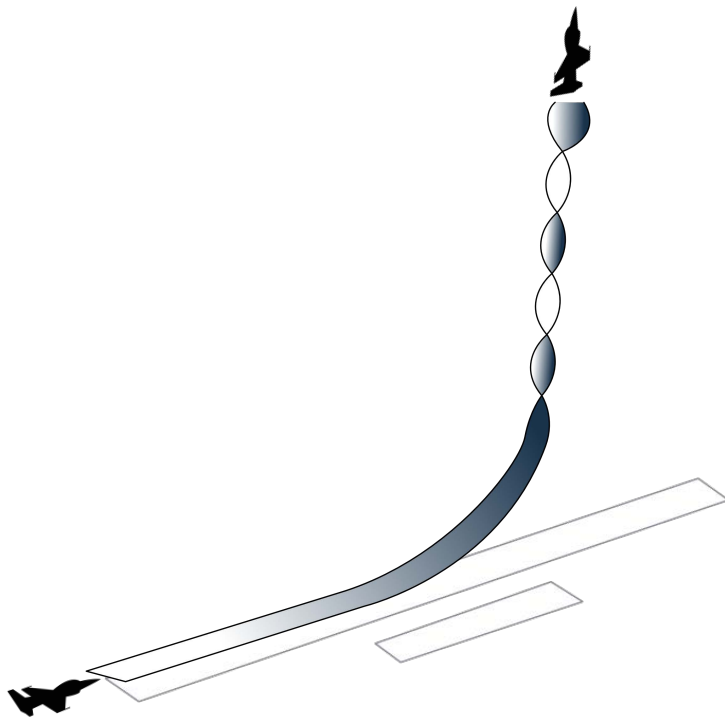
FIVE CARD LOOP

*Can be performed with 4-ship



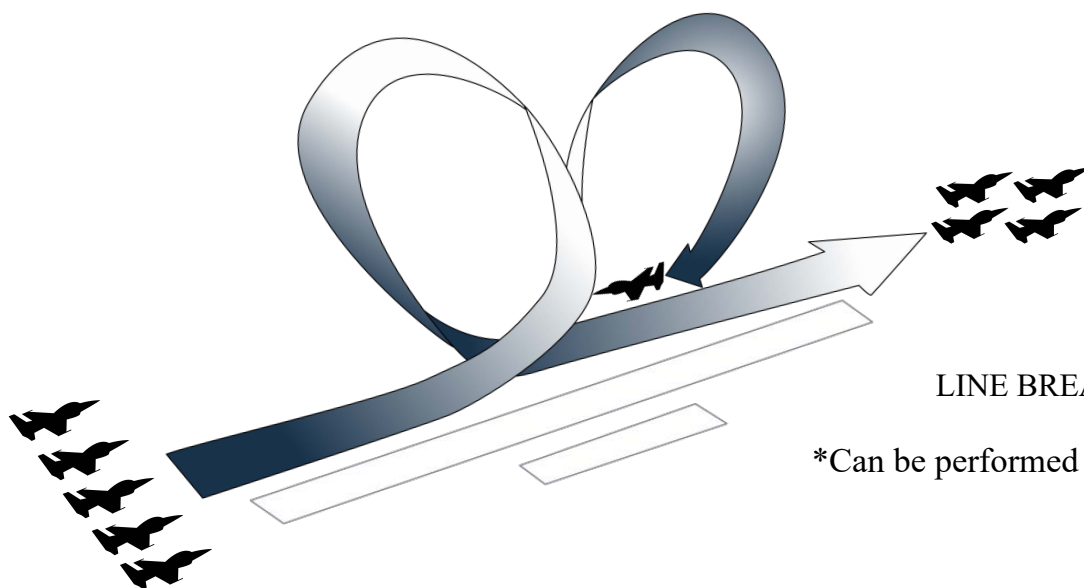
LOWBOMB BURST CROSS

(Aircraft flying over the crowd will be at 500' minimum. #5 jet will be 500' over the crowd with entry/exit airspeeds of 300kts \leq .95M)



Entry A/S: 300kts \leq .95M
Exit A/S: 300kts \leq .95M
Entry Alt: 100'
Exit Alt: TFR ceiling

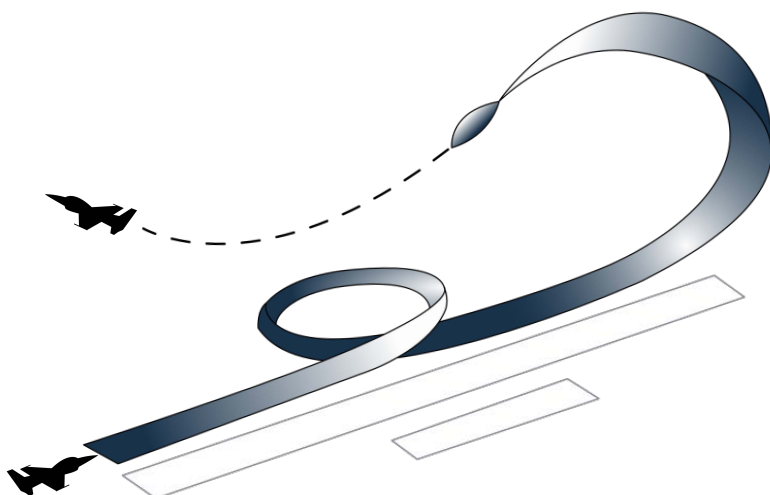
VERTICAL ROLLS



Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'-200'
Exit Alt: 300'-200'

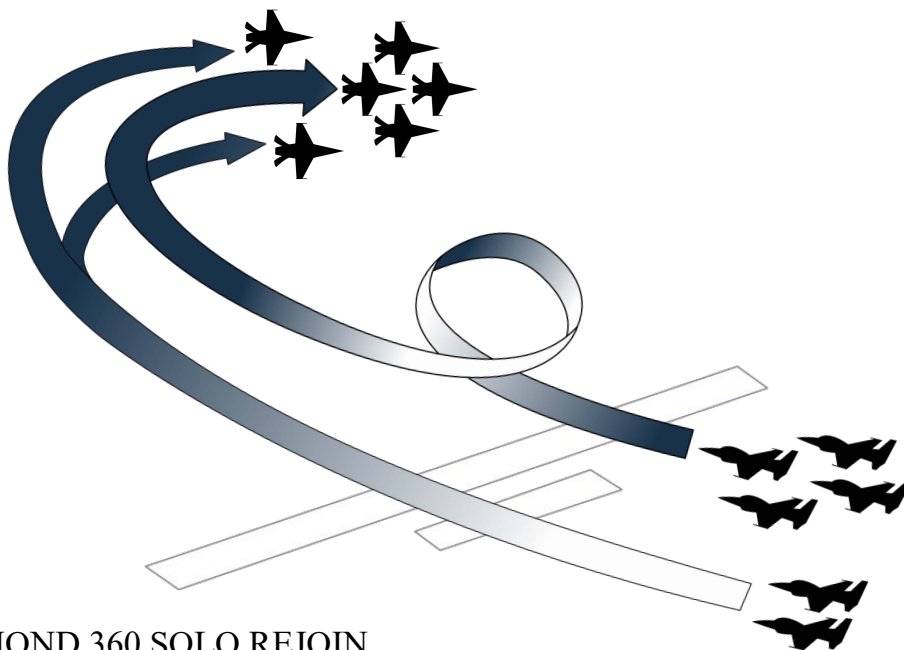
LINE BREAK LOOP

*Can be performed with 4-ship



Entry A/S: 300-500kts
Exit A/S: 300-500kts
Entry Alt: 100'
Exit Alt: 100'

MAX TURN WITH
HALF CUBAN EIGHT

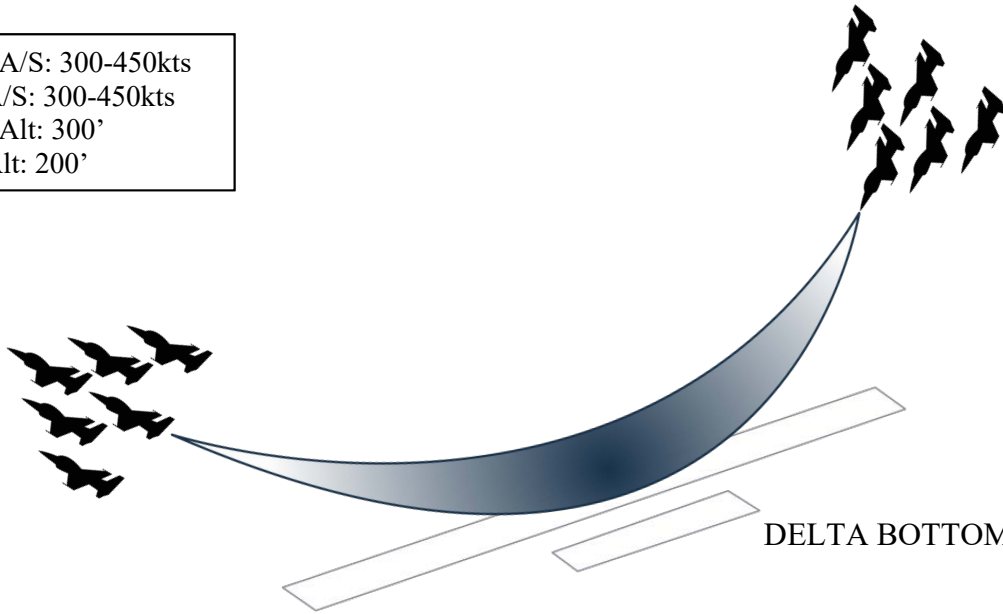


Entry A/S: 250-500kts
Exit A/S: 250-500kts
Entry Alt: 500'
Exit Alt: 150'

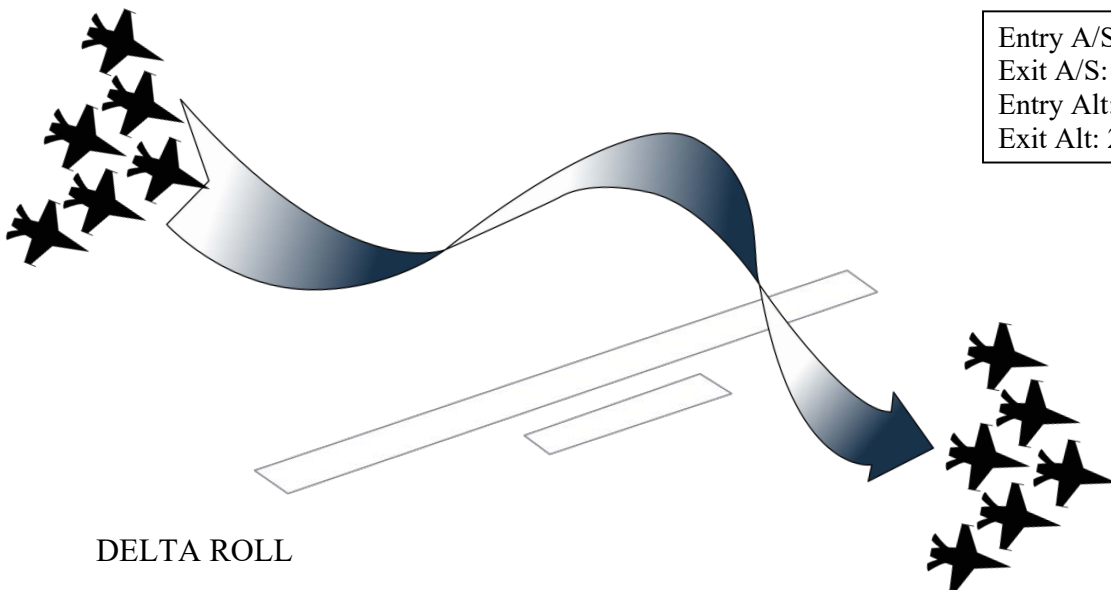
DIAMOND 360 SOLO REJOIN
(AFTERBURNER ON)

(Aircraft flying over the crowd will be at 500' minimum. The solos will be 500' over the crowd, descend no lower than 100' once past the crowd. Entry/exit airspeeds of 250-500kts.)

Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'
Exit Alt: 200'



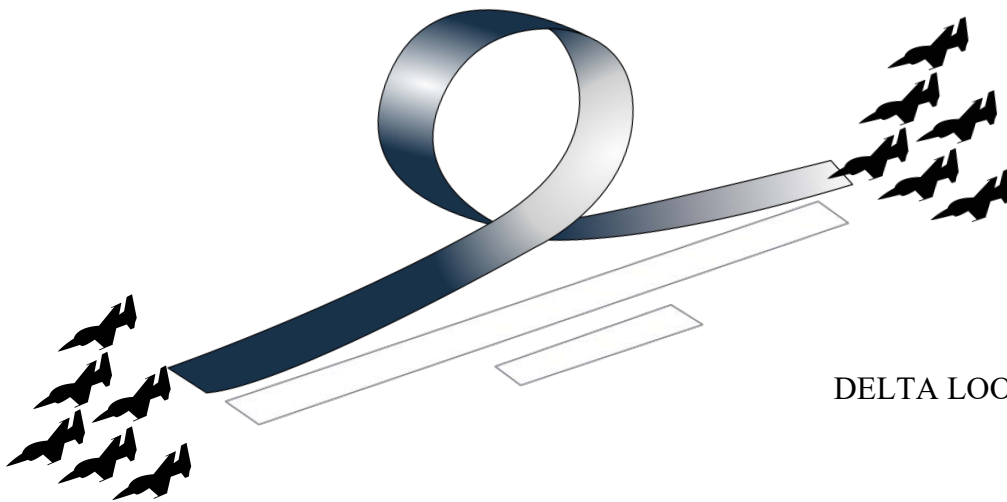
DELTA BOTTOM-UP-PASS



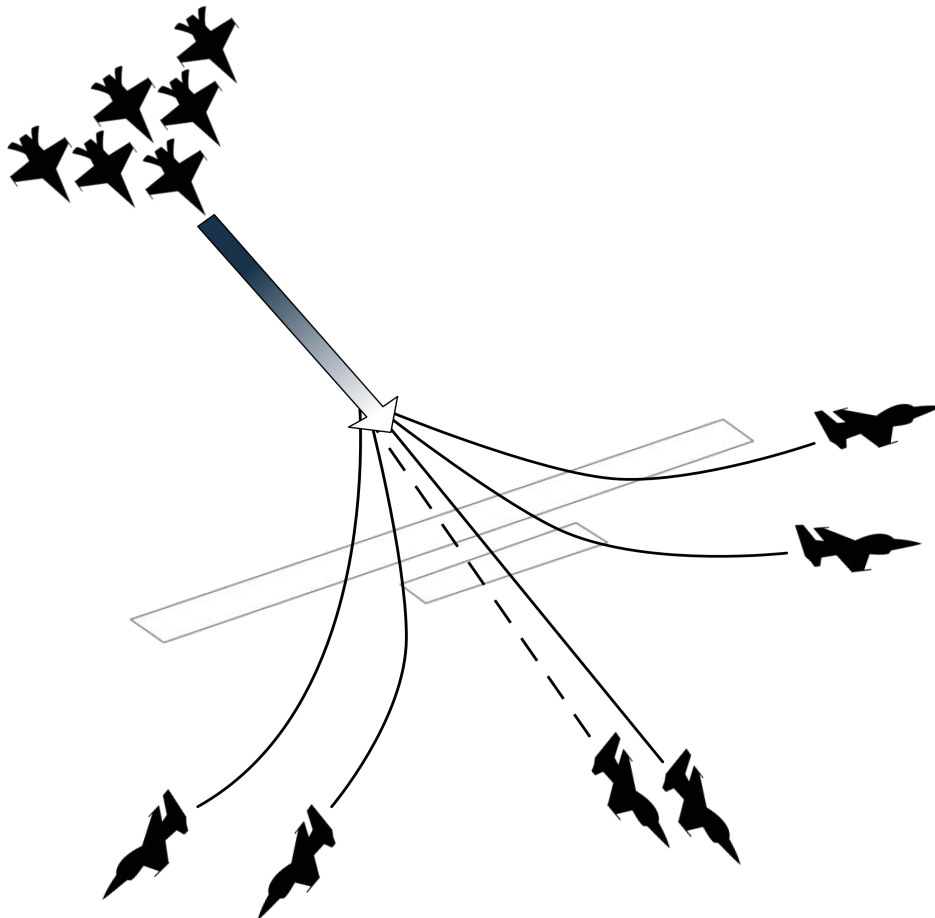
DELTA ROLL

Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'
Exit Alt: 200'

Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'
Exit Alt: 200'



DELTA LOOP

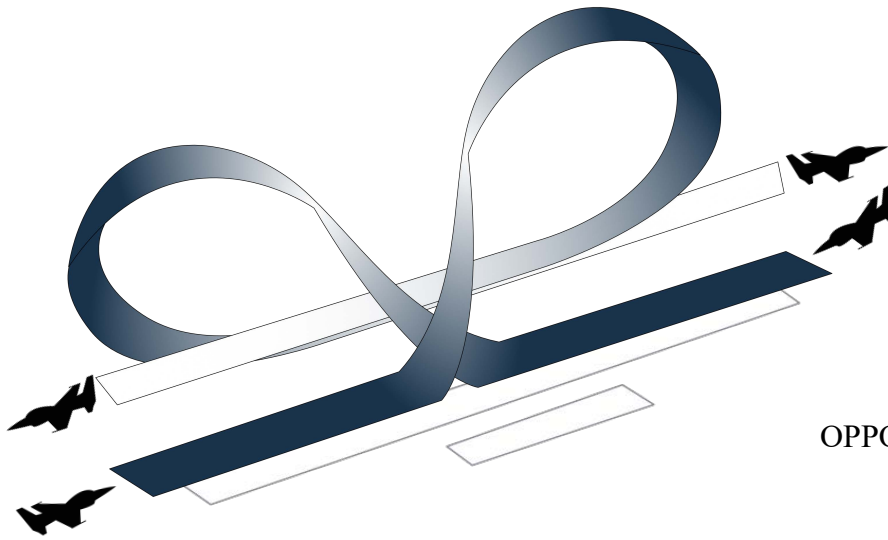


Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 400'
Exit Alt: 500'

DELTA BURST

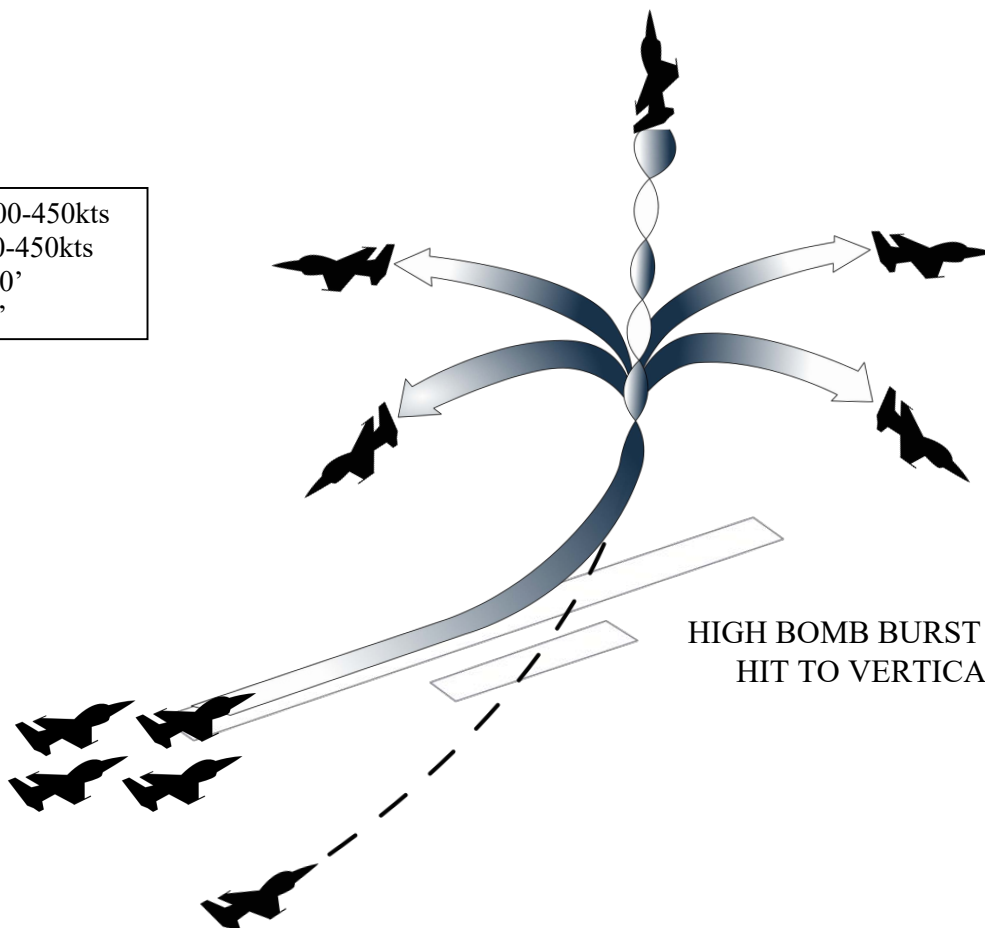
(Aircraft flying over the crowd will be at 500' minimum)

Entry A/S: 250kts \leq .95M
 Exit A/S: 250kts \leq .95M
 Entry Alt: 100'
 Exit Alt: 100'



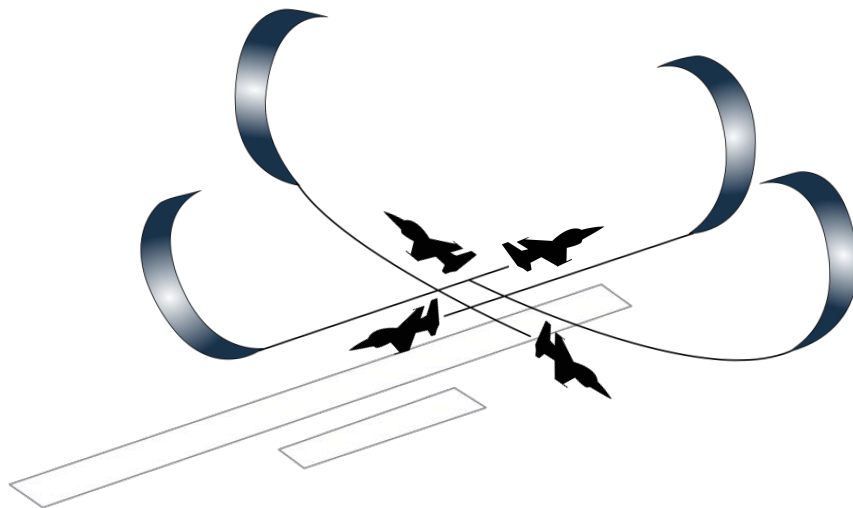
OPPOSING SPLIT-S

Entry A/S: 300-450kts
 Exit A/S: 300-450kts
 Entry Alt: 300'
 Exit Alt: 150'



HIGH BOMB BURST WITH SOLO
 HIT TO VERTICAL ROLLS

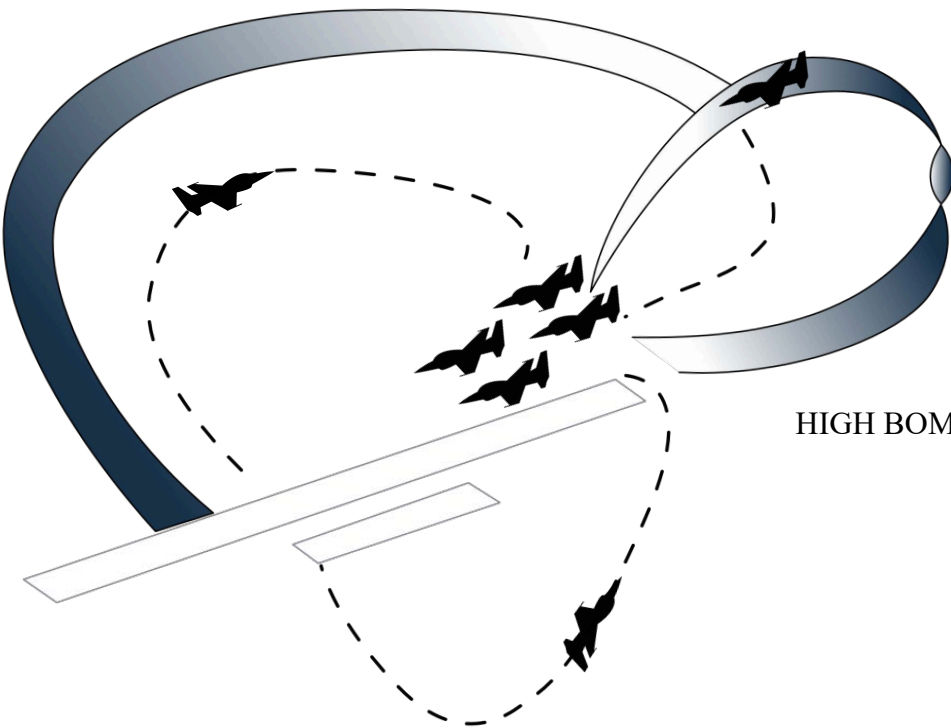
(The #5 jet will be 500' over the crowd and climb no higher than the TFR ceiling. Entry/exit airspeeds of 300kts \leq .95M)



Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 400'
Exit Alt: 150'

HIGH BOMB BURST CROSS

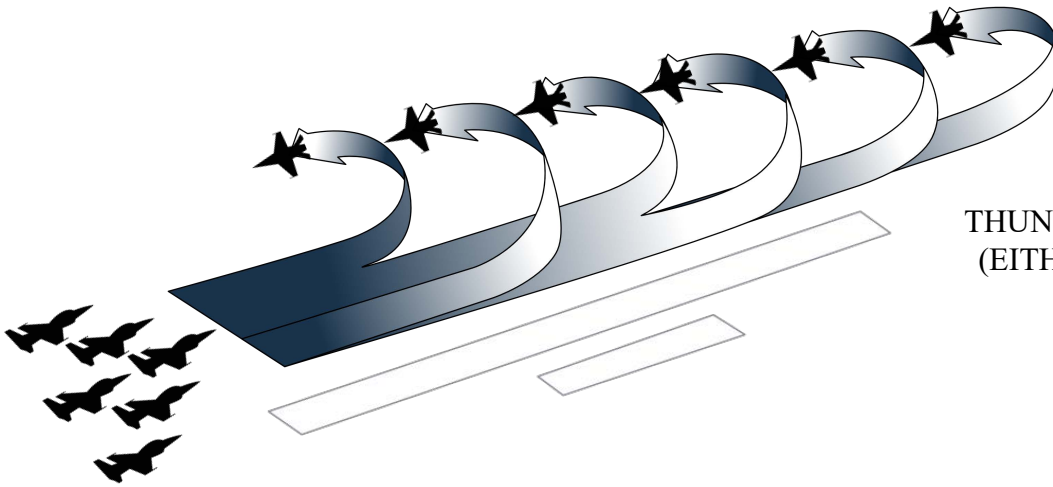
(The #5 jet will be 500' over the crowd and climb no higher than the TFR ceiling. Entry/exit airspeeds of 300kts≤.95M)



Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'
Exit Alt: 150'

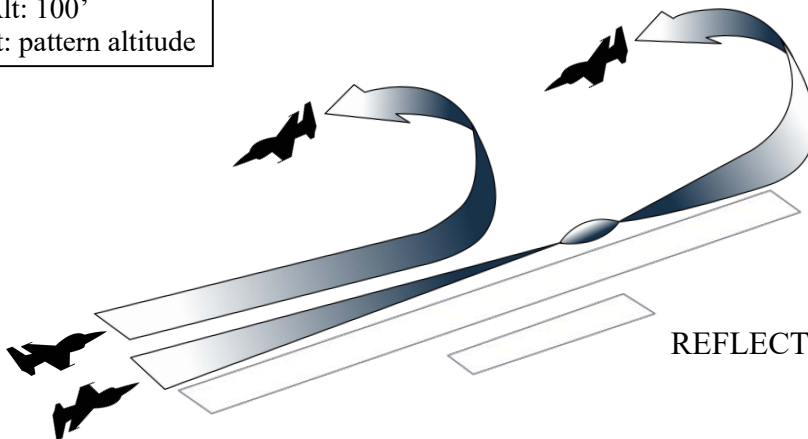
HIGH BOMB BURST REJOIN

Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'
Exit Alt: pattern altitude



THUNDERBIRD PITCH
(EITHER DIRECTION)

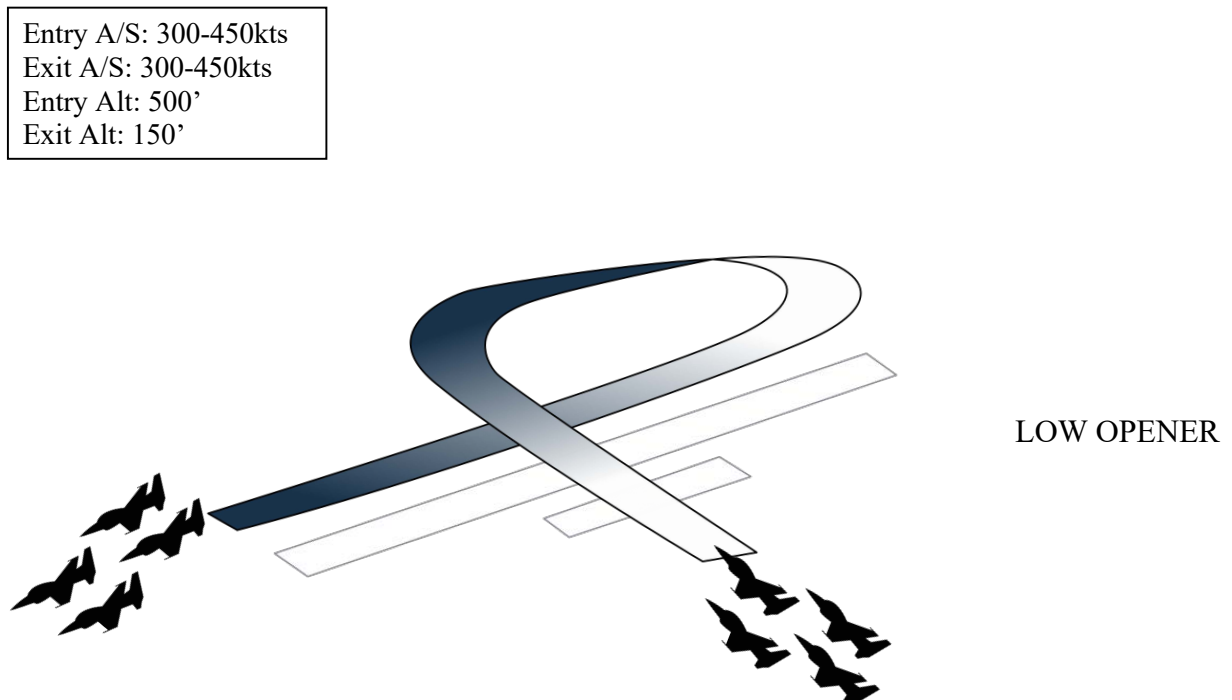
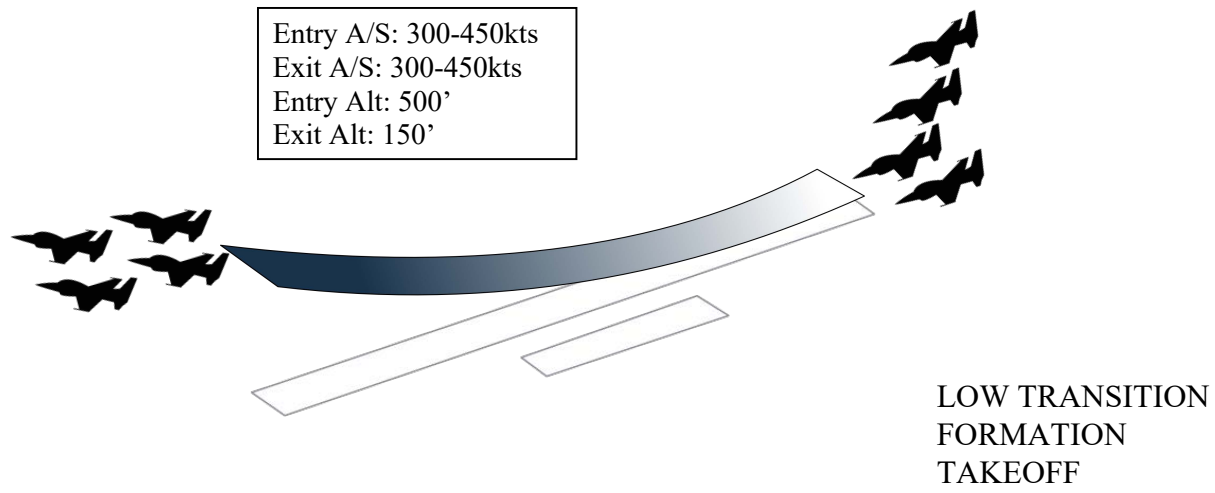
Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 100'
Exit Alt: pattern altitude

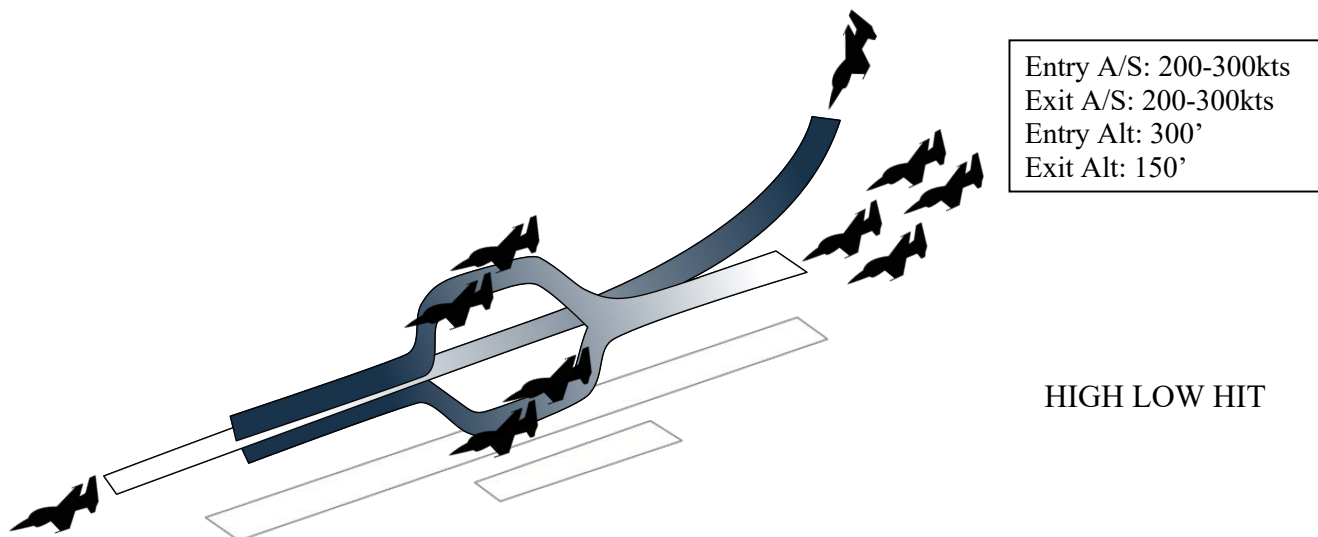


REFLECTION PITCH/REFLECTION PASS
(EITHER DIRECTION)

Entry A/S: 300-500kts
Exit A/S: 300-500kts
Entry Alt: 100'
Exit Alt: 100'

Thunderbird Low Show Demonstration Maneuvers

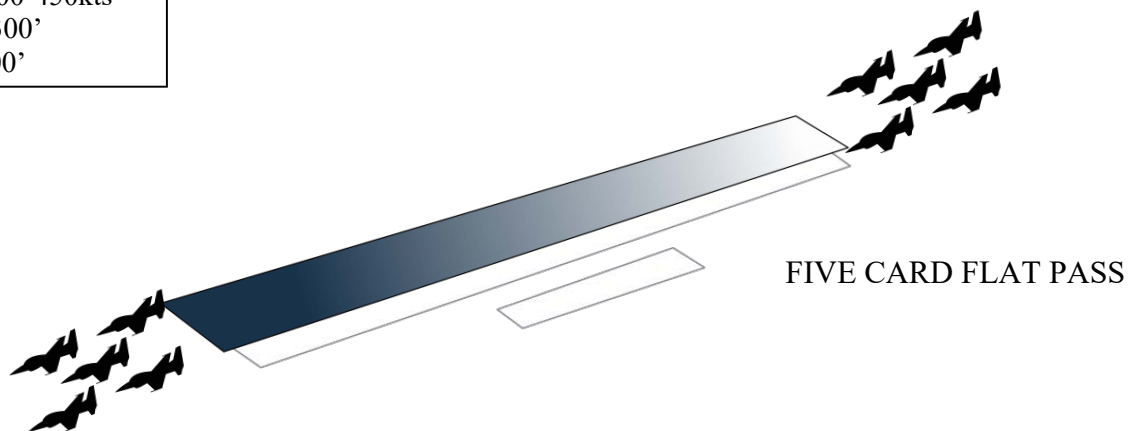




HIGH LOW HIT

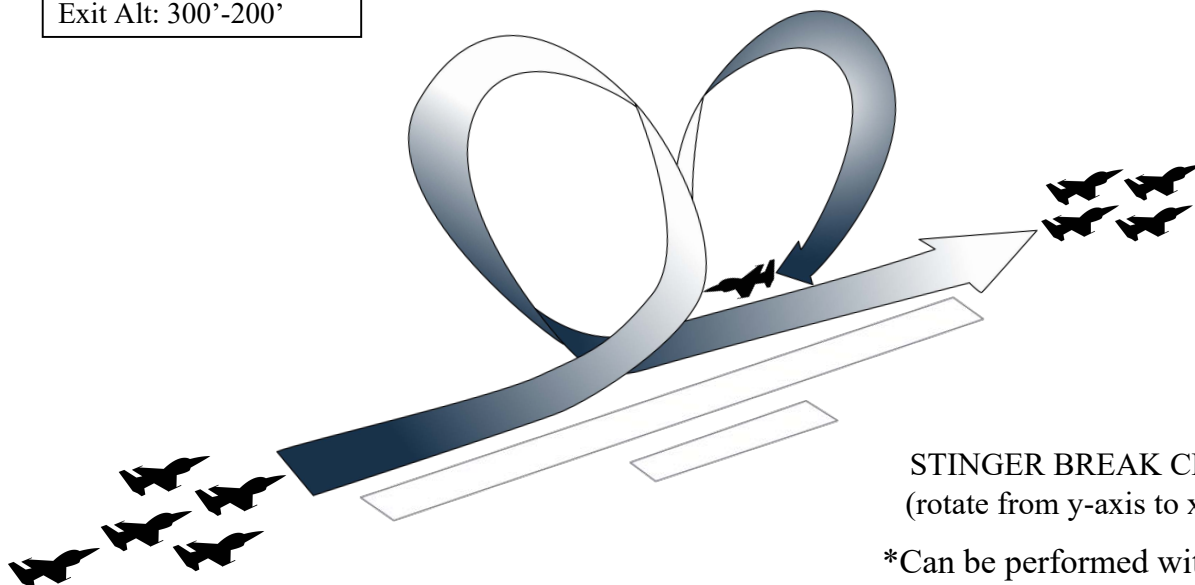
(The #5 jet will fly between 300'-500' with entry/exit airspeeds of 250kts ≤ 95M. Post pass, solo executes Half Cuban then rejoins with Diamond.)

Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'
Exit Alt: 200'

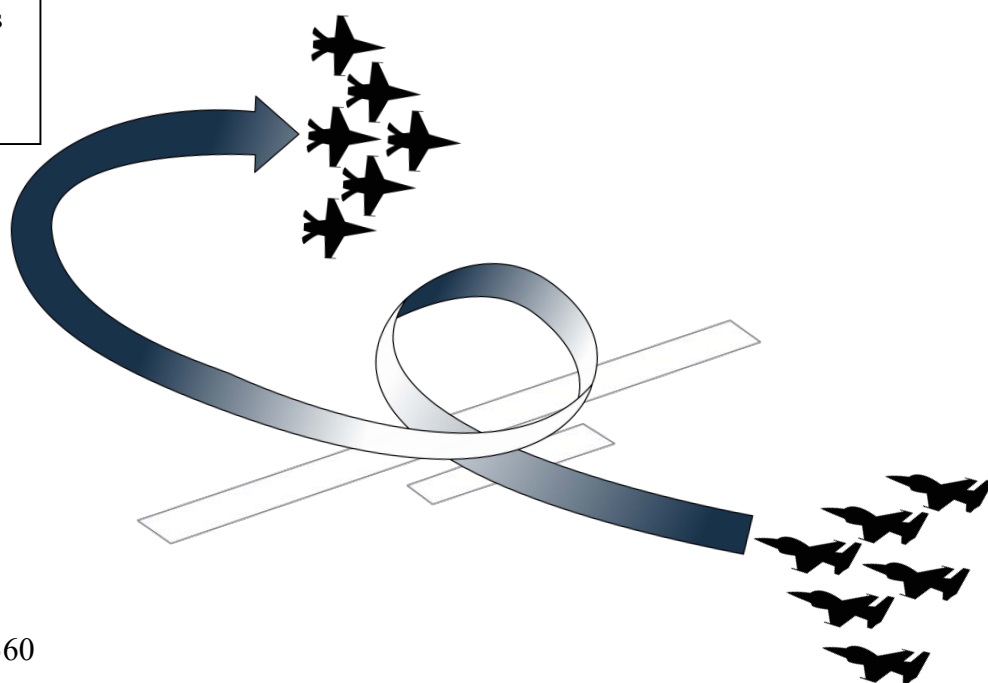


*Can be performed with 4-ship

Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'-200'
Exit Alt: 300'-200'



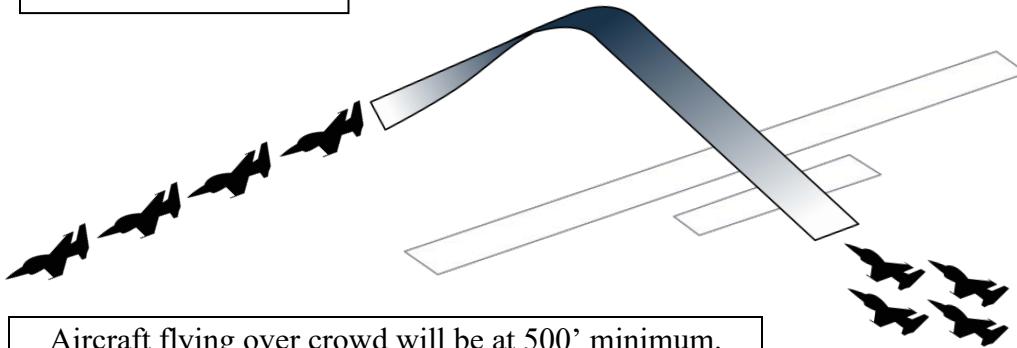
Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'
Exit Alt: 200'



DELTA 360

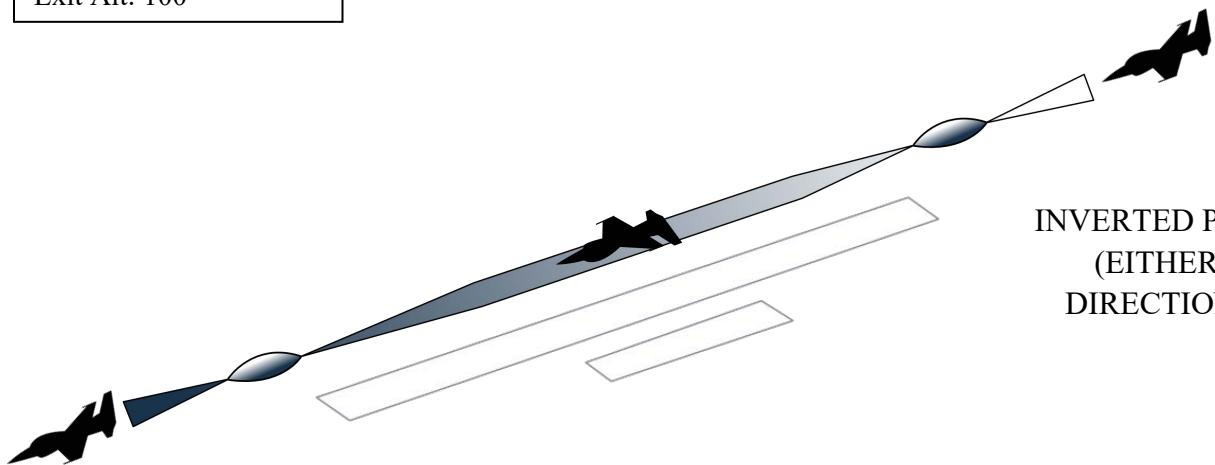
Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 500'
Exit Alt: 150'

RAPID RECOVERY



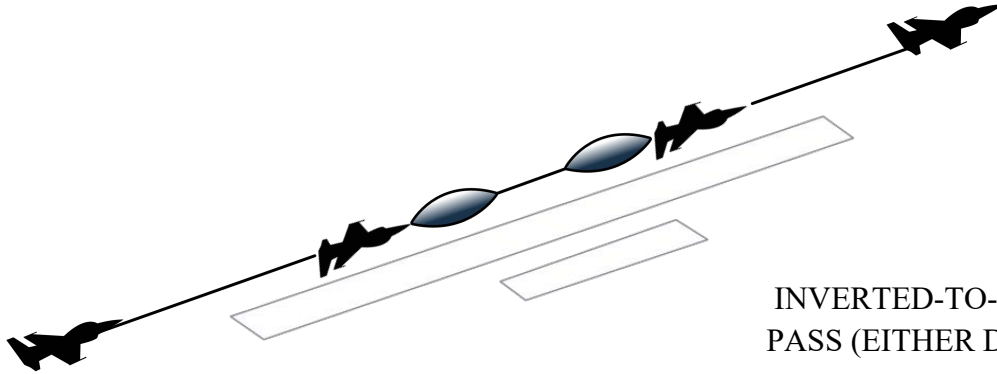
Aircraft flying over crowd will be at 500' minimum.

Entry A/S: 300-500kts
Exit A/S: 300-500kts
Entry Alt: 100'
Exit Alt: 100'



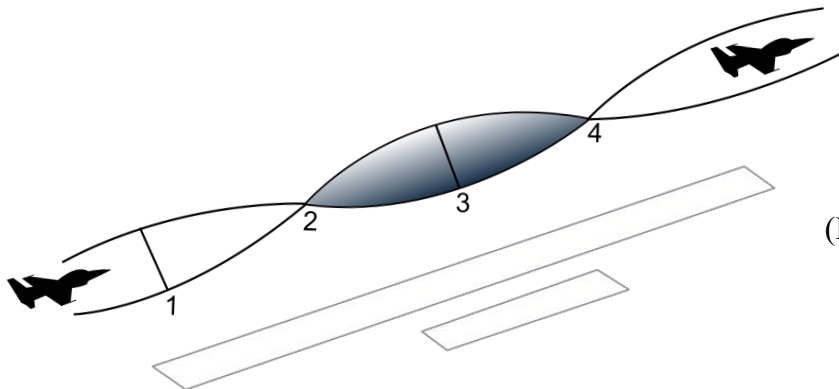
INVERTED PASS (EITHER DIRECTION)

Entry A/S: 300-500kts
Exit A/S: 300-500kts
Entry Alt: 100'
Exit Alt: 100'



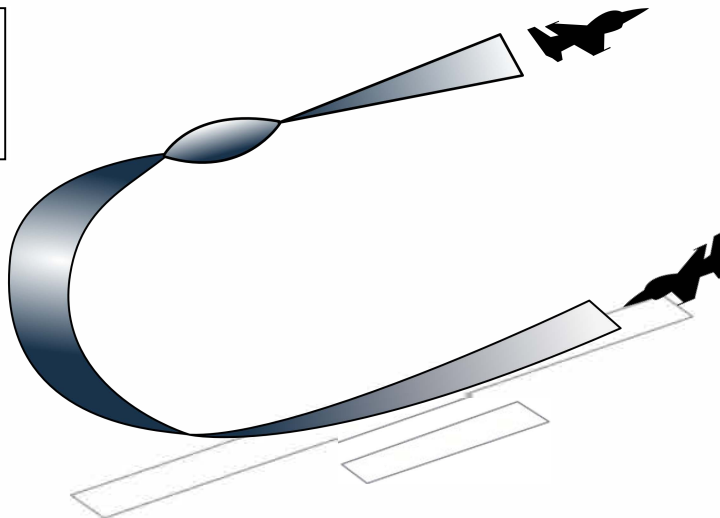
INVERTED-TO-INVERTED
PASS (EITHER DIRECTION)

Entry A/S: 300-500kts
Exit A/S: 300-500kts
Entry Alt: 100'
Exit Alt: 100'



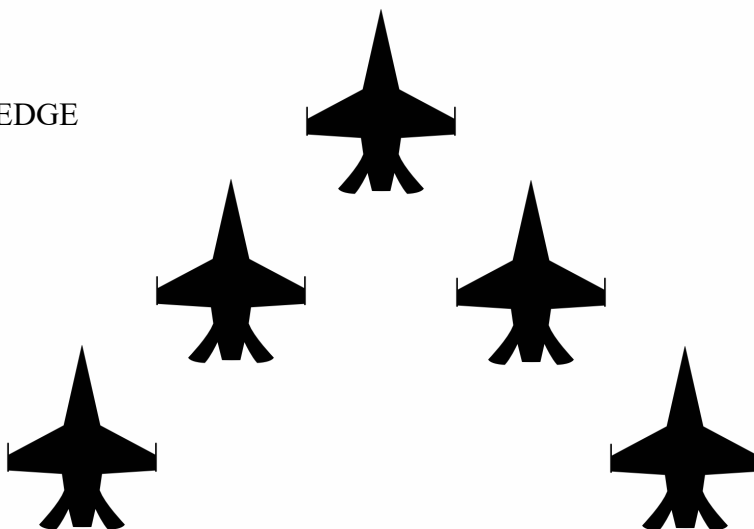
FOUR POINT ROLL
(EITHER DIRECTION)

Entry A/S: 300-500kts
Exit A/S: 300-500kts
Entry Alt: 100'
Exit Alt: 100'



IMMELMANN

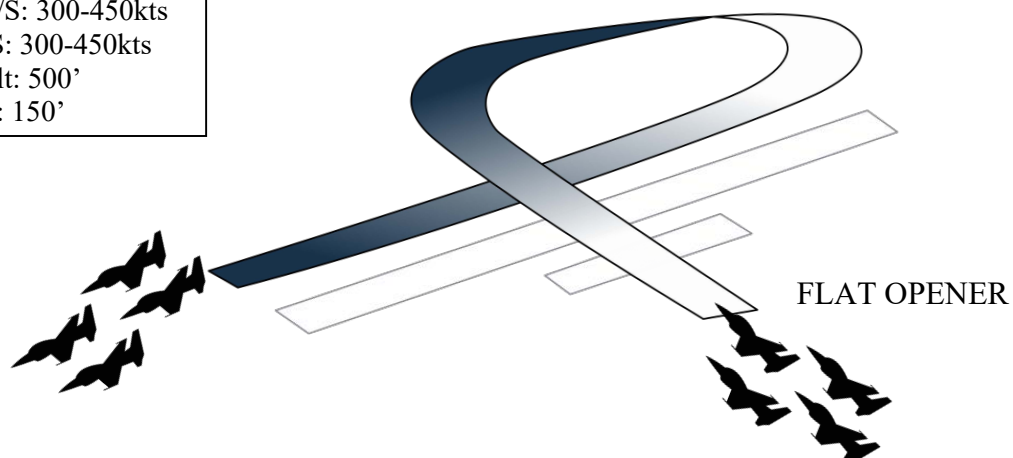
WEDGE



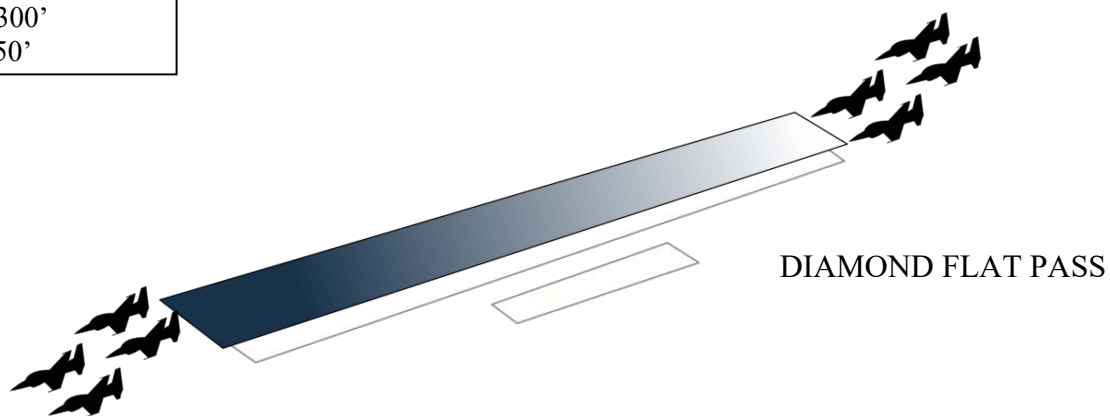
ANY MANEUVER FLOWN WITH A DELTA FORMATION CAN
ALSO BE FLOWN WITH A WEDGE FORMATION

Thunderbird Flat Show Demonstration Maneuvers

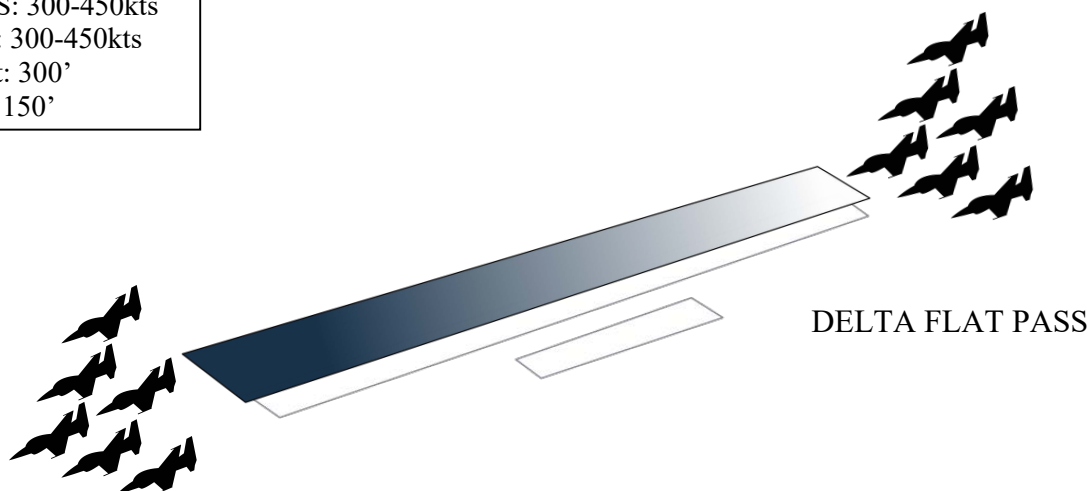
Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 500'
Exit Alt: 150'

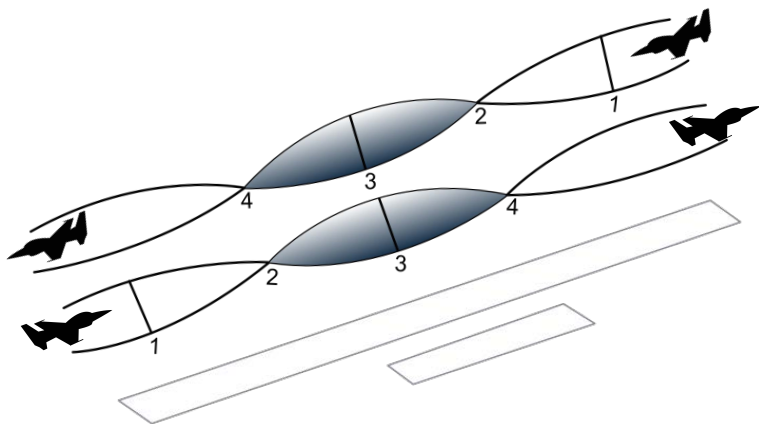


Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'
Exit Alt: 150'



Entry A/S: 300-450kts
Exit A/S: 300-450kts
Entry Alt: 300'
Exit Alt: 150'





Entry A/S: 250kts \leq .95M
Exit A/S: 250kts \leq .95M
Entry Alt: 100'
Exit Alt: 100'

OPPOSING FOUR-POINT

Aerobatic Box

Minimum show site airfield

