



**DEPARTMENT OF THE AIR FORCE
UNITED STATES AIR FORCE WARFARE CENTER
NELLIS AIR FORCE BASE NEVADA**

25 November 2025

MEMORANDUM FOR AIR SHOW SUPPORT TEAMS

FROM: USAFWC/CC

SUBJECT: 2026 Thunderbirds Support Manual

1. On behalf of the entire USAF Warfare Center, I want to start by saying "Thank you!" It is the full commitment and support of your air show support team that makes it possible to execute the mission of the United States Air Force Air Demonstration Squadron "Thunderbirds." Since 1953, the Thunderbirds have been representing the pride, precision, and professionalism of your United States Air Force to the thousands of spectators witnessing the demonstration and interacting with the Airmen of our team at each show site, and that would not be possible without the dedicated efforts of the air show support teams at each location. We simply cannot do what we do without you, so thank you!

2. As a higher headquarters Commander responsible for the success and oversight of the Thunderbirds, I have reviewed this manual carefully and thoroughly for the content and for the requirements we have of your air show support team. I am confident that the data in the manual not only reflects the lessons learned and best practices from multiple show sites over decades of demonstrations, but also that the attention and adherence to all the elements contained within the manual is instrumental to the success of the Thunderbirds portion of your air show. There is a lot of information contained within this document and every bit of it is extremely valuable and critical.

3. In closing, I want to pass on my congratulations and best wishes on your upcoming air show. Thank you again for your work to make the Thunderbirds mission a success at your show site as we work together to recruit young Americans to join military service, retain a quality force, and inspire the patrons of your air show by highlighting what's possible with elite teamwork and persistence. Working together, we will create something great at your air show. Should you have any questions on the guidance provided here within, please reach out to Thunderbird 8 at afthunderbird8@gmail.com.

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DAVID C. EPPERSON
Brigadier General, USAF
Commander

2026 Support Manual

**United States Air Force
Air Demonstration Squadron**

Thunderbirds



Summary of Changes

- Major formatting changes
- Rewritten for clarification throughout
- Moved end of Chapter checklists to external document
- Chapter 1:
 - Updated Thunderbird POC contact information
 - Added a Share-Point style Google Drive for all requested deliverables
 - Updated Support Manual Compliance Certificate to Support Manual & Checklist Compliance Certificate
 - Updated Project Officer responsibilities
- Chapter 2:
 - Updated off-base/site gym requirements and approval timeline
- Chapter 3:
 - Updated rental vehicle requirements
- Chapter 4:
 - Added contact for Thunderbird Resource Advisor
 - Updated Smoke Oil requirements
- Chapter 5:
 - Updated Police Escort requirements
- Chapter 6:
 - Changed Public Address to Air Show Sound
 - Removed Thunderbird provided Public Address System
 - Added requirements for Communications Trailer and Airboss stand placement
- Chapter 7:
 - Added ICAS meeting requirements
 - Added Winter Site Survey requirements
 - Removed Aligned Natural Show Line
 - Added Google Maps Product
- Chapter 8:
 - Updated requirements for use of Marine Arrestment Gear e.g. M-31
 - Updated Parachute Landing Zone location and timing requirements in relation to our operations
 - Added and updated Timetables (previously in Timetables Chapter)
- Chapter 9:
 - Updated meeting attendees
 - Added Post-Show meeting and Show Site After Action Report (previously in Post-Show Report Chapter)
- Chapter 10:
 - Updated request for aerobatic site survey if feasible
- Chapter 11:
 - Consolidated Public Affairs into one chapter
 - Added media plan/table reporting requirement
 - Clarified flying program requirements and eligibility
 - Clarified supported community outreach and recruiting events
 - Added requirement to separate roles of Public Affairs and Local Recruiter
- Chapter 12:
 - Updated to the Recruiting Chapter
- Chapters 13-17:
 - Removed and information embedded into other chapters
- Attachments
 - All updated and fillable (if applicable)
 - Updated order to match when they are referenced, chronologically

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GLOSSARY

Keys to Success

1. Read this support manual thoroughly! We realize it is a lengthy document and even if you have recently hosted the team, our requirements evolve **yearly** as we fine tune our operation. Please do not assume you already know the current requirements as there have been many changes. After reading this manual, **sign and email the Support Manual & Checklist Compliance Certificate (Attachment 1)** to the Thunderbird Air Show Events Coordinator (michael.rux@us.af.mil) and upload to the Google Drive **NLT 31 Jan 2026** or when your first deliverable is due, whichever occurs first.
2. Prioritize use of the shared Google Drive for passing information. You will be given access to your folder by Thunderbird #8 via your email address; send the email addresses of your team that require access to the drive **NLT 31 Jan 2026** or when your first deliverable is due. The drive will have helpful planning documents, copies of the Support Manual Attachments, and specific folders for deliverables to help stay on timeline. **Please notify the applicable Thunderbird when items have been uploaded and update your progress on the checklist in your folder.** We understand Military Show Sites using NIPR may experience difficulty using Google products, but encourage you to use a personal Gmail account to access the drive.
3. Ensure that the TFR and waivers are in effect and no aircraft (commuters, other demo teams, civilian traffic, etc.) enter into the airspace during arrival, practices, and demonstrations. **Make sure the center of the TFR and Waivers are based off of Show Center as opposed to the airfield center of mass. At times this can be up to a mile off and could be a potential show stopper.**
4. If your show is a remote deployed show, ensure the airfield that our jets are operating from is no greater than **50 NM** from Show Center.
5. Arrange for snow/FOD fencing for the entire crowd line with no gaps below the fence and ensure distance from Thunderbird jets nose tires to crowd line is **≥300'**.
6. Ensure the Thunderbird maintenance hangar is available for Thunderbirds use upon Advance Pilot arrival. Ensure there is enough room for all 8 aircraft to be stored in the hangar in the case of inclement weather.
7. Plan jet parking in the same location from arrival until departure. Ensure your ground parking plan takes into account the Thunderbird aircraft and how that will affect your static aircraft arrival and parking.
8. Provide access to tow jets from hangar to jet parking location during duration of stay without towing through the crowd line or on an active taxiway.
9. Ensure all required AGE and vehicles are in place and ready for inspection upon Advance Pilot arrival. Give yourself adequate time to collect and position all of the equipment and vehicles.
10. Ensure highly-visible show center and bomb burst markers are in place with accurate GPS coordinates format prior to Advance Pilot's arrival. **All coordinates passed to the Thunderbirds must be in DD MM.MMM format.** Use a surveyor for accurate placement of the markers; this cannot be stressed enough. Thunderbird #1 will use these markers as his primary visual references. Have the markers in place prior to Thunderbird #8's arrival.
11. Ensure the airfield is swept for debris before the first F-16 arrives to ensure all taxiways, parking areas, and runways are clear of debris that could damage the F-16's engine. NOTE: even small pebbles or loose asphalt can cause engine damage.
12. Please contact us with any questions you might have. We are willing to discuss options to ensure your air show is a success!

Chapter 1

Getting Started

1. IN GENERAL: We make operational and management decisions based upon the information you provide us. Ensure you keep our Thunderbird Air Show Events Coordinator informed and meet the planning checklist requirements and timeline located on the Google Drive.
2. THUNDERBIRDS PROJECT OFFICER: Name one individual as your Thunderbird Project Officer and allow that person to be the sole source of contact with the Thunderbird Air Show Events Coordinator and Thunderbird #8. **The individual should only work Thunderbird air show tasks and no other aspects of the air show.** Identify the Project Officer NLT your first deliverable or **31 Jan 2026** when the Support Manual & Checklist Compliance Certificate is due.
 - a. The Thunderbird Project Officer must read this manual and be acquainted with the respective areas of responsibility. He or she should be able to discuss all details of your air show and our operational requirements. Details will include all logistics within this manual. Choose and work alongside a Maintenance Representative to work all maintenance related tasks.
 - b. The Thunderbird Project Officer must be readily available for direct coordination **at least 60 days** prior to the air show. Do not send your project officer on temporary duty (TDY) during this time or assign additional duties that could conflict with air show requirements.
 - c. The Thunderbird Project Officer needs to meet the Advance Pilot upon arrival. For deployed sites, the Project Officer needs to be available at the Thunderbird aircraft parking location.
3. AIR FORCE RECRUITER: Recruiting quality candidates for military service is the heart of the Thunderbird mission. It is essential that local recruiters take an active role in coordinating activities that enhance recruiting. Recruiters must work closely with your Public Affairs or Publicity representative for maximum benefit from our visit. Please keep them involved during your planning as they are a valuable resource.
4. PUBLIC AFFAIRS: An effective publicity campaign is crucial to a successful air show. The Public Affairs representative is a critical role and must be extremely proactive in efforts to distribute all pre-show publicity, arrange for media interviews, community engagement commitments, and coverage of the air show. The representative is also responsible for partnering with local recruiters and coordinating all receptions, dinners, and community outreach engagements. He or she will not commit the Thunderbirds to any engagements until they receive authorization from Thunderbird #12, our Public Affairs Officer.
5. MEDICAL REPRESENTATIVE: The Medical representative serves as a liaison between the Thunderbird Flight Surgeon, Thunderbird #9, and the nearest medical facility. The representative need not be on call, he or she simply acts as a liaison and provides information to our doctor.
6. MAILING ADDRESS
 - a. If needed to correspond with the Thunderbirds, send all letters and packages by priority mail in sufficient time to meet suspense dates:

(NAME)

USAFADS "Thunderbirds" 4445 Tyndall Ave
Nellis AFB NV 89191-6079

7. TELEPHONE NUMBERS

- a. Thunderbird Air Show Events Coordinator - Mr. Michael “Teddy” Rux
Comm: (702) 679-2222
Cell: (702) 378-7956
E-mail: michael.rux@us.af.mil
- b. Thunderbird #8, Advance Pilot/Narrator - Major Sam “RaZZ” Larson
Comm: (702) 679-2222
E-mail: afthunderbird8@gmail.com
- c. Thunderbird Maintenance Coordinators/Thunderbird #8 Dedicated Crew Chiefs (cc both)
SSgt Sovann Din - E-mail: sovann.din@us.af.mil
SSgt Justin Weidner - E-mail: justin.weidner@us.af.mil
- d. Thunderbird #12, Public Affairs Officer - Capt Hannah Durbin
Cell: (702) 378-7950
E-mail: hannah.durbin.1@us.af.mil / afthunderbirds@gmail.com
- e. Thunderbird #5, Lead Solo & Show Site Map/Aerobatic Box Coordinator - Major Laney “Rogue” Schol
E-mail: afthunderbirdfive@gmail.com
- f. Thunderbird Recruiter - TSgt Cody Coker
Cell: (702) 374-3956
E-mail: cody.coker@us.af.mil

8. AIR SHOW INFORMATION SHEET

- a. The Air Show Information Sheet (**Attachment 2 - military show sites or Attachment 3 - civilian show sites**) contains essential information needed to prepare our itinerary. Please send as much information as possible **immediately after ICAS** to begin the coordination process. The final version is due to the Thunderbird Air Show Events Coordinator and the Google Drive **NLT 60 days** prior to your air show.
- b. When filling out the information sheet, be sure to include the full name and rank (at time of our visit) of all individuals and commercial, DSN, and cell phone numbers.

9. SCHEDULE OF EVENTS

- a. Please provide the Thunderbird Air Show Events Coordinator with a detailed schedule of your air show **NLT 60 days** prior to your show. It needs to list every event where Thunderbirds participation is expected. (See Sample Air Show Schedule of Events **Attachment 4**)

Chapter 2

Lodging/Gym

1. LODGING

- a. Thunderbirds will work to obtain suitable lodging facilities for our team at your location soon after the season's schedule is approved and released to the public. Recommendations are always welcome, but the Thunderbirds will determine the final choice of location.
- b. During our show season we travel with approximately 70 personnel. Efficiency is critical to maintaining timeliness in our scheduled itinerary. We request the Thunderbird Project Officer make contact with our chosen hotel to coordinate our arrival and departure. It's critical to coordinate the check-in/check-out process to maximize efficiency, allow the hotel to schedule appropriate staff to accommodate our large group processing, and determine if there are any other requirements necessary that can only be addressed from being on-site.

2. WORKOUT FACILITIES

- a. The Thunderbirds are required to maintain a rigorous physical conditioning program during the show season. Please ensure that the Thunderbirds have access to a facility with complete weight and cardio training areas. It must be available during the team's entire stay and located within a **15-minute drive** from the hotel with fees waived. The team does not need exclusive use of the facility, but rather access during normal business hours. **Exercise facilities in hotels are not sufficient.** Please provide details of the gym to the Thunderbird Air Show Events Coordinator **NLT 30 days** prior to the show. Please work with Thunderbird #8 if you have any questions or require assistance.
- b. **Military show sites are still required to coordinate access to an off-base gym** during the Team's stay due to traffic jams that often prevent timely access to the installation on air show days. Certain bases have unique layouts (i.e., multiple sides to a joint base, or the team is already staying on base) that may still permit easy access to the gym. In this case, **request approval** **NLT 30 days** prior to the show with Thunderbird #8 to use a base gym as your primary game plan and ensure the gym will remain open throughout the weekend and/or holiday from 0600-2200. If base gym access is provided to the team (primary or secondary gym), please provide a means for 24-hr access to accommodate our swing shift personnel. If given a 24-hr access card, we will leave them inside the rental vehicle cup holders prior to our departure.
- c. While the Thunderbirds travel with approximately 70 personnel, a realistic expectation for the number of team members utilizing gym facilities each day is closer to 30 personnel. We request approval for all Thunderbird members to utilize gym facilities, however the reduced actual usage figure may help gym management approve your request for access at non-military facilities.

Chapter 3

Transportation

1. GENERAL

- a. The host Transportation representative must ensure vehicle requirements are scheduled **NLT 60** days prior to your show and send an email confirmation to the Thunderbird Air Show Events Coordinator.
- b. Funding for vehicles, **to include insurance**, is the responsibility of the show site. In case of accidental damage, the show site must be prepared to cover the deductible.
- c. Thunderbird personnel do not provide rental contract information or sign out GOVs for show sites. It is the show site's responsibility to provide vehicles for Thunderbird use. Please fill out all the rental contract paperwork prior to the arrival of the Advance Pilot. If you run into any issues, contact our Air Show Events Coordinator or Advance Pilot immediately.
- d. Regardless of the type of vehicles provided (rentals, courtesy, etc.) we will not accept vehicles with **ANY** type of advertisement, dealership stickers, etc., as this could be interpreted as an implied endorsement by the USAF or the Thunderbirds.
- e. All vehicles will be used on and around the flight line and in some cases off paved roads. The vehicles will be used to transport equipment required to service the aircraft, to include use of the truck beds. We will make EVERY effort to keep the vehicles in the condition they were given to us, but they are work vehicles during our stay.
- f. Unique situations, such as show site provided transit of Thunderbird personnel to/from hotel and airport, may drive changes to the team's transportation requirements. Any changes must be specifically coordinated in writing with the Thunderbird Air Show Events Coordinator and agreed upon **30 days** prior to the show.

2. VEHICLES

- a. The host transportation representative must ensure:
 - (1) Host personnel are briefed to release all required vehicles. We will ensure all Thunderbirds are qualified to operate rental, courtesy, or military vehicles.
 - (2) All vehicles assigned for team use must be available for the duration of our stay, including early arrivals, late departures, or extended stay due to aircraft maintenance problems.
 - (3) **Place all vehicles on the flight line side and in the vicinity of the Thunderbird support aircraft arrival parking area.** If this is not possible, timely transportation is required for 70 personnel from the support aircraft to the rental vehicles. Please do not mix Thunderbird vehicles with any other air show vehicles.
 - a) Thunderbird personnel will return all vehicles in the same spot as the pick-up. All vehicles will be returned with fuel remaining only. Please **DO NOT** start collecting the vehicles until all have been inventoried by Thunderbird personnel.
 - (4) All vehicles assigned for Thunderbird use are authorized for the flight line as well as for use on and off base.
 - (5) All vehicles are **in place for Advance Pilot arrival, fully serviced and fueled with keys above the visor.** The Advance Pilot and/or Crew Chief will inventory and inspect the vehicles. The transportation representative must be present during the inspection.
 - (6) All vehicles are in good mechanical condition and dependable with adequate seating and seat belts.
 - (7) Provide contact information to the Advance Pilot for 24-hour assistance in case of vehicle problems.
 - (8) All cars must be non-smoking cars and cannot have been previously smoked-in vehicles (due to allergic and medical concerns for military members). Further, show sites must check to ensure the interior of all cars are clean (i.e., trash from previous renters removed, seats cleaned of pet hair, etc.)
 - (9) Please consider how toll roads in your local area may affect team operations/movements and address this with the Air Show Events Coordinator or Thunderbird 8.

3. REQUIRED VEHICLES

- a. Minimum vehicle requirements are:

Total vehicles required = 37 + 3 Golf Carts

- 21 Sedans (compact/mid-size SUVs are acceptable. If able, request 2 of the 21 be compact/mid-size SUVs)
- 13 Mini-vans or Large SUVs (e.g., Nissan Armada/Chevy Suburban, **compact/mid-size SUVs NOT** acceptable)
- 1* Full-size (15 passenger) van WITH SEATING FOR 15 PASSENGERS
- 1 2500/250 series 4-door, 5-passenger truck, with hitch receiver capable of towing 5,000 lbs., air conditioning, and trailer lights wiring in good working condition (verify before Advance arrival).
If not allowed off-base, request an additional mini-van (14 total)
- 1* 12'-long (minimum), 1 or 1½ ton flat-bed (or stake-bed) truck with smoke oil pallets loaded
- 3 Golf carts for Public Affairs, Recruiter and Communication Personnel (**at least one 4-passenger golf cart**)

***15-pax:** Contact us with any questions or concerns about the 15-pax van requirement as it may not be needed to execute our operations (i.e., remote deployed show). Additionally, alternatives may be arranged with our Air Show Events Coordinator.

***Flat-bed:** The flatbed truck may be substituted for a trailer with low sides capable of holding six 55-gallon drums of smoke oil.

NOTE: The number of vehicles required may change depending on the length of our trip, show type, distinguished visitors traveling with the team, etc. Please contact Thunderbird Air Show Events Coordinator prior to making vehicle arrangements to get an updated list of required vehicles.

4. FLIGHT LINE ACCESSIBILITY

- a. The host Transportation representative must ensure that all vehicles assigned to the Thunderbirds have access to the flight line starting with the arrival of the advance team through the team's departure. **Work with ramp security to accomplish this regardless of military or civilian show site. The vehicles provided are mission critical and are essential to the movement of our equipment on a daily basis.**
- b. All Thunderbirds are required to possess an airfield driver's license at Nellis AFB. We drive around nearly every type of aircraft in the Air Force inventory on one of the busiest flight lines. Due to the time constraints, we are unable to receive an Airfield Driving briefing from each site we go to. Airfield specifics to your show site should be briefed to Thunderbird #8 at the Advance Pilot brief, which will then be disseminated to the team.
- c. Vehicle access to and from the support aircraft, Thunderbird jets, and the designated hangar should be coordinated with the Airboss and/or control tower so that minimal communication is required for the vehicles. **Requiring clearance across or down active taxiways can create unacceptable delays.** Place active taxiways in uncontrolled status to allow vehicles to cross without requiring a clearance from ground control - the Thunderbirds will give way to any taxiing aircraft. If such a situation is unavoidable, escorts on both sides of the affected taxiway must be provided to facilitate vehicle travel from the arrival of the morning shift until all aircraft maintenance is completed each day.
- d. We will place a Thunderbird placard on the dash of each vehicle assigned for our use as the primary means of identification. Ensure security and traffic-control personnel are briefed. Due to the dynamic nature of our show schedule, the Thunderbirds are unable to provide an EAL. By request, we will provide a passenger manifest **no earlier than 24-hours** prior to the team's arrival. This manifest includes all official Thunderbird personnel.



Chapter 4

Maintenance

1. GENERAL: The air show is responsible for obtaining and arranging the required support listed in this manual (**Attachment 5**) and for incurring the costs involved in obtaining and transporting the equipment and materials. The show site is also responsible for any fuel costs associated with AGE equipment use. Email an equipment status report to the Thunderbird Air Show Events Coordinator and both Thunderbird #8 Dedicated Crew Chiefs **NLT 60 days** prior to your show.
 - a. **NLT 30 days** prior, email an updated equipment status report with any shortfalls (missing equipment, reduced quantities, co-utilization, etc.) or intent to substitute any of the required equipment with non-approved substitutes.
2. FOREIGN OBJECT DAMAGE (FOD) CONTROL
 - a. FOD refers to damage to aircraft components, i.e., flight controls, tires, or engines, due to foreign objects such as loose gravel, nuts, bolts, etc.
 - b. F-16s are highly susceptible to FOD. Ensure all taxiways, parking areas, and runways are swept and cleaned prior to the arrival of the Advance Pilot, and remain clean during our stay. Do not use sweepers that have steel bristles. Do not plan to park the F-16s on a ramp that is breaking up, or has an asphalt/gravel surface that releases pebbles easily.
 - c. FOD fencing is required along the crowd line within 500' of jet parking and anticipated taxi routes. Snow fencing is highly recommended and will prevent FOD from blowing onto the runways and taxiways. Ensure snow fencing is erected so it touches the ground and is sandbagged to prevent trash blowing underneath the fence. Orange nylon FOD fencing is an acceptable alternative to snow fencing along the crowd line. Place containers suitable for FOD disposal (two garbage cans) near our maintenance hangar.
3. ARRIVAL PARKING COORDINATION
 - a. We request to park in our show parking location upon arrival. We will NOT accept a plan which requires towing all 8 aircraft each day. Arrangements can be made for us to position to show parking after Friday's AM practice and remain there until our departure. Work with the Advance Pilot and Crew Chief for alternative parking solutions if required.
 - b. For downloading and uploading cargo on arrival and departure days, park the C-17 or 2xC-130 support aircraft as close to the maintenance hangar as possible.
 - c. The host site Maintenance representative must be available upon the arrival of the Advance Pilot and Crew Chief. The Maintenance representative should plan to shadow the Advance Crew Chief for the remainder of the day and be available for the entire duration of the Thunderbirds stay.
4. HANGAR SPACE
 - a. We may need to hangar our 8 F-16s for security reasons, inclement weather, or aircraft maintenance. The dedicated hangar should be clear of all aircraft/equipment prior to the arrival of the advance team (do not plan on using our dedicated hangar space for air show parties/functions). It should NOT be located across an active runway from our parking location. If you cannot guarantee hangar space to protect our aircraft, we may be unable to perform at your site.
 - (1) Ensure the hangar space is empty and dedicated for our exclusive use throughout our stay.
 - (2) The hangar must have a minimum of 15,000 square feet of usable floor space with 20-foot door/ceiling clearance, or equivalent space in multiple hangars.

- (3) The cost of hangar space is the show sponsor's responsibility, to include our extended stay due to maintenance or airlift support problems.
 - (4) If there is additional space in our dedicated hangar and it is shared with other aircraft, equipment, etc., we must be able to tow our aircraft into and out of the hangar at any time (duty and off-duty hours) during our stay without hindrance by the other aircraft, equipment, etc.
- b. We need unlimited access to tow an F-16 from the hangar to the show parking location without traveling through the crowd. If the tow route is through the crowd area, this will require you to rope off a route or provide escorts to clear a path through the crowd and enable safe expeditious towing during show hours.

5. AIRCRAFT ENGINE OIL SAMPLES

- a. We carry a Spectroil Jr. oil-analysis machine and will provide this service for other military demo teams, with prior coordination.
- b. To operate the oil analysis machine, we require a ground floor area in a building (our primary maintenance hangar, fire station, etc.) with a trash can. It is preferable this building be as close to our support aircraft as possible.

6. FUEL REQUIREMENTS

- a. We will need two single-point-refueling trucks and one de-fueling truck available for use during our stay.
 - (1) We will not refuel our F-16s until after our support aircraft arrives and media/flight line activities are concluded.
 - (2) Fuel trucks should be in place 30 minutes after our initial arrival.
 - (3) Post-practice/show refueling will be coordinated for 1 hour after landing through our Maintenance Operation Control representative. Personnel must be available for refueling from 2 hours prior to our first scheduled takeoff through 3 hours after our last scheduled takeoff of the day.
- b. We will pay for fuel at military show sites using the DoD fuel card for each respective aircraft. Civilian show sites purchasing jet fuel will be reimbursed at the DoD Fuels Contract rate or into-plane price. As we only pay for fuel consumed, do not make any guarantees to the vendor. If ordering from an Air Force facility, you may have to pay for handling, transportation, and/or storage.
 - (1) The show site must pay the difference above the into-plane cost.
 - (2) Costs related to transporting fuel is the responsibility of the show site.
- c. Fuel Quantities - Each aircraft burns approximately 800 gallons of aviation turbine fuel per flight.
 - (1) Each aircraft will require approximately 800 gallons after our arrival and survey.
 - (2) A practice flight consumes approximately 4,800 gallons of aviation turbine fuel.
 - (3) A demonstration flight consumes approximately 4,800 gallons of aviation turbine fuel.
 - (4) A media flight consumes approximately 900 gallons of aviation turbine fuel.
 - (5) A standard weekend including 2 practices, 2 demonstrations, and 2 media flights will require approximately 21,000 gallons of aviation turbine fuel.
 - (6) The support aircraft crew will pay for their own fuel and will require approximately 6,000 gallons.
- d. Fuel Specifications - Acceptable fuels for Thunderbird aircraft include JP-4 (NATO Code F-40), JP-5 (NATO Code F-44), JP-8 (NATO Code F-34), Jet A with military additives (NATO Code F-24); Jet A, Jet A with Fuel System Icing Inhibitor (FSII), Jet A-1 (NATO Code F-35), Jet A-1 with FSII, and TS-1 with U.S. military additives. Thunderbird fuel must be fuel-lab certified and provided by a certified vendor. All fuel must meet respective fuel grade specification, regardless of the type, including FSII limits.
 - (1) Aviation turbine fuel use limits:
 - a) Solids: 4.0 MG/Gal maximum
 - b) FSII: 0.04 - 0.20% by volume
 - c) Electrical conductivity shall be 50 - 700 pS/m
 - (2) Aviation fuels must pass through two separate filtrations downstream of bulk storage, with at least one filtration via the aircraft refueling equipment. All aviation turbine fuel must contain FSII.

7. SMOKE OIL REQUIREMENTS

- a. You should order smoke oil **at least 60 days** in advance of your show.
- b. Purchasing Smoke Oil - smoke oil should be obtained in 55-gallon drums and placed on a 1 ton or 1½ ton truck or trailer with low sides. If all the drums cannot fit, place a forklift by the remaining drums to assist in loading.
 - (1) **Only full, unopened barrels are acceptable**
 - (2) For military show sites, the Thunderbirds will reimburse the cost of smoke oil used.
 - a) Military unit Resource Advisor will contact the Thunderbirds Resource Advisor, usafads.css@us.af.mil, **NLT 30 days** prior to Thunderbirds arrival.
 - b) Provide completed contract, paid invoice, and signed hand receipt of quantity used to the Thunderbirds Resource Advisor **NLT 10 days** after air show.
 - c) Reimbursement will be through MIPR CAT I or CAT II (DD Form 448) and must be completed in DEAMS. Ensure Financial Management Accounting (FMA) office contact information is accurate and complete.
 - d) DD Form 448-2 must be provided to the Thunderbirds Resource Advisor, once funds have been received for accountability.
 - (3) For civilian show sites, the air show organizer is required to pay for all smoke oil.
 - (4) For both military/civilian show sites, consider building a clause that will allow you to return any unopened barrels of oil to the vendor into your smoke oil contract.
- c. Smoke Oil Quantities - the Thunderbirds will require the following amounts of smoke oil (contingent upon our schedule at your location):
 - (1) 4 drums for the arrival survey
 - (2) 4 drums for Friday AM 4-ship practice
 - (3) 5 drums for Friday PM 6-ship practice
 - (4) 5 drums per demonstration flight (2 total)
 - (5) 1 drum per media flight
 - (6) A standard weekend consisting of the arrival, 2 practices, 2 demonstrations, and 1 hometown hero flight will require 24 drums of smoke oil
 - (7) For a 3-day show consisting of the arrival, 2 practices, 3 demonstrations, and 1 hometown hero flight we require 29 drums of smoke oil
 - (8) A non-standard weekend consisting an additional practice day requested by the team will require an additional 9 drums of smoke oil reimbursed by the Thunderbirds.

NOTE: The number of barrels required may change depending on the length of our trip, and any extra flights planned at each location. The Thunderbird Air Show Event Coordinator will let your show site know as soon as possible if there will be extra barrels required. Except for 3 day shows, no more than 24 barrels will be reimbursed by the Thunderbirds.

- d. Smoke Oil Specifications – USAF Technical Orders only allow the use of the products listed below. Check each barrel individually during acceptance to avoid aircraft contamination.
 - (1) **Acceptable smoke oil:**
 - a) **Chevron U.S.A., Inc Canopus 13 04BH0**
 - b) **Shell Oil Company Aeroshell Smoke Oil 5W416**
 - c) **Copper State Petrol. CSP Aviation Smoke Oil 6TAZ7**
 - d) **W.S. Dodge Oil Company Smoke Oil C13 0XAK2**
 - e) **PetroBlend Corporation Pure White Smoke Oil 7G4W2**
 - f) **Petro-Canada Paraflex HT10 Fluids 0NVS1**
 - g) **Phillips 66 Company Los Angeles, CA, Aviation Smoke Oil, 883E7**

8. HYDRAZINE (H-70) SUPPORT

- a. H-70 Response - The F-16 aircraft has an Emergency Power Unit (EPU) containing 6.8 gallons of hydrazine (H-70). This particular solution is 70% pure hydrazine and 30% water.
 - (1) Disaster response procedures are necessary for any H-70 spill or leak, regardless of quantity or location.
 - (2) Thunderbird maintenance personnel will neutralize, contain, and remove all H-70 spills, then contact the appropriate base/area personnel.
 - a) H-70 Maintenance Area - In the unlikely event of an EPU activation or H-70 spill, we must have a designated area for maintenance near the runway. This area must be large enough to accommodate an F-16 aircraft and be located no less than 300 feet from any person or inhabited structure. Make sure this area is not near a sewer opening or drainage ditch, so the spill will not enter local water systems.

9. HAZARDOUS WASTE DISPOSAL

- a. Provide guidance on hazardous waste disposal for your location, as we require a means to dispose of hazardous waste (used hydraulic fluid, oil, fuel, soak up pads, etc.)

10. MAINTENANCE EQUIPMENT REQUIREMENTS

- a. Exact requirements are listed in **Attachment 5**. This is the minimum amount of support equipment required to guarantee a successful air show. It must be dedicated to the team for the duration of our stay.
- b. **If you are planning to co-utilize any of this equipment with anyone else, or make any substitutions, it must be discussed with the Thunderbird Air Show Events Coordinator at least 30 days prior to our arrival. Co-utilization may increase the quantities required to support your air show.**
- c. Maintenance equipment may be obtained from nearby military installations however, you may be responsible for costs incurred in transporting the equipment. It is the show site's responsibility to coordinate with military installations for the use of support equipment. **Check all equipment to ensure it is fully serviced and operational.** The cost of fuel for AGE equipment is the responsibility of the show site.
- d. Maintenance equipment must be in place near the maintenance hangar or nearby location before the Advance Pilot arrives. To facilitate ease of operations, it is critical to place any ground support equipment in a single location that is easy to access.
- e. In the event a military installation requires a Memorandum of Understanding (MOU) to utilize maintenance equipment, a sample MOU is attached for reference (**Attachment 6**).
- f. Procure a 10k upright-mast forklift with the specifications and minimum tine length/width listed in **Attachment 5**. Telehandler forklifts greatly complicate the airlift download/upload process for our loadmasters due to tight aircraft clearances.

11. OTHER

- a. Our maintenance crew who service our spare aircraft are typically not collocated with the rest of the team and/or are on a remote part of the airfield. If easily accessible restroom facilities are not available at this location, provide a portable toilet within close walking distance.

Chapter 5

Security

1. CROWD SECURITY

- a. Well-organized crowd control is essential to ensure the safety of spectators and to satisfy FAA requirements.
- b. For effective crowd security, the air show must:
 - (1) Set up a physical barrier to act as a crowd line and keep all spectators behind this line.
 - (2) Establish procedures, including road closures, physical sweeps, or water patrols, to clear the aerobatic box prior to any practices/demonstrations. The Thunderbird Air Show Event Coordinator will indicate any flights outside of the practices/demonstrations that require a sanitized aerobatic box.
 - (3) Position one security/law enforcement person at either the air boss stand or at our communications trailer during our practices/demonstrations. It is very important for this person to have a reliable communication link to other security personnel on site in order to quickly correct security deficiencies.
 - (4) Brief your air show security team on all procedures for the air show.
- c. Official air show photographers desiring to take photographs closer than the crowd line must get approval from, and be escorted by, a Thunderbirds Public Affairs representative. Any photographers within the aerobatic box must be approved by both Thunderbird #7 and the Airboss **NLT 15 minutes** prior to our mic time.

2. AIRCRAFT SECURITY

- a. The Security/Law Enforcement representative must coordinate all matters of aircraft security. He or she must:
 - (1) Arrange for 24-hour protection of all Thunderbird F-16s and the support aircraft, from Advance Pilot arrival until the team departs.
 - a) Military security forces are preferred for security detail.
 - b) Police detail is acceptable if military security forces are unavailable.
 - c) If our support aircraft will remain at your show site you must provide security for it as well. If the parking plan does not allow the same security detail to monitor both our F-16s and support aircraft you must provide additional security personnel.
 - (2) The F-16 and support aircraft parking areas must be well lit at night.
 - (3) Only personnel with Thunderbird escorts are authorized to be near any of our jets or support aircraft. At no point will individuals or groups loiter or congregate near our aircraft without a team member.
 - (4) Ensure Thunderbird members have unimpeded access to the aircraft at all times.
 - (5) Provide a representative to the Advance Pilot Meeting with "Red Line Status."

3. POLICE ESCORTS

- a. Due to the likelihood of traffic congestion leading into your show site on the day of the show, we require two police escorts for each show day. Contact the Thunderbird Air Show Events Coordinator for times.
 - (1) We request a dedicated unit on the front and rear of the caravan.
 - (2) **There should be enough additional units to stop traffic at intersections and lead our convoy through traffic lights safely.** Each location is different and will require more or less total motors/cars. 4-6 is not enough in all cases. Recommend a minimum of 10. More as required to meet the intent of the last car having the same level of safety as the first car. If we deem the police escort unsafe, we will not use it, and risk being late to our show times.
 - (3) Additional police escorts may be required to meet times on the itinerary. For example, if your Community Outreach Event is not co-located with our briefing room, a police escort may be the only option for us to arrive on time.

- b. There will be approximately 27 cars in our first departure and 8 in the second departure. All Thunderbird vehicles will be clearly marked with placards on the driver side window, Thunderbird flags attached to the driver's side rear window, and will travel with headlights and hazard lights on.
- c. We request the lead police unit not exceed the posted speed limit.
- d. The police escort should begin at our lodging location. For show sites where our lodging location is not in close proximity to the air show and the police are unable to start at our lodging, be prepared to provide a staging location where the Thunderbirds can meet the police escort outside the expected traffic into the show.
- e. Alternatives to a police escort will be reviewed on a case-by-case basis by the Thunderbird Air Show Events Coordinator. An example of an acceptable alternative is team access to the show site (both operations and maintenance work areas) via an additional non-public access gate that is relatively free of traffic during air show hours.
- f. For military show sites, coordinate between security forces as well as the local PD on whether the local PD will take the cars all the way on base to their destination or if there will be a handoff of police escort duties to base SF once through the gate.

4. MOVEMENT ON BASE/AIRFIELD

- a. The Thunderbirds need to be able to move throughout the airfield or base environment quickly and efficiently in order to conduct our mission.
- b. If our lodging is on base, ensure the vehicle traffic plan on air show days allows team members to efficiently move to/from our work areas. This may include providing traffic breaks to cross general traffic inbound/outbound lanes and/or passing through road blocks. It is imperative these instructions are passed to the lowest echelon of security forces to allow efficient movement on base.
- c. We require access through flight line gates from 0600-2200. Provide any applicable codes, badges, and/or station security personnel at the gate to allow team member entry.
- d. If Thunderbirds are required to remain at the show site or airport after 2200 due to maintenance of our aircraft, or report to work prior to 0600, the show site is responsible for either providing 24-hour access gate codes or a POC for after-hours access to/from the aircraft parking area. Our swing shift has been known to work until 0300 depending on maintenance required.

Chapter 6

Air Show Sound

1. GENERAL

- a. It is your responsibility to provide a sound system for your air show. If you cannot provide it, you must notify the Thunderbird Air Show Events Coordinator **NLT 90 days** prior to your show. Music and narration are an integral part of our demonstration and failure to provide a sound system is grounds to cancel our participation in the air show.
- b. Commercial radio broadcasts of the narration and Thunderbird air show music are possible through direct tie-in. We encourage shows with large crowd viewing areas – especially beach shows – to coordinate with a local radio station to broadcast the narration and music via a tie-in with our communications trailer; to increase our exposure to the viewing crowd, which may be out of listening range of the available speaker setup. The broadcast must be commercial free during the Thunderbird show.
- c. If radio or TV stations need power, the sponsor must provide it.
- d. During our Friday practice, the Thunderbird Communications Specialist will tie-in to the show site's system. It must be completely set-up and at the same volume levels that will be used for the show for an accurate sound check. Our communications specialists must control all tie-ins. No unauthorized tie-ins will be allowed.
- e. The communications trailer is kept at show center from the morning practice day until after the last show at which it will be stowed in the maintenance hangar. In the event of inclement weather, it will be stowed in the hangar until approximately 2 hours prior to our mic time and returned immediately after the show. At deployed show site locations, i.e., a beach, a secure storage facility at the show site, or overnight security at the communications trailer location must be provided.
- f. The communications trailer is 11ft 10in long, 6ft 3in wide, 7ft 2in high, and weighs 4,400 lbs.

2. SPONSOR REQUIREMENTS

- a. Music Licensing Rights: The United States Air Force requires that any U.S. air show, civilian or military, hosting an Air Force aircraft demonstration must secure the necessary music licenses for broadcast of pre-recorded, copyrighted music over public address speaker systems. On behalf of all U.S. air shows, the International Council of Air Shows (ICAS) has negotiated a special rate per public air show day from BMI and ASCAP and a special rate per air show weekend from SESAC. These rates are not controlled or negotiated by the USAF and are subject to change. (NOTE: This rate applies only to music broadcast over the public address system during the air show portion of the program and does not provide the show with the right to use pre-recorded music at concerts or other non-air show special events held in conjunction with the air show.) Each event organizer should secure music licenses from BMI, ASCAP and SESAC and provide proof of licenses to the teams **NLT 30 days** prior to the event. Contacts to obtain these licenses are listed on the ICAS website (<http://www.airshows.aero>).

3. COMMUNICATIONS TRAILER SET UP

- a. The communications trailer will be set up at show center just in-front of the crowd line. Our communications trailer can be no farther than **100 feet from show center** and **~500 feet** from the air show sound system connection tie-in (which is usually co-located with the Airboss stand). Additionally, our communications trailer needs to be no greater than **100' from the Friends & Family tent** for wireless headset considerations & debrief capabilities. To ensure your VIPs have an unobstructed view of the demonstration, place your VIP section slightly to the left or right of show center, not directly behind the communications trailer.

- (1) Ensure there is a route to tow the communications trailer in front of the crowd line. To not obstruct views, the trailer cannot be placed right up against the crowd line. The further it is from the crowd line the easier it is to see over the top. Considerations need to be made for placing the trailer in grass (e.g., if it rains and is muddy). We will need a place to park our vehicles that also does not hinder the crowd's view.
 - (2) The Airboss stand cannot be located directly at show center; similar to our communications trailer's potential to obstruct views. The stand should be as far show left/right while still allowing the appropriate connection tie-in. Pending the size of the stand, placing it deep/aft of the crowd line may help obstructed views from patrons sitting left or right of it.
- b. Air show sound must be fully operational to perform our aerial demonstration. The system must be operational **at least 1 hour** prior to the Thunderbird takeoff for the air show.
 - c. A three-to-five-minute sound check will be required before the demonstration. Our communications specialists will coordinate with the show site narrator or communications team prior to testing our system.
 - d. Our communication trailer personnel will need a golf cart for Saturday and Sunday setup. This is included in the vehicle request. We request the golf carts be located at the show site in the case of a deployed show.
 - e. Our communications system will be picked up following the autograph session. Please DO NOT handle any Thunderbird equipment.
 - f. Request a 5-gallon container of mo-gas available on Friday's practice day out at the communications trailer to power our generators.
 - g. Our Communications Specialist Non-Commissioned Officer In-Charge/Point of Contact can be obtained from the Thunderbird Air Show Events Coordinator.

4. THUNDERBIRD AUDIO OUTPUTS

- a. The audio signal from our communications trailer is a balanced line level, from an XLR connector. The output will consist of music and narration only.
- b. Stations desiring to patch into our system must supply the cable for the tie-in. The cable should be long enough to reach our communications trailer and have three pin XLR female connectors. This needs to be pre-coordinated with Thunderbird #7, Thunderbird #8, or our Radio Frequency specialists. The station(s) will need to be in place **NLT 1 hour** prior to the start of our show.

5. AIR SHOW SOUND EXPECTATIONS

- a. From the beginning of our ground ceremony (20 minutes prior to takeoff, 25 minutes with an enlistment) until the end of our aerial demonstration, no announcements, engine or APU runs, bands playing, drill teams marching, etc., are allowed. Just prior to our autograph session we will allow the show announcer 3 minutes to make announcements and thank the crowd for attending the show as well as play appropriate music while we are on the autograph line. Aircraft departures are allowed during this time.
- b. If our show parking is not in front of the crowd, i.e., crowd left or right, we require speakers along the crowd line in front of our jets. If this is not the case, we will not do a ground ceremony and will plan to taxi our aircraft at our mic time.
- c. If you must make an emergency announcement during our show, please bring it to the Thunderbirds communications trailer.

6. SAFETY

- a. For the safety of all concerned, do not allow spectators to cross the crowd line and/or come near the communications trailer, the speakers, speaker cable connectors, or other associated equipment.

Chapter 7

Airfield Setup

1. ICAS MEETING

- a. Each show site for the upcoming year will meet with Thunderbird #8 and Thunderbird #12 during ICAS. In the month leading up to the conference, we will be in contact to schedule your 1hr meeting. The sign-up sheet will include a list of topics for your preparation. This meeting is invaluable to successful planning.
 - (1) If you are unable to be present at ICAS, we still need to meet with you. This can be done over a conference call such as Zoom, FaceTime, etc.
- b. Winter Site Survey - If we have not been to your site/location within the last 5 years, Thunderbird #8 and one of our Advance Dedicated Crew Chiefs will plan to visit during our winter training. Notify Thunderbird #8 immediately if this is the case. Details of the visit will be discussed in your ICAS meeting.

2. SHOW LINE

- a. Choosing a show line is the most crucial decision you must make. The show line will determine the location of your aerobatic box, crowd line, and show center. **If you have any questions about your show line, send an aerial photo or map to the Thunderbird Air Show Events Coordinator and ask the Thunderbird #7 or Thunderbird #8 to call you to discuss the placement.**
- b. The show line should be an absolute straight path over the ground, located 1,200-1,500 feet in front of the closest portion of the spectator area. The Thunderbird pilots will use this line as their primary reference during the demonstration.
- c. Over-Land Show Line - two options below, Natural or Artificial. **NOTE: Aligned Natural Show Line within 200 feet of a natural line is no longer an option due to safety concerns and FAA requirements.**
 - (1) Natural Show Line – is the optimum choice and runs along a runway, taxiway, or similar distinct feature.
 - (2) Artificial Show Line - **IAW the FAA requirement, we require the show site to mark a white line on the ground (40 feet wide x 5,000 feet long) to clearly identify the show line. The artificial line must be clearly visible at 200 feet above the ground at 3 NM from show center.** Ensure the artificial show line is free of major obstacles and significant build-up within the aerobatic box (e.g., multiple radar facilities, construction sites, buildings, etc.). This can be white plastic, white sand, etc., but must be secured to the ground. **DO NOT place extra vehicles on the show line to help define the ground track.** Mark/stake the show via high fidelity GPS devices prior to laying the tarp/sand. A zig-zagged, angled, or difficult to see show line is dangerous and may cause a cancelled demonstration due to safety. Include the coordinates of the planned edges of the show line to Thunderbird #5 in the KMZ file. If the artificial show line is physically unable to meet the 40'x5000' requirements, work with Thunderbird #5 and Thunderbird #8 for an acceptable solution. Thunderbird #5 is the final authority of the show line orientation and marking plan.
- d. You MUST provide the Thunderbird Air Show Events Coordinator an airfield diagram of your show setup **at least 90 days** prior to your show. Upload to the Google Drive to allow adequate review from Thunderbird #8. Example diagrams are found in **Attachment 7** (over-land) and **Attachment 8** (over-water).
- e. Over-Water Show Line - For demonstrations flown over-water the artificial show line is defined by two boats, each a MINIMUM of **50 feet in length** with significant vertical development and preferably white in color. One boat must be anchored at show center and another anchored at the bomb burst cross point. Strive to have the show center boat be at least 100 feet (e.g., U.S. Coast Guard Cutter) in length but in no case smaller than the bomb burst boat.

- (1) Please ensure the boats will be in the same exact location each day. This can be accomplished by using a hand-held Global Positioning System (GPS), buoy markers, etc. The boats must be in position **NLT 1 hour** prior to our arrival survey/practices/demonstrations. Boats must verify GPS position via phone with the air boss or Thunderbird Control **NLT 1 hour** prior to our arrival survey/practices/demonstrations. Boats need to be anchored off both the bow and stern to prevent them from swinging around during the demonstration. **Definition of the show line is critical to the demonstration and the success of the air show.** Without the boats to define the artificial show line, the Thunderbirds will not be able to perform the demonstration. **Accurate placement of the show center and bomb burst boats are critical. If incorrect, it can get extremely dangerous. If the boats drift, the Thunderbird solo pilots have an unsafe and invalid deconfliction contract with respect to the show line.** You will need the assistance of the Coast Guard or Lake Patrol to ensure other boats do not enter the aerobatic box. Unless actively responding to a breach, ensure the Coast Guard/Lake Patrol boats are not moving inside the aerobatic box during the demonstration.
- (2) Please have a Coast Guard representative with 2-way communications to the patrol boats available at either the air boss stand or at the Thunderbird communications trailer during the team's arrival survey/practices/demonstrations. During the practice, our show center members can provide light gun signals to the boat marking show center to get an accurate left/right bearing.
- (3) In the interest of safety for our pilots and spectators, we cannot allow parasailing inside the TFR during our arrival survey/practices/demonstrations. Work with local municipalities to ensure that all parasailing operations are terminated prior to, and for the entire duration of our TFR times.
- (4) We request a third boat, if available, to mark the show center lateral position on the 500' line. This will assist our pilots finding the perpendicular line at show center (e.g., the show opener when the jets cross the beach from behind the crowd line or finding the perfect line for burst maneuvers).
- (5) We require a means to get our signal mirror and Public Affairs personnel on the show center boat during the practices/demonstrations. This includes, but not limited to, dingy from a pier, joining the ship crew at launch from the marina, or jet ski from the beach. Our personnel only need to be on the boat for our demonstration and should be transported back between acts.

3. SHOW CENTER MARKER


- a. Show center is the location the Thunderbirds will use to center each maneuver during the demonstration. It must be in a highly-visible area. Examples are on the edge of a runway or the edge of a taxiway.
- b. The show center marker must be in the center of the 12,000-foot aerobatic box with 6,000 feet on each side. The only exception is referenced below in **paragraph 7.a.(5)**.
- c. The show center marker must be a large, highly visible vehicle, a minimum of 35 feet in length: white, yellow, blue, or orange in color (contrasts with surrounding terrain) with significant vertical development. Examples include, but are not limited to: semi-truck trailers, buses, and large snow plows. These markers should be mobile to allow repositioning for accuracy after the Advance Pilot's arrival.
 - (1) This marker must be in place for the Advance Pilot's arrival, the arrival survey/practices/demonstrations.
 - (2) If the edge of the runway is the show line, the marker should be placed **100 feet (but less than 300 feet)** off the runway, on the crowd side of the runway, so as not to interfere with takeoff or landing.
 - (3) A NOTAM may be required for placement of the markers if near an active runway. Check with the local airfield manager.
 - (4) Please arrange the SHOW CENTER marker so it faces **PERPENDICULAR** to the show line (i.e., the show center marker points at the crowd).
- d. If the physical center of the crowd (CROWD CENTER) is not co-located with the SHOW CENTER then we request you submit your TFR distance as "OTHER" and use **at least 5.5 NM** as your TFR radius. This will ensure the TFR encompasses enough room so no modifications to our show are required. **To the max extent possible, the crowd center and show center should be co-located laterally.**

4. BOMB BURST MARKER

- a. The bomb burst marker is where the jets will cross during the bomb burst maneuver.
 - (1) The marker must also be a large, highly-visible vehicle using the examples listed above.
 - (2) It must also be in place for the Advance Pilot's arrival, the arrival survey/practices/demonstrations.
 - (3) Please arrange the BOMB BURST marker so it faces **PARALLEL** to the show line.

- b. The cross point for the bomb burst must be located on the same show line as the show center marker - **500 feet past the right edge of the crowd line**. Imagine you are the very last person on the right side of the crowd watching the show, the bomb burst cross point would be 500 feet to your right. For our planning purposes, provide the distance in feet from the show center to the bomb burst crossover.

5. SHOW PARKING

- a. To maximize recruiting capability, show parking must be prioritized at show center to provide a clear view of the maintenance and support personnel during the ground ceremony and show. Show parking will be for 6 of our 8 aircraft. Our two spare aircraft will park at the end of the primary runway or alternate spare location near our designated hangar.
 - (1) We request to park in our show parking location upon arrival and remain there until our departure. We will NOT accept a plan which requires towing all 8 aircraft each day. Arrangements can be made for us to position to show parking after Friday's AM practice.
 - a) Ensure your static display aircraft arrival plan takes into account our parking locations. Require any large aircraft that cannot taxi in/out around the Thunderbird parking location to arrive before the practice and stay until after the Thunderbirds depart. It is not acceptable to assume the Thunderbirds will tow our aircraft to make room for static display arrivals or departures.
 - b) If the show jets cannot be placed at show parking until practice day as discussed above, then all 8 jets will arrive and park in the designated spare area.
 - c) Ensure all F-16 parking areas have proper weight-bearing capacity to avoid sinking into the surface. If any areas should be avoided by the F-16s, refer to **Chapter 8** for weight bearing considerations.
 - d) Include both show parking and spare parking locations on your airfield diagram. Thunderbird #8 will have the final approval for parking during the Advance Pilot Meeting.
 - (2) All dimensions for parking considerations are in the Thunderbird Parking Diagram, **Attachment 9**.
- b. Minimum taxiway width for parking is **85 feet (125 feet desired)**. This includes the shoulder outside the painted lines, provided it is a load bearing, paved surface clear of FOD. Any taxi lights within **75 feet** of the taxiway centerline at jet parking should be removed, extending **150 feet** left/right of our wingtip edges while parked. Removed taxi lights should be replaced with flush load bearing covers if within the minimum taxiway width. Raised steel plates are unacceptable for our tires to taxi over and should not be within the **85 feet** parking width if used.
 - (1) Please attempt to avoid taxiing other aircraft in front of our F-16s. Small aircraft acts can taxi in front before/after their routine for crowd engagement. Per FAA regulations, only military parachute teams may use the area in front of our jets as a landing site.
 - (2) We cannot allow any show acts (aircraft, jet trucks, etc.) to smoke on the ground in front of our jets. Residue from the smoke oil will cover our canopies reducing pilot visibility and creating extraneous cleanup for our maintenance personnel.
 - (3) If you plan to use a 500-foot show line for civilian performers, our aircraft must be parked **at least 200 feet** from the 500-foot show line to avoid overflight of our aircraft.
 - (4) If you plan on parking any other acts at show center next to our aircraft, they can be no closer than **150 feet** from the first or last Thunderbird aircraft. Additionally, make sure there is **at least 70 feet** from the other aircraft to the crowd line for sufficient taxi out clearance and **at least 55 feet** of available taxi distance behind any of the other aircraft to taxi back to our parking spots after the show.
- c. **For the safety of the crowd, it is necessary to ensure the crowd is no closer than 300 feet from the nose of all our aircraft for engine start. We reserve the right to waive the requirement down to 250 feet with prior coordination.**
 - (1) If you are not able to get 300-foot clearance, consider notching the crowd line where the F-16s are parked. (). In this case, the outrigger aircraft will be the closest to the crowd; measure 300 feet from their location.
- d. Our support aircraft must park near our maintenance hangar. You should select an area that will give all Thunderbird personnel unrestricted access and movement without crossing active runways.
 - (1) Please do not park the support aircraft where it blocks the spectator view of the show line. Our support aircraft is not a static display and general access will not be permitted.
 - (2) Refer to **Chapter 8** for weight-bearing considerations.

6. CROWD LINE

- a. The crowd line is a physical barrier preventing spectators from moving forward during an air show. Use snow fencing in combination with chain-link or bicycle fencing to prevent FOD from blowing onto the taxiways.
- b. The optimum distance for the crowd line is **1200-1500 feet** from the show line.
 - (1) If the only well-defined show line is closer to the crowd than 1500 feet and it is not possible to move the crowd line back, it is permissible, with FAA approval, to locate the crowd line a minimum of 1200 feet from the show line.
 - (2) Exceeding 1500 feet for the crowd line is permissible, but progressively reduces the effectiveness of the demonstration. The CAT I and CAT III show centers should be laterally collocated.
- c. Due to the design of our demonstration with regard to spectator safety, reference the table below to determine how far from show center your primary spectator area can extend left and right. In all cases, it cannot extend further right than 500' laterally from the bomb burst placement. If you are unable to meet this requirement, contact the Thunderbird Air Show Events Coordinator ASAP and allow us to determine if we can safely execute a show at your location. **Failure to adhere to this restriction may force us to cancel our demonstration.**

Distance from Crowd Line to Show Line	Primary spectator area left/right bounds of show center
1200'	1080'
1300'	1250'
1400'	1415'
1500'	1600'
1600'	1770'
1700'	1960'
1800'	2120'

- d. All static display aircraft should be positioned well behind the crowd line to not block the view of the acts performing. Contact the Thunderbird Air Show Events Coordinator, Thunderbird #7, or Thunderbird #8 for suggested arrangements of your show line, crowd line, and aircraft parking.
- e. Drive-In Shows are discouraged. One of the most important aspects of your show, the fan experience (music, narration, ground ceremonies, feeling the action, experiencing the performance, etc.), relies on getting the crowd up to the crowd line. Additionally, all our maneuvers and optics are designed for maximum effect at show center on the crowd line. Consider this heavily when deciding your show layout. Rely on Thunderbird #5, Thunderbird #8, and your Airboss to design the optimal layout.

7. AEROBATIC BOX

- a. The FAA requires the aerobatic box be void of all people who are not mission essential during our practices and demonstrations. The aerobatic box is defined as the area from the crowd line to the show line, **1200 to 1500 feet** beyond the show line (for a minimum depth of **2700 feet**), and **6,000 feet** either side of show center. **(See Attachment 7)**
 - (1) Only essential personnel are permitted in the aerobatic box, i.e., demonstration teams and fire/rescue personnel.
 - (2) The strict nature of this FAA guidance means that access to this area must be controlled, and all personnel kept from entering the area. Because the safety of all spectators is essential, the aerial demonstration cannot begin, or may possibly be terminated, if non-essential personnel access the area.
 - (3) Any essential personnel within the aerobatic box during the Thunderbird performance **MUST NOT MOVE** during the demonstration, to avoid distracting the Thunderbird pilots.
 - (4) With FAA approval, small notches (less than 500'x500') may be made on the corners of the aerobatic box to facilitate a more optimal show line/show center. This may be used in cases such as a single residence that will not be vacated, major highway that cannot be closed, operational railroad, new warehouse that will not be vacated, etc., that barely clip an optimal aerobatic box. Please work early with Thunderbird #8 if you wish to pursue a notched aerobatic box waiver. In all cases, you must have Thunderbird written approval prior to requesting FAA approval; Mr. Derek Dunmire and IIC.

- (5) Laterally within the aerobatic box, the Thunderbirds can shift our show center 1500' laterally left/right in order to facilitate lining up with the crowd center without moving the aerobatic box left/right or changing the defined TFR center point. This would be used where a notching would be too large but show center is greater than 250' from the primary spectator center. In these cases, we request the TFR to be widened commensurate with the shift (i.e., 600' show center shift from aerobatic box/TFR show center, request 5.1 NM radius TFR).

8. BRIEFING ROOMS

a. TEAM BRIEFING ROOM

- (1) We will need a room where the team can brief and debrief. The briefing room must be air-conditioned and be large enough to accommodate 15 people with tables and chairs in a conference room arrangement, not an auditorium. It must have an electrical outlet, 50-gallon (or similar sized) trash container, and access to restroom facilities. The team does not require audio/visual equipment setup.
- (2) The briefing room must have easy access to show center without having to drive through the crowd area. It must have a lockable door and be available for our exclusive use from the time we arrive until our departure. Reserve 12 parking spaces for Thunderbird vehicles close to the briefing room. **Place bottled drinking water (48 bottles per day) in the briefing room for all practice and demonstration days.** This bottled water is in addition to the water provided for maintenance, show center personnel, and the Thunderbird Tent.

b. HOMETOWN HERO BRIEFING & PUBLIC AFFAIRS ROOM

- (1) We will need a room located near the team briefing room to for our Public Affairs team and to brief the hometown hero/media flyers. At a minimum, arrange two chairs and a small table. This room may be filmed and should reflect the image you desire (e.g., organized and clean). Extra seating on request for hometown heroes family members joining the brief.

c. AIRCREW FLIGHT EQUIPMENT ROOM

- (1) We will need a room in the same area to store and inspect our flight gear. We require empty table space for pre-flight and post-flight inspections. It must have a lockable door and be available for our exclusive use from the time we arrive until our departure.

9. THUNDERBIRD TICKET/TENT ARRANGEMENTS

a. THUNDERBIRD FRIENDS & FAMILY TICKETS

- (1) We issue approximately 250 Thunderbird friends and family DIGITAL tickets per show day. There are certain show sites where we may expect an increased number of guests due to proximity to alumni or team member families. We will coordinate this increase through our Thunderbird Air Show Events Coordinator. These passes are easily recognizable (**Attachment 10**) and are valid only on specific dates. Please disseminate to those directing traffic, parking, gate entry, and VIP area entry. We request the tickets:
 - a) Preclude any air show entry fee.
 - b) Preclude any air show parking fee.
 - c) Enable access to your VIP parking area (approximately 100 vehicles).
 - d) Enable access to the Thunderbird tent.
 - e) Allow access for Thunderbird guests 10 and under without a ticket, when accompanied by a ticketed adult.
- (2) Our e-tickets will include ticket type, location, date, and a QR code. Visual verification is the only accepted process for entry.
- (3) The QR code on the tickets are not scannable. They are a product of the service we use to distribute, but will result in an "invalid ticket" response if attempted to be scanned by your ticketing software or camera function on smartphones.
- (4) Brief your volunteers/parking/ticketing liaisons to instruct your air show workers to look for the Thunderbird logo as confirmation of a Thunderbird Friends and Family ticket. The ticket will be shown via the member's phone for parking, entry, and tent access.
- (5) If you require a specific parking pass, send the file to Thunderbird #8 so that it can be included in the Thunderbirds Friends and Family packet.

b. THUNDERBIRD TENT

- (1) A majority of our Thunderbird friends and family tickets are released to current Thunderbird team members' families and Thunderbird alumni. As this population includes a wide range of ages from young infants to senior citizens, we request a tent with seating to provide shade from the elements as well as water to ensure guests avoid dehydration. Please adhere to the following to ensure the safety of local friends and family members:
 - a) Area for **250 guests** with **150 reserved seats** per day near show center. Every effort should be made to place the tent as close to show center and our communications trailer. **This requires close coordination with Thunderbird 8.** The maximum distance our tent can be from show our communications trailer is **100 feet**.
 - b) Canopy or tent to provide shade for guests.
 - c) **Bottled water or refreshments for our guests.** (This is in addition to the water requirements for the briefing room and our maintenance and show center personnel).
 - d) Restroom located in the immediate vicinity.
 - e) Trash cans.
 - f) Please provide someone to check tickets at the tent entrance to preclude non-ticket holders from entering.
 - g) A physical break in the fence for Thunderbird team member flight line access.
- (2) Hang a banner/sign near the tent entrance for easy identification, however, take care to avoid placing the Thunderbird logo/emblem on the same sign as a commercial advertiser.
- (3) Be prepared to identify the Thunderbird Tent location on the airfield diagram during the Advance Pilot meeting.
- (4) Please understand that the allotted number of guests does not include the 70 team members that may utilize the tent and facilities during the air show. This means there may be up to 320 people utilizing the tent during the demonstration.
- (5) Please contact the Thunderbird #8 or Air Show Events Coordinator with any questions.

10. TRAFFIC FLOW

- a. Please consider using a separate gate for air show performers and VIPs. Be prepared to pass gate number and/or road names to the Advance Pilot upon arrival. For military show sites, work with the Base leadership to allow our Thunderbird VIP tickets access to the same gate the team has access to. **It is unacceptable to assume we will provide an EAL for all of our friends and family.**

11. GOOGLE EARTH KMZ

- a. Air Show organizers must provide the Thunderbird Air Show Events Coordinator and Thunderbird #5 with a Google Earth KMZ file of their airfield/show site **NLT 90 days** prior to your air show. The Google Earth KMZ file will be emailed to Thunderbird #5 and Thunderbird #8, and uploaded to the **Google Drive prior** to FAA approval. The KMZ file should have a depiction of the proposed aerobatic box and the crowd line, pins for show center marker, bomb burst marker, each corner marker, Thunderbird jet show parking, VIP tent location, Airboss stand, and a TFR circle centered on the submitted TFR center. See **Attachment 11** for an example of what your Google Earth map should look like.
- b. For deployed shows, we must have a diagram of the show site as well as the airfield parking plan from which the aircraft will deploy.
- c. Contact Thunderbird #5 prior to drawing your diagram. We may have previously flown a show at your site and have information that could help you determine the best location for your crowd line, show center, bomb burst, etc.
 - (1) Detailed instructions for locating these areas and sample diagrams are in **Attachments 7, 8, 9, and 11.**
 - (2) As a minimum, your Google Earth KMZ file of the airfield diagram should depict:
 - a) The complete aerobatic box from 6,000 feet right of show center to 6,000 feet left of show center, and 1500 feet on either side of the show line (1200 feet on secondary crowd line if waived by FAA).
 - b) A red circle depicting the TFR centered on the submitted TFR center coordinates
 - c) The show lines, the entire crowd area, and any secondary crowd locations.
 - d) Show center and bomb burst markers with geographic coordinates in degree-minute-decimal- minutes format (DD MM.MMM) and elevations in feet. The bomb burst coordinates **MUST** be a minimum of 500' to the right of the crowd line.
 - e) Parking locations for show parking, spare F-16, and support aircraft parking locations.

- f) Support hangar and briefing room locations, with access routes to show center and the support aircraft.
 - g) VIP and Thunderbird family/friends seating.
 - h) Airboss stand location and recommended communications trailer location.
- d. For military sites, we recommend using an additional map that depicts building numbers or a Disaster Preparedness grid map (with the same information listed above). Please include an 8½ X 11-inch copy of the completed airfield diagram.
 - e. For civilian sites, your Airport Manager should have a diagram of the airfield. The diagram should cover the entire airfield. Ensure the diagram's scale is clearly depicted. Please include an 8½ X 11- inch copy of the completed diagram.
 - f. Accuracy in this planning phase with particular emphasis on placement of the show center and bomb burst markers enables us to fly our maneuvers safely and with precision. As a reminder, send us your map **NLT 90 days** prior to your show.

12. GOOGLE MAPS PRODUCT

- a. The end state of this Chapter is twofold, ensure we have a safe and effective setup for the demonstration and to know exactly where our footprint will be on your grounds. Thunderbird #8 will make a Google Maps product and disseminate it to the team and friends and family prior to their arrival to ensure all 300+ people know precisely where to go and how to get there. The contents of the map are derived from the Airfield Diagram and KMZ products. The finer details of exact routings, parking, gates, doors, etc. are easily lost in these products.
- b. Google My Maps is a user-friendly interface that will help communicate these specific details. A new map for your location can be created at mymaps.google.com. Prior to creating a map from scratch, contact Thunderbird #8 in case we already have one from a previous year at your site. In this case, the old map can simply be updated for any changes for the current year. If we do not have one for your site, we can send an example.
- c. Upload your Google Maps product to the Google Drive **NLT 30 days prior** to your show. This crystal-clear picture of your show site is imperative for efficient Thunderbird Operations and will save invaluable time on the Advance day.

Chapter 8

Operations

1. AIRFIELD OPERATIONS

- a. **Minimum runway length for takeoff/landing is 7,000 feet.** Show sites with takeoff/landing operations on runways less than 7,000 will require an alternate airfield (within 50 NM) from which our aircraft will operate.
- b. If your show is a remote deployed show, ensure the airfield that our jets are operating from is no greater than **50 NM** from Show Center.

2. HAZARDS

- a. Please notify the Thunderbird Air Show Events Coordinator of any flying or ground hazards (bodies of water, trash dumps, VFR traffic congestion areas, bird hazard areas, etc.) in the local area that are not readily known to transient aircraft. This information must be provided prior to the arrival of the advance team.

3. UNCONTROLLED AIRFIELD OPERATIONS

- a. If your show site is at an uncontrolled airfield, you **MUST** arrange for the Airboss to be present and controlling the field for ALL Thunderbird aircraft operations including TB 8's arrival, TB 1-7's arrival, all media/hometown hero flights, all practices/demonstrations, and TB 1-8's departure.

4. RUNWAY BARRIERS/ARRESTING GEAR

- a. **Regardless of runway length, we require a barrier on site unless there is a runway with a suitable arresting gear within 80 NM of the airfield. If your location is remote (i.e., deployed air show), then a barrier must not exceed a total flying distance of 80 NM from the aerobatic box, to the aircraft staging location (airfield), then on to the cable location (see image below).** For example, if your remote show site is 10 NM from the aircraft staging location then a barrier must be located within 70 NM of the staging airfield (e.g., image below at 64 NM of flying is a valid option).



- b. The following are approved arresting gear per the F-16CM-1: BAK-6, BAK-9, BAK-12, BAK-13, BAK- 14, BAK-15 NI, MAAS, 44B-2L, BLISS 500S-6, TAGS BLISS 500S-6 Transportable, 44B-3H/SP/WR, MAGS 44B-3H/SP/WR Mobile, M-31, RHAG MK-1, RHAG MK-2, PUAG, PAAG, P-IV/BAK-12 Portable, Aerazur Textile Braking System, MA-1A Modified, MA-1A/E-5, MA-1A/BAK-9, MA-1A/BAK-12, SAFE-BAR, 61QSII, 61QSIIM, MIK-6, ARZ-30/40, BEFAB 21:2/MK VI-I, BEFAB 6:3/MK VI-I, MK- 12A, RAF TYPE A, RAF TYPE BB.
 - (1) **Certain Marine arresting gear cables, M-31 for example**, are held above the runway for engagement by plastic wedges that sit freely on the runway surface. **These are a significant FOD hazard** if aircraft are taking off/landing/taxiing over them. If you are sourcing a Marine arresting gear system you are **REQUIRED** to obtain approval from Thunderbird #8 before proceeding forward with this as an option. Realize this will most likely mean that the arresting gear **CANNOT** be co-located on the runway that we will operate from.
 - (2) Show sites should coordinate with local FAA and airport management, as certain types of temporary arresting gear may affect civil and commercial operations.
- c. If required, obtaining arresting gear is a safety requirement that is your responsibility. Instructions for requesting arresting gear are contained in AFI 32-1043. Included in the AFI is information concerning funding responsibilities. This AFI is available in electronic format on request.
 - (1) Coordinate with ACC A3/A3TA for sourcing of arresting gear install team, equipment, and certification.
Primary: Dan Young **Work: (757) 225-9275** **Email: Daniel.Young.53.ctr@us.af.mil**
Alternate: Larry Schleser **Work: (757) 764-8175** **Email: Lawrence.Schleser.ctr@us.af.mil**
 - (2) Reference **Attachment 12** - Memorandum of Agreement to help attain your arresting gear system.
- d. If installing a runway barrier, we request it be positioned 1,500 feet from the departure end of the primary runway (dependent upon prevailing winds). Arresting gear may be activated from the tower or manually positioned. If manually positioned, it must be **in place and certified** before all Thunderbird arrivals practices, and demonstrations. If significant time is required for setup, ensure that time is built into your air show schedule to not interfere with our show (ground show start until parked back in chocks)
 - (1) Due to the low tail and ventral fin clearance of the F-16, damage to our aircraft is reasonably to even very likely during a certification. Due to this and the threat it could pose to your show, **we require another aircraft to certify the barrier**. Work with ACC/A3TA to find a certification aircraft. **NOTE:** It is highly unlikely to get F-35s or F-22s to accomplish the certification. Best options are F-15C/E's (Air Force) or F-18's and other hook equipped assets (Navy). Demo teams typically don't travel with the required maintenance personnel footprint to accomplish a safe-to-fly post flight inspection.
 - (2) "Self-Certifying" systems (i.e., water twisters) by nature are a physical mechanism that cannot fail (hence the "self-certifying"). Despite this, one of the critical nodes we look to stress during a certification (other than the hydraulics/brakes) is the actual footings of the system. For this reason, even though "self-certifying" we (as well as other military jet performance teams) often opt to certify these systems. Please DO NOT assume that because it is labeled as "self-certifying" that we don't want/need to certify it. The only exception to this rule is the M-31 arresting gear system which has been approved by USAF for use as long as the appropriate ground tests (pull test, soil test, etc.) are accomplished. **NOTE: Reference section b.(1) above as this cable option is serviced by the USMC with plastic wedge risers.**

5. WEIGHT-BEARING WAIVER

- a. A weight-bearing waiver is required when your airfield weight bearing for a twin tandem is less than 415,000 lbs. (C-17). This is the minimum weight for our support aircraft. If you are in doubt, contact the Thunderbird Air Show Events Coordinator. See **Attachment 13** for a waiver example.

6. RUNWAY/TAXIWAY SWEEPERS

- a. The parking area and all taxiways and runways we use must be absolutely free of foreign objects that could damage our aircraft engines. Due to the vacuum effect of the F-16 engine, especially significant during formation takeoffs and landings, it is mandatory that all surfaces (runways, taxiways, and ramps) be thoroughly swept prior to the arrival of the Advance Pilot, and are periodically swept throughout our stay.
 - (1) If your airport maintenance facilities do not possess a vacuum sweeper, it is necessary to make arrangements to obtain one.
 - (2) If a brush-style sweeper is used, ensure the bristles are not made of steel, and that thorough foreign object damage (FOD) checks are accomplished after its use.

- (3) Restrict helicopters and Harriers from hovering over taxiways, ramps, and runways intended for our use, unless you have a plan for cleaning up the area afterward. It is absolutely essential that hovering not be performed over or near our parked aircraft.
- (4) If pyrotechnics are going to be used anytime during the air show, ensure they are detonated far enough away to prevent blowing foreign objects onto our aircraft or the runways and taxiways intended for use by the F-16s. We require a complete FOD sweep of the airfield following any pyrotechnic or firework display. For safety purposes, we cannot permit pyrotechnic performances closer than 500 feet from our parked aircraft.

7. THUNDERBIRDS ARRIVAL

- a. For a standard show weekend (e.g., Thunderbirds departing from Nellis AFB), Thunderbird #8 will arrive on Wednesday and the support aircraft (1xC-17 primary, 2xC-130 secondary) and Thunderbirds #1-7 will arrive on Thursday. The support aircraft will land 1hr prior to the jets. A general guideline for F-16 arrival times is below based on your time zone. The times may vary for specific needs and variables outside our control. **All required CFR/TFR parameters and timing are located in Chapter 10. NOTE:** Be mindful that you may be planning for a show that is on the other side of daylight savings time.
 - (1) Eastern Time - 4pm (1600)
Central Time - 3pm (1500)
Mountain Time - 2pm (1300)
Pacific Time - 1pm (1300)
 - (2) Work directly with our Thunderbird Air Show Events Coordinator for any non-standard show week timelines (e.g., Thunderbirds departing from anywhere other than Nellis AFB).
- b. Communications - Thunderbird #8 will work directly with tower for an arrival survey. For Thunderbird #1-7s arrival, Thunderbird #8 will establish contact with the Thunderbird #1 approximately 10-15 minutes prior to their arrival on a discrete frequency. Thunderbird #8 will coordinate with the tower or Airboss via phone call or VHF to take control of airspace and ground NLT 5 minutes prior to arrival. Control will be handed back once the Thunderbird aircraft have landed and taxied back to their parking location.
- c. Thunderbirds perform a Thunderbird Pitch on arrival to land. **This is the quickest way in which to recover all 6 aircraft.** This consists of proceeding inbound at 300 feet over the approach end of the runway. At mid-field each aircraft pitches up to 1500' AGL downwind. Pitch direction is at the discretion of the tower and we can pitch either left or right. Straight-in traffic or traffic on an ILS will be a conflict for this maneuver.

8. THUNDERBIRD AIRSPACE USE DURING AEROBATIC FLIGHT

- a. Thunderbird aerobatic maneuvers begin and end a maximum of 6,000 feet (1 NM) left and right of show center. After each maneuver, a clearing turn to the left or right begins, followed by a climb and repositioning turn that may extend all the way out to 5 NM from show center. The Diamond and Solos enter the run-in corridor wings-level at a point 12,000 feet (2 NM) from show center and at an altitude of 200-500 feet AGL. They proceed inbound to 6,000 feet while descending to 100-400 feet before actually starting the aerobatic maneuver. This run-in, or approach to the maneuver, is required in order to properly stabilize the aircraft, and is absolutely essential to consistently perform safe and precise maneuvers. We will not exceed the speed of sound during our demonstration.
 - (1) All required CFR/TFR parameters and timing are located in **Chapter 10.**

9. THUNDERBIRD TIMING

- a. The Thunderbird portion of your air show, ground and flying, lasts 1 hour. It is imperative that no other events be scheduled during this time, and that the Thunderbird Narrator has full control of the microphone and air show sound.
 - (1) Our ground ceremony begins with a precision launch and taxi for takeoff. Our takeoff is approximately 20 minutes (25 minutes with an enlistment) after the Thunderbird Narrator takes control of the microphone. Do not confuse the beginning of our show (ground ceremony) with our takeoff time (wheels up).
 - (2) The actual flying portion is 37 minutes long for a high show from takeoff to land (not including taxi back and shutdown); slightly shorter for a low/flat show.

(3) **It is highly advised to provide at least 1 hour and 30 minutes from our takeoff for our Friday PM practice and demonstrations to allow slip capability if the event of aircraft issues or weather. With the ground ceremony that equates to 1 hour and 50 minutes total time (1 hour and 55 minutes with an enlistment).**

(4) Do not schedule acts or events during the 30 minutes after scheduled landing for autographs.

(5) Scheduled takeoff time must be more than 2 hours prior to official sunset.

(6) **All required CFR/TFR parameters and timing are located in Chapter 10.**

b. **Thunderbird Itinerary - All events on our itinerary are based on our performance timeslots.** The Thunderbird Air Show Events Coordinator will send a draft of our itinerary approximately 60 days prior to the show. **It is extremely important to review the drafts for accuracy as it drives the schedule for 70 personnel at your show site.** You must confirm with your Airboss for our scheduled **mic times (when we expect the microphone and control of the airspace and the ground)**. Below are guidelines for our mic times; we are flexible, but must know of any deviations in advance.

(1) Friday AM practice: 1000L (1030L if eastern time)

Friday PM practice: 1400L (1430L if eastern time)

Saturday/Sunday demonstrations: 1500L

10. AIR SHOW COMMUNICATIONS

a. During the demonstration, Thunderbird #7, will be in continuous contact with our aircraft and your tower through our radio communication specialist, call sign Thunderbird Control, using radios in our communications trailer.

(1) Control of the airfield will be requested, and is highly desired, prior to the F-16s taxiing. The tower must relinquish control before the Thunderbird aircraft will take off for the demonstration.

(2) We fully recognize that emergency situations must take priority over aerial demonstrations, but positive transfer of control of the field must be accomplished and acknowledged by both parties to prevent further safety complications. If the tower needs to regain control of the airfield due to an emergency, it may do so only after coordination with Thunderbird Control, allowing time to halt the demonstration and advise the aircraft that the tower has control of the field. After the emergency situation has been resolved, our demonstration will not resume until we regain control of the airfield.

(3) Thunderbird Control monitors Guard frequency (243.0).

11. POST-SHOW PROCEDURES/AUTOGRAPHS

a. Thunderbirds will be available for autographs for approximately 30 minutes after our performance. The location will be at the densest general population area of the crowd. Our Public Affairs team will have the final say on the location. We will not have an autograph session if there is another act performing, to include narrated fly-bys.

(1) Please provide a back-up autograph location in case of inclement weather (rain, extreme heat, etc.). A minimum of 4 tables and 12 chairs needs to be available on stand-by at the back-up location. Contact Thunderbird Public Affairs for follow-on questions.

(2) Deployed Shows - Our demonstration pilots are unable to return to the deployed show location for autographs. Our show center personnel may be available for autographs with proper coordination. Please work out the details with our Thunderbird Air Show Events Coordinator.

b. Coordinate with local Security Forces/Law Enforcement to allow a full 30 minutes for autographs prior to clearing the airfield of non-air show personnel. If, based on safety or risk mitigation it is determined that Thunderbird autographs need to be terminated prior to the scheduled 30 minutes, then have the Thunderbird Project Officer or any Security Forces/Law Enforcement representative notify Thunderbird Public Affairs immediately to allow Thunderbird personnel to leave the autograph line prior to evacuating the flight line. This allows a smooth, safe flow of both air show patrons and performers.

12. GROUND RESCUE PROCEDURES

a. Emergency Vehicles - Our F-16s have standard F-16 rescue features. You must have all crash equipment in place **1 hour** prior to takeoff in positions that are inconspicuous. These vehicles should be located outside the crowd line with immediate access to the show line. We request that all vehicle flashing lights/rotating beacons be turned off during our practices/demonstrations to prevent pilot distraction.

- b. Egress Training - Egress training with Thunderbird Quality Assurance will be scheduled for fire and rescue crews after the arrival of the support aircraft. Due to scheduling conflicts, we can only provide training for a single shift however, work with Thunderbird #8 if you desire another training session. Please have a Fire Department representative at the Advance Pilot's Meeting.

13. HOMETOWN HERO/MEDIA FLIGHT AIRSPACE

- a. Our Hometown Hero/Media flight will plan to use the same TFR airspace as the demonstration during the Friday PM practice. Thunderbird #7 or Thunderbird #8 with Hometown Hero/Media Flyer will takeoff just prior to the demonstration and climb to the top of the TFR. They will fly a profile above the demonstration until rejoining to a photo chase position during the Delta Formation (all 6 jets) maneuvers. The profile requires an additional 10 minutes of TFR usage after the demonstration lands.
 - (1) Please make arrangements to reserve **OVER-LAND** airspace for this flight if your show is over-water or if the TFR is unusable due to weather or timing restrictions.
 - a) The following specifications are required for the airspace. Military Operating Area (MOA) or Restricted Area, **at least 10 NM x 10 NM** in size, from 1,000 feet AGL to 18,000 feet MSL, and no further than 60 NM away from the airfield.
 - (i) Schedule a 2-hour block starting with the beginning of our Friday PM practice.
 - (ii) Provide a copy of any owning agency information such as an in-flight guide.
 - b) Work with Thunderbird #8 for any assistance required acquiring airspace.

14. GENERAL INFORMATION

- a. With the exception of the U.S. Army Golden Knights, the U.S. Navy Leap Frogs, and the Air Force Academy Wings of Blue, all landing zones for parachutist demonstrations must be **at least 300 feet** from our aircraft.
 - (1) We will not drive vehicles in the vicinity of the Parachute Landing Area while the jumpers are in the air.
 - a) Considerations should be made for the timing of parachute acts in relation to our mic time based on our access and routing to our communications trailer and jets. For example, if the act is immediately before us and we are unable to access these locations while jumpers are in the air, we may be delayed and unable to meet our scheduled mic time.
- b. Miscellaneous safety factors.
 - (1) Do not allow concessions at your air show to sell helium-filled balloons as they are a threat to safe- flying operations.
 - (2) If hot-air balloons are a part of your air show, ensure they are not inflated during our arrival, practices or demonstrations.
 - (3) If radio-controlled model aircraft will operate during your show, they must not come within 300 feet of our aircraft parking location, laterally or vertically. They must not be operated during our arrival, practices, or demonstrations.
 - (4) Drones are not permitted within the TFR during our flying windows. This includes, but is not limited to, local law enforcement drones, emergency services drones, and photography drones. Work with your local homeland security/law enforcement agency to create a GEO zone that will disable drone use within the TFR. During the Advance Pilot Brief, provide information on how you will detect, track, ground, and communicate drones during our show.

15. LOCAL AIRPORTS

- a. Please make sure you contact all airports within a 5 NM radius of your airfield to ensure they are shut down during the time periods specified in the FAA waiver. Additionally, contact all airports outside a 5 NM ring whose approach or departure corridors would infringe upon the sanitized 5 NM ring.
- b. At beach shows, ensure you notify local banner tow and parasailing companies that operate within the TFR as we operate at altitudes at or below their operation in the TFR and to/from the airfield.

Chapter 9

Advance Pilot Meeting

1. ADVANCE PILOT/CREW CHIEF ARRIVAL

- a. The Advance Pilot and Crew Chief will plan to arrive at your show site 1 day before the rest of the team. The show center marker and the bomb burst marker must be in place prior to their arrival.
 - (1) Inform the ATC controlling agency that Thunderbird 8 will survey the entire airfield upon arrival. This will consist of several passes parallel and perpendicular to the runway and/or show line at low altitude. The arrival survey is to check the accurate placement of the show center and bomb burst markers and to note any obstructions within 5 NM of the show center. Due to the low altitude survey requirement, ensure the FAA waiver includes Thunderbird #8's arrival and survey times. Thunderbird #8 will land via a Thunderbird Pitch defined in Chapter 8, paragraph 7.c.
 - (2) After landing, the Advance Pilot will taxi to our spare parking location and be marshaled into the parking. Any other parking plan requires prior coordination. Ensure the taxi route has been FOD swept and **an F-16 ladder/maintenance stand** is available.
- b. Stage one sedan and a full-sized SUV/minivan from the vehicle request near the aircraft. After securing the aircraft, the Advance Pilot and Crew Chief will begin essential tasks:
 - (1) Inspect and paint the F-16 parking area. Have the specified cans of spray paint available
 - (2) Examine all facilities, routes, gates, doors, etc. that will be used by Thunderbirds and friends and family
 - (3) Inventory and inspect the maintenance equipment and vehicles.
- c. The Thunderbird Project Officer must be prepared to provide the following information to the Advance Pilot prior to the meeting. A comprehensive Google Maps Product (Chapter 7, paragraph 12) in the planning phase will greatly expedite this collaboration.
 - (1) Best entry for flight line access
 - (2) Vehicle access to jet parking
 - (3) Vehicle access to our communications trailer on show days
 - (4) Gate closures and performer gate availability (if applicable)
 - (5) Door/gate codes for access to facilities we'll be using
 - (6) Parking location for Thunderbird vehicles near maintenance hangar and operations facilities
 - (7) Parking location for Thunderbird VIPs with tickets
 - (8) Any special access routes we'll be required to use
 - (9) Full description of social events, VIPs in attendance, food/beverage descriptions, and protocol for events/presentations
 - (10) Miscellaneous information we need to know about the airfield/facilities/local area/etc.

2. ADVANCE PILOT MEETING

- a. The Advance Pilot Meeting is crucial to the success of your air show. It will begin 30-60 mins after the landing. **If a deployed show, the meeting must take place at the arriving airport.** It is imperative that the following individuals are present at the meeting:
 - (1) Air Show Director
 - (2) Thunderbird Project Officer
 - (3) Transportation Representative
 - (4) Maintenance Representative
 - (5) Lodging Point of Contact (if questions on the team's arrival)
 - (6) Air Show Sound Representative (if first time working with the Thunderbirds or has questions)
 - (7) Public Affairs Representative
 - (8) Recruiter
 - (9) Security Representative and/or local police
 - (10) Fire Department Representative

- (11) Base Operations/Airfield Management Representative
- (12) Air Traffic Control Representative (both airfield and local TRACON)
- (13) FAA Representative
- (14) U.S. Coast Guard Representative (if applicable)

- b. The Thunderbird Project Officer should **provide copies of the final Thunderbird itinerary**, as received from Thunderbird #8, to the above listed individuals. The meeting will involve reviewing the itinerary and ensuring all coordination is complete and correct. The following will be discussed at a minimum:
 - (1) Thunderbird schedule, line-by-line
 - (2) Vehicle and transportation issues
 - (3) Maintenance issues
 - (4) Security issues, including aircraft security and police escorts
 - (5) Disaster response plan with Fire Department
 - (6) Public Affairs commitments and plans
 - (7) Recruiting opportunities
 - (8) Air show sound system requirements and tie-ins
 - (9) Airfield and airspace operations - have a large- scale diagram depicting the aerobatic box and airshow ramp (not required if available electronically)
 - (10) FAA Waiver - If desired by the FAA, the Advance Pilot can sign the waiver for the weekend; otherwise, a Thunderbird representative will sign the waiver at the FAA meeting on the practice day

3. POST-SHOW MEETING

- a. The Thunderbird Project Officer needs to be available on the morning of the Advance Pilot's departure for a quick debrief of the air show. This meeting will be on the itinerary and will last approximately 30 minutes. Please bring any feedback you have for the planning and execution of Thunderbird operations; things we should start, stop, or continue doing. Other air show staff members are welcome to join.
- b. Within a week after the air show, please upload the Show Site After Action Report in **Attachment 27** to the Google Drive.

Chapter 10

FAA Waivers/ TFR/NOTAMS

1. FAA WAIVERS

a. General Information:

- (1) A waiver from the Federal Aviation Administration is required for the Advance Pilot's arrival, Thunderbirds 1-7's arrival, practices, and demonstrations.
- (2) You may submit all waiver requests on the same FAA Form 7711-2, Application for Certificate of Waiver or Authorization. Sample waivers are in **Attachments 14 and 15**. Initiate the waiver as early as possible. Have your Airboss or designated representative **send DRAFT Waiver Request to our Air Show Events Coordinator and upload to the Google Drive NLT 45 days prior to your show**. We will review it for accuracy and return it with changes if necessary.
- (3) Do not issue your request for waiver to the "Thunderbirds." Please name a representative of your organization in the "issued to" block.
- (4) If the FAA representative determines congested areas around the show site will be a factor for maneuver run-in, contact the Thunderbird Air Show Events Coordinator as soon as possible so we can assist in obtaining the necessary waivers.
- (5) Ask the FAA to send a copy of the approved waiver directly to the Thunderbird Air Show Events Coordinator so we can confirm the times are correct and that all special provisions can be met. We cannot perform any aerobatics without an approved FAA waiver.
- (6) **We do not plan to perform any aerobatics during our arrival survey. If this requirement changes for your show, the Thunderbird Air Show Events Coordinator and/or the Advance Pilot will coordinate with the show site, Airboss, and FAA to ensure the aerobatic box is sanitized and all appropriate safety precautions are taken. If the case, the waiver must be in place with appropriate CFRs waived IAW this chapter.**
 - a) If an aerobatic arrival site survey is feasible at your show site, please submit the appropriate paperwork and inform Thunderbird #8. We may use this as an opportunity for an extra practice.
- (7) If desired by the FAA, the Advance Pilot can sign the FAA waiver during the Advance Pilot Meeting.

b. We require the following CFRs waived for all our arrival maneuvers, practices, and demonstrations:

- (1) 91.117(a) - Aircraft speed in excess of 250 knots below 10,000 feet
- (2) 91.117(b) - Aircraft speeds in an airport traffic area
- (3) 91.119(b) - Minimum safe altitudes over congested areas (Military teams with approved maneuvers packages only)
- (4) 91.119(c) - Minimum safe altitudes over other than congested areas, except not closer than 500 feet to persons
- (5) 91.127 - Operating on or in the vicinity of an airport
- (6) 91.129 - Operations in Class D airspace (where appropriate)
- (7) 91.130 - Operations in Class C airspace (where appropriate)
- (8) 91.131 - Operations in Class B airspace (where appropriate)
- (9) 91.155 - Minimum VFR cloud clearances
- (10) 91.303 - Definition of aerobatic flight
- (11) 91.303(c) - Within the lateral boundaries of the surface areas of Class B, Class C, Class D, or Class E airspace designated for an airport
- (12) 91.303(d) - Aerobatic flight within 4 NM of the centerline of any Federal airway
- (13) 91.303(e) - Aerobatic flight below an altitude of 1,500 feet above the surface

NOTE: For the Advance Pilot's arrival, we only require CFRs 91.117 (a) and (b), and 91.119 (b) and (c) to be waived. No TFR is required and the airfield does not need to be NOTAM closed, but request traffic priority to accomplish the aerial survey. For non-towered airfields, a NOTAM should be published warning pilots of low flying, fast military aircraft operations within 5 NM of the airport.

- c. The CFR waivers must be valid for the following times as a minimum, **additional time is requested if available** to provide maximum flexibility for possible maintenance problems or weather conditions:
 - (1) Advance Pilot arrival (non-aerobatic): 10 minutes prior to, and 80 minutes after the Advance Pilot's scheduled arrival time (total of 90 minutes)
 - (2) Thunderbirds 1-7's arrival (aerobatic if feasible): 10 minutes prior to, and 80 minutes after the scheduled arrival time (total of 90 minutes).
 - (3) AM practice (aerobatic): 60 minutes
 - (4) PM Practice/Demonstrations (aerobatic): 20 minutes prior to scheduled takeoff and extend for 90 minutes minimum (total of 1 hour and 50 minutes)
 - (5) **Due to the potential for maintenance, weather, or air refueling delays, we request the waivers be approved for a much larger time block, even if they extend past the expiration of the TFR.**

2. TEMPORARY FLIGHT RESTRICTION (TFR)

- a. TFRs are REQUIRED for Thunderbirds 1-7's arrival, practices, and demonstrations. This needs to be approved as early as possible, **at least 30 days** prior to your air show, through your local Air Force representative from your appropriate FAA region. An example request letter is provided in **Attachment 16**. To ensure that the TFR meets all of our requirements, have your Airboss send your DRAFT TFR request to the Thunderbird Air Show Events Coordinator and upload to the Google Drive **NLT 45 days** prior to your show. We will review it for accuracy and return it directly to the Airboss for changes if necessary.
 - (1) Required TFR altitudes
 - a) Thunderbirds 1-7's Arrival Practice: Surface to 10,000 feet AGL
 - b) Practices/Demonstrations: Surface to 15,000 feet AGL
 - (2) The required lateral boundary for ALL Thunderbird TFRs (arrival/practice/demonstration) is a **5 NM radius from the Thunderbird show center coordinates**. IF your CROWD CENTER and SHOW CENTER are not co-located, then we require a **5.5 NM TFR (but no less than 0.1 NM for every 600' offset)**
 - (3) The TFR must be in effect for the following times as a minimum, **additional time is requested if available** to provide maximum flexibility for possible maintenance problems or weather conditions:
 - a) Thunderbirds 1-7's arrival (aerobatic if feasible): 10 minutes prior to, through 80 minutes after our scheduled arrival time (total of 90 minutes).
 - b) AM practice (aerobatic): 60 minutes
 - c) PM Practice/Demonstrations (aerobatic): 20 minutes prior to scheduled takeoff and extend for 90 minutes at a minimum (total of 1 hour and 50 minutes).

3. NOTICES TO AIRMEN (NOTAMs)

- a. Your airfield must be closed for the total time issued on the waiver for Thunderbirds 1-7's arrival and all practices and demonstrations. This time includes closure to airlines at commercial or joint-use fields. If you anticipate any conflicts, contact the Thunderbird Air Show Events Coordinator.
- b. Ensure a NOTAM is issued **at least 48 hours** in advance for both arrival and demonstration waivers. It is of the utmost importance to not only provide a NOTAM closing the airfield, but to include the closure requirements for arrival maneuvers, practices, and demonstrations.
 - (1) Sample NOTAM (for arrival maneuvers, practices, and demonstrations): Airspace surface to _____MSL closed within 5 NM of _airfield/TACAN from _____Z to _____Z on _____(date).
- c. **Please provide the Thunderbird Air Show Events Coordinator a copy of the TFR request/proposed TFR NOTAM and upload to the Google Drive NLT 45 days prior to your show.** This will allow us to check the accuracy of the TFR dimensions, center, etc. to avoid any last-minute changes.

Chapter 11

Public Affairs

1. PUBLICITY

- a. The Thunderbirds Public Affairs office is here to make your air show a world-class event centered on three primary goals:
- (1) **Recruit** young Americans to join military service.
 - (2) **Retain** the quality force we have and remind those who are wearing the uniform how important their service is to the Air Force and the United States.
 - (3) **Inspire** the patrons of your air show by highlighting what's possible when you work together and set your mind to something great

b. THUNDERBIRD PUBLIC AFFAIRS (PA) TEAM

- (1) Before beginning your show's publicity campaign or planning any events, please contact the appropriate Thunderbird PA member. If you have a general question or are unsure where to begin, email the Thunderbirds Gmail.

Position	Rank and Name	Email
Thunderbird 12 (PA Officer)	Capt Hannah Durbin	hannah.durbin.1@us.af.mil 702-378-7950
Public Affairs Superintendent	MSgt Ashley Taylor	ashley.taylor.19@us.af.mil 702-538-4232
Thunderbird Recruiting Liaison	TSgt Cody Coker	cody.coker@us.af.mil 702-278-4949
Thunderbirds Gmail		afthunderbirds@gmail.com

c. REQUIRED INFORMATION

- (1) To ensure effective communication that resonates with your local community, it is essential to provide the following information about your air show and community. Send the information outlined below to Thunderbird 12, the Public Affairs Superintendent, and the Public Affairs Gmail and upload it to the "Publicity" Google Drive folder **NLT 45 days** prior to our arrival:
- a) Official name and theme of your air show
 - b) Air Show website
 - c) Admission costs & parking fees
 - d) Gate open/closures times
 - e) Schedule of events
 - f) List of other performers
 - g) City population
 - h) Brief (1 paragraph) history of city/base (for civilian show sites, this should include any local military ties)
 - i) 3-5 pertinent themes and messages you would like us to help you disseminate and emphasize
 - j) Names and biographies of the host command team (military show sites) or projected distinguished visitors the team will meet
 - k) All appropriate social media @tags and hashtags for Facebook, Instagram, and X

d. AVAILABLE PUBLICITY MATERIAL

- (1) Publicity material can be immediately obtained from the [Thunderbirds DVIDS page](#) or by scanning the QR code. All images, graphics, and videos found on DVIDS are public domain, so please use them in your marketing and media products. **Please sort your search by the most recent date to help represent our current team.**
- (2) Ensure a diverse cross section of your local media outlets and publicity platforms are aware of these resources and encourage them to use them in advertisements, articles, and public service announcements.
 - a) Although Thunderbird images, products, graphics, and statements may be used in advertising the air show itself, they may not be used for advertising commercial products or services (per Title 18 of the U.S. Code, Section 709). For questions, contact the Thunderbirds Public Affairs office.
- (3) Feel free to share products from Thunderbird social media to promote your show. Official Thunderbird accounts are on [Instagram](#) and [Facebook](#).



2. MEDIA

a. BEFORE THE SHOW

- (1) Thunderbirds team members are available for telephone and video interviews prior to our arrival. Please contact Thunderbird Public Affairs for approval of the request.

b. AT THE SHOW

- (1) Arrival interviews (normally Thursday): The standard Thunderbird media day is upon the arrival of Thunderbirds 1-6 for planeside interviews. To coordinate these interviews, please:
 - a) Send advisories announcing the team's arrival to desired media and ask them to respond if they desire to conduct planeside interviews.
 - b) Provide a list of anticipated participating media outlets, their method of interview, reach, and other important notes to the Thunderbird Gmail and in the "Media" Google Drive folder **NLT a week prior to the media day** (see the table below). Final updates must be completed by **12:00L the day prior to arrival**. Media outlet participation is not limited to traditional media and news stations; modern media outlets and influencers are welcome to participate in the media day pending proper review. Air Show organizers are required to vet all recommended media.
 - c) Identify any priority outlets or objectives and share those with the Thunderbird Media team.
 - d) Ensure all media personnel are in place **at least 30 minutes** prior to our team's arrival.
 - e) Upon arrival of Thunderbirds 1-6, the team will survey the surrounding area within view of the show site at low altitude and high speed. Please do not advertise or imply survey or arrival maneuvers as an official aerial demonstration.
 - f) Wait for a coordinated signal from Thunderbird 8 or Thunderbird 12 before escorting media personnel to their assigned pilots.
 - g) Interviews and planeside footage should be no longer than 15 minutes total.

(2) Example of media breakdown to be sent to Thunderbirds Gmail:

Media Outlet	Method of Interview	Reach	Audience	Areas of Interest	Additional Info
ABC 7	pre-recorded video	231k	National affiliate	Human interest	Wants to interview Thunderbird 5
Chicago Gazette	audio only	20k	Local news	Local ties	N/A
Good Morning Chicago	live tv	958k	Local news	Air Show promotion	Live hit to occur roughly 16:30L
FOX 21	pre-recorded video	734k	National affiliate	Behind the Scenes	Priority outlet. Working closely with Air Show coordinators for weekend coverage.
Air Show Network	photo only	10k	Online Air Show news readers	Technical details	Looking to capture working portraits

- (3) Our media flyer program supports national-level media members. Please reference below for information on nomination packages.
- (4) In addition to the planeside arrival interviews, media members are able to cover Hometown Hero flights that typically occur the practice day prior to a show (typically Friday). Additional media opportunities should be discussed on a case-by-case basis for approval.
- (5) The Thunderbirds have a media kit containing b-roll and photos that media outlets can use. Please reach out to Thunderbirds Gmail for the most current link.

3. FLYER PROGRAM (MEDIA AND HOMETOWN HERO)

- a. Submitting a nomination starts the process, but it does not guarantee approval. Every candidate goes through extensive vetting by the Pentagon, Air Force Public Affairs, and several general officers. Only an official email from the Thunderbirds Public Affairs ("Congrats from the Thunderbirds!") confirms approval. Flights typically occur during the Friday afternoon practice session.

b. PROGRAM OVERVIEW

- (1) The Thunderbirds offer two types of honorary flights. Most show sites will have the opportunity for one of these two flights:
 - a) Hometown Hero Flight
 - (i) Must be a local individual making a major positive impact
 - b) National Media Flight
 - (i) High impact/national-level outlets or individuals only (local affiliates are not eligible)
 - (ii) Not limited to traditional media/news stations

c. WHO CAN BE A HOMETOWN HERO?

- (1) Before beginning your nomination package, please review an example of a successful package in **Attachment 17**. Flights are not guaranteed at every show site; packages face extensive scrutiny and review. Only strong packages that meet the described criteria will be considered for a flight opportunity.
- (2) Nominees should represent the best of your local community. Strong nominations often show:
 - a) Extensive volunteer work and community involvement
 - b) Leadership in service-oriented roles
 - c) Impactful stories with measurable results and quantitative data

- (3) Examples Include:
 - a) Wounded warriors (with impactful contributions beyond service)
 - b) Citizens who saved lives
 - c) Exceptional teachers
 - d) First responders who went above and beyond
 - e) Youth mentors and community volunteers
 - f) Advocates for at-risk children
- (4) Who is Not Eligible?:
 - a) Elected/appointed officials
 - b) Honorary commanders
 - c) Air Show board members or sponsors
 - d) Family/friends of air show board members or sponsors
 - e) Key spouses
 - f) Current service members
- d. NOMINATION GUIDE
 - (1) Each Show site is required to provide one primary and one alternate nomination. The nominations can be any combination of Hometown Hero or Media flyers.
 - (2) Show sites must complete nomination packets **at least 60 days** before the show (**75 days** for non-U.S. citizens). Upload the completed forms to the “Flyer Program” Google Drive.
 - (3) Required Documents:
 - a) Nomination Sheet (**Attachment 18**)
 - b) Measurement Sheet (**Attachment 19**)
 - c) Hold Harmless Agreement (**Attachment 20**)
 - d) Flight Medical Evaluation (**Attachment 21**)

4. COMMUNITY OUTREACH

- a. Our team is available for many types of community outreach events and programs. Do not commit the team to any event without explicit consent from Thunderbirds Public Affairs. This section outlines these events and what’s required to make them happen. There is often overlap between Community Outreach and Recruiting events. Please ensure to deconflict events and coordinate with your local recruiter for all outreach events.
- b. TYPES OF EVENTS
 - (1) Receptions (Community Outreach Events or “COEs”)
 - a) Audience: Local community, air show staff, air show performers.
 - b) Scheduling: One evening reception event per show site will be mandatory for the team, typically held Friday evening **no earlier than 2 ½ hours** after landing from the final practice flight. All formal portions of the event (introductions, speeches, presentations) requiring the team’s involvement and presence should be completed by 8:00 p.m.
 - c) Deadlines: All events must be coordinated with Thunderbird Public Affairs **NLT 30 days** prior to the air show through the Community Outreach Request Form (**Attachment 22**). Send the form to the Thunderbirds Gmail and upload it to the “Community Outreach” Google Drive folder.
 - d) Best Practices: The Thunderbirds highly encourage hosting events that showcase the best of the local community and facilitate interactions between the team and community members. Previous successful events include air show block parties or inclusion in local activities such as sports games or festivals.
 - e) Avoid: Events closed to the public or that limit engagement with the community. For noise considerations, don’t locate your COE near our hangar or jet parking.
 - f) Additional Information:
 - (i) If more than one event is requested, identify which event you would prefer to be mandatory and all other events will be optional for team members.
 - (ii) While the Thunderbirds never solicit presentations or gift exchanges, please proactively indicate if the event host/sponsor or invited guest is making a presentation to the team and what is being presented so the team may reciprocate appropriately. If there are multiple presenters and our team is headlining the event, the Thunderbirds should be scheduled to present last. The Thunderbirds presentation portion of the event takes approximately 10 minutes and includes Thunderbird 1 introducing the team.
 - (iii) All events must be no more than a 30-minute drive from the briefing room and hotel.

- (iv) Escorts to the event are not required, however, keep traffic and construction delays in mind when planning travel times. If an escort cannot be provided for the event, please ensure the team has accurate directions/maps and a clear plan for parking.
- (2) Special Interest Groups/Meet & Greet
 - a) Audience: Our team is honored to host groups that would otherwise have difficulty seeing the Thunderbirds perform (i.e., Exceptional Family Member Program, Make-A-Wish, etc.). This event allows these groups to have the unique opportunity to meet the officers, take photos, and receive autographs in a smaller, more conducive environment after the practice show.
 - b) Scheduling: Typically, Friday afternoon, immediately following landing from the second practice flight.
 - c) Deadlines: Fill out the Community Outreach Request Form (**Attachment 22**) and send it to the Thunderbirds Gmail and upload it to the “Community Outreach” Google Drive folder **NLT 30 days** prior to your air show.
 - d) Best Practices: Limit groups to no more than 30 attendees to allow us to give individualized attention to participants. When planning a Special Interest Group Meet & Greet, you must provide a designated, covered, limited-access seating area near show center (the Thunderbirds Friends and Family tent is sufficient), ear protection for the safety of guests, water, and enough volunteers to establish a sectioned/cordoned area.
 - e) Avoid: Mixing different age groups (i.e., veteran-aged guests with children) to ensure an appropriately tailored experience for participants. Also, do not invite other guests to take part in this special autograph session. Finally, do not make arrangements for your guests to arrive more than one hour prior to the scheduled takeoff to ensure they are able to stay for the entire demonstration and to meet the pilots after they land.
- (3) Fallen Warrior
 - a) Audience: Our Fallen Warrior Program serves to give back to the families and friends of those who made the ultimate sacrifice. In this program, our team invites the family of one military member killed in action from the local area to the show.
 - b) Scheduling: Fallen Warrior ceremonies are held on Sundays and include: hosting the family in the Thunderbirds Friends and Family VIP tent during the performance, dedicating that day’s demonstration to them, our narrator announcing a dedication to their loved one during our demonstration, and holding a small private ceremony at Thunderbird 1’s jet memorializing their loved one once the show is complete.
 - c) Deadlines: If you plan to nominate a family, provide the Fallen Warrior Nomination Sheet (**Attachment 23**) to the Thunderbirds Gmail and upload it to the “Community Outreach” Google Drive folder **NLT 60 days** before the show. Our team will notify your nomination point of contact of selection/non-selection and provide further guidance to the family.
 - d) Best Practices: The most important criterion when selecting a nominee is the distinction of the cause of death. The member’s passing must have occurred while performing his or her duties either during real-world incidents or training accidents. This does not include non-duty related accidents, illness, self-inflicted wounds, etc. Additional requirement criteria for the program include: families that are within the local area of the show (<50 miles) and families who have not yet been honored by our team.
 - e) Avoid: This program is an internal Thunderbirds program and will not be publicized nor open to public interaction.
 - f) Additional Information: Shows are not eligible for a Fallen Warrior ceremony if the show site is: a beach air show, a single-day air show (including flyovers), or an air show where our jet parking is significantly removed from the crowd line.
- (4) Additional Community Outreach Opportunities (visits to hospitals, local nonprofits, or other deserving communities)
 - a) Audience: Varies.
 - b) Scheduling: Typically, Friday mornings (between 0800-1000, but team participation is dependent on the practice schedule).
 - c) Deadlines: To schedule a visit, fill out the Community Outreach Request Form (**Attachment 22**) and send it to the Thunderbirds Gmail and upload it to the “Community Outreach” Google Drive folder **NLT 30 days** prior to your air show.
 - d) Best practices: Visit location must be within 30 minutes of the show site. The best visits connect with a group that is meaningful to a particular community.

- e) Additional Information: School visits are also often scheduled during this time block and are owned by the local recruiting representative in coordination with our Thunderbirds Recruiter. Please work closely with local recruiters to deconflict and prioritize opportunities and communicate those priorities to the Thunderbirds. During the summer, while school is not in session, there will be more availability for outreach events.

c. LITHOGRAPHS

- (1) Lithographs should recognize efforts and contributions in support of the team or during your air show. To request lithographs, please fill out the Lithograph Request Form (**Attachment 24**) and send via email to the Thunderbirds Public Affairs Gmail and upload it to the “Community Outreach” Google Drive folder **NLT 30 days** prior to your air show.
- (2) You may request up to 25 additional lithographs to distribute as your air show director/commander see fit. Please include all of your desired lithographs in the initial email with your request form to avoid complications.
- (3) Lithographs will be printed as written on the list. Please ensure proper spelling, rank, and job titles, limited to 25 characters.

d. BASE ACCESS

- (1) With the above programs, base access can become difficult if a show site has specific security rules during the air show weekend. Your team is responsible for arranging/coordinating base access for all participants.

Chapter 12

Recruiting

1. GENERAL

- a. Recruiting is central to the Thunderbird mission. Air Show directors, Thunderbird Project Officers, and Public Affairs offices must coordinate closely with the Thunderbird Recruiting Liaison and local recruiting representatives who serve as the main points of contact for all recruiting-related events.
- b. The Thunderbird Recruiting Liaison will contact the local recruiter, squadron marketing professional, and flight chief, and will CC the show's Project Officer and Public Affairs office, to ensure alignment. This outreach will begin **NLT 90 days** prior to the air show. The initial outreach will be an email from the Thunderbirds recruiter. This email will include a "Recruiting Events Form." This form will be completed by the recruiting representative and sent to the Thunderbirds recruiter **NLT 30 days** prior to the air show.

2. SHOW SITE RESPONSIBILITIES

- a. Recruiting Booth
 - (1) Air Show organizers are expected to fully support recruiting efforts and should work with local recruiters and the Thunderbird's recruiting representative to coordinate booth placement. Show organizers should provide free, high-traffic booth space near show center.
 - (2) If a national asset is approved, additional space is required (between 60' x 40' and 100' x 100', depending on the asset).
- b. Enlistment Ceremony Support
 - (1) Assist the local recruiter in coordinating an enlistment ceremony to be held at show center before the Thunderbird performance on the first show day (typically Saturday).
 - (2) Provide free access to the show for enlistees.
- c. Reenlistment Ceremony Support
 - (1) Appoint a point of contact to coordinate a reenlistment ceremony to be held at show center before the Thunderbird performance on the practice day (typically Friday).
 - (2) Submit required information to the recruiter and to the "Recruiting" Google Drive folder **NLT 30 days** before the show (**Attachment 25**).
 - (3) Provide free access to the show for reenlistees.

3. RECRUITING REPRESENTATIVE RESPONSIBILITIES

- a. Coordinate with the Thunderbird Recruiting Liaison and show site (Public Affairs, Project Officer, etc.).
- b. Attend all relevant air show planning meetings.
- c. Meet all timelines set by the Thunderbird Liaison (event dependent).
- d. Schedule recruiting engagements for the Thunderbirds (see opportunities below).
- e. Coordinate free show site access for recruiters and enlistees.
- f. Thunderbirds do not support retirement ceremonies or award readings.

4. Recruiting Engagement Opportunities: The purpose of these engagements is to promote Air Force interest within the local recruiting area and to assist the local recruiter in building relationships with local recruiting influencers.
 - a. Enlistment Ceremonies
 - (1) Audience: Air Shows are a great opportunity to showcase our future team members. This ceremony motivates and reinforces their decision to join. The Thunderbirds ceremony can accommodate up to 100 enlistees.
 - (2) Scheduling: Typically, on Saturday at show center before the Thunderbirds demonstration.
 - (3) Deadlines: Must be coordinated with the Thunderbirds recruiter **NLT 30 days** prior to the air show by submitting the Recruiting Events Form (**Attachment 26**) and uploading it to the “Recruiting” Google Drive folder.
 - (4) What to Expect:
 - a) Enlistees must arrive at the recruiting booth 2 hours before the ground show (please ensure to account for traffic, parking, and shuttle delays).
 - b) Enlistees should be dressed appropriately, including a branch-specific recruiting T-shirt and pants (no shorts unless at a beach venue). No ripped jeans, hats, sunglasses, open-toed shoes, or earrings (DEPers can wear hats and sunglasses but must remove them during the ceremony).
 - c) A Thunderbird representative will brief enlistees and complete a practice formation prior to taking enlistees to show center.
 - d) Participants may be from any military branch.
 - e) Families are welcome to attend, but they cannot cross the crowd line without a Thunderbird escort.
 - f) A Thunderbird photographer will take official photos and distribute them to the local recruiter to share.
 - b. School Assembly
 - (1) Audience: High school or college students.
 - (2) Scheduling: Typically held on Friday morning between 0800-1000 and should be a 30-45 min block.
 - (3) Deadlines: All visits must be coordinated with the Thunderbirds recruiter **NLT 30 days** prior to the air show by submitting the Recruiting Events Form (**Attachment 26**) and uploading it to the “Recruiting” Google Drive folder.
 - (4) Best practices: Assemblies are most effective in an auditorium. A microphone, stage, and audio/visual support are desired. Smaller classroom presentations are available if a school is unable to support a large assembly. All school visits must be within 30 minutes of the Thunderbird hotel.
 - c. Pet the Jets
 - (1) Audience: Guided jet tours for up to 50 students (e.g., Civil Air Patrol, JROTC, Scouts, etc.).
 - (2) Scheduling: Pet the Jets will take place at the airport where the jets are parked. Tours are typically Friday morning at 0800 and last about 30 minutes. Times may shift to accommodate air show practice flights.
 - (3) Deadlines: All tours must be coordinated with the Thunderbirds recruiter **NLT 30 days** prior to the air show by submitting the Recruiting Events Form (**Attachment 26**) and uploading it to the “Recruiting” Google Drive folder.
 - (4) Best Practices: This is a great opportunity for students from aviation and STEM programs, but organizers should also consider groups of students that could be inspired to pursue aviation careers.
 - (5) Avoid: For security purposes, do not schedule the tour for groups of more than 50. If you have a larger group, please reach out to the Thunderbirds Recruiting Liaison to discuss other opportunities.
 - d. Educator/Recruiting Influence VIP Tour
 - (1) Audience: This is an opportunity to show appreciation to educators and people that are influential to the local recruiting mission. They will each receive a ticket to the Thunderbirds Friends and Family tent. Each member can bring a plus 1. This opportunity can accommodate up to 12 people total (e.g., 6 educators and 6 plus 1s). The Thunderbirds recruiting liaison will send tickets to the recruiter.
 - (2) Scheduling: Special guests are invited to the Sunday demonstration. The tour begins after the Thunderbirds demonstration on Sunday.
 - (3) Deadlines: All tours must be coordinated with the Thunderbirds recruiter **NLT 30 days** prior to the air show by submitting the Recruiting Events Form (**Attachment 26**) and uploading it to the “Recruiting” Google Drive folder.
 - (4) Best Practices: Ensure that the local recruiter stays in contact with the members they invite and let the Thunderbirds representative know if any of the members do not show up.
 - (5) Avoid: Do not invite friends, family, or anybody other than educators or people that are influential to the recruiting mission. Consult with the Thunderbird recruiter if you are unsure who meets the criteria.

Attachments

Attachment 1	Support Manual & Checklist Compliance Certificate
Attachment 2	Military Air Show Information Sheet
Attachment 3	Civilian Air Show Information Sheet
Attachment 4	Sample Air Show Schedule of Events
Attachment 5	Quick Reference Table of Maintenance Requirements
Attachment 6	Memorandum of Understanding for AGE Equipment
Attachment 7	Example Aerobatic Box Diagram
Attachment 8	Example Overwater Show Site Diagram
Attachment 9	Example Parking Plan
Attachment 10	Digital Ticket Example
Attachment 11	Google Earth Example Map
Attachment 12	Memorandum of Agreement for Arresting Gear
Attachment 13	Example Weight Bearing Waiver
Attachment 14	Sample FAA Waiver Application for Arrival Maneuvers
Attachment 15	Sample FAA Waiver Application for Aerial Demonstration
Attachment 16	Sample Memo-TFR Request
Attachment 17	Hometown Hero Nomination Example
Attachment 18	Flight Nomination Sheet
Attachment 19	Flight Nomination Measurement Sheet
Attachment 20	Hold Harmless Agreement
Attachment 21	Orientation Flight Medical Evaluation
Attachment 22	Community Outreach Requests
Attachment 23	Fallen Warrior Nomination
Attachment 24	Lithograph Request List
Attachment 25	Reenlistment Form
Attachment 26	Recruiting Events Form
Attachment 27	Show Site After Action Report



Attachment 1

SUPPORT MANUAL & CHECKLIST COMPLIANCE CERTIFICATE

The United States Air Force Air Demonstration Squadron (Thunderbirds) takes pride in appearing in Air Shows each year throughout North America. However, on occasion, cancellations are necessary for a variety of reasons, including, but not limited to, weather conditions, other safety considerations (including safety stand-downs) and budgetary constraints. These occurrences can happen at any time, with little or no warning. Every effort will be made to give as much advance notice as possible; however, when cancellations occur, neither the Thunderbirds nor the Department of the Air Force are responsible for any costs associated with any aspect of the air show. These costs include, but are NOT limited to: fuel, smoke oil, ground support equipment, arresting gear, hotels, vehicles, etc.

This certifies that I have read the entire Thunderbirds Support Manual and will comply with all specifications mentioned within unless specifically designated in writing by the Thunderbirds Events Coordinator or the Advance Pilot, Thunderbird #8. I will update the checklist provided to show progress in planning. I understand that failure to comply may result in the Thunderbirds canceling their demonstrations at my show.

Air Show: _____

Air Show Coordinator: _____

Signature: _____

Date: _____

Thunderbird Project Officer: _____

Signature: _____

Date: _____

(Email this form to the Aerial Events Coordinator and upload to the Google Drive)

**MILITARY AIR SHOW INFORMATION SHEET**

(Provide to Air Show Events Coordinator immediately after ICAS & final version 60 days prior to show date)

AIR SHOW TITLE/WEBSITE: _____**SITE/LOCATION:** _____**AIRBOSS/CELL:** _____**AIR SHOW SOUND/CELL:** _____**AIR SHOW OFFICE PHONE:** _____**SHOW DATE:** _____**PROPOSED TAKEOFF TIME:** _____**PREVIOUS THUNDERBIRD SHOW DATE:** _____**EXPECTED CROWD COUNT:** _____**BASE DSN PREFIX:** _____

(NOTE: Annotate if DSN number is not the base prefix followed by commercial last four)

COMMAND POST**COMM:** _____**BASE OPERATIONS****COMM:** _____**WG/CC:** _____**COMM:** _____**GP/CC:** _____**COMM:** _____**COMMAND CMSgt:** _____**COMM:** _____**AIR SHOW DIRECTOR:** _____**COMM:** _____**PROJECT OFFICER:** _____**COMM:** _____**CELL:** _____**EMAIL:** _____**MAINTENANCE:** _____**COMM:** _____**CELL:** _____**EMAIL:** _____**PUBLIC AFFAIRS:** _____**COMM:** _____**CELL:** _____**EMAIL:** _____**USAF RECRUITER:** _____**COMM:** _____**CELL:** _____**EMAIL:** _____**SECURITY:** _____**COMM:** _____**CELL:** _____**EMAIL:** _____**POLICE ESCORT:** _____**COMM:** _____**CELL:** _____**EMAIL:** _____**FIRE:** _____**COMM:** _____**CELL:** _____**EMAIL:** _____**MEDICAL:** _____**COMM:** _____**CELL:** _____**EMAIL:** _____**TRANSPORTATION:** _____**COMM:** _____**CELL:** _____**EMAIL:** _____**BRIEFING ROOM UNIT:** _____**COMM:** _____**CC:** _____**ADDRESS:** _____



CIVILIAN AIR SHOW INFORMATION SHEET

(Provide to Air Show Events Coordinator immediately after ICAS & final version 60 days prior to show date)

AIR SHOW TITLE/WEBSITE: _____

SITE/LOCATION: _____

AIRBOSS/CELL: _____

AIR SHOW SOUND/CELL: _____

AIR SHOW OFFICE PHONE: _____

SHOW DATE: _____

PROPOSED TAKEOFF TIME: _____

PREVIOUS THUNDERBIRD SHOW DATE: _____

EXPECTED CROWD COUNT: _____

AIR SHOW DIRECTOR: _____

COMM: _____

PROJECT OFFICER: _____

COMM: _____

CELL: _____

EMAIL: _____

MAINTENANCE: _____

COMM: _____

CELL: _____

EMAIL: _____

PUBLIC AFFAIRS: _____

COMM: _____

CELL: _____

EMAIL: _____

USAF RECRUITER: _____

COMM: _____

CELL: _____

EMAIL: _____

SECURITY: _____

COMM: _____

CELL: _____

EMAIL: _____

POLICE ESCORT: _____

COMM: _____

CELL: _____

EMAIL: _____

FIRE: _____

COMM: _____

CELL: _____

EMAIL: _____

MEDICAL: _____

FACILITY: _____

COMM: _____

CELL: _____

EMAIL: _____

TRANSPORTATION: _____

COMM: _____

CELL: _____

EMAIL: _____

BRIEFING ROOM: _____

COMM: _____

CELL: _____

ADDRESS: _____

HANGAR: _____

COMM: _____

CELL: _____

ADDRESS: _____

TRANSIENT ALERT: _____

COMM: _____

CELL: _____

WEATHER: _____

COMM: _____

CELL: _____

Attachment 44

SAMPLE SAT/SUN AIRSHOW SCHEDULE OF EVENTS -

- 1100 - Gates Open
- 1230 - Support Aircraft Lands
- 1245 - Flag Ceremony
- 1300 - Casper Skydivers Jump
- 1325 - Northern Knights (2 Pitt Specials - Acrobatic Demo)
- 1330 - Samson (Pitt - Solo Acrobatic Demo)
- 1355 - Pioneer Arrives
- 1356 - Jim Good (Great Lakes B-Winged Solo Acrobatic Act)
- 1408 - Frontier Arrives
- 1409 - Big Sky Arrives
- 1410 - Pioneer Departs
- 1411 - Northern Knights (Solo Act)
- 1423 - Frontier Departs
- 1424 - Big Sky Departs
- 1500 - Thunderbird Ground Ceremony (Give Ground and Airspace to Thunderbird Control) - "Mic Time"
- 1520 - Thunderbirds Takeoff, fly and autograph session
- 1700 - Gates Close

QUICK REFERENCE TABLE OF MAINTENANCE REQUIREMENTS (1 of 3)

QUANTITY	DESCRIPTION	ADDITIONAL INFORMATION
Primary (1 each)	MC-2A Low Pressure Air Compressor	Fully serviced and operational
Substitutes	Portable air compressor w/generator	Must be capable of 200 psi
Primary (3 each)	NF-2 Light Cart, NF-2D Lite Cart, or FL1D Light Cart	For night maintenance and security
Substitutes	Civilian portable source and flood lights	Must be portable for movement to remote sites. Must be 115-120 volts AC, 60 cycle, with a current rating of 15 amps
Primary (1 each)	Universal Hydraulic Test Stand Diesel: A/M27T-17	Must be a two-system test capable of producing 3,000 psi hydraulic pressure with a flow rate (a 20-25 GPM variable flow rate with minimum reduction in PRM) Connectors #12 and #16 are quick disconnects
Substitutes	MJ-2 Hydraulic Test Stand MJ-3 Hydraulic Test TU-228E/HU-228/E-1B, MK-3A Electric Mule, MK-2	If electric substitute is used ensure correct source of power is available in support hangar ONLY use Hydraulic Fluid #83282
Primary (2 each)	Bobtail Tow Tractor with multiple pintle hooks (Must weigh a minimum of 8,000 Lbs. GVW)	For moving AGE and other equipment; upload/download of support aircraft (needs front pintle hook). Place at C-17 parking area
Substitute	MB-4 Coleman Tug (large)	
Primary	Hangar Space	15,000 sq. ft. with 20-foot ceiling
Primary (1 each) Does not need to be on site, but needs to be acquired within 3 hours	RJM8935 Crane	Used to remove Canopy and ejection seat if required for maintenance
Substitute	Crane with 20ft clearance height, minimum lift of 1000lbs, with single point hook and latch	A hangar ceiling operated crane is acceptable if it meets weight and height requirements
Primary (1 each)	SGNCS Self Generating Nitrogen Cart charged to 4,000 psi	Aircraft are re-serviced with nitrogen capability after each flight. i.e. JFS, blow down doors

QUICK REFERENCE TABLE OF MAINTENANCE REQUIREMENTS (2 of 3)

QUANTITY	DESCRIPTION	ADDITIONAL INFORMATION
Primary (3 each)	M-32A-60A Gas Turbine Generator	Fully serviced with both air and electrical systems operational. Must be 115 volts AC, 400 cycles, three phase.
Substitutes	AM/32A-86 (Hobart) PC-86 (Hobart)	Note: If AM/32A-86s are used, two MA-1As or two -95s must be provided
Primary (1 each)	AM/32A-86 (Hobart)	Used to provide external power to our support aircraft. The unit must be in place and fully serviced/operational when the support aircraft lands. It must be capable of delivering 120 VAC, 3-phase, 400 cycles
Substitutes	AM/32A-60, NC-5 (Navy) NC-8 (Navy), MD-3	
Primary (1 each)	MD-1 Universal Tow Bar	Must be at least 20-feet long; ensure large towing lugs are positioned inward
Primary (2 each) Does not need to be on site, but needs to be acquired within 3 hours	AM32C-10C/O Air Conditioner	Fully serviced with all hoses in good condition
Substitutes	AM32C-10A/B; AM32C-4; AM32C-6; AM32C-17; MA-3; MAE-4	Must have an 8-inch air duct
Primary (1 each)	LN-2 Liquid Nitrogen Cart or, AV-04 Liquid Nitrogen Cart (converter) **MARKED FOR EPU ONLY**	Aircraft are re-serviced with nitrogen capability after each flight. Carts must be oil/grease-free and new or only used to service EPUs previously
Substitutes	12-bottle nitrogen cart, or 8-bottle nitrogen cart, or 2 x 4000-6000 psi Commercial/Industrial Nitrogen Compressed Cylinders (UN1066) More bottles need to be available within 6 hours of request. **MARKED FOR EPU ONLY**	Each bottle fully serviced to 3,500 psi; ensure pressure regulator is rated to at least 3,500 psi. Bottles must be either new or used only to service EPUs. These bottles can be sourced locally as they are not USAF specific. They must be 98.5% purity or higher.
Primary (1 each)	Can of red spray paint Can of white spray paint	To mark F-16 parking spots (provide to Advance Crew Chief on arrival day) - no chalk or 'puffy paint'

QUICK REFERENCE TABLE OF MAINTENANCE REQUIREMENTS (3 of 3)

QUANTITY	DESCRIPTION	ADDITIONAL INFORMATION
Primary (1 each)	C-1 Maintenance Stand	Serviceable condition
Substitute	B-4 Maintenance Stand	
Primary (1 each)	B-7 Maintenance Stand	Serviceable condition
Substitute	B-1 Maintenance Stand	
Primary (5 gallons)	MOGAS, unleaded	Used for mx portable generators, show center generators and smoke oil trailer
Primary (2 each)	<u>Large cooler with ice and 20x 24-bottle cases of water)</u>	This is for maintenance and show center personnel. Additional water is required for the briefing room. <u>Be prepared to provide more if needed due to excessive temps or humidity.</u>
Primary (8 each)	150 lb HALON Fire Bottles If unable to acquire HALON, there are acceptable civilian substitutes. Please contact the Thunderbirds Maintenance Officer for acceptable substitutes	Must have wheels. Place 6 at F- 16 parking area and 2 at support aircraft
Substitute	Novec 1230 (NSN 4210-01-610-6985) 150-pound bottles	
Primary (1 each)	Forklift with lift capacity of 10K lbs. Min 72" tine length. Min 33" tine spread. Tines must be capable of opening and closing freely.	Used for airlift upload/download and moving smoke oil barrels. Must be available for our use through the duration of our stay.
Primary (2 each)	Garbage Cans	Place near support aircraft maintenance hangar
Primary (8 sets)	Aircraft MLG Chocks	Used by Advance Crew Chief
Primary (1 each)	Fuel Bowser	To dispose of fuel samples
Substitute	55-gallon drums (2 each)	
Position equipment near the Thunderbird maintenance hangar. All equipment must be dedicated exclusively to the Thunderbirds for the entire stay, from the Advance Pilot's arrival to the team's departure . AGE may not be picked up until the agreed-upon release time, previously coordinated with the Thunderbirds.		

MEMORANDUM OF UNDERSTANDING BETWEEN
USAF AIR DEMONSTRATION
SQUADRON AND
XX MAINTENANCE GROUP, NAME OF WING,
STATE FOR
USAF THUNDERBIRDS AEROSPACE GROUND EQUIPMENT SUPPORT

This is a Memorandum of Understanding (MOU) between the USAF Air Demonstration Squadron and the XX Maintenance Group. When referred to collectively, the USAF Air Demonstration Squadron and the XX Maintenance Group are referred to as the “Parties”.

1. AUTHORITIES: DoDI 4000.19, *Support Agreements*, 25 April 2013, AFI25-201, *Intra- Service, Intra-Agency, and Inter-Agency Support Agreements*, 18 October 2013.
2. PURPOSE: The purpose of this Memorandum of Understanding (MOU) is to establish an understanding between the Parties for the coordination and support of aerospace ground equipment (AGE) for use by the USAF Thunderbirds while performing on (day/month/year) at the (civilian airshow and address).

3. UNDERSTANDING OF THE PARTIES:

3.1 USAF Air Demonstration Squadron, Nellis AFB, Nevada—

- 3.1.1. Desires to coordinate the following AGE support for the USAF Thunderbirds for (date of equipment usage) at the (name of civilian airshow).

3.2 XX Maintenance Group, (location of military base)—

- 3.2.1. Intends to provide serviceable and pre-tested AGE, to include: (add additional equip if needed, the following are just a list of equipment other civilian show sites have requested)

- 3.2.1.1. MJ-2 Hydraulic Test Stand with Hydraulic Fluid #83282 – 1 each
- 3.2.1.2. Bobtail Tow Tractor – 2 each
- 3.2.1.3. Self-Generating Nitrogen Cart (SGNCS) – 1 each
- 3.2.1.4. AM/32A-86 (Hobart) – 2each
- 3.2.1.5. AM/32A-95 – 2 each
- 3.2.1.6. C-1 Maintenance Stand – 1 each
- 3.2.1.7. MA-3D Air Conditioning unit – 2each

- 3.2.2. Prepare AGE by day/month/year for transport from (military base) to (civilian location)

4. PERSONNEL: Each Party is responsible for all costs of its personnel, including pay and benefits, support, and travel. Each Party is responsible for supervision and management of its personnel.

5. GENERAL PROVISIONS:

5.1 POINTS OF CONTACT: The following points of contact will be used by the Parties to communicate in the implementation of this MOU. Each Party may change its point of contact upon reasonable notice to the other Party.

5.1.1 USAF Air Demonstration Squadron—

5.1.1.1. Mr. Michael P. Rux, Comm: (702) 679-2222 Cell: (702) 378-7956

5.1.2. ~~XX~~ Maintenance Group—

5.1.1.2. Mr. John Doe, office: (xxx) xxx-xxxx, cellular: _____

5.2 CORRESPONDENCE: All correspondence to be sent and notices to be given pursuant to this MOU will be addressed, if to the USAF Air Demonstration Squadron, to—

5.2.1. Mr. Michael P. Rux, Nellis AFB,

NV and, if to the, ~~XX~~ Maintenance Group

to—

5.2.2. Mr/Mrs. _____, Address

5.3 FUNDS AND MANPOWER: This MOU does not document nor provide for the exchange of funds or manpower between the Parties nor does it make any commitment of funds or resources.

5.4 MODIFICATION OF MOU: This MOU may only be modified by the written agreement of the Parties, duly signed by their authorized representatives.

5.5 DISPUTES: Any disputes relating to this MOU will, subject to any applicable law, Executive Order, directive, or instruction, be resolved by consultation between the Parties or in accordance with DoDI 4000.19.

5.6 TERMINATION OF UNDERSTANDING: This MOU may be terminated in writing at will by either Party.

5.7 TRANSFERABILITY: This MOU is not transferable except with the written consent of the Parties.

5.8 ENTIRE UNDERSTANDING: It is expressly understood and agreed that this MOU embodies the entire understanding between the Parties regarding the MOU's subject matter.

5.9 EFFECTIVE DATE: This MOU takes effect beginning on the day after the last Party signs.

5.10 EXPIRATION DATE: This MOU expires on **DAY/MONTH/YEAR**.

APPROVED:

FOR THE USAF AIR DEMONSTRATION SQUADRON

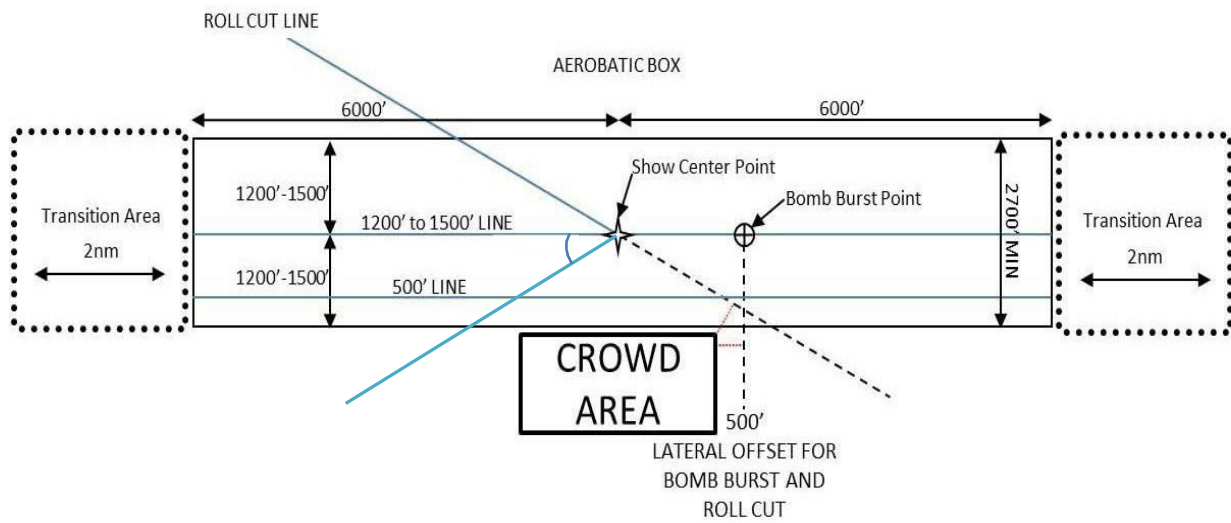
FOR THE ?ND MAINTENANCE GROUP

TAYLOR WIGHT, Lt. Col., USAF
Director of Operations, USAFADS

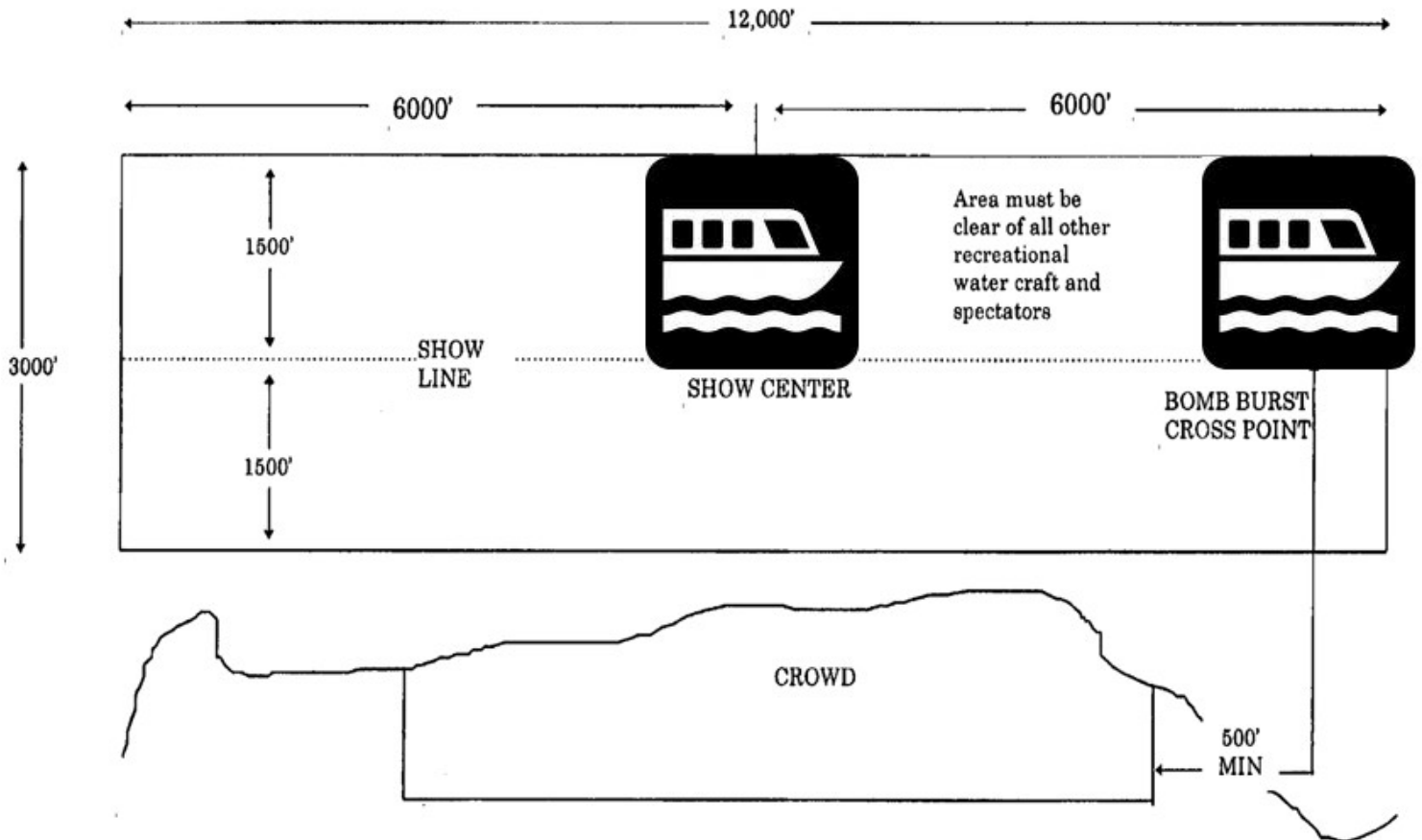
**JOHN DOE, Colonel, USAF
Commander, ?? Maintenance Group**

Date

Date

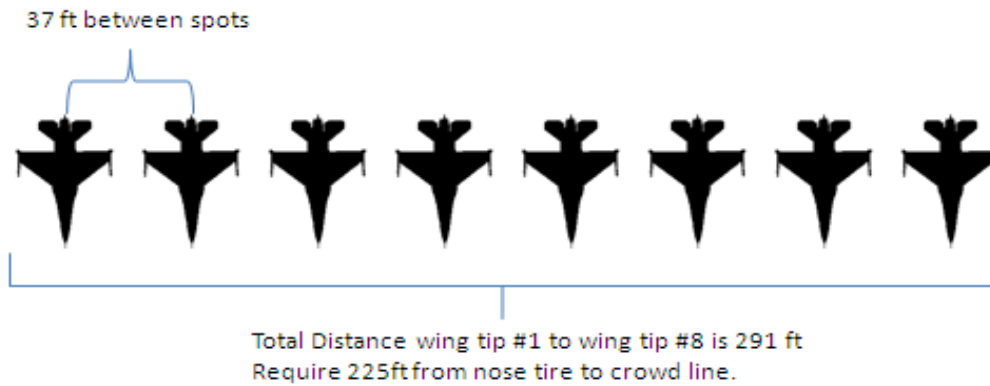


OVERWATER SHOW SITE DIAGRAM

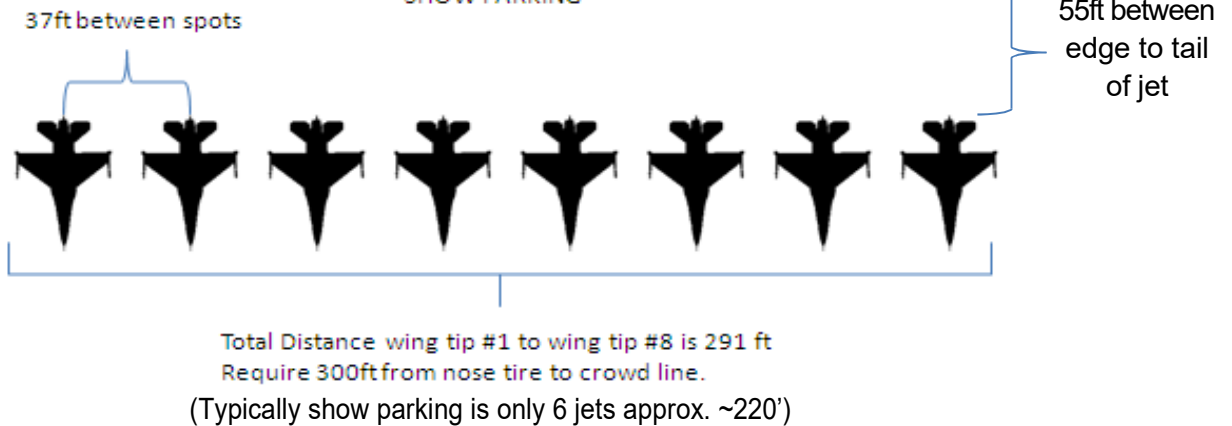


Thunderbird Parking Diagram

ARRIVAL AND SHUTDOWN PARKING



SHOW PARKING




C-17
Length 174 ft
Span 170 ft
Weight 585,000lbs

C-130
Length 98 ft
Span 133 ft
Weight 160,000lbs

F-16 Specs
Length 46' (nose to tail)
18' (main gr to tail)
15' (nose wheel to main gr)
30' (nose wheel to tail)
16' (nose to nose wheel)
Width 32' (wingtip to wingtip)
Height 17'

Digital Ticket Example

Please make sure all airshow volunteers/workers that are manning your parking lots, airshow entry control points, and the Thunderbird VIP tent are familiar with this ticket. Feel free to print this page out to alleviate potential confusion or issues on show days.




In-person ticket

SATURDAY - Chicago Air and Water Show
 Chicago, IL, USA

 Full name
 Brandon Maxson

 Type
 In-person ticket


 Item
 USAF Thunderbirds Officer Ticket


 46JMPHZLKPL

Event schedule

Venue
 Chicago, IL, USA

 Dates & times
 Aug 16, 2025
 10:00 AM - 04:00 PM
 (UTC-500) America/Chicago



Hosting an event? Consider ticketing with PromoTix: www.promotix.com

Organized by:

USAF Thunderbirds

Important Notes:

The QR Code cannot be scanned and will not work with your show's ticketing service. Historically we've had people turned away at parking since their ticket shows up in your system as invalid. Use the Thunderbird logo in the lower right as your primary reference for legitimacy.

For large families or groups of people, the same name will be listed on all their tickets. Each ticket will have its own unique reference code underneath the QR code.

Most people keep the tickets digitally on their smartphones. Please do not rely on a system by collecting hard copies. If you need an accurate number of tickets that were issued, please contact Thunderbird PA.

Google Earth Example Map

Use this icon to drop pins. You can change the size, shape, color, and label the pin appropriately.

Use this icon to draw and measure lines/distances. You can see and set the correct magnetic heading and measure distances. You will need to save and label the line to add it as a layer. This is useful for the TFR circle, aerobatic container, show lines, and crowd lines



MEMORANDUM OF AGREEMENT BETWEEN
THE **820th RED HORSE SQUADRON (820 RHS)**
AND
(NAME OF AIRSHOW) SPONSORS
FOR
AIRCRAFT ARRESTING SYSTEM SUPPORT FOR
U.S. AIR FORCE THUNDERBIRDS AIR DEMONSTRATION

This is a Memorandum of Agreement (MOA) between the **820th RED HORSE Squadron, Nellis AFB, NV (first party)** and the **“Name of airshow” sponsors (second party)**. When referred to collectively, **820 RHS** and **“Name of airshow”** are referred to as the “Parties”.

1. BACKGROUND: As part of their 2017 official air demonstration schedule, the United States Air Force Thunderbirds Demonstration Squadron (Thunderbirds) will perform for the **“Name of Airshow”** at Airshow Location, Date. Aircraft Arresting System support was requested from **820 RHS (first party)** by the airshow sponsors (second party) on behalf of the Thunderbirds squadron during the period the squadron will be deployed to Airshow Location.

2. PURPOSE: This MOA enables the second party to obtain Aircraft Arresting System support from the first party for the purpose of supporting the Thunderbirds’ air demonstration. This memorandum ensures support on a non- interference and as-needed basis.

4. UNDERSTANDINGS OF THE PARTIES:

a. The **820 RHS** will provide the following items in support of the Thunderbirds: (Certain show sites may require more/less equipment determined by cable crew)

(1) 2 x Aircraft Arresting Systems

(2) 2 x Aircraft Arresting System Fairlead Beams

(3) 2 x Aircraft Arresting System Purchase Tapes (Reimbursable Item)

(4) 1 x 205 ft Aircraft Arresting System Cable (Reimbursable Item)

(5) Ensure pre-deployment, employment, and post-deployment inspections of Aircraft Arresting System items

(6) Arrange for shipment to and from airshow location, (Location.)

b. The **“Airshow Airport”** Sponsors will:

(1) Ensure **820 RHS** personnel have access to the Airfield during the installation and maintenance of the Aircraft Arresting System from Date of required cables, beginning to end.

(2) Ensure **820 RHS** personnel have access to the Airfield during any emergency in which an aircraft will employ the Aircraft Arresting System.

(3) Ensure there is no unauthorized access/operation of the Aircraft Arresting System without **820 RHS** personnel present.

(4) Ensure **820 RHS** personnel are provided with hotel accommodations for the entire duration of Aircraft Arresting System installation, maintaining and uninstallation of the system as well as provide two (2) rental vehicles during the duration of the function (Date of required cables, beginning to end.)

(5) Ensure **820 RHS** personnel are provided funds to reimburse travel related expenses to include per diem and fuel costs (see Paragraph 7 below).

(6) Ensure **820 RHS** personnel are provided one (1) backhoe and (1) one All- Terrain 10K Forklift during the duration of the function (Date of required cables, beginning to end.)

5. PERSONNEL: Each Party is responsible for all costs of its personnel, including pay and benefits, support, and travel. Each Party is responsible for supervision and management of its personnel.

6. GENERAL PROVISIONS:

a. POINTS OF CONTACT: The following points of contact will be used by the Parties to communicate in the implementation of this MOA. Each Party may change its point of contact upon reasonable notice to the other Party.

(1) For the **820 RED HORSE** Squadron:

- . (a) Primary: **TSgt John Doe, cell number**
- (b) Alternate: **SSgt Jane Doe, cell number**

(2) For the “**Name of Airshow**” Sponsors:

- (a) Primary: **Jane Doe, cell number**
- (b) Alternate: **Jane Doe, cell number**

7. FUNDS AND MANPOWER: This MOA is an agreement that an estimate in the amount of **\$XX,000** was agreed upon between the **820 RHS** and the “**Name of Airshow**.” Upon completion of the AIRSHOW, the **820th RHS** will provide the **Name of Airshow Director** with an invoice of all expenses incurred which may differ from the initial estimate. Upon receiving such an invoice, a check will be issued by the **Name of Airshow Director to “820th RED HORSE SQUADRON”** to cover the full amount of invoiced expenses.

8. MODIFICATION OF MOA: This MOA may only be modified by the written agreement of the Parties, duly signed by their authorized representatives.

9. DISPUTES: Any disputes relating to this MOA will, subject to any applicable law, Executive order, directive, or instruction, be resolved by consultation between the Parties or in accordance with DoDI 4000.19.

10. TERMINATION OF AGREEMENT: This MOA may be terminated in writing at will by either Party.

11. TRANSFERABILITY: This MOA is not transferable except with the written consent of the Parties.

12. ENTIRE AGREEMENT: It is expressly understood and agreed that this MOA embodies the entire understanding between the Parties regarding the MOA’s subject matter.

13. EFFECTIVE DATE: This MOA takes effect beginning on the day after the last Party Signs.

14. EXPIRATION DATE: This MOA expires on Day/Month/Year.

APPROVED:

FOR THE **820 RED HORSE** SQUADRON

FOR THE **"NAME OF AIRSHOW"** SPONSOR

.
Date _____

.
Date _____

Attachment 13

WEIGHT BEARING WAIVER

(Provide to Thunderbird Air Show Coordinator 60 days prior to air show date)

FROM: (Your Organization)

SUBJECT: Airfield Weight Waiver

TO: USAF
Thunderbirds 4445
Tyndall Ave
Nellis AFB, NV, 89191-6079
ATTN: Air Show Coordinator

(Signed by the Airfield Manager)

NOTE: If any specific areas are to be avoided, please indicate areas on one airfield diagram and forward with the waiver.

SAMPLE WAIVER FOR ARRIVAL MANEUVERS

No certificate may be issued unless a completed application form has been received (14 C.F.R. 91, 101, and 105)

U.S. Department of Transportation Federal Aviation Administration APPLICATION FOR CERTIFICATE OF WAIVER OR AUTHORIZATION		Form Approved: O.M.B. No. 2120-0027		
		APPLICANTS – DO NOT USE THESE SPACES		
		Region	Date	
		Action <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved – <i>Explain under “Remarks”</i> Signature of authorized FAA representative		
INSTRUCTIONS				
Submit this application in triplicate (3) to any FAA Flight equipment. The applicant may also wish to submit photographs Standards District Office. Applicants requesting a Certificate of and scale diagrams as supplemental material to assist in the Waiver or Authorization for an aviation event must complete all FAA’s evaluation of a particular site. Application for a the applicable items on this form and attach a properly marked 7.5 Certificate of Waiver or Authorization must be submitted 45 days series Topographical Quadrangle Map(s), published by the U.S. prior to the requested date of the event. Applicants requesting a Geological Survey (scale 1:24,000), of the proposed operating Certificate of Waiver or Authorization for activities other than an area. The map(s) must include scale depictions of the flight lines, aviation event will complete items 1 through 8 only and the show lines, race courses, and the location of the air event control certification, item 15, on the reverse. point, Police dispatch, ambulance, and fire fighting				
1. Name of organization		2. Name of responsible person		
343 rd Fighter Wing		Jon J. Doe, Capt., USAF		
3. Permanent mailing address	Home number and street or route number	City	State and Zip Code	Telephone No.
	1234 Main Street	Anywhere AFB	IA 12345-6789	(555) 123-4567
4. FAR section and number to be waived				
91.117 (a) (b), 91.119 (b) (c), 91.127, 91.129, 91.130, 91.131, 91.155, 91.303 (c) (d) (e)				
5. Detailed description of proposed operation (Attach supplement if needed)				
Aerial/aerobatic maneuvers by the USAFADS “Thunderbirds” at Anywhere AFB within the area defined as radius of five (5) nautical miles from show center (60°40.780N, 147°06.690W), from the surface up to 10,000 feet AGL.				
6. Area of operation (Location, altitudes, etc.)				
Five (5) nautical miles from show center (60°40.780N, 147°06.690W), surface to 10,000 feet AGL.				
7a. Beginning (Date and hour)		7b. Ending (Date and hour)		
26 July 2001 1450L (2150Z)		26 July 2001 1620L (2320Z)		
8. Aircraft make and model (a)	Pilot’s Name (a)	Certificate number and rating (c)	Home address (Street, City, State) (d)	
6/F-16C			Nellis AFB, NV	

FAA Form 7711-2 (6-86) Supersedes Previous Edition

SAMPLE WAIVER FOR AERIAL DEMONSTRATION

No certificate may be issued unless a completed application form has been received (14 C.F.R. 91, 101, and 105)

U.S. Department of Transportation Federal Aviation Administration APPLICATION FOR CERTIFICATE OF WAIVER OR AUTHORIZATION		Form Approved: O.M.B. No. 2120-0027			
		APPLICANTS – DO NOT USE THESE SPACES			
		Region		Date	
		Action <input type="checkbox"/> Approved <input type="checkbox"/> Disapproved – <i>Explain under “Remarks”</i> Signature of authorized FAA representative			
INSTRUCTIONS Submit this application in triplicate (3) to any FAA Flight equipment. The applicant may also wish to submit photographs Standards District Office. Applicants requesting a Certificate of and scale diagrams as supplemental material to assist in the Waiver or Authorization for an aviation event must complete all FAA’s evaluation of a particular site. Application for a the applicable items on this form and attach a properly marked 7.5 Certificate of Waiver or Authorization must be submitted 45 days series Topographical Quadrangle Map(s), published by the U.S. prior to the requested date of the event. Applicants requesting a Geological Survey (scale 1:24,000), of the proposed operating Certificate of Waiver or Authorization for activities other than an area. The map(s) must include scale depictions of the flight lines, aviation event will complete items 1 through 8 only and the show lines, race courses, and the location of the air event control certification, item 15, on the reverse. point, Police dispatch, ambulance, and fire fighting					
1. Name of organization 343 rd Fighter Wing			2. Name of responsible person Jon J. Doe, Capt., USAF		
3. Permanent mailing address	Home number and street or route number 1234 Main Street	City Anywhere AFB	State and Zip Code IA 12345-6789	Telephone No. (555) 123-4567	
4. FAR section and number to be waived 91.117 (a) (b), 91.119 (b) (c), 91.127, 91.129, 91.130, 91.131, 91.155, 91.303 (c) (d) (e)					
5. Detailed description of proposed operation (Attach supplement if needed) Aerial/aerobatic maneuvers by the USAFADS “Thunderbirds” at Anywhere AFB within the area defined as radius of five (5) nautical miles from show center (60°40.780N, 147°06.690W), from the surface up to 15,000 feet AGL.					
6. Area of operation (Location, altitudes, etc.) Five (5) nautical miles from show center (60°40.780N, 147°06.690W), surface to 15,000 feet AGL.					
7a. Beginning (Date and hour) 15 minutes prior to scheduled aerial demonstration			7b. Ending (Date and hour) 1:15 (one hour-fifteen minutes) after scheduled takeoff for aerial demonstration (Block of 90 minutes)		
8. Aircraft make and model (a)	Pilot’s Name (a)	Certificate number and rating (c)	Home address (Street, City, State) (d)		
6/F-16C			Nellis AFB, NV		

FAA Form 7711-2 (6-86) Supersedes Previous Edition

Attachment 16

Sample Memo-TFR Request

XX Month 25

MEMORANDUM FOR AIR FORCE REPRESENTATIVE, FAA SOUTHWESTERN REGION

FROM: 57 OG/DO (Airspace Manager)

SUBJECT: Request Temporary Flight Restriction (TFR) for Nellis AFB, NV

1. The airspace manager at Nellis AFB, NV, on behalf of the Operations Group Commander, requests a TFR on Nov 12 and 13, 2025. The purpose of this TFR is to alert general aviation to remain clear of the military aircraft aerial demonstration area during the Nellis Air Force Base Aviation Nation air show. Request your consideration and assistance on this action. Listed below are the parameters for Nellis' Open House TFR:

a. November 12, 2025, 2100Z –2359Z - A Radius of 5 NM around Nellis AFB, NV, from the surface to 15,000' AGL. (Thunderbird Familiarization Flight & Military Aircraft Demo Familiarization)

b. November 13, 2025, 1630Z –2230Z- A Radius of 5 NM around Nellis AFB, NV, from the surface to 15,000'AGL. (Military Aircraft Demo & Thunderbird Show)

2. The base has coordinated with the local FSDO and has designed the appropriate show box for this event. If you have any questions, I can be reached at DSN: 682-9594 and COMM: (702) 652-9594.

Garrett M. Solomon, Lt Col

USAF Air Show Coordinator



HOMETOWN HERO NOMINATION EXAMPLE

Mary Carol Selzer is a current nurse with 30 years of experience in critical care medicine who is always willing to help others in need. Previously, she volunteered as a paramedic and worked as a flight nurse. She supported on two medical missions to Kenya in October 2010 and October 2011 with the NGO Project Helping Hands, where she provided basic medical care and education to approximately 200-250 individuals daily. In March 2024, she joined a surgical mission to Bohol, Philippines with Gift of Life, Inc. at Gov Celestino Gallares Memorial Medical Hospital, assisting with around 100 free surgical cases.

Mary consistently steps up when her community needs her. During a 4th of July parade about 12 years ago, she witnessed an elderly Shriner fall and strike his head. Recognizing a syncopal event, she immediately took action, controlling a scalp wound and maintaining c-spine precautions until EMS arrived. On another occasion, while on a flight with her husband, she responded to a flight attendant's call for medical assistance. A young woman in her mid-20s was experiencing shaking and vomiting, and Mary Carol provided comfort and blankets, ensuring the situation remained stable.

While on vacation in Nashville, Mary Carol found herself providing life-saving aid. At a Saloon, she and her husband responded to a woman's cries for help. They discovered an unconscious man slumped over in his chair, not breathing and without a pulse. Mary Carol immediately began CPR while her husband alerted the bartender to call 911. After approximately 3 minutes, the man regained spontaneous circulation, and he was awake and breathing by the time EMS arrived.

Beyond her professional life, Mary Carol is a dedicated volunteer, sharing her time with the homeless shelter, Union Gospel Mission in Fort Worth, and her church community. She makes it a priority to serve lunch at Union Gospel Mission 1-2 times per month, ensuring those without a home receive a hot meal. Her dedication extends to organizing group outings for her medical colleagues to serve lunch at UGM during Christmas, and she has even brought her church's 4 pm choir to uplift spirits with song while serving meals. In a particularly heartwarming endeavor, she coordinated a Polar Express popcorn and cookie decorating event for the families residing at UGM, bringing joy to approximately 10 families and 30 individuals. At her local Catholic Parish, Good Shepherd Catholic Community, Mary Carol serves as a Eucharist Minister on weekends and dedicated 5 years to the Mission and Outreach Council. Over the past 6 years, she has served approximately 50-75 masses personally, consistently dedicating herself to her faith community.

Currently, Mary Carol shares her knowledge and experience as an associate dean of nursing at the Catholic University of America. Since joining CUA in March 2023, she has played a pivotal role in the instruction of approximately 30 graduate students across various courses, including Advanced Pathophysiology, Adult 1 & 2 courses, and on-campus intensives. As the program director for the Adult-Gerontology Acute Care Nurse Practitioner, she developed the curriculum for this new track, which launched with its first cohort in Fall 2024. In her additional capacity as the Interim Associate Dean for Online Learning at CUA, Mary Carol helps train faculty members in online learning strategies, striving to elevate the quality and accessibility of their online graduate nursing programs. Prior to her time at CUA, she shared her expertise at Texas Christian University for 4 years and has been actively involved in teaching at various levels since the late 1990s, including EMT-B, EMT-P, Trauma Nurse Specialist Course, PALS, ACLS, and undergraduate nursing programs in Illinois and Texas.

Mary balances her demanding career with being an inspiring wife and mother to five children. She is a testament to the power of compassion and service, consistently showing up for her community and setting a positive example for everyone she meets.

THUNDERBIRDS FLIGHT NOMINATION SHEET



Name of nominee: _____

Phone number: _____

Email address: _____

Location of proposed flight: _____

JUSTIFICATION FOR NOMINATION:

Has the candidate ever flown in a military aircraft or jumped with any military demonstration team?

YES NO

If so, please provide details:

Will any media be documenting the flight experience?

YES NO

If so, please provide their affiliation and audience size:

Is the Candidate:

An elected/appointed official

An air show board member/sponsor

A service member

An honorary commander

Affiliated with a member of the air show board

A key spouse

FLIGHT NOMINATION MEASUREMENT SHEET



NOMINEE INFORMATION

Full Name: _____

Email Address: _____

Flight Location: _____

Date of Flight: _____

NOMINEE MEASUREMENTS

The following information must be accurate to ensure proper fitting of aircrew flight equipment. Incorrect data may cause delays/termination of flight. Please refer to the attached diagram for additional instructions.

Age: _____ Height: _____ Weight: _____ Boot Size (Men's): _____

Waist Size (in inches, measured around largest portion of waist): _____

Thigh Size (in inches, wrap measuring tape around largest portion of thigh): _____

Chest Size (in inches, wrap measuring tape around largest portion of torso and arms): _____

Butt-to-head (in inches): _____ Butt-to-knee (in inches): _____

How would you rate your overall health? (Please select one)

Excellent

Good

Average

Poor

Have you ever flown in a military aircraft?

Yes (Please specify): _____

No

Have you ever flown or jumped with ANY military demonstration team?

(i.e. USAF Thunderbirds, US Navy Blue Angels, US Army Golden Knights, US Wings of Blue, etc.)

Yes (Please specify): _____

No



HOLD HARMLESS AGREEMENT

AIR TRANSPORTATION AGREEMENT		DATE
LOCATION OF FLIGHT	FULL NAME	
PERMANENT ADDRESS		
<p>For and in consideration of being permitted to fly as a passenger in aircraft operated by or on behalf of the United States of America, for and on behalf of myself, my personal representatives, heirs and assigns, I hereby release and discharge the United States, its agents, servants, or employees from any and all claims for property damage and/or personal injury or death resulting from or during said flight or flights or continuances thereof or from ground operations incident thereto.</p>		
Signature		
WITNESS	WITNESS	
NAME AND ADDRESS OF EMERGENCY CONTACT		

ORIENTATION FLIGHT MEDICAL EVALUATION



APPLICANT'S FULL NAME:

APPLICANT'S PHONE NUMBER:

PHYSICAL EXAMINATION

INSTRUCTIONS FOR MEDICAL PHYSICIAN AND APPLICANT

1. This medical certificate must be completed by an M.D. or D.O. only.
2. This exam is for clearance to fly in a high G-force / performance F-16 fighter jet.
3. M.D. or D.O. must complete medical history / exam information.
4. Report all medical findings.
5. Application will be returned if any information is incomplete.
6. If unable to complete or obtain any findings, please refer patient to a second physician and attach any supplements.
7. M.D. or D.O. must sign reverse side of this form and complete item 36.
8. Application must be completed within 60 days of anticipated flight date.
9. Applicant cannot donate blood within 14 days of anticipated flight date.
10. Applicant should not wear contact lenses during flight. If required, glasses may be worn with the helmet/mask.
11. Sections 18-24, 30-32 on the reverse side can be used for any additional physical exam or lab documentation if desired by evaluating physician.
12. Ensure correct completion of height, weight, butt-knee and butt-head measurements at the top of reverse side. Refer to provided attachment.
13. Please direct any questions concerning completion of the medical evaluation or the certificate to the Thunderbirds Flight Surgeon. If selected, the applicant will brief with the Flight Surgeon prior to flight. This briefing time is intended to cover physiology training. Any medical concerns/questions should be discussed as soon as possible and NOT saved for briefing time.

MEDICAL HISTORY (This should include any and all changes within the last two years)

Y / N	Condition	Y / N	Condition
	a. CLAUSTROPHOBIA / FEAR OF CONFINED SPACES		g. NECK OR BACK (INCLUDING DISC) PROBLEMS
	b. FEAR OF FLYING		h. MUSCULOSKELETAL / JOINT PROBLEMS
	c. DIAGNOSIS OF MOOD DISORDER, DEPRESSION, OR ANXIETY		i. HIGH BLOOD PRESSURE, ANEMIA, DIABETES, OR HEART DISEASE PROBLEMS
	d. PSYCHIATRIC DIAGNOSIS		j. ASTHMA OR RESPIRATORY PROBLEMS
	e. AIRSICKNESS / MOTION SICKNESS		k. POSSIBILITY OF CURRENT PREGNANCY (N/A FOR MALES)
	f. CHRONIC SINUS / CONGESTION / HEADACHE PROBLEMS		l. HISTORY OF HOSPITALIZATION

REMARKS: (For each "yes" checked, please describe and date condition)

DOCUMENT ANY PRIOR MEDICAL / DENTAL PROCEDURES

DATE	NAME AND ADDRESS OF PHYSICIAN CONSULTED	REASON

Applicant's Certification, Affirmation & Agreement:

I hereby certify that all statement and answers provided by me in this examination form are true and complete, and I agree that they are to be considered part of the basis for approval/clearance to fly in an F-16 fighter jet. I also agree to notify the Thunderbird Flight Surgeon of any changes to my health that occur after completion of this medical examination.

Official Air Force instruction requires individuals weighing less than 140 pounds or more than 211 pounds to be aware of the potential for increased risk of injury in the rare chance of ejection (contact Thunderbirds Public Affairs with any questions concerning risk). If applicable, I acknowledge this risk.

APPLICANT SIGNATURE

DATE

APPLICANT'S NAME: _____

AGE	DATE OF BIRTH	HEIGHT	WEIGHT	BUTT-HEAD	BUTT-KNEE

NORMAL	REPORT OF MEDICAL EXAMINATION		ABNORMAL	NOTES: Describe every abnormality in detail. Enter applicable item number before each comment. Use additional sheets if necessary and attach to this form.
	1. General systemic			CHECK EACH ITEM IN APPROPRIATE COLUMN (Enter NE if not evaluated)
	2. Head, face, neck and scalp			
	3. Nose			
	4. Sinuses			
	5. Ears, general			
	6. Drums (comment on Valsalva Maneuver and if Tympanic Membranes are clear)			
	7. Pupils (Equality and reaction)			
	8. Mouth and throat			
	9. Heart			
	10. Lungs			
	11. Abdomen			
	12. Vascular system			
	13. Endocrine system			
	14. Skin and Lymphatics			
	15. Neurologic			
	16. Musculoskeletal			
	17. Psychiatric			
	18.			
	19.			
	20.			
	21.			
	22.			
	23.			
	24.			
25. BLOOD PRESSURE		26. HEART RATE		27. RESPIRATORY RATE
Systolic	Diastolic			28. TEMPERATURE
30.		31.		
32.		33. DISQUALIFYING DEFECTS/LIMITATIONS		
34. COMMENTS ON HISTORY AND FINDINGS, RECOMMENDATIONS				
35. LIST ALL MEDICATIONS PATIENT IS CURRENTLY USING (INCLUDE DOSE AND FREQUENCY)				
36. PLEASE CHECK ONE		<input type="checkbox"/> PHYSICALLY ACCEPTABLE		<input type="checkbox"/> FURTHER EVALUATION REQUIRED (Explain in Block 34)
37. MEDICAL PHYSICIAN/D.O. DELCARATION: I hereby certify that I personally examined the applicant named on this medical report and reviewed medical history on the reverse side of this form. By checking the "PHYSICALLY ACCEPTABLE" box above, I hereby medically clear the applicant to fly in a high performance/high-G F-16 fighter jet.				
DATE OF EXAMINATION		MEDICAL PHYSICIAN (MD/DO ONLY) SIGNATURE		MEDICAL PHYSICIAN (MD/DO ONLY) NAME, TITLE, ADDRESS & PHONE NUMBER
		State License #:		

Media/Hometown Hero Measurement Guidance Sheet

Official instruction governs the limits for body size and weight for safe operation of the ejection seat. For this reason, it is important that all measurements are taken using the procedures described below. Please ensure measurements are accurate, as they will be verified prior to flight. Per DAFMAN 48-123, all candidates must meet the following criteria: minimum weight of 103 lbs, maximum weight of 245 lbs, Buttock-to-Knee maximum of 27.1 inches, and sitting height between 34.5 and 39.7 inches.

WEIGHT

The patient's weight will be measured with shoes off and in basic civilian attire. Remove contents from the pockets and any extraneous equipment or outer clothing that would affect the member's weight.

HEIGHT (standing)

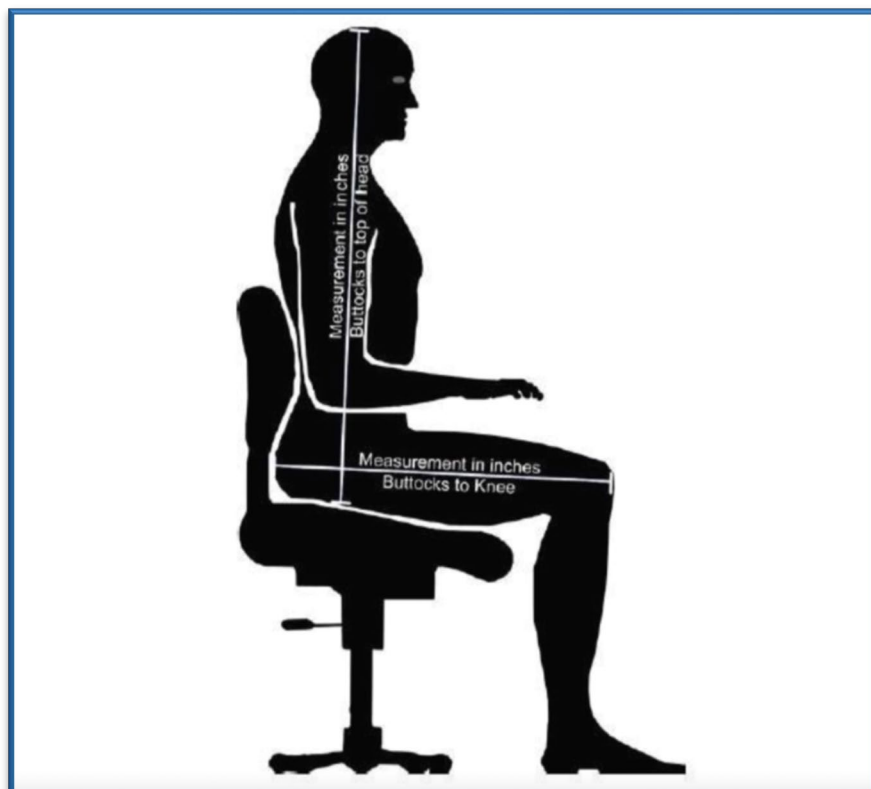
Standing heights are only accomplished without shoes. Examinees are instructed to stand upright and keep their head facing directly forward. Be careful not to allow slouching (which will lower a standing height) or standing on the toes and stretching (which will raise a standing height).

BUTT-HEAD (sitting height)

This is measured by seating the examinee on a flat, hard table or stool with the back of the examinee's knees touching the edge of the table or stool. The hips, knees, and feet must be flexed at 90 degrees, lower legs dangling free, torso straight, and the head facing directly forward. Measure the distance from the top of the head to the surface of the table or stool and record to the nearest quarter of an inch.

BUTT-KNEE

This measurement helps ensure that the examinee's knees and distal lower extremities will clear the instrument panel during the ejection sequence. It is measured by seating the examinee on a flat, hard table or stool with the back of the examinee's knees touching the edge of the table or stool. The hips, knees, and ankles must be flexed at 90 degrees, lower legs dangling free, torso straight, and the head facing directly forward. Measure the distance from the rearmost point on the buttocks to the front of the knee.



COMMUNITY OUTREACH REQUESTS



- Please review chapter 12 of the support manual before completing.
- Only complete the section applicable to your request.
- Do not use this form for recruiting events. (They will be scheduled by local recruiting representative and Thunderbird Recruiting Liaison)
- Submit form/questions and concerns to Thunderbirds PA team NLT 30 days prior to show.

Section 1: Special Interest Group

(To attend the Thunderbirds' practice, show, and meet pilots afterwards. Refer to chapter 12, section 2)

Name of group/organization:

Brief description of group:

Number of attendees (Limited to 30): Age range: Special needs: POC:

(Name/Phone/Email)

Section 2: Community Visits

(To be conducted on the morning of practice day only. Refer to chapter 12, section 5)

Name of group/organization:

Brief description of group:

Time: (start-stop)

Number of attendees:

Age range:

Location: (must be within 30 min drive of Thunderbird lodging)

POC: (Name/Phone/Email)

Section 3: Receptions

Name of Event: _____ Date of Event: _____

Start/Stop Time: _____

Location: _____

Official Host/Sponsor: _____

Event POC (Name/Phone/email): _____

Estimated Attendance: _____

Will the public be attending/invited? (Encouraged!) Yes/ No

Who should attend: Officers Only / Enlisted Only / Both / Other(Please specify)

Can Thunderbird family members attend? Yes/ No

Can Thunderbird children attend? Yes/ No

Event's Dress Code: Formal / Business Casual / Casual / Uniform of the Day (for Military Bases)

DVs/VIPS (Rank, Name, Title):

Will there be formal introductions of the team? Yes/ No

Time: _____

Will there be a gift presented? Yes/ No

If there will be a presentation who will present the gift?

Will there be a microphone? Yes / No

Will there be a stage? Yes / No Extra Info(entertainment, etc.)

Food/Bar Arrangements (type of food/drink, complimentary or pay-as-you-go):

Driving time from Hotel/Briefing Room:

Escort POC (Name/Phone):



FALLEN WARRIOR NOMINATION

(Provide to Thunderbirds Public Affairs NLT 60 Days prior to airshow date)

Background Information: Please provide this information if it is available to you.

1. Rank and Name of Fallen Warrior: _____
2. Service Branch: _____
3. Duty Title: _____
4. Primary Unit and Duty Station: _____
5. Deployed Unit, Location and Duty Title (if applicable): _____
6. Date of Birth: _____
7. Date of Passing: _____
8. Information on cause of death.

9. Names of key surviving family members (spouse, kids and ages, parents, etc.).

10. Biography (where they grew up, schooling history, military career information, etc.).

11. List of awards and dedications received posthumously.

Nomination POC Contact:

Name: _____

Email: _____

Phone: _____

Primary Family Member Contact:

Name: _____

Email: _____

Phone: _____



Attachment 244

LITHOGRAPH REQUEST LIST

(Provide to Thunderbird Public Affairs NLT 30 days prior to show date)

We will do lithographs for the representatives listed below AND a maximum of 25 additional lithographs. Please type or print legibly the names and organizations for personalized lithographs. Also, if they are military, please provide the appropriate rank. IMPORTANT NOTE: All lithos will be printed exactly how they are provided on this form, please ensure proper spelling and rank for your names.

Lithographs:

- (1) Official Air Show name/theme _____
- (2) Host Commander _____
- (3) Command Chief Master Sergeant _____
- (4) Air Show Director _____
- (5) Thunderbird Project Officer _____
- (6) Maintenance Representative _____
- (7) Public Affairs Representative _____
- (8) Local U.S. Air Force recruiter _____
- (9) Briefing Room Host Unit _____
- (10) Hotel/Billeting _____
- (11) Schools/Hospitals (only those we visit) _____
- (12) Air Traffic Control _____
- (13) Workout Facility _____

Additional lithographs (25 Maximum)

- | | |
|-----------|-----------|
| 1. _____ | 14. _____ |
| 2. _____ | 15. _____ |
| 3. _____ | 16. _____ |
| 4. _____ | 17. _____ |
| 5. _____ | 18. _____ |
| 6. _____ | 19. _____ |
| 7. _____ | 20. _____ |
| 8. _____ | 21. _____ |
| 9. _____ | 22. _____ |
| 10. _____ | 23. _____ |
| 11. _____ | 24. _____ |
| 12. _____ | 25. _____ |
| 13. _____ | |



THUNDERBIRD REENLISTMENT FORM

(Due 30 days prior to show)

Air Show Name: _____

Air Show POC: _____

[illegible]



THUNDERBIRD RECRUITING EVENTS

(Due 30 days prior to show)

Air Show Name: _____

Recruiting POC: _____

☐

Thunderbird Educator/Recruiting Influencer Tour (up to 12 total, 6 educators w/ plus 1 or 12 educators, additional space on pg. 2)

Name	Role/Title (Teacher, Coach, Admin, Plus 1)	Name of School	Contact information (Email and Phone)

☐

School Visit

Name of School: _____

Address: _____

Date of Visit: _____ Start Time: _____ Type of Visit: _____

Mic and Stage? Yes ☐ No ☐ Audio Visual Capable? Yes ☐ No ☐

School POC: Name: _____ Phone: _____

Email: _____ Number of Students: _____

Justification (Why this school vs. other schools in the area?): _____

☐

Pet the Jets

Name of Organization: _____

_____ Number of Attendees: _____

Age Range: _____



Thunderbird Enlistment Ceremony

Number of Enlistees: _____ Branches: _____

Additional space

Name	Role	Name of School	Contact information (Email and Phone)

United States Air Force Air Demonstration Squadron

Thunderbirds

Show Site After Action Report

Air Show Location:

Date:

Project Officer:

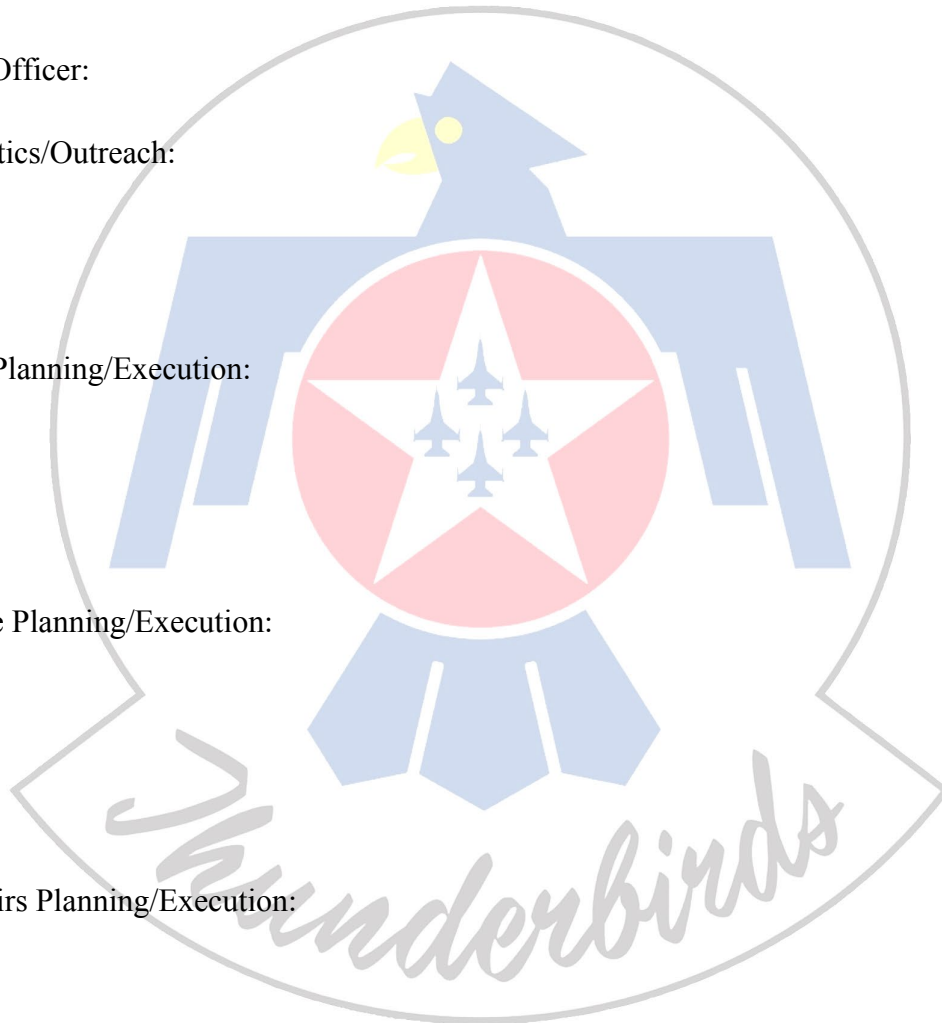
Show Statistics/Outreach:

Operations Planning/Execution:

Maintenance Planning/Execution:

Public Affairs Planning/Execution:

Miscellaneous/Additional Notes:



Glossary

AFSC (Air Force Specialty Code) - A numerical system used to identify an Air Force member's particular job and skill level.

AGE (Aerospace Ground Equipment) - Support equipment necessary to maintain U.S. Air Force aircraft.

AGL (Above Ground Level) - Altitude measured in feet above the ground.

COI (Center of Interest) - An organization created to focus efforts to a specific U.S. Air Force interest.

DSN (Defense Switched Network) - A military telecommunication which allows military installations to call each other directly.

DV (Distinguished Visitor) - A prominent guest such as a General Officer, U.S. Senator, Congresswoman, Governor, etc.

EOR (End of Runway) - Inspection just prior to takeoff.

FAA (Federal Aviation Administration) - The approving authority for waivers concerning aerobatic demonstrations.

FARKLE - (Friends and Relatives Kinfolk, Loved ones and Everyone else) - A special ceremony performed for members of the team and their families

FOD (Foreign Object Damage) - Damage to aircraft components such as tires or engines caused by loose gravel, nuts, bolts, etc.

GPS (Global Positioning System) - A hand-held system used to determine specific latitude and longitude coordinates.

JOAP (Joint Oil Analysis Program) - Used to test oil for aircraft engine wear.

MOA (Military Operating Area) - A geographical region designated specifically for military aviation use.

MOGAS (Motor Gasoline) - Regular gasoline, the type used in vehicles.

NM (Nautical Miles) - Equivalent to 6,076 feet.

NOTAMs (Notice to Airmen) - Notices that are posted at airports/airfields to inform pilots that a particular airfield will be closed.

ROTC (Reserve Officer Training Corp) - Student oriented military training organization.

TDY - (Temporary Duty) - Duties away from regular place of employment.

TFR - (Temporary Flight Restrictions) - Temporarily restricts flight into designated areas.

UHF (Ultrahigh Frequency) - A band of radio frequencies from 300 to 3,000 megacycles per second.

VHF (Very High Frequency) - A band of radio frequencies between 30 and 300 megahertz.

