



FORMATION FLYING, INC (FFI)

Formation Standards and Proficiency Program Manual

VERSION 4

May 20, 2026

i. Change Control Records

This page indicates any changes made to individual pages within the document. Changed pages have the appropriate revision date in the footer.

It is the responsibility of the end user to periodically check the following website for updates:

<http://www.ffi.aero/>

REV	DATE	DESCRIPTION OF CHANGES	AFFECTED PAGES
4	May 2026	Reformatted for clarity; spelling and grammar	ALL
4	May 2026	Change Control Section Added	2
4	May 2026	FFI address of record added	3
4	May 2026	FAA authorization section added	3
4	May 2026	Table of Contents updated	4
4	May 2026	Definitions updated	9
4	May 2026	FFI Credential defined as electronic or physical	10
4	May 2026	Authorizations and restrictions updated (large formation restrictions)	11
4	May 2026	Large formation flight lead qualifications updated	12
4	May 2026	Conditionally qualified standard removed for all flight standards	13-24
4	May 2026	Formation landing maneuver removed for all flight standards	13-24
4	May 2026	Evaluation documentation process updated	25
4	May 2026	Currency notes added for clarity for all credentials	25
4	May 2026	Check pilot currency updated with additional requirements	26
4	May 2026	Air show currency updated to match FAA requirements	28
4	May 2026	Substandard or unsafe performance mitigation section added	28
4	May 2026	Evaluation / Qualification Forms and Reports clarified	29

**FORMATION FLYING INC.
ADDRESS OF RECORD**

Formation Flying, Inc.
3443 Modena Circle
Las Vegas, NV 89120

ii. Acceptable to the FAA

Accepted
05/20/2026
AFS-830
Eric N Stout

Eric Stout

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1. MISSION STATEMENT

The mission of the FFI Formation Standards and Proficiency Program is to provide guidance for formation training and flying, guidance for Standard Maneuvering (non-aerobatic) formation air show operational training and flying, a system for proficiency evaluation, and a method for monitoring qualifications and currency for operations under a Certificate of Waiver (CoW) for an air show or an Aviation Event. The program is for use by various types of aircraft, whether in a similar or dissimilar aircraft formation, as long as performance and visibility are judged sufficiently similar for safe formation flight. Explicit in the program is the use of the FFI Formation Guidelines and Standard Procedures manual, this manual, and the FFI Formation Standards Evaluation Guide and Forms. Additional reference materials include, but are not limited to, the Formation Pilot's Knowledge Guide, and the FAST Formation Guideline series. The FFI President or their appointed delegate will approve the issuance of formation pilot credentials based on demonstrated competency and maintained currency.

2. OVERVIEW / HISTORY

In response to a need within the warbird community to standardize formation flying and increase safety, the "Formation And Safety Training" (FAST) National Standard Program was developed. Various warbird organizations had created, and were using, different procedures and signals unique to their groups. In 1993, the Warbird Operators Conference agreed to adopt a common national program for formation flying. Committee action resulted in acceptance of the T-34 Association "Formation Flight Manual" and the Darton video "Formation Flying, The Art" as common standards by five organizations within the warbird community (Canadian Harvard Aircraft Association, Confederate Air Force, EAA Warbirds of America, North American Trainer Association, and the T-34 Association). FAST was charged to develop formation standardization materials, appoint check pilots, determine evaluation and flight check administration methods, and create manuals. In 1995, the Valiant Air Command and the YAK Pilots Club joined FAST, and the Joint Liaison Formation Committee was approved to use FAST documents and manuals.

In 1997, the Federal Aviation Administration (FAA) began requiring the local Flight Standards District Offices (FSDOs) to include in their air show waiver approvals a stipulation that anyone participating in non-aerobatic formation flight during the air show must possess a valid industry formation training and evaluation credential acceptable to the FAA. FAST had developed appropriate credentials and the International Council of Air Shows (ICAS) had a non-aerobatic formation card. However, since FAST was recognized by FAA as a warbird only organization, all the other formation flyers outside the warbird community were then excluded from participating in formation within airspace operating under a Certificate of Waiver during an air show unless they had an ICAS non-aerobatic formation card. Then, in late 1998, ICAS terminated issuance of non-aerobatic formation cards.

Discussions between EAA, FAST and FAA in late 1997 resulted in FAST authorizing the EAA to use copyrighted FAST materials to create its own formation flying program dedicated to the EAA aircraft community. Subsequent discussions resulted in the creation of an independent organization, Formation Flying, Inc. (FFI) What follows is a the FFI Formation Standards and Proficiency Program Manual (hereafter called "The Program") patterned after the FAST program. To enhance formation standardization across the formation community the program initially used the T-34 Association "Formation Flight Manual" in its entirety and developed type-specific supplements, such as the RV Supplement. FFI then developed the FFI Formation Guidelines and Standard Procedures. The FFI Formation Standards and Proficiency Program Manual and the FFI Formation Guidelines and Standard Procedures are now the primary reference materials for formation training, evaluation, and credential issuance. FAST Manuals remain an additional reference available to FFI pilots. Since 2015, the FFI and FAST programs have worked together to ensure that the two programs complement each other, and continue to support each other in the development of best practices for formation.

3. PHILOSOPHY AND POLICY

Applicants are expected to attain a high degree of formation proficiency prior to applying for evaluation within the FFI Program. Flight Leads and Check Pilots recommending pilots for entry or upgrade are expected to use discretion in their recommendations.

It is understood that individuals come into the Program from diverse backgrounds of experience and training. In addition to this manual and the FFI Formation Guidelines and Standard Procedures manual, this Program references documents, manuals, and videos from the FAST organization. They are a mixture from various military service training sources and were available as an existing national standard among warbird organizations. The Program continues that effort toward national standards.

The Flight Lead is the person in charge and is responsible for the safe conduct of the flight. They ensure flight members are current, qualified, and prepared. They ensure, through a quality briefing, that everyone knows what is expected. The Flight Lead leads the flight in a responsible manner that justifies the confidence his wingmen have put in them. They ensure learning through a quality and open debrief. The Flight Lead is authorized to sign annual currency documentation for Program members.

To lead a formation, or any formation component within a large (mass) formation, during operations under a CoW for an air show or an Aviation Event, a pilot must have a current Flight Lead or Check Pilot qualification.

To lead a large formation of greater than twelve (12) aircraft flying in close formation (within 500'), during operations under a CoW for an air show or an Aviation Event, an FFI Flight Lead or Check Pilot must meet the qualifications outlined for Large Formation Flight Lead in Section 7, and hold a current FFI Flight Lead or Check Pilot card with the following endorsement: LARGE FORMATION FLIGHT LEAD.

Any mishap occurring during FFI formation flying, (training, rehearsals or performances), whether in or outside of CoW airspace, will be reported to the FFI President within 24 hours. Based on the circumstances, the President and the FFI Safety Officer will determine a mishap review process, and may consider a Review Board of FFI Check Pilots, an investigative process, corrective action, and recommendations as required.

FFI offers reciprocity to FAST and SAC carded pilots. Any FAST/SAC pilot with a valid and current formation card, may fly in an FFI-led formation if accepted by the FFI leader of the flight. The FFI Flight Lead has sole authority as to flight make up when conducting training or events requiring formation cards.

A multi-organizational flight (FFI/FAST/SAC) will be briefed and led only by highly experienced Flight Leads, giving due consideration to aircraft compatibility and pilot experience.

Aerobatic formation is not addressed in this Program and cannot be evaluated by FFI Check Pilots. FFI Check Pilots will only evaluate aircraft in non-aerobatic Standard Maneuvering formation flying.

FFI cards and authorizations are not aircraft specific. FFI pilots may exercise the privileges of their FFI cards in any aircraft they are qualified and authorized to fly.

4. PROGRAM PRINCIPLES

This Program uses the FFI Formation Guidelines and Standard Procedures as a standard for thought, terminology, and procedures. The Formation Pilot's Knowledge Guide and the FAST Training Manual are additional references. It is expected that individuals wishing to participate in Program evaluations and credential issuance will have already been trained and possess a high level of competency in formation flying. They will then be evaluated in accordance with the criteria contained in this manual, and if they meet the criteria, they will be issued credentials commensurate with their abilities and knowledge.

Formation flight is demanding and must be approached with a sense of professionalism, dedication and a safety-first attitude.

Proper attitude and flight discipline are core values of safe formation flight.

An FFI qualification is not to be considered a merit badge, but rather a certificate of a successful formation competency evaluation. This qualification allows Standard Maneuvering (non-aerobatic) formation operations under a CoW for an air show or Aviation Event.

FFI is dedicated to the promulgation of safe formation flight. Unsafe practices negatively impact the formation community. All Program pilots are directed to take immediate corrective action through constructive criticism and positive counsel to any pilot who demonstrates unsafe formation practices.

The criterion for evaluation and credential issuance is a thorough understanding of information contained in the FFI Formation Standards and Procedures Program Manual and the FFI Formation Guidelines and Standard Procedures. The pilot must be recommended for a checkride by a an FFI Flight Lead or Check Pilot, and must demonstrate in-flight formation competency during the checkride, as well as pass an oral evaluation. Check pilots will conduct the evaluation using the FFI Formation Standards Evaluation Guide and Forms.

A successful formation evaluation and card issuance is recognized across the FFI and FAST formation communities, as well as throughout the air show Industry. All pilots holding an FFI credential are expected to fly and act in a professional manner, so as to uphold the positive reputation of FFI among all industry partners.

Check Pilots are selected by the FFI Board of Directors based on organizational needs, demonstrated leadership abilities, flying abilities, and air show experience. They should be formation pilots of the highest standards, experience, qualifications, and skill who are committed to FFI and the Program. To be selected as a Check Pilot, the applicant must meet all the Check Pilot minimum requirements listed on page 12 of this document, and be recommended to the Board of Directors by an FFI Flight Lead or Check Pilot. Once selected, the Check Pilot applicant will undergo standardization training, then receive an evaluation while they brief, debrief, and critique a 4-ship formation flight in the role of Check Pilot.

Qualified Check Pilots are expected to receive applications for evaluations and, through the evaluation process, ensure wingmen and flight leads are highly qualified, with requisite formation skills, and knowledge of the FFI Formation Guidelines and Standard Procedures, the Formation Standards and Proficiency Program Manual, and FAA Order 8900.1, Volume 3, Chapter 6. They will make themselves available to the formation community to give evaluations, to sign currency documentation, and to ensure knowledge of Program procedures and policy. Check Pilots serve the Program on a voluntary basis. Check Pilot expense reimbursement is appropriate, i.e., travel costs, if the Check Pilot travels to the applicant's location. Check Pilots serve at the pleasure of the FFI Board of Directors, and can be removed for cause.

Flight Leads and Check Pilots, whether operating under a CoW for an air show or Aviation Event, or conducting a training or checking flight, are responsible to ensure that all participants have proper pilot credentials and aircraft documentation, and should ensure that all aircraft are of compatible performance characteristics. Flight Leads and Check Pilots have an absolute right to determine flight make up within the restrictions set forth in this Program manual.

FFI pilots, regardless of qualification level, are subject to review for substandard or unsatisfactory performance, unsafe acts, or noncompliance with Program Policies, Principles or Directives. The President or the FFI Board, upon recommendation from the Senior Check Pilot or a check pilot in the field (if they observe the unsatisfactory performance), may immediately suspend credentials for cause, per Section 11 of this manual.

5. DEFINITIONS - FAA Order 8900.1, Volume 3, Chapter 6

FAA Order 8900.1, Volume 3, Chapter 6 is the primary document which defines all limits, conditions and restrictions for an Aviation Event. The following definitions will add amplification and clarity to Section 6 FFI CARD AUTHORIZATION.

Aviation Event - Air shows, aerobatic competitions, closed course air races, cross-country air races, parachute demonstration jumps, balloon meets, flyovers, and fly-ins conducted before an invited assembly of persons, for which the FAA issues a Certificate of Waiver or Authorization (CoW/A).

Aviation Event Demonstration Area - The total airspace (lateral and vertical limits) identified by the CoW/A, temporary flight restriction (TFR), or the Notice to Airmen (NOTAM) issued for an Aviation Event (sometimes referred to as the waived airspace).

Flying Display Area - The airspace at an Aviation Event where participating aircraft, UAS, and rockets have authorization to perform under a CoW/A. This area begins at the surface and includes the racecourse area, aerobatic boxes, and show lines but does not include ingress/egress routes.

Formation Flight - When two or more aircraft under the command of a flight leader are flown solely with reference to another aircraft and are within 500 feet of the referenced aircraft.

Formation Separation - aircraft separate into individual flights or multiple formations (e.g. bomb-burst, 8-ship to two 4-ships, 4-ship to two 2-ships, etc.).

Formation Configuration/Position Change - aircraft maintain formation while maneuvering to a new formation configuration (e.g. Fingertip to Diamond) via the movement or repositioning of one or more aircraft within the flight (e.g. aircraft #4 moves from outside right wing to slot).

NOTE: Formation Separation in the flying display area and Formation Configuration / Position Change is authorized during Formation Dynamic Maneuvering. Formation Configuration / Position Change is authorized during Formation Standard Maneuvering.

In-Trail - A solo aircraft or aircraft in formation that are flown solely with reference to another solo aircraft or formation and are more than 500 feet from the referenced aircraft or formation. (e.g. during a parade overflight, a flyby, or a racetrack pattern of flybys).

Standard Maneuvering – Formation - Non-aerobatic maneuvering in the Flying Display Area based on the following limitations: maneuvering pitch angle up to 45 degrees and bank angle up to 60 degrees and the formation does not separate inside the Flying Display Area, except for formation or position changes, Missing-Man flybys, or to break for landing or fly-by. Pitchouts to Extended Trail maneuvering flybys, that do not include crossing or opposing maneuvers, are authorized.

Standard Maneuvering Solo - includes non-abrupt maneuvering and flybys in solo flight. The pitch and bank limitations are when aircraft pitch attitude is less than or equal to 60 degrees above or below the horizon and/or the bank angle is less than or equal to 75 degrees in reference to the horizon.

Large Formation – Formation consisting of greater than 12 aircraft.

HEFOE (*1-Hydraulics, 2-Electric, 3-Fuel, 4-Oxygen, 5-Engine*) Emergency signal given by pilot that indicates subsystem failure in flight. Hand is placed on forehead and then uses the number of fingers to correspond to the failure.

Sucked – Term to describe a plane in formation that is aft of the correct position.

6. FFI CARD AUTHORIZATION

FFI AUTHORIZATION - An FFI card (physical or electronic) authorizes a pilot to participate in Standard Maneuvering (non-aerobatic) flybys or a series of flybys, performed by one or more aircraft, before an invited assembly of persons at an Aviation Event while a Certificate of Waiver (CoW) is in effect.

In a formation flight, Standard Maneuvering includes non-abrupt maneuvering, flybys, formation configuration/position changes, and missing man formation flybys. The flight may not separate inside the flying display area, except to perform the missing-man separation, or to break for landing or individual flyby(s) separated by 500 ft. The pitch and bank limitations are when the aircraft pitch attitude is less than or equal to 45 degrees above or below the horizon and/or the bank angle is less than or equal to 60 degrees in reference to the horizon, unless performing under standard solo maneuvering with limits of pitch less than or equal to 60 degrees and bank angle less or equal to 75 degrees.

Pilots holding an FFI card are authorized to:

- Maneuver in the flying display area to the pitch angle, angle of bank, and altitude limitations of FAA Order 8900.1, Volume 3, Chapter 6.
- Fly Standard Maneuvering (non-aerobatic) maneuvers by a single aircraft, by multiple aircraft, or aircraft in formation, with an energy vector momentarily directed towards the primary spectator area, provided the aircraft remains beyond the appropriate show line for the aircraft category (i.e., 500 feet for Category III).
- Fly Standard Maneuvering (non-aerobatic) formation maneuvers (e.g. flyby) that may direct momentary, but not sustained energy toward the primary spectator area.
- Momentarily project energy toward the primary or secondary spectator areas during flybys as long as the formation is stable.
- Perform reversal turns both inside the Flying Display Area and outside the Flying Display Area.
- Perform Formation Configuration/Position Changes during flybys or reversal turns, as long as the Formation Configuration/Position Change is complete, and the formation is stable, prior to the energy vector being momentarily projected at the spectator areas.
- Perform flybys of multiple aircraft in trail or multiple formations in trail in the Flying Display Area. A formation may execute a pitchout to Extended Trail maneuvering flybys in the Flying Display area that does not include crossing or opposing passes.
- A formation may separate into separate formations while outside the Flying Display Area, and may then perform separate flybys (meaning only one formation in the FDA at a time), or may perform flybys of multiple formations in trail (separated by 500 feet or more).
- Perform pitch-outs or pitch-ups to land, or to conduct fly-bys in trail, and to perform Missing Man Flybys.
- To lead a formation, or any formation component within a large (mass) formation, during operations under a CoW for an air show or Aviation Event, a pilot must have a current Flight Lead or Check Pilot qualification.
- In order to lead a large formation of greater than twelve (12) aircraft, an FFI Flight Lead or Check Pilot must have an approved Large Formation Flight Lead endorsement.

The following restrictions apply to the authorization:

- Pilots conducting Standard Maneuvering formation must comply with 8900.1, Vol 3 Chapter 6, Section 1, Part 3-145 D.1) a) through D.1 h).
- With the exception of a pitchout or pitch-up for landing or to conduct flybys in trail that do not include crossing or opposing passes, or a Missing Man Flyby, pilots may not perform Formation Separations while inside the Flying Display Area.
- Dynamic Maneuvering operations are not authorized. For clarity, this includes maneuvers that separate aircraft from the formation while in the Flying Display Area, or that include solo or formation crossing or opposing passes, or “bomb-bursts”, or that exceed Standard Maneuvering limitations.
- Large Formations are limited to standard maneuvering within a CoW, with the added restrictions that no pitch out to extended trail, or flight below 1000 ft AGL are authorized.

7. PILOT QUALIFICATION REQUIREMENTS

To be eligible for an FFI formation qualification, a pilot must fulfill the requirements below. These are the MINIMUM requirements. Airmanship, discipline, attitude, motor reflexes, situational awareness, and appropriate aggressiveness are the determining factors of a good formation pilot.

The Program comprises three levels: Wingman, Flight Lead, and Check Pilot. A Large Formation Flight Lead designation is also available to Flight Leads and Check Pilots. Check Pilot staffing will be determined by organizational needs, and is subject to review by the FFI President. The FFI President may waive specific requirements, if, in his/her judgement, extenuating circumstances warrant.

Wingman Minimum Qualifications

- Private pilot
- 100 hours total time
- 20 hours formation time
- Current medical or equivalent
- Ten (10) flights in a 4-ship formation
- Recommendation by a FFI Flight Lead or Check Pilot
- Pass a Wingman formation flight evaluation as #2 and #4 in a 4-ship formation
- Pass an oral evaluation demonstrating knowledge of FFI formation standard procedures as well as knowledge of rules and restrictions required to operate within the air show environment

Flight Lead Minimum Qualifications

- Private pilot
- 300 hours total time
- 40 hours formation time
- Current medical or equivalent
- One year as a qualified Wingman
- Twenty (20) flights in a 4-ship formation, ten (10) as a Flight Lead
- Recommended by a FFI Flight Lead or Check Pilot
- Pass Flight Lead evaluation leading a 4-ship formation
- Pass an oral evaluation demonstrating knowledge of FFI formation standard procedures as well as knowledge of rules and restrictions required to operate within the air show environment

Check Pilot Minimum Qualifications

- Private pilot
- 1000 hours total time
- 100 hours formation time
- Current medical or equivalent
- One year as a Flight Lead
- Flight Lead for twenty (20) 4-ship formations
- Recommended by 2 Flight Leads or Check Pilots
- Commitment to serve the formation community
- Agreement to abide by Program policies and procedures
- Pass a Check Pilot evaluation briefing and critiquing a 4-ship formation in a check pilot role, while demonstrating knowledge of FFI formation standard procedures as well as knowledge of rules and restrictions required to operate within the Air Show environment
- Demonstrate knowledge in completing all FFI forms

Large Formation Flight Lead Endorsement - Minimum Qualifications

- One year as a Flight Lead
- Recommended by a Flight Lead or Check Pilot
- Documented experience leading a formation of greater than twelve (12) aircraft including:
 - Written plan distributed to all pilots that is clear and concise and able to be used in the cockpit
 - Includes deconfliction strategies for vertical, lateral and time separation
 - Utilizes simple racetrack patterns

Note: please refer to FAA "SAFO 24005" and ICAS "Multi-Aircraft Operations Best Practices"

8. PRACTICAL TEST STANDARDS AND EVALUATION GUIDELINES

Foreword

In conjunction with the FFI Formation Guidelines and Standard Procedures, this evaluation guide will be used by Wingman, Flight Lead and Check Pilot applicants, to understand the standards by which they will be judged during their evaluation, and by Check Pilots as a guide in conducting the evaluation.

Practical Test Standards have been developed for each task area that is to be evaluated during an evaluation check flight. Each task in the several phases of a formation mission is given two levels of accomplishment: Qualified, and Unqualified. Each task accomplishment level is described to give the Check Pilot guidelines to determine the applicant's level of competency and to grade accordingly. There is suitable latitude in each guideline to leave the Check Pilot grading discretion. Any Unqualified grade will result in an overall Unqualified for the evaluation, requiring further training before another evaluation. Air show quality is the measure of evaluation standards.

Evaluation Overview

- All evaluations will be administered in a 4-ship, referencing the FFI Evaluation Supplement.
Note: See FFI Evaluation Supplement for all required forms.
- If an applicant for an evaluation does not meet minimum pilot qualification requirements, the FFI President may consider a partial waiver. The waiver must be granted prior to conducting the evaluation in question.
- In all evaluations, the Check Pilot may ride with the applicant, or may choose to fly in another aircraft, or as a chase.
- A pilot applying to become a Check Pilot will monitor the brief and debrief, then critique a 4-ship formation flight. The applicant will normally fly the chase position, fill out all forms, demonstrating thorough knowledge of all Program requirements. The President, or another Check Pilot administering the evaluation, may fly with the applicant or fly in his own aircraft, whichever they believe is most advantageous to conducting the evaluation.
- All Check Pilot and Large Formation Flight Lead evaluations are subject to the final review and approval of the FFI Board and President.

Check Pilot Options

Some maneuvers may not be appropriate for certain aircraft. The following maneuvers are optional and may be excluded at the Check Pilot's discretion.

- In the case of Biplanes, Lazy 8s in diamond, close trail, and extended trail need not be demonstrated.
- Type aircraft specific maneuvers / signals, if the evaluation is conducted with dissimilar aircraft.

Dissimilar Aircraft

Dissimilar aircraft may be used as long as the performance and visibility are judged by the Check Pilot to be sufficiently similar for safe formation flight. The differences in flight characteristics must be specifically briefed.

Evaluation Grading Guidelines

Qualified Applicant demonstrates thorough, comprehensive knowledge, and performs all required maneuvers without prompting or counsel. Applicant flies aircraft smoothly and coordinated, without exceeding aircraft or engine limits. All maneuvers required are performed with precision and a degree of finesse. The successful and safe outcome of any maneuver is never in doubt.

Unqualified Applicant's knowledge and performance of maneuvers is not adequate. Applicant's planning is deficient and aircraft control is rough. Occasionally some aircraft or engine limits are exceeded. Applicant's demonstrated capacity does not meet minimum standards for issuance of formation pilot credentials.

PRACTICAL TEST STANDARDS - WINGMAN - ORAL PHASE

Objective #1

To demonstrate knowledge and understanding of all hand and aircraft signals.

Run-up	Fuel state
Frequency changes	Inflight emergency -
Number signals	HEFOE (Hydraulics, Electric, Fuel, Oxygen, Engine)
Head nod	Can't hear
Wingman cross	Can't transmit
Element cross	Lead change
Breakup and rejoin	Stack up
Gear and flap cycling	Stack down
Power addition and reduction	Stop squawk
Level off	Fingertip to route
Beacon/Strobe On/Off	Echelon to fingertip
Fingertip to echelon	Diamond to fingertip
Fingertip to diamond	Trail to fingertip
Fingertip to trail	
Climb	
Descent	

Qualified: Applicant knows all hand and aircraft signals and when they are used.

Unqualified: Applicant does not know hand or aircraft signals without prompting or open book reference.
Applicant confuses or inverts meaning of two or more signals.

Objective #2

To explain the basic concepts of formation flight and demonstrate a full understanding of the mechanics and safety factors for the following:

- Standard fingertip, echelon, trail, diamond, and enroute formations
- Cross-unders, rejoins, configuration changes
- Breakup and rejoin, turn cutoff, energy management
- Fingertip, echelon, trail, and enroute turns, and terminal maneuvering
- Lead changes, emergency signals and HEFOE system
- 360° overhead patterns, breaks, intervals, go-arounds
- Taxi procedures
- Radio discipline, check-in, frequency changes, traffic calls
- Emergency abort on takeoff
- In-flight emergency procedures

Qualified: Applicant understands and is able to discuss the mechanics and dynamics of different formations and is able to describe methods of aircraft control and proper wingman and leader techniques on all formations. Applicant understands flight discipline and each flight member's responsibility to flight integrity.

Unqualified: Applicant is unable to describe basic formation flight mechanics and concepts without prompting. Applicant is unable to describe formation flight dynamics and does not exhibit knowledge of basic safety of each formation or change.

Objective #3

To demonstrate knowledge and understanding of operations under a Certificate of Waiver for an Air Show or Aviation Event, to include the following:

- Aircraft and pilot documentation requirements
- Applicable rules and restrictions contained in FAA Order 8900.1, Volume 3, Chapter 6
- Weather requirements and considerations
- Certificate of Waiver specifics to include the flying display area, show center, corner markers, the crowd line, the Category I, II, III show lines, and the concept and implication of waived regulations
- Air boss communications - normal and emergency
- Abnormal and Emergency procedures

Qualified: Applicant understands and is able to discuss rules and restrictions as they pertain to operations under CoW for an air show or Aviation Event as they apply to Standard Maneuvering (non-aerobatic) formation flight.

Unqualified: Applicant is unable to discuss rules and restrictions as they pertain to operations under a CoW for an air show or Aviation Event as they apply to Standard Maneuvering (non-aerobatic) formation flight.

PRACTICAL TEST STANDARDS - WINGMAN - FLIGHT PHASE

Objective #4

To conduct ground operations to include start time, start, taxi, and response to signals:

Qualified: Applicant properly conducts preflight and is strapped in and ready at start time. Applicant concentrates on the leader and complies with start, radio check-in, and taxi procedures. Applicant falls into proper position behind leader and maintains position.

Unqualified: Applicant is not prepared at start time. Applicant does not concentrate on leader, does not start on time, and misses signals and radio check in. Applicant taxi position is incorrect through inattention or inappropriate use of power or brakes.

Objective #5

To properly exercise radio discipline, check in, and frequency changes:

Qualified: Applicant has recorded all briefed frequencies in proper order and anticipates radio calls from lead. Applicant responds crisply with flight position number on all commands. Applicant checks on and off all assigned frequencies and changes are made expeditiously so as to not disrupt sequential check in. If NORDO, applicant effectively signals condition and recognizes numerical signals.

Unqualified: Applicant is aware of briefed frequencies but uses them out of order. Applicant misses several frequency changes or checks ins and is slow to change frequencies. Applicant does not respond to NORDO signals from leader and misunderstands numeric signals. General radio discipline and awareness is lacking.

Objective #6

To conduct run-up, check list and standard procedures:

Qualified: Applicant taxis into run-up area in proper sequence and aligned properly with no wingtip overlap. Applicant performs run-up and pre-takeoff checks in timely and accurate manner. Applicant passes thumbs up signal in proper sequence to lead.

Unqualified: Applicant taxis into run-up area misaligned and with wingtip overlap and/or angular mismatch. Applicant performs run-up and pre-takeoff checks inaccurately. Applicant fails to pass thumbs up or fails to check with other flight members before passing it.

Objective #7

To execute formation takeoff and power management:

Qualified: Applicant, using proper spacing, taxis into correct wing position as briefed for formation takeoff. Applicant holds brakes, acknowledges run-up signal, checks instruments, and concentrates on leader. At leader's head nod, applicant releases brakes, smoothly adds power and maintains during takeoff roll. Maintaining position, applicant is smooth on power and pitch adjustments and rotates for liftoff with lead. After liftoff, applicant maintains position throughout acceleration, power reduction and climb initiation, smoothly crossing under to other wing if directed.

Unqualified: Applicant taxis into an incorrect position for formation takeoff. Applicant holds brakes, acknowledges run-up signal, checks instruments, and but fails to concentrate on leader. At head nod, applicant is late releasing brakes and adding power, resulting in excessive sucked (aft) position. Applicant does not ask for power and excessive power does not correct position. Liftoff is not matched with lead and over-controlling is evident, including the cross under, if directed. Element join up is delayed waiting for applicant to settle in.

Objective #8

To execute climbout, level off, enroute procedures, and radio calls:

Qualified: Applicant exhibits precise aircraft control with little to no relative motion. During climbing turns and level off applicant's flight control and power movements are smooth and anticipated, assuring proper formation position. Response to lead fishtail and wing rock aircraft signals draws a smooth and responsive movement into enroute position and return to fingertip. Applicant remains alert while maintaining concentration and discipline. Applicant responds crisply and sequentially on radio channel changes and check-ins.

Unqualified: Applicant maintains a poor level of concentration resulting in rough aircraft control. During climbing turns and level off applicant's flight control and power movements are erratic and not well anticipated, resulting in much relative movement in pitch, bank, and fore/aft position. Response to lead fishtail and wingrock signals draws erratic movement to incorrect and inconsistent positions. Applicant does not concentrate and discipline is lacking. Radio channel changes and check-ins are missed and out of sequence.

Objective #9

To execute crossunders:

Qualified: Applicant responds to hand and aircraft signals in a timely and accurate manner. Use of flight controls and power results in a smooth and expeditious crossunders with proper drop back, nose/tail clearance, and push up on other side.

Unqualified: Applicant is slow or fails to respond to hand and aircraft signals. Use of flight controls and power results in an erratic and inconsistent cross under with too fast a drop back, too little or too much fore/aft clearance, and too little or too slow push up resulting in a delayed sucked position.

Objective #10

To execute pitchouts and rejoins:

Qualified: Applicant acknowledges pitchout signal, maintains wings level, then breaks at the proper interval with a crisp and level pitchout, rolling out directly behind lead. Upon receiving rejoin signal, applicant smoothly adds power and banks to establish and maintain proper rejoin line on a level plane with lead. Power is reduced appropriately and closure into fingertip position is smoothly executed. If an overshoot occurs, it is executed properly and smoothly, as long as other rejoins are executed properly.

Unqualified: Applicant fails to acknowledge pitchout signal, leans into the turn and breaks at improper interval with a crisp pitchout but drops significantly in the pitchout plane. Upon receiving rejoin signal, applicant adds too much/too little power, banks but never establishes a consistent rejoin line, going very acute/sucked, and drops too low in the plane with lead. Power, pitch, and bank are erratic in the closure to fingertip resulting in unstable, unsafe, or multiple overshoots.

Objective #11

To execute echelon turns:

Qualified: Applicant conducts echelon turn with same roll rate as lead and anticipates power and pitch inputs to maintain a smooth and level position.

Unqualified: Echelon turn is conducted with a different roll rate than lead. Power and pitch changes are not anticipated, resulting in a sucked and erratic aircraft position during turn.

Objective #12

To conduct Lazy 8s in fingertip, trail, extended trail, and diamond formations:

Qualified: Applicant maintains precise and smooth position during Lazy 8s in all formations, demonstrating an understanding of the acceleration/deceleration effects of maneuvering. Power is anticipated, smooth, and well within limits. Flight controls are blended smoothly with anticipation to maintain a steady position. Applicant remains attentive for formation change signals or calls. Applicant recognizes the signal or responds to the call and smoothly conducts the movement in the proper sequence.

Unqualified: Applicant is unable to maintain a steady formation position while maneuvering during Lazy 8s. Power is not anticipated causing fall back and surge ahead as airspeed and Gs vary. Flight controls are handled roughly causing oscillations and overlap. Applicant is not attentive and signals or calls need to be repeated. Applicant's position changes are rough and out of sequence.

Objective #13

To conduct descent, traffic pattern entry, and landing:

Qualified: Applicant's response to lead fishtail and wingrock aircraft signals draws a smooth and responsive movement into enroute position and return to fingertip. While in route formation, applicant maintains proper position while assisting in clearing the flight for traffic. Applicant replies crisply in sequence to frequency changes and check-ins. Response to signal for echelon formation and change of position is correct and smooth with proper power and flight control management. Applicant maintains smooth and precise position on initial approach, acknowledges the pitchout signal, and breaks crisply at proper interval. After a level pitchout, applicant rolls out behind the lead at briefed airspeed, aircraft is configured correctly, and spacing is maintained on downwind and base. Applicant touches down in the zone and maintains correct side of runway, making calls as appropriate.

Unqualified: Applicant's response to fishtail and wingrock signals draws erratic movement to incorrect and inconsistent positions. While in route formation, applicant's position wanders excessively and no attempt is made to assist in clearing. Applicant misses frequency change calls and check-ins. Response to signal for echelon formation is delayed and the change is erratic with poor power management. Applicant is erratic in pitch, bank and power on initial approach, does not acknowledge pitchout signal, and leans significantly prior to breaking at an improper interval. Applicant varies his altitude considerably during the pitchout and rolls out on downwind wide of lead at higher than briefed airspeed. Applicant configures correctly but does not attain or maintain proper spacing on downwind or base. Applicant lands long and does not maintain correct side of runway.

Objective #14

To execute runway clearing, taxi back, shutdown, and debriefing:

Qualified: Applicant clears the runway at appropriate speed, forms on the leader and configures as the leader. During taxi to parking, applicant maintains briefed spacing on taxiway and ramp. Engine shutdown is on signal or as briefed and applicant properly secures his aircraft. During debriefing, applicant is attentive and accepts constructive criticism with maturity and objectivity, learning how to improve for the next formation flight.

Unqualified: Applicant clears the runway with excessive speed, misaligns with lead, and does not configure as the leader. During taxi to parking, applicant does not maintain consistent spacing as briefed on taxiway and ramp. Applicant shuts down on his own without regard to lead's signal and aircraft is not properly secured. During debriefing, applicant does not accept constructive criticism, makes excuses, and exhibits immaturity.

Flight Lead Selection and Evaluation Philosophy

The Flight Lead is responsible for the safe conduct of all formation flight under their control. They are responsible for approving all members in the flight. This implies the Flight Lead is familiar with the experience level, currencies, and credentials of each member with respect to the mission to be accomplished.

In a training environment, Flight Leads should assess the state of proficiency of Wingman and Flight Lead candidates, and forward recommendations for evaluations, when appropriate, to Check Pilots. Flight Leads are responsible for signing Wingman and Flight Lead Annual Activity Reports attesting to the fact that the pilot has flown the minimum number of required flights, is in compliance with FFI policies, and meets the FFI standards of performance. Flight Leads should identify members needing additional training and provide it where necessary, even to the point of recommending recertification under this program (also see Section 11.)

Leadership ability is the most important quality to be evaluated as a Flight Lead applicant. The applicant must demonstrate not only that they have the requisite pilot skills and are in charge, but also that flight members can be confident and comfortable in following maneuvers and instructions. Flight leadership implies above average knowledge of aircraft and performance limitations, airspace and ATC environment, operations under a CoW for an air show or Aviation Event, wingmen and their limitations, formation procedures, operational techniques, and signals, as well as excellent situational awareness.

PRACTICAL TEST STANDARDS - FLIGHT LEAD - ORAL PHASE

The oral phase shall be accomplished for all Flight Lead candidates even though it was accomplished as part of their Wingman evaluation. This is to ensure absolute standardization of all signals, procedures, and maneuvers among all Flight Leads. In addition, the applicant shall have complete knowledge and understanding of all Flight Lead responsibilities.

Objective #1

To demonstrate knowledge and understanding of all hand and aircraft signals:

Run-up	Climb
Frequency changes	Descent
Number signals	Fuel state
Head nod	Inflight emergency -
Wingman cross	HEFOE (<i>Hydraulics, Electric, Fuel, Oxygen, Engine</i>)
Element cross	Can't hear
Breakup and rejoin	Can't transmit
Gear and flap cycling	Lead change
Power addition and reduction	Stack up
Level off	Stack down
Beacon/Strobe On/Off	Stop squawk
Fingertip to echelon	Fingertip to route
Fingertip to diamond	Echelon to fingertip
Fingertip to trail	Diamond to fingertip
	Trail to fingertip

Qualified: Applicant knows all hand and aircraft signals and when they are used.

Unqualified: Applicant does not know hand or aircraft signals without prompting or open book reference. Applicant confuses or inverts meaning of two or more signals.

Objective #2

To explain the basic concepts of formation flight and demonstrate a full understanding of the mechanics and safety factors for the following:

- Standard fingertip, echelon, trail, diamond, and enroute formations
- Cross-unders, rejoins, configuration changes
- Breakup and rejoin, turn cutoff, energy management
- Fingertip, echelon, trail, and enroute turns, and terminal maneuvering
- Lead changes, emergency signals and HEFOE system
- 360° overhead patterns, breaks, intervals, go-arounds
- Taxi procedures
- Radio discipline, check-in, frequency changes, traffic calls
- Emergency abort on takeoff
- In-flight emergency procedures

Qualified: Applicant understands and is able to discuss the mechanics and dynamics of different formations and is able to describe methods of aircraft control and proper Wingman and leader techniques of all formations. Applicant understands flight discipline and each flight member's responsibility to flight integrity.

Unqualified: Applicant is unable to describe basic formation flight mechanics and concepts without prompting. Applicant is unable to describe formation flight dynamics and does not exhibit knowledge of basic safety of each formation or change.

Objective #3

To demonstrate knowledge and understanding of operations under a Certificate of Waiver for an Air Show or Aviation Event, to include the following:

- Aircraft and pilot documentation requirements
- Applicable rules and restrictions contained in FAA Order 8900.1, Volume 3, Chapter 6
- Weather requirements and considerations
- Certificate of Waiver specifics to include the flying display area, show center, corner markers, the crowd line, the Category I, II, III show lines, and the concept and implication of waived regulations
- Air boss communications - normal and emergency
- Abnormal and Emergency procedures

Qualified: Applicant understands and is able to discuss rules and restrictions as they pertain to operations under CoW for an air show or Aviation Event as they apply to Standard Maneuvering (non-aerobatic) formation flight.

Unqualified: Applicant is unable to discuss rules and restrictions as they pertain to operations under a CoW for an air show or Aviation Event as they apply to Standard Maneuvering (non-aerobatic) formation flight.

Objective #4

To demonstrate knowledge and understanding of Air Boss communications, both normal and emergency, while operating under a CoW for an air show or Aviation Event:

Qualified: Applicant understands normal procedures, Air Boss frequency usage, the use of a discrete frequency, and Flight Lead responsibilities to communicate with, and to keep the Air Boss informed during abnormal or emergency situations.

Unqualified: Applicant is unable to discuss Air Boss communication responsibilities in either normal and abnormal / emergency situations.

PRACTICAL TEST STANDARDS - FLIGHT LEAD - BRIEFING PHASE

Objective #5

To organize and brief a four-ship flight including all elements of the FFI Formation Guidelines and Standard Procedures Manual plus formation takeoffs and overhead patterns:

Qualified: Applicant properly plans the flight with an orderly and efficient sequence of maneuvers which take into account local conditions and traffic. Applicant takes into account the qualifications and abilities of wingmen and checks credentials. The briefing is well organized, concise, and clear, and the applicant is clearly the leader and in charge. All formation briefing elements are covered and emergency procedures are briefed. All flight members understand the mission.

Unqualified: Applicant lacks planning an organization in the structure of the sequence of maneuvers. Applicant does not take in consideration local conditions and traffic. Applicant does not take into consideration the qualifications and abilities of wingmen. The briefing is not concise and clear and leaves unanswered questions. The tone and content of the briefing does not suggest strong leadership and applicant is not clearly in charge. Numerous formation briefing items are omitted and emergency procedures are not discussed. Briefing elements, procedures, and signals are not standardized.

PRACTICAL TEST STANDARDS - FLIGHT LEAD - FLIGHT PHASE

Objective #6

To conduct ground operations including start time, start, marshal, taxi, run-up, radio communications, and standard signals and procedures:

Qualified: Applicant preflights aircraft, straps in, obtains airport information, and is ready to start engines at time briefed. Radio check in precise and communications established with all flight members. Delays or problems are handled and through radio and hand signals, applicant is in command. Applicant taxis at appropriate speed using appropriate procedures and complies with ATC procedures. Applicant appropriately positions flight in run-up area. Hand signals precisely executed and acknowledged. Sufficient time allowed for flight run-ups.

Unqualified: Applicant performs unsafe preflight and is not ready to start on time. Radio check in is non-standard and taxies without positive radio contact. Applicant not decisive in dealing with problems and led by events or consensus. Taxi speed varies excessively or inappropriate for conditions. Misses critical radio calls causing problems. Positioning in the run-up area disregards wingmen. Hand signals incorrect or not visible to all and acknowledgements disregarded. Rushes run-up to point wingmen checks are incomplete.

Objective #7

To conduct formation takeoff, element joinup after takeoff, and enroute procedures:

Qualified: Applicant ensures flight is ready for takeoff and on frequency. Radio communications are clear and concise and all instructions or standard procedures complied with. Correctly aligns flight on the runway and uses correct signals for engine runup and brake release. Flight Lead positions himself in takeoff position so as to visually clear the runway, and does not roll until the runway ahead is clear or the previous section (element or flight) has or is about to liftoff with no standing or aborting aircraft on the runway. Smooth and appropriate power, directional control, and rotation result in precise liftoff. Establishes power and attitude for climb smoothly and appropriately. Applicant begins turn for element joinup smoothly, correctly positions wingman, and maintains constant bank and airspeed while element joins to outside of turn. Climbout procedures, power, and frequency changes are correctly executed with appropriate formation changes.

Unqualified: Applicant rushes wingmen and all are not on proper frequency. Radio communications are not clear and concise, doubt exists as to intentions, and radio calls are missed. Instructions or standard procedures are not complied with. Runway alignment is non-standard or wingmen are crowded and engine runup and brake release signals incorrect. Flight Lead does not position himself so as to visually clear the runway, and they roll before the runway ahead is clear, the previous section (element or flight) is about to lift off, or with obstacles or aborting aircraft on the runway. Applicant uses inappropriate power setting, wandering directional control, or abrupt liftoff causing wingman difficulty in formation takeoff. Climb power and attitude inconsistent and abrupt. Turn for joinup is abrupt and wingman not positioned correctly. Airspeed, bank, and climb angle during joinup inconsistent causing element excessive maneuvering. Applicant not situationally aware causing departure deviations or traffic conflicts, and insensitive to wingman requirements during climbout. Formation and frequency changes are inappropriate.

Objective #8

To conduct general airmanship and flight lead control techniques, including smooth and deliberate flight control manipulation, constant roll rates into and out of turns, as well as climbs, descents, power management, formation changes, and configuration changes:

Qualified: Applicant is obviously in charge. The sequence of maneuvers is as briefed, logical, and consistent with power and airspace limits. Situational awareness is maintained at all times. No unsafe condition is allowed to develop. Applicant constantly scans for traffic, flies with smooth and constant rate control inputs, and considers the wingmen states of proficiency. Applicant keeps power changes to a minimum and smooth, allowing a comfortable power margin. No maneuver causes wingmen to meet or exceed operational limitations. Hand or aircraft signals are standard, clearly given, and acknowledgements noted. Radio procedures are standard, wingmen are always on the correct frequency and checked in properly. Formation or frequency changes are properly signaled or called with sufficient time or space allowed for wingmen.

Unqualified: Applicant not always in charge, allows events to dictate the course of the flight, exhibits indecisiveness, and fosters doubt among wingmen. Sequence of maneuvers not as briefed, not logical, and poorly planned allowing dead space. Altitude and airspace not well utilized. Situational awareness not maintained and airspace or traffic conflicts and unsafe conditions develop. Applicant ignores the proficiency level of wingmen and does not notice them out of position. Control inputs are abrupt and maneuver rates not constant. Power control leaves no margin for wingmen and maneuvers cause wingmen to meet or exceed operational limits. Wingmen have difficulty maintaining position. Hand or aircraft signals are non-standard and not visible, causing confusion among wingmen. Radio procedures are non-standard or unclear causing wingmen to be confused or off frequency. A general lack of planning causes non-standard formation changes and wingmen poorly positioned.

Objective #9

To conduct smooth lead training maneuvers: Lazy 8s in various formations, in-trail, break-ups and rejoins:

Qualified: The flight is conducted as briefed. Applicant correctly signals flight into all formations, waits until #4 calls in for trail, and conducts maneuvers appropriate for each type formation. Applicant selects and holds a comfortable power setting allowing ample power margin for the flight. Changes in pitch and roll are precise and smooth at constant rates appropriate for the flight's level of experience. No aircraft or engine limits are exceeded. Pitchouts and rejoins are signaled correctly and rejoin is held constant at appropriate angle and airspeed. Situational awareness is maintained at all times and applicant constantly scans for traffic. Sun angles are always considered and minimized. No unsafe condition is allowed to develop.

Unqualified: The flight is not conducted as briefed. Maneuvers selected are inappropriate for the formation flown and the wingmen's ability. The planning, timing, positioning, and execution of maneuvers is unsatisfactory and airspace, airspeed and altitude are not used well, causing time wasted. Power settings and control cause wingmen to abuse their engines. Control inputs are abrupt, rapid, and inconsistent and do not consider proficiency level of wingmen, who must make large power and control inputs to stay in position. Signals are incorrect or not visible. Rejoin pitch and bank angles are inconsistent making wingmen unable to execute a smooth, safe, and timely rejoin. Situational awareness is poor and applicant is not alert for other traffic. Sun angles are disregarded. Unsafe conditions may arise. A lack of leadership, discipline, and understanding of flight dynamics is evident.

Objective #10

To conduct flight entry into an airport traffic pattern, including compliance with instructions and maneuvering the flight for a 360° overhead pattern:

Qualified: Situational awareness is high and planning for the descent and approach is clear. Radio communications and field advisories are accomplished, and any changes to the briefed arrival are passed to the flight. Adequate time and distance are allowed for formation position changes, frequency changes, and descent checks. Maneuvering is held to a minimum and executed to avoid traffic conflicts and conform to local procedures. Signals are correct and timely.

360° overhead - Arrival onto initial is well planned with appropriate radio call and the flight is put into echelon with sufficient time to allow members to stabilize prior to the pitch. Pitchout signal is given clearly with appropriate interval indication for the conditions. The pitchout is executed at the right place considering traffic and is aggressive yet smooth, resulting in an appropriate downwind position at an appropriate airspeed. Downwind airspeed is maintained as briefed, base turn is initiated at appropriate place with correct radio call, and airspeed and altitude in base turn and on final is appropriate. Landing is made in the touchdown zone and the correct side of the runway is maintained until clearing or called across. Lead marshals his flight and taxis to parking at an appropriate speed with correct radio calls.

Unqualified: Situational awareness and planning for descent and approach are lacking. Radio communications and field advisories are not timely or not accomplished and changes to the briefed arrival are not passed to the flight, allowing confusion to be evident. Insufficient time and distance are allowed for formation changes, frequency changes, and descent checks, and the flight is rushed. Excessive maneuvering results from poor planning and traffic deconfliction. Signals are non-standard and not clearly given.

360° overhead - Arrival onto initial is poorly planned requiring excessive maneuvering and perhaps a turn into the echelon, lead is not smooth in pitch or power, radio calls are incomplete or absent, and pitchout/interval signal is rushed or not visible. Pitchout is too early or late for the conditions, Altitude is lost or gained in the break, and airspeed on downwind is other than briefed. Base turn is delayed causing a large pattern and airspeed/ altitude vary considerably causing difficulty for flight to follow. Landing is not in touchdown zone, lead does not maintain his side of the runway, and braking is too aggressive causing flight to close too fast. Lead does not marshal the flight after clearing the runway.

Objective #11

To properly debrief a four-ship formation flight:

Qualified: The applicant conducts the flight debriefing in a timely and constructive manner in a location that is free from distractions. The flight is debriefed in a concise and logical manner from start to finish. Non-standard events and unsafe actions are emphasized. Mistakes are explained and corrective actions suggested, including remedial training or decertification. The debriefing is a learning experience with all questions answered, opinions heard, and conflicts resolved.

Unqualified: The debriefing is not conducted in a timely manner with numerous distractions allowed to intrude. Location is not conducive to a quality debriefing. Some flight members are late or absent and applicant does not have everyone's attention. The flight is not debriefed in an orderly manner. Non-standard events are glossed over and unsafe actions not addressed. Lacking in leadership skills, applicant does not deal with mistakes nor corrective actions. Flight members do not profit from the debriefing, questions remain, and conflicts are left unresolved.

9. EVALUATION REQUEST AND DOCUMENTATION PROCESS

To request an evaluation for an FFI Wingman or Flight Lead qualification, an applicant completes the header information on the appropriate Formation Evaluation Form. The Hold Harmless statement must be signed by the applicant and witnessed by another individual prior to the flight. This form (Hold Harmless) must not be on any aircraft during the flight, and accompany the evaluation form when submitted for approval. The applicant will present the form and waiver to a Flight Lead or Check Pilot for his/her recommendation.

The Flight Lead or Check Pilot, if they believe the applicant is qualified, completes the recommendation section of the form and contacts a Check Pilot to schedule the evaluation (Recommendations are valid for 30 days.) If an applicant does not meet specific requirements as outlined in Section 7 of this manual, but the recommending Flight Lead feels the applicant is qualified for the evaluation, a waiver of specific requirements may be granted by the FFI President. That waiver must be requested and approved prior to the scheduling of the evaluation.

NOTE: If a Check Pilot recommends an applicant, they **cannot** conduct the evaluation.

The Check Pilot who will conduct the evaluation checks all necessary paperwork and insures that all qualification requirements have been met, and the candidate and airplane are current and ready for flight.

The Check Pilot performs the evaluation using the FFI Evaluations Supplement.

If the evaluation is successful, the Check Pilot signs the form, makes a copy for his files, and sends the completed original to the President, or their delegate.

If the check is unsuccessful, the Check Pilot designates “unqualified” and signs the form. They return the original form and paid fee to the applicant with a thorough explanation of why the checkride was unsuccessful. An applicant who does not successfully complete the checkride must obtain a new recommendation for a subsequent checkride.

Upon successful completion, the President, or their designated representative, will review and send the applicant his Program Credentials (physical or electronic).

If the checkride is paused for any reason (ex. weather, mechanical etc.) the Check Pilot will notify the flight that the evaluation is paused at that time. The evaluation may be resumed and completed within 30 days of the recommendation form date. If not completed within that time frame, the check ride is cancelled and the application must secure another recommendation.

FFI Annual Activity Reports will be submitted annually by all card holders to a FFI Flight Lead or Check Pilot for review, and then submitted to the President, or their designated representative, for re-issuance of the FFI credential (physical or electronic).

10. CURRENCY

Formation flight is an art that deteriorates without practice. Thus, there is a requirement for currency in formation flight to be qualified for annual re-issuance of formation credentials.

Currency Note: For clarity, any pilot’s qualification and currency is not active until the credential card has been received either physically or electronically. Only then are they authorized to act with the authority of the credential.

Wingman Currency

FFI Card Currency: A Wingman must fly as a Wingman in a 4-ship formation or larger, a minimum of four (4) times a year to maintain the validity of their FFI card and remain qualified. It is the Wingman's responsibility to log, track, document, and present the Annual Activity Report (AAR) to a FFI Flight Lead or Check pilot. A Flight Lead or Check Pilot must verify the information and then sign the form. It then must be submitted to the President, or his/her designated representative. The AAR confirms the fact that the Wingman has flown the minimum number of required flights, is in compliance with FFI policies, and meets the FFI standards of performance. Failure to provide documentation for a two (2) year period will require a review and competency evaluation flight with a Check Pilot.

Air show (CoW) Currency: FAA Order 8900.1, Volume 3, Chapter 6 requires that each Wingman within a formation be able to show evidence of having practiced at least once in the past 45 days, to operate under a CoW for an air show or Aviation Event.

NOTE: Initial currency may not be attained during a rehearsal or performance in airspace under a CoW. It must be achieved via practice sessions prior to operating in a CoW. Maintaining continued currency during an air show season may be accomplished via practices, or via rehearsals and/or performances in a CoW.

Flight Lead Currency

FFI Card Currency: A Flight Lead must fly as a Flight Lead in a 4-ship formation or larger, a minimum of four (4) times a year to maintain the validity of their FFI card and remain qualified. It is the Flight Lead's responsibility to log, track, document, and present the Annual Activity Report (AAR) to a FFI Flight Lead or Check pilot. A Flight Lead or Check Pilot must verify the information then and sign the form. It then must be submitted to the President, or their designated representative. The AAR confirms the fact that the Flight Lead has flown the minimum number of required flights, is in compliance with FFI policies, and meets the FFI standards of performance. Failure to provide documentation for a two (2) year period will require a review and competency evaluation flight with a Check Pilot.

Air show (CoW) Currency: FAA Order 8900.1, Volume 3, Chapter 6 requires that each Flight Lead within a formation be able to show evidence of having practiced at least once in the past 45 days, to operate under a CoW for an air show or Aviation Event.

NOTE: Initial currency may not be attained during a rehearsal or performance in airspace under a CoW. It must be achieved via practice sessions prior to operating in a CoW. Maintaining continued currency during an air show season may be accomplished via practices, or via rehearsals and/or performances in a CoW.

Check Pilot Currency

FFI card currency: a Check Pilot must meet these requirements:

1. Maintain Lead Currency AND
2. Attend at least one check pilot standardization meeting within the last two years AND
3. Conduct at least one checkride within the last two years

Check Pilots are required to submit an Annual Activity Report (AAR) every year. The AAR must include a summary of required flights for lead currency, checkride activity, and must document the date of all the checkrides conducted (pass or fail), in the previous 2 years, and the date of the most recent check pilot standardization meeting attended.

The Check Pilot FFI credential is valid for one year and expires on the date reflected his/her card. If a Check Pilot fails to submit the annual AAR prior to the expiration date, their privileges as a Check Pilot are suspended, and they then enter the 1 year grace period as a Flight Lead, as described in Flight Lead Currency.

If a Check Pilot does not meet the required currency standards in items 2 and 3, and wishes to regain or continue active status as a Check Pilot, the individual may request a review meeting with the Senior Check Pilot within one year of expiration. Following a review of the pilot's activity, the Senior Check Pilot may, at their discretion, grant an extension of Check Pilot privileges for a period not to exceed one year from the original expiration date. Item #1 for Check Pilot currency is not waivable.

If the Check Pilot credential expires, the pilot may elect, within one year of expiration, to submit a Lead or Wingman AAR and request reclassification of their credential to that level.

In addition, for check pilots to maintain their credentials, they must provide a reasonable level of service to the formation flying community. Inactivity, lack of attendance at standardization meetings and/or not adhering to FFI policies, procedures and standards will result in individual check pilots being removed from the check pilot roster. (also refer to section 11 for substandard performance)

Check Pilot Meetings

There will be at least one and possibly as many as three Check Pilot meetings scheduled by the FFI Sr. Check Pilot or their delegate each year. These scheduled meetings will be held at any of the following venues: Sun-N-Fun, EAA AirVenture Oshkosh, a FFI focused clinic, or may be conducted online, but they must meet the following criteria:

1. There must be at least three (3) Check Pilots present (including the Sr. Check Pilot or their delegate).
2. The agenda must include, but is not limited to, a discussion of the latest version of FFI Program Manual.
3. Minutes or notes of the meeting, including an attendance roster, must be recorded by the Sr. Check Pilot or their delegate and placed in the FFI records.

Large Formation Currency

Each pilot participating in a Large (Mass) formation during operations under a CoW for an air show or Aviation Event must satisfy the currency requirements by flying in a practice or rehearsal in the formation configuration to be performed, and be in the same role (Lead or Wingman). For this currency requirement, a Large Formation is a formation greater than twelve (12) aircraft that is composed of multiple 4-ship (or other size) elements, flown in close formation together. For a performance or flyby that is flown as separate formations in trail (500' or more), pilots must meet the currency requirements stated only in the formation in which they fly. Note: If a Flight Lead does not have large formation currency at the time of renewal of credentials, they do not lose their Large Formation Flight Lead endorsement. However, they must meet the FFI air show Currency requirements to lead a large flight in a CoW.

Practice Session Rules

A practice session is defined as flying a dedicated event with a planned series of maneuvers. Up to, but no more than three (3) practice sessions may be accomplished in one flight, for a maneuvering formation of 12 aircraft or less. For the purposes of currency for a large (mass) formation, a practice session is defined as being an entire flight from engine start-up to shut-down. Therefore, only one practice session may be accomplished in a single flight.

FFI Air show Currency – All Pilots

A Flight Lead and Wingman of a performance must meet the following currency:

For maneuvering performances that include multiple flybys with reversal turns inside and/or outside the Flying Display Area:

- have flown at least one (1) formation practice, rehearsal or performance *in the same or similar formation performance*, within the last 45 days

For Single-pass flybys and flybys flown as part of a basic racetrack pattern:

- have flown in at least one (1) formation practice, rehearsal or performance in the same formation performance, within the last 45 days

For Large (Mass) Formations of greater than 12 aircraft:

- have flown in at least one (1) formation practice, rehearsal or performance in the same formation performance, within the last 45 days

NOTE: Leading a formation of 4 or more aircraft incorporated into a larger formation counts towards Large Formation Lead **and** normal Flight Lead currency.

11. SUBSTANDARD OR UNSAFE PERFORMANCE MITIGATION

Per the Program Principles, all FFI pilots, regardless of qualification level (including Check Pilots and FFI leadership), are subject to review for substandard or unsatisfactory performance, unsafe acts, or noncompliance with Program Policies, Principles, Directives, or the FFI Program Manual.

Definition of Substandard Performance

Substandard performance is defined as the repeated inability to demonstrate proficiency, consistency, or judgment in accordance with FFI Standards, as well as any failure to understand, comply with, or adhere to the principles, philosophy, or guidance outlined in the FFI Program Manual. Substandard performance may stem from inadequate skills, poor situational awareness, or disregard for established FFI practices.

If a Flight Lead or Check Pilot (FL/CP) observes an unsafe act, or continued substandard performance by an FFI Pilot, they will debrief that pilot and submit a report of the event to the FFI Senior Check Pilot (Sr. CP). This report will include, if appropriate, a recommendation to suspend or revoke the pilot's credential.

- **Examples of unsafe actions include:** gross loss of situational awareness (e.g., pitchout into Wingmen); dangerous overshoot execution; or intentionally leading a flight into hazardous weather or low altitude conditions.
- **Examples of substandard performance include:** inability to perform a normal rejoin; consistent improper position (always wide or sucked); repeated loss of situational awareness (forgetting signals, confusion during element cross-unders, or improper rejoin order); or failure to comply with, or demonstrate understanding of, the principles and directives in the FFI Program Manual.

The Check Pilot (CP) or Flight Lead (FL) should carefully assess whether the observed substandard performance is the result of a lack of practice (e.g., rusty after a long winter layoff) or due to other causes such as weather or

a poorly briefed flight. The FL/CP should only submit a report if they feel the performance cannot be brought back to FFI Standards with a debriefing and minimal additional practice flights. *Note: If an unsafe event occurs and a Check Pilot is present, AND witnesses the event, the Check Pilot is authorized to immediately, temporarily suspend the privileges of the pilot in question – details must be included on the report to the Sr. Check Pilot, and the President must be notified within 48 hrs of the action.*

When the FFI Senior Check Pilot receives a report, they will review it, discuss it with the submitting FL/CP and pilot as required, then submit it to the FFI President/Board with their recommendation. The President/Board will review the report and make the final decision to take no action, to reinstate, to continue the suspension with remediation assigned, or to revoke the pilot's credential.

Remediation Requirement

If action is taken, FFI will accompany the notification of suspension extension or revocation with a written outline of what is required to remediate the identified deficiencies. This plan may include additional practice flights, ground instruction, a formal checkride (in the case of a card revocation), or mentoring requirements necessary for the pilot to be considered for reinstatement.

EXAMPLE OUTLINE OF REPORT OF UNSAFE / SUBSTANDARD PERFORMANCE

Date of Report
Date of Incident
Pilot Name, FFI Number
Reporting Flight Lead / Check Pilot Name, FFI Number
Short Description of Event or Performance
Incident Location
Formation Event
Number in Flight
Pilot Position in Flight
CP/FL Position in Flight
Narrative of Event / Performance
CP/FL Recommendation:

- Card Suspension
- Duration
- Corrective Action
- Card Revocation
- Recurrency training

Signature of CP/FL

12. EVALUATION / QUALIFICATION FORMS and REPORTS

Evaluation / qualification forms and reports, (Wingman, Flight Lead, Check Pilot, Large Formation Flight Lead, and Annual Activity Report), the current FFI fee schedule, and the address to which to submit them, are all found in the FFI Evaluations Supplement.

EACH FORMATION EVALUATION FORM MUST BE ACCOMPANIED BY A SIGNED AND WITNESSED HOLD HARMLESS STATEMENT THAT WAS SIGNED AND DATED PRIOR TO THE EVALUATION FLIGHT. NOTE: THE SIGNED HOLD HARMLESS FORM(S) MUST NOT BE ON ANY OF THE AIRCRAFT DURING THE EVALUATION FLIGHT.