

## SOP 4-4: INSTRUCTIONS TO MEMBERSHIP APPLICANTS

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The purpose of this document is to help you prepare an application for initial membership, or for upgrading from Associate Member to Member. If you would like help or advice, contact information is available on the SETP website, SETP.org. This document is addressed directly to you, the SETP applicant.

### 1. GENERAL

The primary purposes of SETP are to promote the moral obligation of the test pilot to the aeronautical community and public, and to promote the education of its membership. SETP is an international society with a world-wide membership seeking to benefit the international public and aeronautical community.

SETP entry-level membership requirements seek to balance welcoming new members early in their careers as professional test pilots with protecting the credibility of SETP. Although many SETP members are engaged in testing unmanned aerospace vehicles, the flight experience requirements for initial membership must be obtained while piloting manned aerospace vehicles.

Being an experimental test pilot involves much more than just flying test points. The easiest standard for SETP membership is in-flight execution of test techniques. The most difficult standard is achieving the knowledge and skills of a professional test pilot through education and experience, and attaining a position of trust where actions have moral implications for the service pilot, passengers, and the public.

### 2. INITIAL MEMBERSHIP IN SETP

There are two levels of initial membership in SETP, Member and Associate Member. These members share the same benefits and responsibilities, except Associate Members may not vote on election of officers or amendments to the SETP Constitution, and are not eligible for upgrade to Associate Fellow. In accordance with the SETP constitution, all members—from Associate Members to Fellows—shall “state and agree that... they will be bound by and obey the Constitution, rules and regulations of the Society.” The SETP Constitution and Code of Professional Ethics may be found at the SETP website.

Your eligibility for election as a Member or Associate Member of SETP is specified by the SETP Constitution:

“Members shall be pilots in one of the following categories:

1. Pilots who are actively engaged and have been so engaged as pilots in the cockpit for not less than one year in experimental or developmental flight testing of manned aerospace vehicles, their engines, or associated components.
2. Pilots who, while engaged as a crew member in an experimental or developmental manned space vehicle program, have responsibility for control of the vehicle trajectory during a flight which achieves an altitude of at least 50 miles.

Associate Members shall be pilots in one of the following categories:

1. Pilots or copilots who are actively engaged in experimental or developmental flight testing as pilots in the cockpit of manned aerospace vehicles, their engines or associated components, with not less than six months’ experience; or

2. Pilots who are actively engaged in production flight testing with not less than two years' experience; or
3. Pilots who are actively engaged in flying engineering evaluations, performance flights and related tests, with not less than one year of experience; or
4. Pilots actively engaged in astronaut training for not less than 12 months in an experimental or developmental space program and have completed an SETP accredited course of test pilot training." (SETP Constitution, excerpts from Sections 6 and 7.)"

The SETP Membership Committee determines your eligibility for SETP membership by reviewing the application you provide. The Membership Committee will offer you initial membership at the highest level justified by your education and experience. If your application is unsuccessful, you may request feedback. The Membership Committee determines your eligibility by answering three questions:

- Do you have the knowledge expected for initial membership?
- Are you currently engaged in a qualifying role?
- Have you been actively engaged in a qualifying role for the minimum time?

Even if you are on track for achieving the requirements for Member, you should apply for Associate Membership at the first available opportunity. With rare exceptions, initial membership is not available to applicants that are not actively engaged in flight test. Upgrading from Associate Member to Member does not require active engagement, so you can do so any time after you qualify.

Your eligibility for SETP membership is determined as of the day that you sign the application form. If something should happen to you between that day and the day you are elected to membership, you will still receive all benefits of membership, including scholarship eligibility for your spouse and children.

### 3. IMPORTANT TERMS

The SETP Constitution uses a variety of words and phrases applicable to SETP membership requirements that do not have standardized definitions. Part 5 of this document has the SETP definitions for the following terms:

#### Common Terms

- Aerospace Vehicle
- Associated Components
- Pilot
- Experimental Test Pilot
- Active Engagement
- Active Engagement in the Cockpit
- Qualification/Qualified

#### Types of Flight Test

- Experimental Flight Test
- Developmental Flight Test
- Engineering Evaluation
- Performance Flights
- Production Flight Testing
- Endurance Testing
- Maintenance Testing
- Operational Testing
- Test Support

### 4. INSTRUCTIONS FOR COMPLETING THE APPLICATION FOR MEMBER OR ASSOCIATE MEMBER

You may complete the form either as an Adobe Acrobat form (preferred), or fill it out by hand. The software necessary for completing the form digitally is Adobe Acrobat Reader, available at this URL: [www.adobe.com/acrobat/pdf-reader.html](http://www.adobe.com/acrobat/pdf-reader.html).

## **General Information** (Page 1 of the application)

You must complete this section.

### **1. Applicant Information**

Complete all relevant entries.

### **2. References**

Enter a minimum of three references. These references should be able to vouch for the information in Sections 1, 2, and 3 on this form. If all three cannot vouch for all information, select references that can do so collectively. If you will be submitting classified testing as qualifying sorties in Section 3B, include a reference with first-hand knowledge of your classified work.

References do not need to be SETP members, but SETP members will have more insight to help you with your application and answer any questions posed by the Membership Committee.

You may add additional references by attaching them to your application or listing them in your application email.

### **3. SETP Grade Requested**

Select the highest SETP grade that you believe your experience warrants. You must complete the sections of the form required for the grade you select.

If the Membership Committee finds that you underestimated or overestimated your eligibility, they may elect you to a higher or lower grade than you requested.

### **4. Contact Information and Correspondence Preferences**

SETP Headquarters is in the United States, so enter your information as you would for someone contacting you from the USA.

Select your preferred address for correspondence and mark your willingness to participate electronically. (Select your home address if you can because SETP has found that home addresses tend to be much more stable.) Electronic voting and billing are much less expensive than traditional mail, so selecting that option will save funds for more compelling uses. You are free to choose either option.

### **5. Statement of Intent and Signature**

By signing this form and applying for membership, you are agreeing to the obligations of the membership as expressed in the SETP Constitution:

“The Constitution and any amendments thereto made hereafter shall be deemed a contract between the Society and its members for the benefit of each and all, and shall be observed and adhered to by each member; and each member of the Society, by virtue of their membership, covenants and agrees with the Society, and with each and every member thereof, that they will observe and adhere to and be bound by the same.” (SETP Constitution, Section 15.)

If you are submitting the form digitally, you may type “SIGNED” in the signature block.

If elected to membership, SETP scholarship benefits begin the date you signed the form. If sent digitally, the date of receipt by SETP headquarters will be used. This benefit is applied in the highly unusual case that you are disabled or die after you submit your application, but before your election to membership.

### **Section 1A: Current Active Engagement in a Qualifying Role** (Page 2)

This section applies to the question, “Are you currently engaged in a qualifying role?” as an aerospace vehicle pilot or astronaut. It applies to initial applications for Member, Member (as Astronaut), and Associate Member

#### **1. Active Engagement (Member and/or Associate Member)**

This part is divided into three questions. The first establishes your current engagement in the qualifying roles of experimental and/or developmental test pilot. To be considered for Member, you must be able to answer “Yes” to the question and list your current applicable qualifications. The second and third part only apply to Associate Member. You must be able to answer “Yes” for at least one of the three questions to meet the active engagement requirement for Associate Member.

Refer to the definitions in Part 5 of this document for *Aerospace Vehicle, Pilot, Active Engagement in the Cockpit, Qualification or Qualified, Experimental Flight Test, Developmental Flight Test, Engineering Evaluation, Performance Flights, and Production Flight Testing* to inform your completion of this section.

### **Section 1B: Current Active Engagement as an Astronaut Trainee** (Page 2)

This section applies to initial applications for Associate Member (as Astronaut).

#### **1. Active Engagement (Associate Member)**

Answering “Yes” to both questions and providing the requested information will substantiate your current active engagement as an astronaut trainee and your total training time in that course.

### **Section 2A: Test Pilot Professional Knowledge** (Page 3)

This section applies to all initial applications. It also applies when upgrading from Associate Member to Member. If you can answer “yes” to part 1 or “Cat 1” to part 2 of this section, you need not complete Section 2B.

#### **1. Recognized TPS Graduate**

If you are a graduate of an SETP-recognized test pilot course, complete this part. Meeting this criterium is sufficient to substantiate your professional knowledge.

#### **2. EASA Test Pilot Qualification**

If you hold an EASA test pilot qualification mark the appropriate category and complete this section, otherwise mark “Neither.” Cat 1 qualification is sufficient to substantiate your professional knowledge for initial membership as a Member. Cat 2 validates your professional knowledge for Associate Member.

### **Section 2B: Test Pilot Professional Knowledge in Lieu of Section 2A** (Pages 3 and 4)

This section Applies to initial applications for Member, Member (as Astronaut), and Associate Member. It also applies when upgrading to Member from Associate Member. Completing this section is unnecessary if you can answer “yes” to part 1 or “Cat 1” to part 2 of Section 2A.

The education and experience that you enter in this section is relevant when it directly relates to the professional knowledge necessary for active engagement as a test pilot. For instance, a degree in business administration may be very valuable for your current job duties, but there is little in a business

administration degree that directly applies to crafting test plans, executing test points, or analyzing and reporting on the data. On the other end of the spectrum, a degree in mathematics or a few years spent as a structural engineer for an aircraft manufacturing firm will certainly improve your ability to accomplish the unique tasks expected of a test pilot.

Monetary compensation is neither necessary nor sufficient to imply professional work implied by the phrase “test pilot professional knowledge.” If your work meets the SETP definition of Experimental Test Pilot then you are a professional test pilot. The definition for “Experimental Test Pilot” is in Part 5 of this document. It expands on the duties that make an Experimental Test Pilot a professional test pilot. An Experimental Test Pilot is trusted to execute experimental or developmental flight test when the safety, health, and welfare of the end-user, passenger, and/or public is at stake.

If you run out of room on this form, include an attachment with the additional information clearly marked, e.g., “Section 2B, part 4. Additional Relevant Non-Flying Professional Experience.” The attachment should use the same column titles as the form.

**1. Relevant Post-Secondary and Professional Education**

Include relevant post-secondary degrees, and completed military or civilian professional education.

**2. Relevant Flying Experience**

Include as a minimum the aircraft you have been qualified to fly as a pilot in any capacity. Experience in unmanned aircraft will not count toward the manned flight test experience required for membership, but it is relevant for establishing your professional knowledge.

**3. Relevant Certified Aeronautical Achievements**

Complete if applicable.

**4. Relevant Non-Flying Professional Experience**

Complete as applicable.

**5. Relevant Publications and Contributions to Scientific Knowledge and Flight Testing**

Include books, journal articles, conference papers, PhD theses, conference presentations, etc.

**Section 3A: Qualifying Space Flight** (Page 4)

This section applies to Applications for Member (as Astronaut).

**1. Qualifying Space Flight (Member)**

Complete if applicable.

**Section 3B: Manned Flight Test Experience** (Page 5)

This section applies to initial applications for Member and Associate Member. It also applies for upgrades to Member from Associate Member. It does not apply to those applying as an astronaut trainee or astronaut.

The application form has one page with seven rows. A separate Adobe Acrobat form is available for download so you may add additional pages. To ensure pages are not lost, use the fields in the upper right-hand corner of the page to number each page and show the total flight test experience pages you are submitting.

## 1. Qualifying Sorties

There are some important rules for completing this section:

- The total number of flights (sorties) must not exceed the total number of sorties you flew. For instance, if you flew a sortie that had both envelope expansion test points (E/DV) and mission systems test points (E/DA) you must not make two entries with each type of testing. In this case, you could use a single entry and mark both E/DV and E/DA with 1 flight.
- If the aircraft and/or description of testing is classified, enter "NR" for "not releasable" and complete the other columns. These entries will carry no weight unless you provide a reference that the Membership Committee can contact to verify that your experience qualifies. (You may designate which reference to contact by adding a number to NR to signify the applicable reference on your application. For instance, enter "NR2" to advise the Membership Committee to contact your second reference for further information.)
- Limit rows to only one aircraft, one crew position, and like tests.

Instructions for each column:

- **Date of First Flight/Date of Last Flight:** Enter the dates of the first and last sorties included in the count of flights you enter in column three. Do not use a number for the month (i.e., use 6 Aug 2024 instead of 6/8/24 or 8/6/24).
- **Aircraft:** One entry per column.
- **Flights:** The number of flights for the testing described in the last column.
- **Crew Position:** Your position for the testing described in the last column. (i.e., pilot in command, copilot, first officer, instructor pilot.) You may use common acronyms such as PIC, CP, FO, and IP. Your crew position for the testing must conform to the SETP definition of pilot, "*A person qualified to occupy a position required for in-the-loop control of an aerospace vehicle's trajectory.*" Only include flights where your position was on-board the aerospace vehicle with immediate access to flight controls during the test.
- **Type of Testing:** Mark all that apply. The definitions of the terms in italics are in Part 5 of this document.
  - o E/DV: *Experimental or developmental test of an aerospace vehicle and/or its engines.* (Qualifying for M or AM)
  - o E/DA: *Experimental or developmental test of the associated components of an aerospace vehicle.* (Qualifying for M or AM)
  - o P: *Production flight test.* (Qualifying for AM)
  - o EE: *Engineering evaluations, performance flights, or related tests.* (Qualifying for AM)
- **Description of Testing:** For the sorties to count toward SETP membership, you must provide enough information to show that you conducted the types(s) of testing you marked.
  - o Experimental flight test: Describe how your work as a test pilot advanced the science and/or engineering of aerospace vehicles, engines, or associated components by characterizing novel technology, or developing novel flight test methods. Refer to the definitions for *Aerospace Vehicle* and *Associated Components* to ensure you accomplished membership-qualifying testing and to guide your description.
  - o Developmental flight test: Describe how your work supported the development of an aerospace vehicle, engines, or associated components intended for production and/or certification. Refer to the definitions for *Aerospace Vehicle* and *Associated*

*Components* to ensure you accomplished membership-qualifying testing and to guide your description.

- Production flight test: Given the nature of production flight testing, you do not need to add additional information unless your work differed significantly from routine production flight test.
- Engineering evaluations, performance flights, or related tests. Describe your how your work fell into this category.

Example entries:

1. Qualifying Sorties (add additional pages as required)						
Date of First Flight	Aircraft:	Flts:	Crew Pos:	Type(s) of Testing:		Description of Testing
Date of Last Flight						
12 Mar 2023	F-25	6	PIC	<input checked="" type="checkbox"/>	E/D V	Envelope expansion for developmental testing. Each flight included some combination of flutter, structural loads, and/or flying qualities model validation.
					E/D A	
30 Sep 2023					P	
					EE	
28 Dec 2023	F-25	12	PIC		E/D V	Mission systems developmental testing. HSI evaluation of integrated sensor suite. HSI evaluation of radar warning and countermeasures.
				<input checked="" type="checkbox"/>	E/D A	
6 Apr 2024					P	
					EE	
1 Jun 2024	C-35	3	FO		E/D V	Evaluation of modified short field landing procedure and data-gathering for simulator model improvement.
					E/D A	
1 Aug 2024					P	
				<input checked="" type="checkbox"/>	EE	
10 Aug 2024	C-35	5	PIC		E/D V	Evaluation of modified short field landing procedure and data-gathering for simulator model improvement.
					E/D A	
1 Oct 2024					P	
				<input checked="" type="checkbox"/>	EE	
15 Oct 2024	NR	4	PIC	<input checked="" type="checkbox"/>	E/D V	NR3
					E/D A	
20 Nov 2024					P	
					EE	
					E/D V	
					E/D A	
					P	
					EE	



## 5. DEFINITIONS

These are important terms regarding membership eligibility from the SETP Constitution. Examples are provided to enhance clarity, not to serve as definitive lists. These are the definitions provided to the Membership Committee by the SETP Board of Directors.

*Aerospace Vehicle*: *A vehicle capable of controlled operation free of any mechanical connection to the Earth or any other gravitationally dominant body.*

*Aerospace vehicles* are not limited to atmospheric operations. *Aerospace vehicles* need not be powered, and include vehicles such as fixed-wing aircraft, helicopters, eVTOLs, spacecraft, balloons, dirigibles, autogyros, hang gliders, and ground effect aircraft. They do not include kites, hovercraft, and tethered balloons.

Even though an *aerospace vehicle* must be intended for controlled operation free of any mechanical connection to the ground, flight testing of an *aerospace vehicle* may occur while the vehicle is on or connected to the ground. The determining boundary between “ground testing” and “flight testing” is the role of the *pilot* and the influence of forces that will be encountered in flight. If a *pilot* is required for the test, and responses to the aerodynamic and gravitational forces require the actions of a *pilot*, then the *aerospace vehicle* may be considered engaged in flight testing.

Note: See the definition for *active engagement in the cockpit* for clarification on when participating in testing an *aerospace vehicle* meets the membership requirements for *active engagement in the cockpit*.

Examples of *aerospace vehicle* flight testing:

- Flying Qualities
  - Stability and control, including all components of the flight control system.
  - Stall, departure, spin, and post-stall maneuvering.
  - Pilot in-the-loop handling qualities.
  - Effects of significant changes to the aircraft outer mold line, to include external pylons and stores, store separation, and configuration changes.
  - Emergency/degraded mode operations such as autorotation and flameout landings.
  - Brake,  $V_{mcg}$ , or refusal testing involving speeds where flight controls or power asymmetries can overpower the stability provided by tires, brakes, or skids.
  - Tethered hover testing.
  - On-orbit maneuvering characteristics.
- Core Structure
  - Structural loads.
  - Flutter and limit cycle oscillation.
  - Helicopter rotor/structural stability.
  - External store loads.
  - Landing gear.
- Interactions with critical ground or in-flight equipment involving flying qualities or core structure.
  - Aerial refueling.
  - Catapult launches and arrested landings.
  - Cable engagements above normal-energy wheel braking speeds.
  - Slung loads.
  - Space docking systems.
  - Rotary wing aircraft dynamic interface testing, including deck recovery systems (e.g. RAST)
- Engines (Defined as any mounted device designed to increase the total energy of the entire *aerospace vehicle*.)

- Basic operation in the design envelope.
- Electric, hydraulic, or pneumatic power generation and distribution.
- Stability in and out of the design envelope.
- Rockets, thrusters, and control moment gyroscopes.
- Airstart capability.
- Effects on ground handling when engine thrust effects on the vehicle requires use of aerodynamic controls.

Associated Components (of an Aerospace Vehicle): Any component of an aerospace vehicle that must be tested in flight to ensure the safe and effective accomplishment of the mission of that aerospace vehicle.

If a component may be fully-tested solely in modeling and simulation, in ground testing with negligible aerodynamic forces, or in non-flyable mockups, it is not considered an *associated component* with regard to SETP membership requirements. *Associated components* are necessary for safe and effective mission accomplishment. If a test bed is used to test mission-essential components, then those components may be considered *associated components* of an aerospace vehicle.

Note: See the definition for *active engagement in the cockpit* for clarification on when participating in testing *associated components of an aerospace vehicle* meets membership requirements for establishing *active engagement in the cockpit*.

The following are examples of *associated components of an aerospace vehicle* provided they are necessary for safe and effective mission accomplishment:

- Core airframe components
  - Speed brakes, spoilers, and drag chutes.
  - Wheel brakes above taxi speed.
  - Hydraulic, electric, vacuum, and hi-pressure air generation and distribution.
  - Fuel balance and supply.
  - Flight instruments necessary for closed-loop control and instrument flight.
- Mission-essential systems
  - Systems that provide guidance for aircraft control and system operation
    - Mapping and navigation
    - Displays
    - Data entry systems
  - Active and passive sensors
    - Radar (weather, combat, surveillance).
    - Laser (lidar, range-finding, weapons).
    - Infrared and/or optical targeting pods.
    - Infrared search and track.
    - Radar warning receivers.
  - Countermeasures
    - Radar cross section measurement.
    - Radar jamming and spoofing.
    - Chaff and flares.
    - Towed countermeasures.
  - Weapon system components
    - Weapons computers and aiming guidance.
    - Release mechanisms and control.
    - Target designation systems, to include gunsights.

*Pilot: A person qualified to occupy a position required for in-the-loop control of an aerospace vehicle's trajectory.*

Acting as a pilot does not include controlling a fully automatic or autonomous vehicle, or using on-the-loop-control, unless the pilot is both *qualified* and procedurally required to back up the automation by taking manual control of the vehicle's trajectory. (When a pilot is conducting flight test of an automated system, taking manual control is not required for pilot engagement any more than exercising direct control of an aircraft is required to log instructor pilot time.) Manual control of an *aerospace vehicle's* trajectory consists of exerting simultaneous in-the-loop control of at least two aircraft states.

- *Aerospace vehicle* states usually include three orthogonal displacement elements and three rotational elements. The Membership Committee may consider other states.
- "In-the-loop control" means that the pilot is required to skillfully close the loop between applicable vehicle states and control inceptors. Skillful in-the-loop control requires training to the Autonomous Stage of motor control, allowing the pilot to move the inceptors with little or no cognitive attention or forethought. Examples:
  - Classical stick, rudder, and engine controls.
  - Cyclic and collective controls.
  - Spacecraft pitch, roll, and yaw controllers.
  - Spacecraft thrust controls.
  - Hot air balloon burner and vents.
- "On-the-loop control" is often used by pilots, but it is not considered "acting as a pilot" with respect to membership grading unless the pilot is *qualified* and procedurally required to transition to in-the-loop control. On-the-loop control entails providing an end-state to an in-the-loop controller, whether with a dial, a numerical pad, or repurposed in-the-loop inceptors. Skill is not a factor in achieving the selected end-state. (There is no exception for safety-critical on-the-loop control.) Examples:
  - Engaging an autopilot or changing its settings.
  - Authorizing a step in an automated process.
  - Activating an automatic abort process.
  - Changing speed by setting a speed caret with a throttle.
  - Commanding a bank angle autopilot with roll stick inputs.

*Experimental Test Pilot: A pilot that is qualified to execute experimental or developmental flight testing of manned aerospace vehicles, their engines, or associated components and effectively executes that role while holding paramount the safety, health, and welfare of the end-user, passenger, and public.*

It is possible to interpret the words "a pilot engaged in *experimental or developmental flight testing*" to include everything from a seasoned professional conducting the first flight on a billion-dollar prototype, to a hobbyist testing the aerodynamic effect of a small antenna on a home-built aircraft. The context of the Constitution provides valuable guidance for establishing a definition of "*Experimental Test Pilot*" for the Society. In Article II, Section 1, the Constitution refers to the "moral obligation of the test pilot," and "those endeavors peculiar to the profession of the Experimental Test Pilot." In the next section, it talks of broadening "professional relationships among members." Finally, in Article III, Section 1, it demands that "consideration in grading [be] given to professional education and experience, publications, record of aeronautical achievements, and contributions to scientific knowledge." The SETP Code of Professional Ethics adds weight to these words by calling for members of SETP to "strive to perfect professional integrity, excellence, and accountability" and "hold paramount the safety, health, and welfare of the end-user, passenger, and public." An *Experimental Test Pilot* is *qualified* for the role, and trusted to execute these duties when the safety, health, and welfare of the end-user, passenger, and/or public is at

stake. Payment for services rendered as a test pilot carries little or no weight in the Society's definition of *Experimental Test Pilot*; employment as a test pilot is neither necessary nor sufficient to be an *Experimental Test Pilot*.

Active Engagement: *Direct involvement in flight test planning, preparation, execution, and/or reporting.*

*Active engagement* may include writing test plans, reviewing test and/or safety plans, participating in simulator evaluations, writing or reviewing test cards, and supporting flight test as a chase pilot or in a control room. Test pilot school flight instructors on flight status are considered actively engaged in flight test if they are providing flight instruction on experimental and/or developmental test techniques for *aerospace vehicles*, engines, and/or their *associated components*.

Active Engagement in the Cockpit: *Conducting flight test as a pilot of an aerospace vehicle, its engines, or associated components while evaluating the system under test. Active engagement in the cockpit requires immediate access to the controls required to perform the duties of a pilot.*

*Active engagement in the cockpit* conducting flight test of an *aerospace vehicle* or its engines is defined as participating in the execution of *aerospace vehicle* or engine flight testing as a *pilot*.

*Active engagement in the cockpit* conducting flight test of the *associated components* of an *aerospace vehicle* is defined as participating as a *pilot* in the execution of the test to provide a first-person evaluation of the system under test. Simply establishing the correct conditions for data acquisition is not enough to meet this standard; the *pilot* must be directly involved in the evaluation of the *associated component* while executing the duties of a *pilot*.

Qualification or Qualified: *Attainment or possession of the authorization to perform a particular task or role.*

Qualified and Qualification refer to the operation of aerospace vehicles and are distinct from the phrase "qualifying experience," used to denote the types of experience that must be acquired to achieve SETP membership.

The Membership Committee will assess test pilot *qualification* in the context of the applicant's regulatory environment. *Qualification* may be achieved through any combination of formal or informal means. When a formal *qualification* is required for an applicant's flight test role, the applicant should list the relevant *qualifications* for the required time span, which should be encompassed by the dates of qualifying sorties.

If there are no standards for *qualification* in the aerospace vehicle, such as in highly innovative vehicles that lack *qualification* standards, the Membership Committee may use their best judgement to determine whether the actions of the applicant meet the standards typical for formal *qualification*, such as regulatory knowledge and deliberate operation in accordance with the letter and spirit of applicable laws and regulations. For instance, an inventor using a busy city park to flight test a manned eVTOL is not operating within the requirements that they would be aware of if the inventor was a *qualified* pilot, much less a *qualified* test pilot.

Experimental Flight Test (qualifying for Member (M) or Associated Member (AM)): *Flight testing that advances the science and/or engineering of aerospace vehicles, engines, or associated components by characterizing novel technology, or developing novel flight test methods.*

Flight test is "experimental" when the *aerospace vehicle*, its *associated components*, or the system under test are primarily intended to test hypotheses or demonstrate new technology, and the result of the test will meaningfully impact future aerospace technology and/or operations. Elevated risk is neither

a necessary nor a sufficient condition for categorizing flight test as experimental. *Experimental flight test* may also include:

- Prototype testing, where the *aerospace vehicle* or technology under test is not intended for production, but being tested to answer critical questions while the production design is in progress.
- Research and development of novel flight test methodologies and techniques, including research work at a test pilot school or other educational institution.

Developmental Flight Test (qualifying for M or AM): *Flight testing that supports the development of an aerospace vehicle, engines, or associated components intended for production and/or certification by both determining whether they operate as designed and by using methods that support correction of the design.*

*Developmental flight test* exposes the *aerospace vehicle* or *associated components* to previously untested conditions or gathers previously unknown data about the vehicle. It also employs methods that support correction of the design should the system under test fall short. The most obvious example of this type of testing is envelope expansion testing, where the pilot and test team carefully “open the flight envelope” by testing in conditions where the actual behavior of the aircraft is unknown. Elevated risk is neither a necessary nor a sufficient condition for categorizing flight test as developmental.

Engineering Evaluation (qualifying for AM only): *Flight evaluations utilized to determine if a fully-tested system or process is suitable for a new use within the existing operating envelope.*

*Engineering evaluations* check for the suitability and/or effectiveness of an *aerospace vehicle* for a new task. *Engineering evaluations* may be conducted concurrently with *experimental* or *developmental flight testing*, but are not considered *experimental* or *developmental flight testing* when conducted exclusively. Operational test and evaluation is not considered an *engineering evaluation* unless it is used to evaluate an *aerospace vehicle* for a task it was not originally designed to accomplish.

Performance Flights (qualifying for AM only): *Flights utilized to better characterize the performance of an aerospace vehicle, engines, or associated components within the cleared envelope.*

In general, *performance flights* are conducted to characterize performance with no intent of using the data to change the system under test. Performance flight examples include record attempts, data-gathering for modeling, weapons effects on new targets, and radar characterization for new objects.

Production Flight Testing (qualifying for AM only): *Flight testing used by a manufacturer on an aircraft newly off the production line to establish the airworthiness and system functionality of the aircraft.*

A production test pilot is specially-trained and trusted with executing these flights, and may be employed by the manufacturer or the customer. A pilot on a “ride-along” (not *qualified* or not responsible for conducting the test) is not conducting production flight test duties.

Endurance Testing (non-qualifying): *Testing typically used to put time and cycles on an aerospace vehicle or mission system to gather data on its reliability and/or maintainability.*

*Endurance testing* within the cleared envelope of an *aerospace vehicle* is not qualifying experience for membership in SETP. Exception: If *endurance testing* is conducted as part of demonstrating the limits of a proposed envelope—such as a “speed soak” where an aircraft is kept at a high dynamic pressure to determine the effects of that exposure on the *aerospace vehicle*—then the testing may be considered developmental or experimental testing.

Maintenance Testing (non-qualifying): Sometimes referred to as “functional check flights” or “operational check flights” these sorties require—at most—specialized training and qualifications for pilots to conduct the maintenance-required flight profile on the specific aircraft type.

*Maintenance testing* does not provide qualifying experience for membership in SETP and is rarely closely associated with *experimental flight testing*.

Operational Testing (non-qualifying): Testing conducted solely to determine if an aerospace system meets its operational requirements in a relevant operational environment.

Although the SETP Constitution does not mention *operational testing*, this definition is provided to distinguish *operational testing* from other types of flight testing. Operational test and evaluation pilots are selected for their experience in the relevant operational environment, not their ability to provide engineering judgement or scientific accuracy. Except in cases where it provides close association with *experimental flight testing*, *operational testing* is not relevant for SETP membership.

Test Support (non-qualifying): Flight operations within the cleared envelope an aerospace vehicle conducted solely to support any other type of flight testing.

*Test support*—including roles like safety chase, photo chase, missile control, and target—may be critical to test mission success and bear little in common with operational flying, but it is rarely part of the system under test and is not considered qualifying experience. *Test support* conducted while executing qualifying flight test experience does not negate the qualifying experience.