

# Structured Training Plan for Certification of Flight Inspection Crews

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## ABSTRACT

Due to the complexity of the Flight Inspection Service mission, a Structured Training Plan (STP) may be administered at the discretion of the Training Manager, Chief Pilot, or Director of Operations. STP has been developed for that purpose to better standardize initial mission training. The STP is a scripted, all-inclusive training vehicle. Throughout the training period, each week is lesson-planned using efficient aircrew training techniques. Highly qualified instructors provide classroom ground training followed by inflight reinforcement. Each block of training, i.e., Instrument Landing System (ILS) is broken down into manageable segments, completed in consecutive sequence. Ground and inflight training are completed sequentially within the primary mission blocks of Visual Glide Slope Indicator (VGSI)/Rho-Theta, ILS, Performance Based Navigation (PBN), Radio Frequency Interference, Procedures and Natural Disasters. During each block of training, the trainer and trainee can focus resources on a single mission area, a single flight inspection handbook chapter, and a single flight inspection report form.

The scripted 53-week STP contains the following: classroom lecture and ground simulator training events as provided by the Training Team staff. Inflight training by designated mission instructors to validate classroom/simulator sessions. The training may be completed via standard mission itinerary or via non-itinerary training flights. The STP Sequence of Training involves the completion of a block of ground training, using both classroom and simulator training, immediately followed by inflight training to validate the material. This “learn-validate” process sets the STP apart from the conventional Flight Operations Team-level OJT. Example 100% of VGSI and Rho-Theta ground and simulator training are completed and inflight training is immediately validated prior to the start of another training block. On each block of training, inflight training is scheduled, this is done to provide immediate reinforcement of training concepts and validate the training process. A progress check with decision point is completed at the end of each block of training.

## INTRODUCTION

The mission of the Flight Program Operations Aircrew Training Group is to provide the training for the certification of all flight inspection crews. In the past this was done purely by “training the itinerary”, meaning whatever type of inspection you were given on your flight was what you would be trained on. The instructor in the aircraft is focused on the airborne training and would not have a chance to cover the academics for why it needs to happen. This was not an ideal situation because you may not ever see an ILS commissioning inspection or a Rho-Theta frequency change. From the seemingly simple to the more complex tasks we realized that a change needed to happen.

The Structured Training Plan (STP) was developed to ensure all requirements for certification of the crews is accomplished. From the theory and explanation of why to the actual flying of the mission. Not only do the instructors (both classroom and airborne) have an important role in the plan, but the trainee has ownership in the success of the plan. This is accomplished via mission training records that allows feedback from instructor and trainee. The Aircrew Training group inserts all forms and feedback into the trainees records for documentation.

## **STRUCTURED TRAINING PLAN**

The Structured Training Plan is administered at the discretion of the Aircrew Training Group Manager. The overall training process is owned by the Chief Pilot and Director of Operations of the Federal Aviation Administration” (FAA) Flight Program Operation. It has been developed to standardize initial mission certification training. The plan identifies specific responsibilities each person plays in the overall completion and success of the training. There is a separate STP for Mission Specialists (MS) and Airspace Systems Inspection Pilots (ASIP). There are defined roles for all involved.

Aircrew Training and Standards Group is responsible for the overall STP completion to include all ground and inflight training and documentation of records. Inflight training can be accomplished by designation a Mission Instructor.

Flight Operations Team (FOT) Manager is responsible for verifying block completion, scheduling progress rides at the recommendation of Aircrew Training Group, scheduling “on the job” experience and recommending the trainee for Initial Mission evaluation.

Primary Instructor is designated by the FOT manager is responsible for overseeing trainees schedule, progress and documentation.

Mission Instructor (MI) is designated by the Training Group Manager to primarily perform the inflight training and some ground (academic) training.

Trainee is the person enrolled in the STP until initial mission qualification is achieved.

### **Mission Specialist Structured Training Plan**

The MS STP is a scripted all-inclusive training vehicle. Throughout the training period, each week is a lesson planned out using efficient aircrew training techniques. Training group instructors will provide the classroom academics, which will be followed by inflight reinforcement of the lessons, covered. Ground and inflight training are completed sequentially within the primary mission blocks of VGSI/Precision Approach Radar (PAR), Rho-Theta, ILS, and Performance Based Navigation (PBN).

During each block of training, the trainer and trainee can focus resources on a single mission area, a single chapter area and report. Each block of training, for example, ILS is broken down into manageable segments, which are completed in sequence. The instruction is provided in a block-training format. It starts with the simpler tasks and progresses through the more task intensive subjects.

One hundred percent of a block of instruction, academic and simulator training, are completed and inflight training is immediately validated. This “learn-validate” process sets the STP apart from the conventional FOT level “train the itinerary” on the job training. For example, one hundred percent of VGSI, PAR and Rho-Theta academics are completed and inflight training is immediately validated prior to the start of another section of that subject or another block is started. At the end of each block of training a progress check is performed with a decision point.

On each block of training, inflight training is scheduled after periodic type flight inspection ground training, and again after the commissioning type inspection ground training is complete. In the ILS block, additional flight training is accomplished after antenna system change and phasing training via a specific training flight. The Rho-Theta block also has this training flight after the commissioning profiles are trained. This is done to provide immediate reinforcement of training concepts and validate the training process.

The following flowchart is the preferred sequence of the STP.

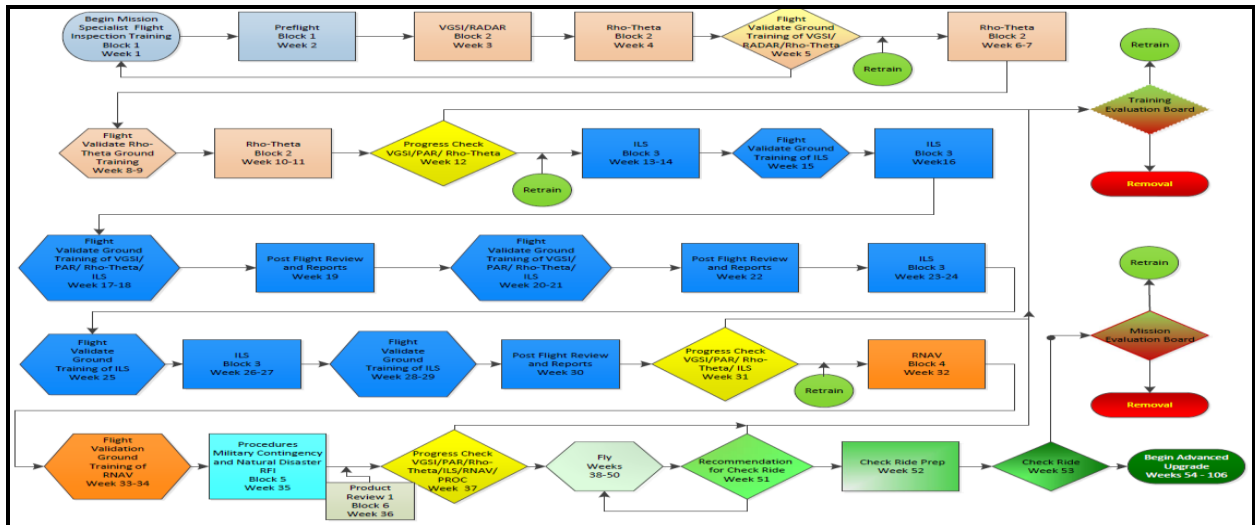


Figure 1. MS STP Flowchart

## **Content of the Structured Training Plan**

There are six blocks of instruction within the STP. Each block covers different subjects that pertain to the flight inspection mission. The blocks start with generic information common to all inspections and progress to the more complicated aspects such as commissioning of a facility. In Block 1, the first two weeks are an introduction to Flight Inspection. This includes a basic maneuvers flight that must be completed before continuing with the training.

Periodic type inspections academics are completed first in the block, which will be followed by flying on itineraries with a mission instructor. The trainee returns to class and completes commissioning academics. This portion will have a training flight dedicated to all the profiles associated with commissioning a facility. The trainee will then fly actual itineraries with a mission instructor. A progress check will be given after Block 2 and after Block 3. This serves as a decision point, meaning if it is identified that the trainee is having trouble, we will decide if further/more focused training is warranted or removal is required. The option for a third progress ride is available after Block 5. Block 6 is a product review lesson. The trainee along with instructors and certifiers will look at any crewmembers work (flight inspection recordings and reports) to identify any deficiencies.

After all ground and inflight STP training is complete, the trainee is scheduled to fly mission itineraries for approximately 13 weeks with multiple mission instructors. This provides the trainee an opportunity to demonstrate skills to several people and pick up various techniques that may improve the program. There will always remain on the job experiences whereby events that occur over the course of an itinerary that cannot be duplicated in the STP process. In addition, this time allows the trainee to practice the acquired skills over the entirety of the mission. The instructor will continue to provide and document feedback to the Training Group regarding the progression of the trainee. When an instructor states the trainee is performing without instructor intervention, a Recommendation Ride is given.

A member of the Training Group performs the Recommendation ride. This ride will be used to determine if the trainee is ready for the Initial Mission Evaluation. The Recommendation Ride is a flight inspection itinerary that is tailored to ensure all aspects of the training and mission are demonstrated. During this flight, the trainee will be given an oral evaluation. An oral evaluation using all pertinent publication and documents will not be limited to items on the itinerary. Upon successful completion of the Recommendation ride the Initial Mission Evaluation will be requested. A written and oral evaluation will be given. A designated Mission Check Airman conducts this. Upon successful completion of both, the Initial Mission Evaluation will be scheduled. The Evaluation is a flight inspection itinerary that focuses on the core facilities and mission execution.

Once the trainee successfully completes the Evaluation portion, they become certified Flight Inspectors. Advanced training now commences, this includes familiarization with staff functions, other academic courses and special qualifications. Special qualifications are anything that is not considered a basic (core) type inspections or are designated as a unique mission. Advanced training is completed within the first year after your Initial Mission Evaluation.

## **STRUCTURED TRAINING PLAN DESCRIPTION**

As previously discussed and shown in the flowchart, this plan is conducted in a block type format. During each block, the skill set required becomes higher. As the trainee progresses there should be less interaction with the instructor. We are grading three levels during the academic and inflight portions, the Knowledge, the Demonstration of skill and the Proficiency of the skill. The Knowledge level is given during the classroom academics. The Demonstration level happens during the inflight portion. The Proficiency level is happens during inflight portions and progress rides. Proficiency is graded in the following format. "N" (Needs More Training – if an element that is still being trained is performed at a level less than satisfactory). "U" (Unsatisfactory – is only used to document regression and is not used if a difference of best practice or technique). "S" (Satisfactory – a level of performance achieved without Mission Instructor assistance and determines no more training is required. Let us break down what each block contains and what it covers.

### **Block 1:**

This is the basic instruction block. The new inspector trainee will be familiarized with the following objectives:

- Flight Inspection mission overview (what, why, who our customers are)
- Directives, Orders and Instructions

- How to read and understand Flight Inspection Data
- How to read and understand Standard Instrument Approach Procedures
- Basic Flight Maneuvers description
- Basic Automated Flight Inspection System Operation
  - Position Referencing Systems
  - Self-Test
  - Mode Selection and Use

The last step of this block that to be completed is a Basic Flight Maneuvers flight conducted by the Training team. The trainee will be at the panel for their first exposure to flying itineraries.

### **Block 2:**

This block covers PAR/VGSI and Rho-Theta. The objectives are:

- Proper use of the AFIS modes for Lighting, Radar and Rho-Theta
- Theory and operation
- Commissioning requirements and tolerances of VGSI
- Periodic requirements and tolerances of PAR
- Commissioning requirements and tolerances of PAR
- Periodic requirements and tolerances for Rho-Theta systems
- Commissioning requirements and tolerances of Rho-Theta systems (Coverage, Map studies, Extended Service Volumes)
- Shipboard TACAN
- Procedures that use Rho-Theta systems
- Post Flight recordings analysis and reporting

During this Block, there are several weeks of inflight training. The trainee will demonstrate proficiency during these weeks. One those weeks is a Training Itinerary conducted by the Training team that is solely for the purpose of flying all maneuvers associated with the commissioning of a Rho-Theta system. The last step of this block to be completed is a Progress check of everything trained to this point. Progress check must be satisfactory to move on with the STP.

### **Block 3:**

This block covers ILS. The objectives are:

- Proper use of the AFIS mode for ILS
- Theory, Operation and Different types of ILS systems
- Periodic requirements and tolerances of Localizers
- Periodic Requirements and tolerances of Glideslopes
- Commissioning requirements and tolerances of Localizers

- Commissioning requirements and tolerances of Glideslopes
- Procedures that use ILS
- Post Flight recordings analysis and reporting

As in the previous block, there are several weeks of inflight training. The trainee will demonstrate proficiency during these weeks. One of those weeks is a Training Itinerary conducted by the Training team that is for the sole purpose of flying all maneuvers associated with the commissioning of an ILS. The last step of this block to be completed is a Progress check of everything trained to this point. Progress check must be satisfactory to move on with the STP.

#### **Block 4:**

This block covers PBN. The objectives are:

- Proper use of the AFIS mode for PBN
- Commissioning requirements
- Procedure Validation/ Data Verification of the following:
  - LNAV/VNAV
  - LP/LPV
  - DME/DME (SIDs and STARs)
  - RNP
- Post Flight recordings analysis and reporting

During this Block, there are several weeks of inflight training. The trainee will demonstrate proficiency during these weeks.

#### **Block 5:**

This block covers miscellaneous subjects required for certification. The objectives are:

- Procedures (Review)
- Flight Inspection during a Natural Disaster or Contingency (these are abbreviated inspections with less stringent tolerances)
- Radio Frequency Interference Inspection (additional equipment is installed on all aircraft to perform these inspections)

#### **Block 6:**

This block covers Product Reviews of previous Inspections. The objectives are:

- Understand the purpose of the Product Review
- Review any inspectors prior work to ensure the all requirements were met
- Trainee may look at their own work
- Identify and shortcomings that the STP needs to correct

After this block, the academics are complete and the trainee assigned to fly several itineraries with various instructors. The trainee will demonstrate proficiency during these weeks. Progress check maybe requested during this time when regression happens. If requested, the Progress check must be satisfactory to move on with the STP.

### **Additional Requirements for Continued Certification**

There are additional requirements to keep the Flight Inspector Certification. The individual is subject to random product reviews that we discussed in block 6 of this plan. An inspector ideally gets a review once a quarter. The Training and Standards group will randomly do a Standardization Ride to observe best practices, standards and Crew Resource Management of the Flight Inspection crews.

If an inspector has unsatisfactory performance in any of the above situations, a Tailored Training Plan (TTP) is developed. The TTP focuses on the identified problem areas. During this time, the individual will be required to fly with a designated mission instructor. Upon successful completion of the TTP, re-certification is granted.

### **Mission Instructor Qualification**

A part of the advanced training and goal of the STP is to have an individual become a Mission Instructor. The individual must have at least 1-year experience performing flight inspection duties. When requested by the FOT Manager, the Training and Standards group will review all performance of the individual for the previous 12 months. All final ratings must be Satisfactory or higher. No other documented history of negative issues with the individual. When all requirements are met, Mission Instructor status is granted.

### **CONCLUSIONS**

The FAA's Aircrew Training and Standards group always strives to improve the training for our Flight Inspection crews. We treat the STP as a living document. What this means is even though the layout and flow of the STP stays the same, the content will be up to date to the most current and gives the pertinent information during the training sessions. Feedback from the instructors and the students is very important for this to happen.

Since the inception of this training plan, the FAA has reduced the amount of time it takes to get someone fully qualified from 23 months to 14 months. There has been a significant decrease for discrepancies found during initial mission qualifications, product reviews and standardization rides. The trainees have a better understanding of the mission requirements and duties now than compared to the legacy-training program of "train the itinerary". This model has helped maintain and even boost safety for the aviation community.

### **RECOMMENDATIONS**

Currently there are no detailed or documented requirements or recommendations for training of the flight inspector. With the impact flight inspection missions have on flying safety, recommend that minimum requirements are issued for training, qualification, certification and currency.