



**Aviation Medical Center**

**GPSS**

GLOBAL PILOT SELECTION SYSTEM

**SELECTION OF AB-INITIO PILOTS  
FOR YOUR FLIGHT TRAINING**





## INTRODUCTION

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## SELECTION OF AB-INITIO PILOTS FOR YOUR FLIGHT TRAINING

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## INTRODUCTION

A pilot's job entails an array of situations which often require sound judgment and decision making. During a flight, in addition to performing routine tasks, a number of challenging situations may arise, including technical difficulties, problems with colleagues or passengers, and unexpected events on the outpost. Such situations demand effective decision making in order to maintain a smooth, safe and pleasant flight which in turn ensures customer satisfaction. But can anyone do this job?

### OPERATIONAL EXCELLENCE

Operational excellence can only be achieved when the pilots in the market possess the required competencies. Years of research have proven that several criteria distinguish between successful pilots and unsuccessful pilots. This is not only important information for the airline, whose goal it is to run an efficient, safe and comfortable operation. It is also important information for the Flight Training Organisations that take their task seriously and aim to train pilots with the right characteristics so airlines can reach their goals. And not in the last place it is of vital importance to the student himself, who is unaware of his qualities, to be selected in order to predict his chances in the industry before spending huge amounts of money and an extensive amount

of time. For this reason a web-based ab-initio test battery is developed. This test battery not only provides insight in the required competencies for pilots, but also in the specific demands placed on future ab-initio trainees. Testing material is specifically designed to measure competencies in young people. Attention is given to the trainability of the pilot. Tests and questionnaires are adjusted to the level of experience of the pilot to be. Norms are developed specifically for this group. Selection prior to flight training is essential for operational excellence. This booklet gives you more detailed information concerning the selection of students for Flight Training Organisations. If you require additional information regarding the selection of experienced pilots, please, refer to the booklet 'GPSS: A Global Pilot Selection System for Experienced pilots'.





## SELECTION OF AB -INITIO PILOTS FOR YOUR FLIGHT TRAINING

The ability of your Flight Training Organisation to maintain competitive advantage will rely more and more upon your ability to select the right people for your Flight Training Organisation. But how can this best be achieved and what is the typical profile of a successful pilot?

Aviation Medical Center (AMC) has developed a test battery comprising a balanced selection procedure that covers the required areas: cognitive level, flying aptitude and personality. These tests enable you to distinguish among students on several key features. Flying a plane is a complex and demanding job, hence the test battery contains 14 tests assessing different qualities. The content of this battery is a result of scientific research and considerable consultation with pilots and managers from several large airlines. Moreover, because the test battery is competence based, each test contains questions that require the application of knowledge (aviation related questions) and the retention of knowledge (school related questions).

However, you say, conducting professional assessments of future ab-initio pilots is the work of experts, isn't it? Indeed, experts have developed this web-based test battery that enables you to execute the entire procedure yourself from your home office. No difficult planning with external bureaus, no interference from third parties. You will be able to offer a state of the art selection procedure without the investment of additional manpower, thus maintaining control over your own organisation. All you have to do is: provide the candidate with a computer, log in to the system and wait for the report.

### GENERAL ABILITY

A pilot does not require a college degree and most of the candidate students completed some form of secondary education. Then what is the use of measuring general ability? Surprisingly it was found out that problems during the execution of their daily work often are the result of an insufficient cognitive level. There are many ways to get your high school diploma and as a consequence not everybody with the same diploma has the same cognitive level. It is to be expected that these differences become more visible in the execution of the work of a pilot when the cockpit is becoming

increasingly complex and conversions will be more numerous than ever, thus requiring flexible transfer of knowledge and thus aptitude. There are three tests that determine this cognitive level. Calculating, verbal field independence and logical reasoning are therefore included in this test battery. The tests planning and analytical thinking complete the test battery.

### CALCULATING

Although a pilot relies almost entirely on his instruments it is important that he has a good sense for figures himself. Especially during flight training the ability to make calculations is a vital feature. For this reason the test Calculation is part of the test battery. During this test component the student is given both relevant and redundant information. The candidate first has to decide which information to use and then to make the actual calculation in order to solve the problem at hand. The tasks usually represent every day operational demands and the student may use a calculator and scrap paper if required. Both calculator and scrap paper are integrated in the test system.

### VERBAL FIELD INDEPENDENCE

Verbal insight is the second of the three tests for assessing general ability. The ability to discern between fact and assumption is imperative. The test therefore demands a critical approach from applicant pilots to the situations described. This is more difficult for pilots who are largely influenced by their surroundings and pilots who tend to follow the opinion of others, so-called group think. Group think must be avoided in the cockpit and therefore this test is a necessary component in the test-battery. This quality is known as field independence and is a vital quality for critical decision making on board.



Life is good on Stavena. The air is clean there is plenty fresh fruit available. The inhabitants attain a great age. The average age of death is 89. This is even more remarkable considering the level of health care on the island. Health care is still quite marginal and consists of a small health post manned by a nurse. The doctor visits patients only upon request and he has to be shipped in from the main land. Researchers show great interest in the inhabitants of the island.

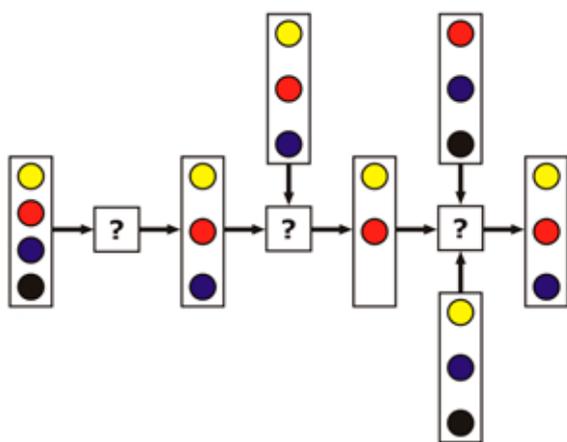
- 1) The average age death is 98 years.
- 2) The inhabitants are old, because they eat much fresh fruit.

|          | Mo    | Th    | We    | Th    | Fr    |
|----------|-------|-------|-------|-------|-------|
| Aydin    | D H X | D H X | D H X | D H X | D H X |
| Steven   | D H X | D H X | D H X | D H X | D H X |
| Albert   | D H X | D H X | D H X | D H X | D H X |
| Florence | D H X | D H X | D H X | D H X | D H X |
| Don      | D H X | D H X | D H X | D H X | D H X |
| Edward   | D H X | D H X | D H X | D H X | D H X |
| Clann0   | D H X | D H X | D H X | D H X | D H X |

Instructions      Scratchpad      Click here when ready

### LOGICAL REASONING

One particularly distinguishing factor between pilots is the ability to think logically. Whilst in flight a pilot is mostly following instructions, known as second hand information. Some situations, however, will require creative problem solving skills, known as first hand knowledge. This test is developed to find out whether the pilot is able to think analytically and solve problems with first hand knowledge. The questions contain various sorts of problems involving logical systems with information gaps, which the applicant pilot must fill in by means of logical reasoning.



### ANALYTICAL THINKING

A student needs to understand systems. Not because he has to analyse the way they work, but to understand the link between instrument settings and system configurations. Insight in the logic of systems gives the pilot a head start in taking sensible decisions.

### PLANNING

Planning of the flight is not the concern of the pilot anymore. The airline will provide the necessary information to the pilot. Although flight planning is not usually the pilot's responsibility as such, the ability to anticipate and plan is clearly an essential skill; and hence planning tasks are part of the test battery. While flying, anticipation and pro-active actions are essential to foresee possible situations and to plan correctional actions. Situational awareness, an essential characteristic for a pilot, is not possible without the ability to plan and look ahead. The ability to structure tasks is therefore a component of this test battery.

### PERCEPTION AND ACCURACY

Due to the expected developments the next ten years, the pilot will experience a shift from coordination tasks towards system monitoring tasks. He will have to enter data into sophisticated systems and to read data the system feeds back to him. Perception and the accuracy with which he works will have an increasing impact on a pilot's performance.

### SITUATIONAL AWARENESS

Situational awareness can refer to different kinds of awareness. In this test we will gain more insight in two of its forms being a) position awareness referring to geographical position and b) position awareness referring to the attitude of the aircraft.

### Geographical orientation (position awareness)

Geographical orientation is clearly an essential quality for every pilot. Finding your way in the circuit may be a challenging task for some pilots. Especially during line training when stress increases, any deficiencies in this area become clearly visible - often to the complete surprise of the pilot. An early diagnosis, however, can prevent problems during line training. The test requires the candidate to give his position relative to a number of markers.



**Spatial orientation**

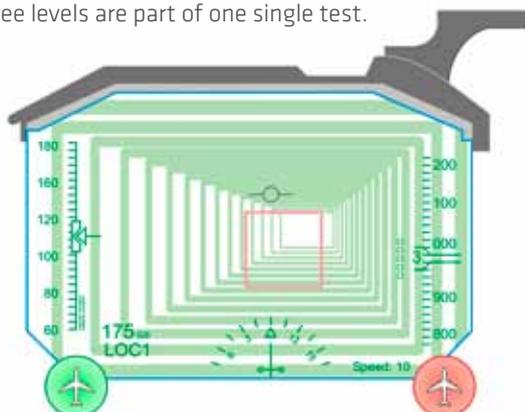
To be able to think in three dimensions is a specific and crucial characteristic of flying. The pilot needs to create situational awareness in three dimensions based upon the two dimensional information of the instruments in the cockpit. For the students this ability is measured in an aviation related way and non-aviation related way.

**MULTIPLE TASKING**

For several decades now, research indicates that the ability to divide your attention is one of the best predictors of future pilot performance. This test battery contains a number of multiple tasks to assess this vital characteristic. However, the ability to divide your attention is often determined by the nature of the task. Because the students start off with skill based levels of functioning, this level gets quite some emphasis in this task. Altogether the task measures dividing attention on three different levels. These are:

- Skill based level
- Rule based level
- Knowledge based level

All three levels are part of one single test.



**Multiple tasking and workload**

This task is paced by the computer. Every minute the pace of work is increased, at the same time the pilot will have to make calculations. However, these are sometimes interrupted by another simple but somewhat interfering task.

**MEMORY**

This too is a standard skill for both students and pilots. Whilst studying or interacting with the tower, pilots need to memorise information for short periods of time until the information is no longer needed and may then be discarded. This assessment component tests pilots' ability to memorise real-to-life details. Auditory memory, visual memory for text and for pictures are contained in this test. This test not only gives insight in the short term memory (working memory), but also the long term memory.

**ENGLISH PROFICIENCY**

ICAO requires a sufficient level of English. This requirement refers to the level of spoken English. However, this level can only be attained if the pilots at least have a satisfactory vocabulary and basic understanding of the language. This test assesses the student's level according to ICAO standards.

**10 FACTOR PILOT QUESTIONNAIRE**

Personality is more and more a distinguishing factor between an average performance and a good performance. Lately it is understood that personality should be more in the focus of the selection process. Several characteristics are known for their ability to predict the pilot's performance. The 10FP is a personality questionnaire that was developed specifically for the profession of pilot.





To complete the competence profile the selection process the AHFC Test Battery includes the 10 Factor Pilot Questionnaire, the results of which provide a clear indication of the applicant's personality in relation to his job. In order to detect possible false information, the test also includes a lie detection mechanism. The 10FP gives you insight in 10 major scales of personality, all divided into 3 sub-scales, so that you get information on over 30 personality features. These personality characteristics are:

#### Leadership

- Organising
- Dominance
- Natural authority

#### Emotional Stability

- Emotional balance
- Patience
- Unconcern

#### Decision making

- Consciousness
- Decisiveness
- Independence

#### Ambition

- Aspirations
- Performance-motivation
- Competition

#### Straightforwardness

- Assertiveness
- Atmosphere-indifference
- Agression

#### Orientation towards others

- Supportiveness
- Helpfulness
- Empathy

#### Perseverance

- Tenaciousness
- Stamina
- Goal orientation

#### Attitude towards work

- Accuracy
- Neatness
- Methodical approach

#### Extraversion

- Openness
- Adjustability
- Sociability

#### Social values

- Reliability
- Integrity
- Tolerance

### PILOT BEHAVIOUR QUESTIONNAIRE

This questionnaire assesses differences in behaviour between students. Based upon style and preference of the pilot several qualities are assessed. Among many others these are: style of learning, work attitude, discipline, sense of responsibility, socialising, task and people orientation.

### LEARNING STYLES

Students have different learning styles. This questionnaire is not developed as a selection tool, but moreover as a coaching tool for the students themselves. This tool enables them to consciously guide the training process in order to maximize the output.

### THE REPORT

The GPSS generates a full report giving you insight in all required competencies. Below you will find an example of the report. The competencies of the pilot are visualised in the table. The full reports contain 10 pages with the results.

The result of the assessment is summarised in the table below. For all three different areas, Cognitive level, Flying aptitude and Personality, a percentage of performance is given relative to other students. This makes it easy to point out the student's weaknesses and strong points, thus making the

|                                      | Low | Average | Below Average | Average | Above average | High |
|--------------------------------------|-----|---------|---------------|---------|---------------|------|
| <b>MT-P</b>                          |     |         |               |         |               |      |
| <b>Skill-based multi-tasking</b>     |     |         |               | ■       |               |      |
| <b>Rule-based multi-tasking</b>      |     |         |               | ■       |               |      |
| <b>Knowledge-based multi-tasking</b> |     |         |               | ■       |               |      |
| <b>Workload management</b>           |     |         |               |         | ■             |      |
| <b>Benchmarking</b>                  |     |         |               | ■       |               |      |

|                         | Low | Average | Below Average | Average | Above average | High |
|-------------------------|-----|---------|---------------|---------|---------------|------|
| <b>Work attitude</b>    |     |         |               | ■       |               |      |
| <b>Stamina</b>          |     |         |               |         | ■             |      |
| <b>Discipline</b>       |     |         |               | ■       |               |      |
| <b>Goal orientation</b> |     |         |               | ■       |               |      |

report a useful diagnostic tool during flight training. You can access the report immediately upon completion of the tests.

### DURATION OF THE TEST

Depending upon the pace of work of the student it takes approximately 4 to 5 hours to complete the test battery. The test-system gives the student 3 brakes in between. It is advisable to give the student the opportunity to leave the room and have some refreshment.

### QUALITY ASSURANCE

To guarantee the quality of this test battery, the tests are monitored by a team of experienced aviation psychologists. Norms are adjusted frequently to give you up-to-date information. Tests are adjusted to the newest standards and based upon the world wide validation results. The Aviation Medical Center holds an ISO-9001:2000 certificate.

## INFORMATION

If you require additional information regarding this test battery, contact :

### Aviation Medical Center

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T +31 (0) 43 365 33 44

You can also visit

[www.aviationmedical.com](http://www.aviationmedical.com)  
for more aviation services

## SUMMARY

- state of the art test battery
- continuous monitoring by experienced aviation psychologist
- complete battery containing ability, capacity and personality testing
- objective data
- web-based administration
- no license required
- installation and updates via internet
- immediate access to extensive reports
- low cost