

# Aircrew Selection Procedures in IAF

BY GROUP CAPTAIN W BLAZEY \*

## Introduction

“CATCH them young” is the adage which is most apt for young boys who aspire to become commissioned officers in the Armed Forces. It is still more relevant for those found fit to man the skies in the country's defence. About 80 per cent of the youth between ages of 16—18½ years with higher secondary or equivalent educational qualifications join the National Defence Academy at Khadakvasala and enter the Air Force as flying trainees after 3 years of gruelling training. Entry into NDA for a flying career is, however, preceded by a qualifying written examination held by Union Public Service Commission (UPSC) on an all India basis. Balance 20 per cent of the flying training intake comprises the youth of 19—21½ years age from amongst the airmen (non officer cadre) already in service and collegiates with ‘C’ certificate from NCC Air Wing. This class of boys do not go through the UPSC selection as they are selected directly. Both the groups, however, i.e. those selected for NDA through UPSC and Direct entries, are then channelled through Air Force Selection Board. Selected lots from the UPSC batch (younger group) then proceed to join the NDA while the Direct entries (relatively older group) go directly to flying training establishments.

Screening and selection at Selection Board is thus the most important step before flying training not only to obtain the best officer material but also the boys with aptitude, intelligence and valour necessary for a successful flying career. This paper describes the selection procedures being followed at the Air Force Selection Board.

**Pilot Selection:** The present selection system endeavours to meet the dual requirements of selecting potential service pilots and officers. The former is done by the Pilot Aptitude Battery (PAB)

tests and the latter by the three-pronged selection technique for assessing officer like qualities which are common to all the three services.

**Assessors:** The Selection Staff consist of Interviewing Officers, Group Testing Officers and Psychologists. The reliability and validity of procedures adopted at the Selection Centre is continuously monitored by the Directorate of Psychological Research through feed back from flying training establishments on one hand and scientific advances gleaned from literature and on-going research on the other hand.

**Pilot Aptitude Battery:** This consists of:—

(a) Paper and Pencil Tests—INS-B (Instrument Comprehension Battery)

(b) Machine Tests:

(i) SMA (Sensory Motor Apparatus)

(ii) CVT (Control Velocity Test)

Experience in the application of these tests has shown that PAB scores improve with successive attempts and also with age from 16 to 21 years. On the basis of these findings, the following changes have been made in the administration of PAB tests:—

(a) Only one attempt is permitted, meaning that if a candidate fails in PAB in his first attempt, he is disqualified for all time for Pilots training. Also, the candidates who pass the PAB test, but fail on other accounts, are not administered these tests again when they subsequently appear for re-selection. The PAB

\*President, No. 3 Service Selection Board Air Force Mysore

grade obtained by them in their first attempt earlier would hold good for this re-assessment.

(b) Different norms have been made for NDA candidates (Lower age group—easier norms) and for Direct Entry candidates (Higher age group—Stiffer norms).

The PAB Validation studies vis-a-vis successes in flying training at Pre-commissioning stage were conducted in 1964-65. The results of this showed that pass percentage in PAB tests was significantly different between candidates for NDA and Direct Entries; the figures being 92% and 52% respectively. This indicated that PAB by itself was not an effective screening procedure. This was further confirmed by increasing wastage rates at the flying training establishments even though the candidates with better scores in PAB took less time to go solo. While the usefulness of PAB tests cannot be ignored, the same study showed that the INS-B test was a much more reliable predictive index for success both in flying and ground training. The INS-B has, therefore, been made an independent screening test failure in which implies a failure in PAB making the administration of further Machine tests unnecessary. This test will now be described.

**Written INS-B Test:** The object of this test is to find out the ability of a candidate to read typical instruments fitted in an aircraft and interpret their indications against written multiple choice answers in relation to sketches depicting an aircraft in various configurations. Before the test is administered, the candidates are thoroughly briefed about these instruments and interpretations thereof using sample problems.

The Flight Instruments so presented for the test are:—

- (a) Altimeter
- (b) Artificial Horizon
- (c) Compass
- (d) Climb and Descent Indicator
- (e) Air Speed Indicator
- (f) Turn and Bank Indicator.

After this briefing and practice, Part I of the test begins. In this Part, the candidates have to attempt 15 questions in 12 minutes. In each ques-

tion, the indications of all the six instruments are to be interpreted to arrive at one correct answer out of five multiple choice answers. In part II of the schedule of INS-B, 60 questions are to be attempted in 20 minutes. In this test, readings of an Artificial Horizon and a compass are to be matched with one of the 5 Sketches depicting the correct flight of the aircraft. The complete INS-B is administered as a group test.

The INS-B answers are evaluated quickly and objectively with the help of a Master Key. Only those candidates who obtain 60% marks are administered the Machine Tests.

**The Practical (Machine Tests):** This comprises two tests namely the SMA (The Sensory Motor Apparatus) Test and the CVT (The Control Velocity Test). As stated earlier, these tests are administered to candidates who score 60% and above in INS-B test.

(a) **SMA:** This machine test is carried out in elementary mock-up cockpit. An opaque glass screen (similar to a TV Screen) with a 2' square marked at the centre confronts the candidate. When the machine is switched on, a spot of light on the glass screen moves around all over the screen. The candidate seated in the cockpit is required to keep the spot of light within the central square by controlling it vertically with the control column and horizontally by the rudder pedals. The machine runs for 90 seconds. During this period, if no controlling is done, the spot remains outside for 80 seconds. The number of seconds the candidate allows the spot to remain outside the square constitute the error which is automatically recorded. A candidate's score will be 80 minus the errors. There are two distraction lights, one red and one white, fitted below the screen. These lights come on randomly during the test. The candidate is required to put these lights out immediately by operating a lever held in the left hand resembling a throttle lever. This test gives an indication of the ability of the candidate to coordinate movements of his hands and legs to keep the spot in position despite the distraction and additional load imposed by the response demands placed on his mind by the lights.

(b) **CVT:** In this test, a candidate has to control a pointer resting on a rotating drum with the help of a wheel. The rotating drum has a

series of electrically alive dots arranged in a zig-zag manner. When the pointer touches a dot, an electrical contact is made and the score is recorded automatically on a counter. The pointer has a lag with the result that a candidate must anticipate the zig-zag of the dots in relation to the lag factor and move the controlling wheel accordingly. A maximum of 150 contacts can be made. The number of contacts made is the score of the candidate. This test gives an indication of the ability of a candidate to appreciate and compensate for the lag inherent in any moving vehicle.

*Marking and Finalisation of PAB Results:* The converted marks for these tests are grouped in seven different grades which differ for NDA and Direct Entry Course candidates. Candidates who obtain Grade III and above are considered to have passed the PAB test. The norms for NDA are easier than that of Direct Entry candidates.

*Suitability as Commissioned Officers:* The selection board follows a three-pronged technique, namely, Psychological Tests, Interview and Group Tests. It is a basic presumption that a man reveals his personality through what he 'writes,' 'says' and 'does'. Correspondingly, we have Psychological Tests (Written Tests), Interview and Group Tests. Each Technique functions independently and the goal of each is to assess the suitability of candidates for commissioning as an officer. Two parameters, i.e. OLQ (officer like qualities) and Practical Trainability, are assessed with this three pronged technique.

OLQ: are broadly covered by following factors:

(a) *Factor Planning and Organising:* The ability to plan and organise assigned tasks.

(b) *Factor Social Adjustment:* The ability to adjust to and co-operate with other members of one group.

(c) *Factor Social Effectiveness:* The ability to bring about group cohesiveness and elicit co-operation.

(d) *Factor Dynamic:* The ability to stand up to stress and strain.

*Trainability:* The following variables are taken into account for the assessment of trainability:

(a) *Basic Intelligence:* Based on Intelligence Tests.

(b) *Social Environment:* This includes a consideration of the opportunities available to a candidate in his family, educative and community surroundings.

(c) *Insight:* This implies the knowledge that a candidate has about his own limitations and capabilities.

(d) *Motivation:* This refers to the driving force present in the candidate.

*Psychological Testing schedules:* Psychological Testing Schedule consists of the administration of the following:

(a) *Personal information questionnaire:* This is a self-reporting system. Candidates are asked to fill in their bio-data comprising details of their age, education, socio-economic background, hobbies, interests, participation in sports and other group activities and attainments in academic, occupational and extra-curricular fields. The Psychologist gets the necessary background information of the candidates from this.

(b) *Intelligence tests:* These are objective standardised tests consisting of verbal and non-verbal problems with multiple choice answers.

(c) *TAT (Thematic Apperception Test):* These tests assess the imagination and creative ability of candidates and are based upon Projective techniques. It consists of a set of 9 to 12 pictures depicting different scenes and situations, which are vaguely depicted. Candidates are asked to write a story around the persons and situations shown in the picture.

(d) *WAT (Word Association Test):* This is another test of imagination based on the Projective Technique. It consists of 50 to 75 words presented one by one to the candidates for 15 seconds at a time. The candidates are required to express the first thought or idea that comes to their mind in the form of a sentence on seeing the word.

(e) *SRT (Situation Reaction Test):* This test contains about 50 questions, each presenting the candidate with a problem dealing with a situation

that he may encounter in real life. For example, "What he would do if he is present when the accident takes place"? The candidate responds either by choosing one of the multiple answers provided or gives his own answer.

(f) *Self-description*: This is based upon a self-reporting system. The candidates are asked to describe briefly the strong and weak points of his character and personality. He is asked to describe how he sees himself mirrored in the eyes of his parents, teachers or employers, friends or colleagues and also what he thinks of himself and his aspirations. The purpose of the test is to judge the candidate's maturity and insight into himself.

#### Technique used by Group Testing Officers (GTOs):

In the application of GTO technique, a candidate's personality is evaluated on the basis of his actions during Group Tests administered over a period of 2 days. It aims at finding out as the extent to which a candidate possesses the qualities required of an officer. These tests have been evolved and standardised in keeping with certain socio-psychological principles. Therefore, when a person is subjected to a social field, his personality traits tend to come out in relief. Accordingly, the candidates are divided into convenient groups of 7 to 9 to create a social field. These groups are subjected to micro situations involving problem and time-stresses similar to those which are likely to be encountered in service life so as to evaluate the candidate's personality from the emerging behaviour pattern. The tests are patterned according to the *Gestalt Principle*. According to this theory, we perceive a thing as a whole first, then go on to differentiate, then re-integrate to form a whole again. The GTO battery of tests are divided into three distinctive phases viz: Basic Series, Confirmatory Series and Final Series to correspond respectively to integration, differentiation and reintegration.

(a) *Basic Series*: It helps to develop group feelings among candidates and in the process it reveals a candidate's abilities, thoughts, feelings and actions in the situation criterion; his natural and spontaneous behaviour, his influencing ability and the impact he creates on others. In short, the GTO gets a balanced sample of his group effectiveness. This series is administered by three leaderless tasks:

(i) *Group Discussion*: GTO primarily concerns himself with quality of each candidate's res-

ponses, his ability to sense others' emotions, his ability to enthuse others, his ability to de-tense with a touch of humour and the depth and content of what he says.

(ii) *Group planning*: It consists of two phases—individual written plan and group plan. A practical live situation is explained to them with the help of a model/map. In the first phase, each candidate writes down his plan of action to solve the problem. In the second phase, they discuss informally their ideas/plans and co-ordinate these to formulate a plan acceptable to all. The GTO observes the level of grasp of the candidate, his ability to plan and organise, quality of planning, his skill and originality and above all his ability to persuade and push his way through. In short, the realization of his group effectiveness.

(iii) *Progressive group task*: (PGT) This is the first outdoor leaderless group task. It comprises a set of obstacles which become progressively more difficult with the time-factor, thereby causing the stress.

This is the backbone of the GTO Battery and helps reveal almost all the qualities in one form or other. The candidates are shifted as 'Heads' and 'Tails'. However, this test leaves plenty of doubts which need be differentiated in greater detail with confirmatory series where the individual's basic worth is put to rigorous objective testing.

(b) *Confirmatory Series*: In the Basic Series, the GTO gets a perspective view. In the Confirmatory Series, now to be described, he gets a "close up" view of specific areas of a candidate's personality. In short, the GTO does a microscopic analysis on each candidate vis-a-vis his behavioural pattern in response to the changing needs, demands and stresses. This series is comprised of:

(i) *Half Group Task*: This is the differentiation phase in the Confirmatory Series. The Group is split into two leaderless teams - the division being purposive and pre-planned. Each subgroup is given a task (of less dimensions than PGT) to complete within 10-15 minutes: the

aim being to spot and eliminate the middlings in the group from their over-dominant or dragging influence. This enables the GTO to get a close look at the less dominant ones thereby clearing the doubts about some candidates formed during the basic series.

- (ii) *Lecturette*: Each candidate is required to speak for 3 minutes on any one subject of common interest out of the three given topics. His power of expression, ability to think and reason, his level of thought, ability to convince, forcefulness and the net impact he creates on others are the points which are noted.
  - (iii) *Individual Obstacles*: This task consists of ten obstacles having different scores and differing in their nature, structure and level of difficulty. The candidate is briefed and is required to traverse them in 3 minutes. The performance of the candidate permits the GTO to evaluate his physical fitness, ability, stamina and to some extent courage.
  - (iv) *Command Task*: Each candidate is appointed as a leader/commander and is given a number of helpers of his own choice. He is expected to complete a pre-selected task within 8 minutes. It helps the GTO to confirm the candidate's functionality and group effectiveness particularly when placed in authority.
- (c) *Final Series*
- (i) *Final Group Task*: It is the last test in the GTO Battery. It consists of one leaderless group task. It affords an opportunity to the GTO to have a last glance at the candidates to clear his lingering doubts, if any, and remove some Halo or Horn effects which might have crept into his assessment earlier on. The differentiated phase of the confirmatory series is concluded by this re-integration phase and final conclusions are drawn.
  - (ii) *Interview*: The traditional method of Interview has been made more scientific. The interviewing officer—President or Deputy President, who is a mature service officer with long and diverse service experience, rates each candidate on the basis of the four factors mentioned earlier. The Interview is informal

and the effort is to understand the individual and his personality. This is done by using his biodata as the basis. The Interviewing Officer probes into the life-history, attainments, interests, hobbies and other activities to arrive at his assessment. The aim of the interview is to obtain significant information about a candidate through a personal encounter. It provides information which cannot be procured from a written report. It is a 'controlled' conversation in which the Interviewing Officer broadens and deepens his knowledge about a candidate in order to assess his suitability for a Service Career.

#### Sequence of Assessment for Selection

(a) Initial Assessment—This consists of the following:—

- (i) *Rating Scale*: Each assessor (the Psychologist, GTO and Interviewing Officer), assesses a candidate using a common frame of reference and looks for the same qualities in a candidate. The overall assessment is based on the total view of a candidate's whole personality and is not merely a mechanical summation of the factor-wise ratings.
  - (ii) *Pen Picture and Initial Marks*: After ticking the rating scale, the assessor writes a pen-picture of the candidate, bringing out his strong and weak points. He describes his present OLQ level vis-a-vis his trainability potential and predicts the level that the candidate will reach as an officer after training. Each assessor awards marks out of 150 for initial assessment.
- (b) Final Assessment
- (i) *Conference*: After making their independent initial assessment of the candidates, all assessors meet in a conference held on the last day of the testing programme. The candidates' initial marks along with trainability marks are read out by the assessors. In case the candidate is passed by all three assessors, or failed by all, no discussion takes place. In case the assessors have a difference of opinion about a candidate's suitability, doubts are clarified by mutual discussion. If necessary, some questions are formulated for a further probe. At this stage the

candidate is called in. The President asks him those questions. After the candidate leaves, the conference marks are awarded by each assessor in the light of the discussion and the candidate's response to the questions. The marks allotted at the conference are normally proportional to the initial marks when there are no marked differences, otherwise wide fluctuations are permitted.

- (ii) *The Total Board Marks*: The total initial and Conference marks are 450 and 150 respectively adding upto a total of 600. A candidate obtaining a minimum of 40% marks in this total i.e. 240 or more, is recommended. The PAB marks (total 300) are also taken into account for grading the candidates in seven grades. As stated earlier those classed in Grade I, II and III and above are considered as having passed the PAB.
- (iii) *Final Merit List*: The final scores of the candidates for NDA as drawn up is submitted to UPSC., which draws up the final merit list of candidates for joining the NDA by adding the Selection Board marks to its own earlier Scores for each candidate. The case of the direct entry boys is however, different in as much as the merit list is drawn-up

by the selection Board itself for them to join flying training directly.

#### Value of the Selection System

The present selection system, prima facie, appears to be fair and effective in ensuring :-

- (a) Equality of opportunity without discrimination on the basis of class or caste;
- (b) A selection methodology that combines the academic abilities and assessments of the officer-like qualities in the candidates into one integral whole.
- (c) The intake of candidates at a young and impressionable age.

Although there is an element of subjectivity inherent in any technique that may be used for selection or evaluation of human beings, this system which combines the results of three techniques succeeds in a large measure in offsetting the pitfall. In this process, the errors in assessment are expected to balance out particularly because each technique uses a common frame of reference in the form of the rating scale with well defined parameters for qualities under assessment. Our experience in the follow-up of the candidates so selected has shown that this system has helped considerably in reducing the wastage rate during pre-commissioning flying training.