Federal Aviation Administration – Regulations and Policies
Aviation Rulemaking Advisory Committee

Training and Qualification Issue Area
Air Carrier Pilot Pre-Employment Screening Standards and Criteria Working Group

Task 1 – Pre-employment Screening

Task Assignment

Abstract: Sections 18 of the Bus Regulatory Reform Act of 1982 (codified at 49 U.S.C. 31138) requires the Secretary of Transportation to establish regulations to require minimal levels of financial responsibility for-hire motor carriers of passengers to cover public liability and property damage. The Endorsement for Motor Carrier Policies of Insurance for Public Liability (Form MCS–90B) and the Motor Carrier Public Liability Surety Bond (Form MCS–82B) contain the minimum amount of information necessary to document that a motor carrier of passengers has obtained and has in effect the minimum levels of financial responsibility as set forth in 49 CFR 387.33. The information within these documents is used by the FHWA and the public to verify that a motor carrier of passengers has obtained and has in effect the required minimum levels of financial responsibility.

Estimated Annual Burden: The total annual burden is 105 hours.

Address: Send comments to the Office of Information and Regulatory Affairs, Office of Management and Budget, 725–17th Street, NW, Washington, DC 20503, Attention FHWA Desk Officer.

Comments are invited on: whether the proposed collection of information is necessary for the proper performance of the functions of the Department, including whether the information will have practical utility; the accuracy of the Department's estimate of the burden of the proposed information collection; ways to enhance the quality, utility and clarity of the information to be collected; and ways to minimize the burden of the collection of information on respondents, including the use of automated collection techniques or other forms of information technology.

Issued in Washington, DC, on January 17, 1997.

Phillip A. Leach,

Clearance Officer, United States Department of Transportation.

[FR Doc. 97–1748 Filed 1–23–97; 8:45 am]

BILLING CODE 4910–62–P

Office of the Secretary; White House Commission on Aviation Safety and Security; Open Meeting

AGENCY: Office of the Secretary (OST), DOT.

ACTION: Notice of meeting.

SUMMARY: The White House Commission on Aviation Safety and Security will hold its final meeting to discuss aviation safety and security issues. Part of the meeting is open to the public and part is not.

DATES: The meeting will be held on Tuesday, January 28, 1997, from 9:00 AM–12:00 noon and 2:00 PM to 5:00 PM.

ADDRESSES: The meeting will take place in the Commerce Department Auditorium, 14th Street, between Constitution and Pennsylvania Avenues, NW, Washington, DC.

FOR FURTHER INFORMATION CONTACT: Richard K. Pemberton, Administrative Officer, Room 6210, GSA Headquarters, 18th & F Streets, NW, Washington, DC 20405; telephone 202–501–3863; telecopier 202–501–6160.

SUPPLEMENTARY INFORMATION: Pursuant to the Federal Advisory Committee Act (5 USC Appendix), DOT gives notice of a meeting of the White House Commission on Aviation Safety and Security (''Commission''). The Commission was established by the President to develop advice and recommendations on ways to improve the level of civil aviation safety and security, both domestically and internationally. The principal purpose of the meeting on January 28 is to formulate the Commission's final recommendations to the President.

The portion of the meeting from 9:00 AM–12:00 noon, during which the Commissioners will formulate their recommendations on measures to improve aviation security, will be closed to the public pursuant to the following exemptions in the Government in the Sunshine Act, which apply to public meetings under the Federal Advisory Committee Act:

Exemption 1: Classified information. In order properly to formulate their recommendations, the Commissioners may need to discuss or refer to information properly classified in the interest of national security, which may not be done in public.

Exemption 3: Information exempted from public disclosure by some other statute. Under 49 USC 40119(b), the Administrator of the Federal Aviation Administration (FAA) may prohibit public disclosure of certain categories of information relating to aviation security, if disclosure would constitute an unwarranted invasion of personal privacy, reveal company confidential information, or create a risk to the safety of individuals traveling in inter- or intra-state air transportation. These categories are described at 14 CFR Part 191. Such information will be discussed or referred to at the meeting.

Exemption 4: Company confidential information. There is competition in the aviation industry in many forms: among carriers, among equipment manufacturers, and among software manufacturers, among others. Public discussion of some of these matters could violate 18 USC 1905, which makes it a crime to reveal improperly company confidential information that has come into the possession of the Government.

Exemption 9: Premature disclosure would lead to frustration of proposed agency action. The final recommendations of the Commission have not been formulated; it is possible, however, that public knowledge of some of the security recommendations may frustrate their acceptance and implementation by the FAA and other agencies. The Commission is authorized to protect against this possibility.

Limited seating for the public portion of the meeting is available on a first-come, first-served basis. The public may submit written comments to the Commission at any time; comments should be sent to Mr. Pemberton at the address and telecopier number shown above.

Issued in Washington, DC on January 21, 1997.

Nancy E. McFadden,

General Counsel, Department of Transportation.

[FR Doc. 97–1749 Filed 1–23–97; 8:45 am]

BILLING CODE 4910–62–P

Federal Aviation Administration

Aviation Rulemaking Advisory Committee; Training and Qualification Issues—New Tasks

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of new task assignments for the Aviation Rulemaking Advisory Committee (ARAC).

SUMMARY: Notice is given of three new tasks assigned to and accepted by the Aviation Rulemaking Advisory Committee (ARAC). This notice informs the public of the activities of ARAC.

FOR FURTHER INFORMATION CONTACT: Mr. Thomas Toula, Assistant Executive Director for Training and Qualification Issues, Flight Standards Service (AFS–210), FAA, 800 Independence Avenue SW, Washington, DC 20591; telephone (202) 267–5229; fax: (202) 267–5229.

SUPPLEMENTARY INFORMATION:

Background

The FAA has established an Aviation Rulemaking Advisory Committee to provide advice and recommendations to the FAA Administrator, through the Associate Administrator for Regulation and Certification, on the full range of the FAA's rulemaking activities with

respect to aviation-related issues. This includes obtaining advice and recommendations on the FAA's commitment to harmonize its Federal Aviation Regulations and practices with its trading partners in Europe and Canada.

One area ARAC deals with is training and qualification issues. These issues involve training and qualification of air carrier crewmembers and other air transport employees.

As part of the Federal Aviation Reauthorization Act of 1996, the Administrator was directed to appoint a task force consisting of appropriate representatives of the aviation industry to conduct certain studies. The Act directed that the FAA conduct: (1) A two-part study directed at (a) identifying standards and criteria for pre-employment testing for air carrier pilot applicants and (b) standards and criteria for pilot training facilities that would incorporate this pre-employment screening; (2) a study to determine if the practice of some employers requiring individuals to pay for training is in the public interest; and (3) a study to determine whether current minimum flight time requirements applicable to an individual seeking employment as an air carrier pilot is sufficient to ensure public safety.

The Tasks

This notice is to inform the public that the FAA has asked ARAC to conduct the following studies:

1. Identify standards and criteria for pre-employment screening of air carrier pilot applicants that would measure the psychomotor coordination, general intellectual capacity, instrument and mechanical comprehension, and overall physical and mental fitness of pilots applying for employment with air carriers. The second half of this study would be directed toward addressing training facilities that could be licensed by the Administrator to ensure the incorporation of pre-employment screening standards and criteria;

2. Determine if the practice of some air carriers to require employees or prospective employees to pay for their own training or obtain experience is in the public interest; and

3. Determine whether current minimum flight time requirements applicable to an individual seeking employment as a pilot with an air carrier are sufficient to ensure public safety.

The FAA has asked that ARAC provide the findings of the studies, including background, economic analysis, other related guidance material, and collateral documents. In addition, the reports should be submitted in a format suitable for presentation to Congress. The final report on the findings of the task numbered 1 is due to the FAA by January 1999. The final reports on the findings of the tasks numbered 2 and 3 are due to the FAA by August 1997.

ARAC Acceptance of Tasks

ARAC has accepted the tasks and has chosen to establish three working groups: The Air Carrier Pilot Pre-Employment Screening Standards and Criteria Working Group, the Air Carrier Pilot Pay for Training Working Group, and the Air Carrier Minimum Flight Time Requirement Working Group. The Air Carrier Pilot Pre-Employment Screening Standards and Criteria Working Group has been assigned task number 1, the Air Carrier Minimum Flight Time Requirement Working Group has been assigned task number 2, and the Air Carrier Pilot Pre-Employment Screening Standards and Criteria Working Group has been assigned task number 3.

The working groups will serve as staff to ARAC to assist ARAC in the analysis of the assigned tasks. Working group recommendations and reports must be reviewed and approved by ARAC. If ARAC accepts the working groups' recommendations and reports, it forwards them to the FAA as ARAC recommendations.

Working Group Activity

The working groups are expected to comply with the procedures adopted by ARAC. As part of the procedures, the working groups are expected to:

1. Recommend a work plan for completion of the tasks, including the rationale supporting such a plan, for consideration at the Training and Qualifications issues meeting held following publication of this notice.

2. Give a detailed conceptual presentation of the proposed studies, prior to proceeding with the work stated in item 3 below.

3. Draft appropriate documents with supporting economic and other required analyses, and/or any other related guidance material or collateral documents the working group determines to be appropriate.

4. Provide a status report at each Training and Qualifications issues meeting.

Participation in the Working Groups

The aforementioned working groups will be comprised of individuals having an interest and expertise in the assigned task areas. Working group members will be selected by the ARAC assistant chair, ARAC assistant executive director, and working group chair(s).

The Secretary of Transportation has determined that the formation and use of ARAC are necessary and in the public interest in connection with the performance of duties imposed on the FAA by law.

Meetings of ARAC will be open to the public. Meetings of the working groups will not be open to the public, except to the extent that individuals with an interest and expertise are selected to participate. No public announcement of working group meetings will be made.

Issued in Washington, DC, on January 10, 1997.

Thomas Toula,

Assistant Executive Director for Training and Qualifications Issues, Aviation Rulemaking Advisory Committee.

[FR Doc. 97–1767 Filed 1–23–97; 8:45 am]

BILLING CODE 4910–13–M

[Summary Notice No. PE–97–5]

Petitions for Exemption; Summary of Petitions Received; Dispositions of Petitions Issued

AGENCY: Federal Aviation Administration (FAA), DOT.

ACTION: Notice of petitions for exemption received and of dispositions of prior petitions.

SUMMARY: Pursuant to FAA's rulemaking provisions governing the application, processing, and disposition of petitions for exemption (14 CFR Part 11), this notice contains a summary of certain petitions seeking relief from specified requirements of the Federal Aviation Regulations (14 CFR Chapter I), dispositions of certain petitions previously received, and corrections. The purpose of this notice is to improve the public's awareness of, and participation in, this aspect of FAA's regulatory activities. Neither publication of this notice nor the inclusion or omission of information in the summary is intended to affect the legal status of any petition or its final disposition.

DATE: Comments on petitions received must identify the petition docket number involved and must be received on or before February 13, 1997.

ADDRESS: Send comments on any petition in triplicate to: Federal Aviation Administration, Office of the Chief Counsel, Attn: Rule Docket No. (AGC–200), Petition Docket No. _____, 800 Independence Avenue, SW., Washington, D.C. 20591.

Comments may also be sent electronically to the following internet address: nprmcmts@faa.dot.gov.

Recommendation Letter

Approp Action: ARM
cc AVR-10

January 19, 1999

Mr. Thomas E. McSweeny
Associate Administrator for
Regulation and Certification, AVR-1
Federal Aviation Administration
800 Independence Avenue, SW
Washington, DC 20591

Dear Mr. McSweeny:

A working group of the Aviation Rulemaking Advisory Committee (ARAC) has completed its work on the Air Carrier Pilot Pre-Employment Screening Standards and Criteria Study. The study, which the U.S. Congress had directed to be undertaken, was performed by a formally established working group of the ARAC and was determined to be complete as directed.

The study is submitted to your office for forwarding to Congress.

Sincerely,

Walter S. Coleman
Assistant Chair for Training
and Qualifications Issues

Attachment

Acknowledgement Letter

U.S. Department
of Transportation

**Federal Aviation
Administration**

800 Independence Ave., S.W.
Washington, D.C. 20591

MAR 23 1999

Mr. Walter S. Coleman
President
Regional Airline Association
1200 19th Street, NW
Washington, DC 20036

Dear Mr. Coleman:

Thank you for your January 19 letter forwarding the Aviation Rulemaking Advisory Committee (ARAC) recommendation regarding the Air Carrier Pilot Pre-Employment Screening Standards and Criteria Study.

The recommendation will be presented to the Federal Aviation Administration's (FAA) management as soon as possible. After approval by management, the FAA will forward the study to Congress.

I would like to thank the aviation community for its commitment to ARAC and its expenditure of resources in the development of this recommendation. More specifically, I would like to thank the Air Carrier Pilot Pre-Employment Screening Standards and Criteria Working Group for their commitment to the ARAC process.

Sincerely,

Margaret Gillespie

for Thomas E. McSweeny
Associate Administrator for
Regulation and Certification

AAr-1

Recommendation

U.S. Department
of Transportation
**Federal Aviation
Administration**

Report to Congress

Air Carrier Pilot Pre-Employment Screening Standards and Criteria Study

Washington, DC 20591

Report of the Federal Aviation Administration to the Congress of the United States Pursuant the Federal Aviation Reauthorization Act of 1996, P.L. 104-264.

EXECUTIVE SUMMARY

Summary

This report is submitted to Congress in response to paragraph (a)(1) of Section 503 of the Federal Aviation Reauthorization Act of 1996, Pub. L. No 104-264, 110 Stat. 3213, 3263 (1996). The Federal Aviation Administration (FAA) was directed to appoint a task force to study standards and criteria for pre-employment screening of a pilot applicant's mental and physical capacities and also standards and criteria for pilot training facilities that would have to accommodate this pre-employment screening. The FAA formed the "Air Carrier Pilot Pre-Employment Screening Standards and Criteria Working Group" under the Aviation Rulemaking Advisory Committee (ARAC)[1] to conduct the study.

The working group's fourteen members included senior managers and top executives from air carrier associations, private research companies, aviation academia, pilot training schools, and human resource departments of major air carriers. Representatives from the following organizations served on the working group: Aerospace Medical Association, Air Line Pilots Association, Airline Industrial Relations Conference, American Airlines, Delta Airlines, Flight Safety International, Hoffman Research Associates, International Black Aerospace Council, National Transportation Safety Board (NTSB), Northwest Airlines, Regional Airline Association, United Airlines, United Parcel Service Airline, and Universal Pilots Application Service. Representatives from Southwest Airlines and U.S. Airways were invited observers to the group.

This report discusses the working group's efforts to examine the following: the current pilot base, pilot career paths (e.g. ab initio, new hire, and academic programs); current pilot hiring practices; standardization issues; demographics and diversity issues; and possible research needed. This report provides a detailed overview of the ARAC proceedings, including a comprehensive survey of air carrier hiring practices.

See Appendix A for a copy of Section 503 and the ARAC tasking statement.
See Appendix B for a detailed listing of working group participants.

Background

The "Air Carrier Pilot Pre-Employment Screening Standards and Criteria Working Group" met, on a quarterly basis, in formal 1-day sessions beginning in February 1997 and ending in a 2-day session held in September 1998; six sessions in the span of approximately a year and a half. (Although Congress did not put a time limit on the task,

[1] *A formal standing committee, established in 1991, that serves as a forum for the FAA to obtain input from outside the government on important aviation issues.*

the FAA and the ARAC Executive Committee decided to limit its work to 2 years or less.)

Developing standards and criteria for the aviation industry is a particularly complex undertaking which, given its limited resources and time constraints, the group could only approach systematically, critically, and with consideration for all corporate structures involved. Pilot hiring today is more sophisticated than it was even 5 years ago and will likely become even more so in the years to come.

An issue of much discussion during the proceedings was the predicament surrounding whether one set of standards would be possible and appropriate for all cultures or whether separate standards, tailored for each culture, would be preferable and acceptable. Moreover, given the use of the plural--"standards and criteria"--in Section 503, did this imply one set of standards for all or various tailored standards? Then, once resolved, how could this one standard or these separate standards be implemented? After reviewing the hiring practices of various companies, the group determined that companies generally establish minimum standards for their operations (e.g., minimum time requirements, interviews, flight simulator assessments, and, on occasion, tests of general mental abilities) and that those practices are used to screen out a number of potential applicants.

Although the group did not specifically establish any formal assumptions for this report, other similar issues emerged during the course of its proceedings; namely, how to interpret the meaning of "air carrier" under Section 503. There was a tendency on the part of some to interpret "air carrier" as referring only to major operators under part 121 of Title 14 of the Code of Federal Regulations. As the group began exploring hiring practices, however, it soon became apparent that some regional air carriers have standards comparable to those of some major air carriers. This is in contrast to the widely viewed notion that regional air carriers serve only as the basic training ground for the majors. In any event, the group recognized the need to keep a perspective on the possible impact that setting minimum standards would have on smaller companies with lower budgetary resources and that the regional airline industry would be most affected by any proposed across-the-board, broad-based pilot hiring standards.

It was evident during the course of the group's proceedings that, compared to the major airlines, regionals generally have expended fewer resources to conduct a scientific validation of their approach to pilot selection. Furthermore, smaller companies were less likely to have the resources needed to implement an extensive selection protocol or to establish a comprehensive evaluation of their selection practices. This means that their approach to pilot selection will rely heavily on the quality of the recommendations, interviews, and any flight performance assessment they may initiate.

Although the group was not able to identify any specific, existing safety problems, it recognized the importance of pilot pre-selection, especially given an expected diminshment of the pilot supply due to the current hiring boom and military downsizing. Many group members conceded, however, that fairly large numbers of pilot applicants

are screened out early in the existing pre-selection processes and that successful completion of an appropriate training program provides an additional check and balance with regard to the qualifications of each crew member. The Advanced Qualification Program, an alternative to requirements under parts 121 and 135, allows, through FAA authorization, approval of departures from requirements, subject to justification of an equivalent or enhanced level of safety.

A few group members voiced a preference toward allocating more funding to initial training programs versus hiring programs in order to more thoroughly analyze the practical ability and diagnose and correct weaknesses of new-hire pilots. Although beyond the scope of what this group was able to accomplish, research aimed at categorizing high and low ability pilots could prove beneficial (i.e., whether to assume that all 1800+ hour pilots are exceptional pilots, etc.). While some group members advocated standardized testing (psychological, cognitive, and practical) as a possible good baseline practice to adopt, others concluded that diversity in hiring standards precludes hiring candidates who might know what to expect, and who, therefore, may be less challenged by a more standardized system.

Some who advocated testing recognized that further research is needed to identify the components of the test battery that would be proposed as a minimum standard. There is general agreement that recent research has demonstrated that: (a) selected tests in Cog Screen may be predictive of pilot performance; (b) there are a number of computerized dual task cognitive tests available that may assist in assessing pilot-related abilities, and (c) a recently validated test of pilot knowledge could be an effective predictor of pilot performance. Those findings appear to provide a reasonable scientific basis for the future development of a test battery that could be used for pilot pre-selection. Thus, it was concluded that, while there may be assessment tools available that could serve as a possible pre-selection standard, additional research is needed to determine the reliability and validity of such an approach.

The group found that, due to time constraints and to the work that would be involved, it was able to follow the spirit, and not the letter, of Section 503. Acknowledging that it could not begin to set forth new standards and criteria until it had studied specific hiring practices, the group gradually realized that its work would be extremely valuable as a first step to identifying the current state of pilot pre-selection as well as critical pilot pre-selection issues. The group also considered it important, once this study was complete, to continue to meet informally, if only on an annual basis, to continue discussing and studying pilot pre-selection issues.

Conclusions

As a result of its efforts, ARAC concludes the following:

- The current pool of pilot applicants remains large and well-qualified; however, there are indications that the characteristics of the pilot pool are changing.

- Although air carriers use somewhat different pilot selection techniques, there is significant commonality.

- The group found no evidence that the pilot selection procedures of any air carrier are superior to those of any other air carrier.

- Based on the information presented to the group, there is no evidence correlating pilot selection procedures with aircraft accidents.

Recommendations

As a result of its efforts, ARAC recommends the following:

- The Working Group is unable to recommend mandating changes to either the airline industry's pilot hiring systems or to the pilot training facilities at this point.

- There are pre-employment tests that may be effective predictors of pilot performance. Additional research is necessary, however, to ensure validation of these tests.

- Information developed by the Working Group on these pre-employment tests should be distributed to the airline industry for their evaluation.

- The FAA should establish a research program, to be conducted with the participation of the major and regional airlines, as well as other appropriate interest groups, to explore which tests, if any, are predictive of pilot performance. [2]

- The Working Group, or some similar FAA-sponsored entity, should continue to meet regularly with a particular focus on reviewing the results of future studies of screening tests.

- Accidents and incidents should be reviewed by the FAA and the NTSB to determine any correlation with the pilot selection process.

[2] *Some members of the Working Group advocate that, if these tests are validated, minimum standards should be established.*

References

Proceedings 7

Kickoff meeting	February 13, 1997/FAA Headquarters	7
Second meeting	April 16, 1997/FAA Headquarters	8
Third meeting	September 10, 1997/FAA Headquarters	10
Fourth meeting	November 13, 1997/ALPA Headquarters	12
Fifth meeting	March 3, 1998/RAA Headquarters	17
Sixth meeting	September 16, 1998/Lowes Hotel/Annapolis MD	20

The Survey 21
Survey Findings 27
Commentary/Major Air Carriers 35
Commentary/Regional Air Carriers 40

Perspectives 45
Changes, Trends, Influencing Factors in Pilot Supply 46
Career Path/Ab Initio Training Programs 51
Career Path/New Hire Programs 53
Career Path/Academic Programs 54
Workforce 2000 57

Appendices 59
Appendix A (ARAC Tasking) 60
Appendix B (Working Group Members) 65
Appendix C (Bibliography Information) 67
Appendix D (Acronyms) 68

Proceedings

Kickoff meeting (February 13, 1997/FAA Headquarters, Washington, D.C.):

After initial background briefings on the ARAC process and on the tasking at hand, the group began initial discussions on general pilot pre-selection issues including differences in selection methods used by the majors and regionals, ab initio training, reliability of current processes, and the need for "qualified" applicants. The FAA provided handouts on the 1994 NTSB study on commuter safety, the 1988 General Accounting Office commuter safety study, and the 1993 Blue Ribbon Panel report on "Pilots and Aviation Maintenance Technicians for the Twenty-First Century: An Assessment of Availability and Quality." A draft of an annotated bibliography on pilot selection research (1990-1997) initiated by FAA's Civil Aeromedical Institute (CAMI) also was distributed. (*See Appendix C for information on obtaining a copy of these reports or the CAMI bibliography.*)

During this initial meeting the group identified many issues that it would need to take under consideration for the study including the following:

- sharing data and also protecting proprietary information[3]
- considering the role of ab initio training programs in air carrier hiring practices
- surveying for baseline information on hiring practices from regionals and majors
- acknowledging that factors other than just medical considerations come into play in pilot hiring
- identifying differences in hiring practices among the majors; identifying, among the majors, those factors that are most important in specific company hiring practices
- advocating more mentoring processes to assist the adaptation of new hires
- adhering to the one level of safety concept
- testing standard aptitudes/requiring academic credentials
- keeping perspective of the possible impact of this study on the regionals
- reviewing other professions' hiring practices for benchmarks
- considering that student pilot levels are at their lowest since 1964, female and minority entries are down
- acknowledging many of the scientific/technical issues surrounding the establishment of a baseline level of pilot performance

[3] *Upon discussion, the group determined that air carriers should not be identified specifically in this report. Throughout this report, therefore, air carriers are referred to generally, as "major air carrier" or "regional air carrier."*

Second meeting (April 16, 1997/FAA Headquarters, Washington, D.C.):

Initial discussion focused on pilot pre-selection and standardized testing issues listed as follows:

Pilot pre-selection issues:

- looking for common understanding, application, and foundation
- looking for consistency in training and ensuring that it is properly conducted and standards don't go down
- the implication is that minimums need to be established, but on what basis?
- in airline accidents proven to be the result of pilot error, was it a selection, training, or supervision problem? Would the existence of pre-employment standards have prevented the pilot from gaining employment?
- how adequate are airline procedures for pilot selection; are the approaches both reliable and valid?
- how do ab initio programs come into play given that, generally, the individuals who apply for positions possess greater experience than the minimum requirements?
- what formal procedures do contract training organizations use to conduct preliminary screening of pilot applicants?
- a primary issue with selection and training concerns the validation of the selection tools against appropriate performance criteria, secondly, what role does training play in then preparing an applicant to be qualified for a position with a major airline or regional?

Standardized testing issues:

- to establish a minimum, you need an adequate database to establish the qualifying score
- does the group want to require specific testing or other minimum criteria?/if a test is used to establish the minimums, who should be responsible for its administration?
- to date, most studies have focused on determining the relationship between the selection test battery/instruments and performance during training. Additional research and information is needed to assess the relationship between the selection instruments and line or job performance
- trust factor--what can be done to reduce the chances that the test/interview process is compromised?
- cost factor-- for applicants and operators and for majors and regionals?

Following this discussion, the group devoted much effort to developing a survey regarding current selection processes. The FAA, preliminarily, had prepared a draft questionnaire that the group used as a guideline for this process. By the end of this meeting, the group had successfully pared down the draft questionnaire and had adapted it to an agreed-upon survey. The following lists reveal the group's discussion of expectations for the survey and the mechanics of how the survey would be administered:

Expectations for the survey:

- to see exactly what assessment tools are being used
- to understand whether peer review is a critical factor in evaluating operational performance
- to recognize that there are different levels of selection
- to find out who the majors are currently hiring
- to differentiate what is true, what is tell-tale in survey responses, and any items that have limited utility
- to determine how much variability there is among line pilots as far as the procedures used and performance capabilities
- to determine whether current hiring practices can predict flight performance on the job
- to understand the range of performance
- to assure that the survey addresses the following:
  - current (96 hires) and future (97 hires)
  - airline demographic information
  - validity /research
  - physical/biomedical
  - motivation/attitude/behavioral: cognitive assessments used, interview techniques used
  - current selection processes: length, hour requirements, medical requirements, and background check requirements

Agreed-upon Mechanics for survey:

- distribute it at the appropriate personnel levels to guarantee quick turnaround
- seek data from January 1996 onward
- request a 1-week turnaround
- blend the results so as not to reveal the organization represented
- tally results in separate matrixes, one for regionals and one for majors

See the section (below) of this document entitled "The Survey" for a copy of the survey instrument and survey results.

Third meeting (September 10, 1997/FAA Headquarters, Washington, D.C.)

Dr. Gary Kay, neuropsychologist at Georgetown University, gave a presentation on Cog Screen, a cognitive assessment tool that he helped develop for the FAA. Certain major air carriers currently are considering CogScreen for use as a pilot pre-selection tool. Summarized below are some of the key points made during the presentation.

CogScreen:

- was developed over a 7-year period under FAA/CAMI sponsorship
- is a "snapshot in time" of a person
- measures cognitive ability, not IQ
- is used generally as a baseline test of general abilities
- assesses how the brain takes information in and the accuracy and speed with which the information is processed; a person cannot be coached or prepared in advance for this test
- is designed to test brain functioning, not flying skill--though the abilities measured by CogScreen are required for flying
- won't show everyday stick-and-rudder problems but will reveal weaknesses with the more demanding higher-level cognitive tasks
- provides an indication of possible organic/psychiatric problems: i.e., alcohol abuse, dementia, Alzheimer's disease, sometimes early HIV
- does not have to be administered by medical personnel
- is fully automated
- is administered usually with a light pen vs. keypad
- requires standardized administration and scoring, no examiner bias, less cost

Studies done using CogScreen:

- *Flight data recorder study*: examined performance violations, derived from the flight data recorder and landing performance in general, and related those measures back to CogScreen performance. Tasks assessing divided attention, shifting attention, and dual-tasking proved to be predictive of overall pilot performance.

- *Pharmaceutical research*: impact of sedating medications on performance. Studies conducted on antihistamines (night-time use), antihypertensives, nutrasweet, stimulants, and hormone replacement therapy.

Group members indicated that the CogScreen presentation had been informative, especially for those who had not been previously familiar with it. While some members advocated the use of CogScreen, dual-tasking cognitive or similar measures, others were

skeptical and advocated the need for further exploration before recommending use of any single battery as the standard.

Following Dr. Kay's presentation, two group members affiliated with two different and distinct *ab initio* training programs shared the following information (summarized below) that best describes their particular programs:

Ab Initio Training Program/Example 1:

- professional environment/students and instructors wear uniforms
- students are given an NMRL screening test (a joy stick exercise, used by the Navy) and a psychological test
- 200-hour/29-week course, (applicants graduate with 200 hours)
- some go on to regional airlines or university training programs
- includes time in aircraft and in flight training devices
- some return to the program as instructors
- Crew Resource Management (CRM) training is practiced in the aircraft
- dropouts are usually due to communication/language problems and/or lack of motivation
- students are usually 0-40-hour pilots, some may have a private license
- some graduates go on and get a Certified Flight Instructor (CFI) certificate
- some students enter the program straight out of high school
- approximately 75% of each class are placed in flying jobs after training
- each airline has a representative on campus to monitor its students' progress
- program cost is approx. $29k (includes courseware, FAA test, and $300 uniforms)
- room and board cost is approx. $11k
- approximately 12% of the students are self-sponsored
- students choosing to go on to a CFI program pay additional fees for that program

Ab Initio Training Program/Example 2:

- 500-hour/15-month course tailored to individual airline requirements
- students finish with multi-engine instrument and commercial ratings
- start with a pool of approx. 100 students which is usually pared down to 10
- do bridge training in Beech Jet 400: usually students complete 40-50 hours in this aircraft including 120 landings
- first paring occurs following English-language screening (usually goes from 100 down to 40)
- students complete ground school and simulator training
- second screening occurs after psychological testing (usually goes from 40 down to 25 or 30)

- students return to air carrier (right seat) for basic indoctrination, systems, simulator and flight training
- third screening occurs after physical exam (usually goes from 25-30 down to 10 or 20)
- approximately 5-7% drop out
- ab initio helicopter training is conducted over 18 months
- foreign students selected based on English-language screening, psychological testing, and physical exam
- typically applicants are sponsored by their employers and are university graduates with engineering backgrounds

See the section (below) of this document entitled "Perspectives" for a more detailed discussion of ab initio and new-hire training programs.

Following these presentations, the group briefly reviewed survey results. Preliminary analysis of the survey indicated that use of standardized tests of cognitive or mental abilities and/or personality tests seems very limited at this time.

See the section (below) of this document entitled "The Survey" for a copy of the survey instrument and survey results.

Fourth meeting (November 13, 1997/Air Line Pilots Association (ALPA)Headquarters, Washington, D.C.)

A brief presentation on demographics based on 1997 year-end data from the Universal Pilots Applications Service (UPAS)[4] opened the meeting. The data, which covers 1994 to the present, is summarized as follows:

Demographics:

- 76 companies using UPAS/over 13k pilots in the database
- 12.9% of the UPAS pilot pool identified themselves as minorities
- majority have over 2,000 hours
- over 7,000 pilots in the 30-to-40-year age group are seeking jobs, including a few aged 60 or over and a few under age 20
- jet PIC/total helicopter time is relatively low
- employment distribution for the last 12 months:
  45% =military
  18% =regionals
  12% =Miscellaneous

[4] *The Universal Pilot Application Service, Inc., is a company based in Herndon, Virginia, that specializes in pilot pre-selection.*

10% =Miscellaneous Jet
9% =corporate/charter
3% =training
2% =Not actively flying

- majority have combined multi-engine/jet total number of hours or combined multi-engine/jet pilot-in command total number of hours
- 9953 hired thru October of 1997/majors accounted for 1/3 of this total
- Projected hiring for next year is 12-13k total

After this presentation, the group heard presentations on air carrier hiring practices from those air carriers who currently are hiring- four from majors and three from regionals[5]. The information presented is included in the summary tables that follow.

[5] *Due to time constraints, only one regional was able to present at this meeting. Reports from two other regionals were actually delivered at the next meeting but are reported here.*

	Recent /Future Hiring	Application Process	Hours Required	Standardized Testing	Interview	Simulator Testing	Medical
Major Air Carriers:							
Example 1	1,013 in 1997	1 year process; electronic resume is scanned and scored, invitations are sent out to prospective applicants	Not reported	No	2 days; **highly structured;** conducted by line captain and HR; those who succeed go for simulator test	1 hour 727/757 sim; not a full-motion sim; testing for scan capability	Full physical is given to those who complete testing successfully
	Other: Employment representatives and line captains who conduct interviews are given 6 months of training and are initially observed by a senior employment rep. Interviews are scripted.						
Example 2	200+ in 1998	Screen applications for 12 dimensions (leadership, ability to learn, aptitude, etc.)	No College ; 2500 hours total; 1000 hours in turboprop or jet	No	3/ @ 45 mins each 2 with line pilots, 1 with HR; they either recommend or don't recommend	No/however 737 type rating is required	No
	Other: Logbooks are screened closely, extensive [emphasis added] background check is done by an outside company; an executive decision board also reviews all candidates and makes recommendations						
Example 3	Not reported	Screen applications through UPAS; letters sent to prospective candidates; onus is on the candidate to contact for an interview	College; 1200 hours total	6 hours of testing includes personality screen and CogScreen	2 days; 45 minutes to 1 and 1/2 hours; 1 HR person, 1 flight ops.; a psychologist also interviews	Sim time is verified initially by UPAS	Done post offer to validate Class 1 standards
	Other: Logbooks are screened closely; interview questions are scripted						

	Recent/Future Hiring	Application Process	Hours Required	Standardized Testing	Interview	Simulator Testing	Medical
Major Air Carriers:							
Example 4	57 in 1996; most hired in any year was 300	use the "resumix" system to scan applications ; once appli-- cants are selected they are sent consent forms for a background check	Not reported	50-question technical test generated randomly from a 500-question test bank	2 days behavioral interview done by HR; then 1-on-1, line-by-line review of the application; then 2-on-1 interview done by HR and a technical person 6 interviews are done per day	Conducted by a technical evaluator; applicants can use right or left seat	Not reported
	Other: After the first day of interviews, testing and application materials of those applicants who succeed on the simulator test are reviewed by a Board of Review; letters are dispatched to applicants waiting at a nearby hotel either inviting them back or not. The background check is sent for processing after successful completion of day 2.						

	Recent/Future Hiring	Application Process	Hours Required	Standardized Testing	Interview	Simulator Testing	Medical
Regional Air Carriers:							
Example 1	150 in 1996 and 1997	Human Resources and pilot coordinator review initial applications; if interested company brochure and application is sent	If no college: 1500 hours total; 250 as PIC If college: 1200 hours total; 200 as PIC	2-hour written technical test and a shorter oral test	1 and ½ hour behavioral interview done by HR 2 interviews done at once because of the need to pull pilots off the line to assist with the process	1-2 hours full motion /full graphic sim; success on test merits 7 weeks conditional employment	No further substantiation of Class 1
	Other: Assistant chief pilot screens incoming applications ; interview questions are scripted. Applicants are required to pay for their 7-week training program at a cost of $9600.						
Example 2 (part 121 operator)	Not reported	Not reported	1500 hours total; 500 multi-engine	No	½ day; conducted by Director of Flight Ops and the Chief Pilot	Yes, but not a full-motion sim	No further substantiation of Class 1
	Other: Extensive verbal discussion is conducted on procedures and regulatory issues; will consider less total hours for applicants who have completed a University aviation program						
Example 3 (part 135 operator)	46 in 1997	Not reported	2500 hours total; 1000 multi-engine	Oral test on general flight knowledge	2-on-1; includes a question-and-answer session on real-life scenarios	45 minutes; to assess decision-making and motor skills	Not reported
	Other: Interview focus is on communication skills since there are no flight attendants assisting this carrier						

Fifth meeting (March 3, 1998/Regional Airline Association (RAA) Headquarters, Washington, D.C.)

An FAA professional facilitator conducted an exercise in which each working group member voiced their position on whether to recommend minimum standards and criteria for pilot selection. A majority stated that not enough data were available to recommend imposing any requirements at this time. Some suggested that standardization could actually impede rather than enhance the pilot pre-selection process by imposing a format that may not fit all affected corporate cultures or that candidates could be extensively tutored on, thereby reducing the challenge. Many in the group, however, could support some form of standardized testing as a baseline tool for hiring, but not necessarily broad-based standardization. Summarized below are some of the comments made during the facilitation.

Standards/testing needed:

- would be nice if we had a standard, because we have no standard
- no minimum standards being applied by industry, only the government
- standardization would expedite the process and would not be a great cost to air carriers
- most tests reduce the variability in the prediction
- tests serve as an economical tool to make the product more efficient and provide more data to the selecting official
- the more data, the less likely the unknowns
- medical schools and law schools use national tests and there are many different cultures within those ranks as with the airlines
- more demanding tests may provide an improved measure of how well a prospective crewmember will perform under stress
- what's important is the process by which we measure the value of a test
- psychological and cognitive testing is important
- do we have tools (i.e., CogScreen) out there that are worth pursuing?
- use CogScreen
- no broad-based standard needed but there should be some form of a basic test, some form of a simulator test, and some form of a psychological test

No standards needed:

- the system is working fine/a certification process is in place-it sets the framework, maybe enhances it
- more to being a pilot than meeting some type of standard
- hard-and-fast standards will not work/airline cultures are very different

- can't have a static, "cookie-cutter" hiring process/different processes make it more challenging for the applicants—if they know what to expect when they come in the door then they're not as challenged
- should take advantage of the differences and not steer toward the "cookie-cutter" approach
- take advantage of the diversity and learn from it/differences in selection processes have not led to differences in the safety records of the air carriers
- where do you draw the line between the majors/nationals/regionals, etc.? Do you have three different standards?
- no standards does serve to encourage proper applicants/need to keep people on their toes

No testing needed/testing needs to be studied further:

- some testing really doesn't have a lot to do with pilot performance in airplanes
- a proper test would take a while to develop
- psychological testing is not desirable/CogScreen tests conducted on a 27-and 45-year-old logically are going to be different
- we are not ready to require certain tests (i.e., to make a case for CogScreen you would have to have more information on gender, race, etc.)
- simulator training, currently being used in assessments, is key because it challenges the pilot's ego—they have to meet someone else's standard
- standardization is conditional/each air carrier would have to conduct a job analysis would require further study
- this group has collected a wealth of information that forms a strong basis to say that we are doing fine, but we really don't have the information to go forward with standards/anything beyond a recommendation of further study is not founded
- industry might want to get together and develop new or share existing tools
- if industry could come to concurrence on inherent risks prevalent in pilots, and if there were to be a test, that would be great but would it necessarily mean that everyone would have to use it?—maybe just use it as a tool to enhance the process
- if no test is developed, continue to monitor the process very carefully—comes from years of expertise
- study whether standardization would result in positive changes for the industry

Beyond hiring to training:

- have to look to the future also—what do we do about continuing education?
- emphasize the educational process
- continuing training is important—single visit programs and the Advanced Qualification Program (AQP) are helping to get us there
- it becomes a budgetary issue and money is much better spent on training programs
- "weed out" is also accomplished in a good training program
- need to continue to foster current efforts—(i.e., beef up initial and recurrent programs, where air carriers historically spend their money anyway)
- not everyone goes through the training smoothly
- have to weed out early in the game
- what is far more important is the training program/training programs are more critical

The pilot pool:

- pilot pool is changing
- pilot pool will continue to change—there are a lot of initiatives to increase the pilot pool, don't know if it's short term or long term
- eventually there will be movement within the ranks
- the number of pilots in flight schools is declining—how will we accommodate this and also the numbers for the regional pool?
- we don't know if the pilot boom of today won't be the pilot shortage of tomorrow
- majors don't have a problem/will never really have a problem/minimum standards would not have much impact on majors
- some regionals are more sophisticated than some majors; it is a misconceived notion that standards are lower for the regionals
- need to focus on what we can do for the smaller regionals who have more limited resources and ability to develop a reliable and valid approach to selection
- regional selection process has improved

Negative lifestyle experiences usually adversely affect job performance:

- people initially hired are changed along the way by varying life experiences
- performance drops off dramatically when there is a life cycle change for the worse
- there are some people out there flying who really shouldn't be

Negative lifestyle experiences may not always affect job performance:

- people who have problems go through rehab and often come out better adjusted than before the problem

Other comments and suggestions:

- the bottom line is cost and the amount of risk that the industry wants to take; there's a whole lot more when you look at the big picture
- you find out a lot about a person's character when they're under stress
- safety is the ultimate goal but is there really a safety problem? This group has never really defined a problem
- we don't want to make it any easier only safer, should not be something to cheat on or that requires extensive tutoring on
- a pilot career is desirable, the commercial market is responding, air carrier initiatives are responding to the need for qualified pilots
- The Pilot Records Improvement Act has not helped the cause—usually what you come across are people who have failed check rides which is not necessarily the best indicator of who would/would not be a good applicant
- this group should continue to meet on an annual basis
- this group has not developed any standards but, if standards are eventually developed it should be this group that does so, a subsequent group should not be left to make these decisions

Sixth meeting (September 16, 1998/Lowes Hotel/Annapolis, MD

During this final meeting the group came to consensus on the final report by modifying it as deemed appropriate and by developing conclusions and recommendations.

The Survey

ARAC PILOT SELECTION SURVEY

AIRLINE DEMOGRAPHICS

The following information will be used to assess the representativeness of the sample, and to categorize respondents as small, medium, or large organizations.

1. About how many pilots are in your organization?

   ____ , ____

2. About how many aircraft in total does your organization operate?

   ____ , ____

PILOT HIRING TRENDS

The following questions will be used to develop a picture of recent and projected pilot hiring trends.

3. About how many pilots did your organization hire in calendar year 1996?

   ____ , ____

4. About how many pilots does your organization **EXPECT** to hire during calendar year 1997?

   ____ , ____

5. Please estimate the proportion of the pilots hired by your organization in calendar year 1996 who's last employer was *(should total 100% for all sources marked):*

   ____ Military

   ____ University aviation programs

   ____ Flight instruction schools

   ____ Air taxi operators

   ____ Regional airlines

   ____ Corporate

   ____ Major airlines

   ____ Other *(Please decribe below)*

   100%

49856

22

OMB No. 2120-0613

PILOT RECRUITING

The following questions will be used to develop a picture of pilot recruiting in the industry.

6. About how many persons applied to be a pilot in your organization in calendar year 1996?

_____ _____

_____ , _____

7. What are the published standards for a pilot to qualify as a candidate for your organization in terms of

a. Flight hours

_____ Total Flight Hours

_____ Flight Hours as PIC

_____ Multi-engine/Piston Hours

_____ Multi-engine/Turbo Hours

b. Credentials and/or licenses *(Mark all that apply)*

- ☐ ATP
- ☐ Commercial
- ☐ High School Education
- ☐ College Graduate (2 years)
- ☐ College Graduate (4 years)
- ☐ First Class Medical
- ☐ FE written or certificates
- ☐ Other *(Please describe below)*

APTITUDE TESTING

The following questions will be used to describe the types of aptitude tests used in selecting pilots in the industry.

8a. Does your company administer written test(s) of flight knowledge and FARS?

- ☐ Yes
- ☐ No

8b. Does your company administer written test(s) of general education and/or achievement?

- ☐ Yes
- ☐ No

All Other Tests

Please list the name(s) of all the written, computer, or other special tests administered to the pilot candidates:

9. What proportion of candidates, if any, is eliminated or removed from consideration solely on the basis of any test scores, exclusive of interviews, flight simulator or check rides?

_____ %

INTERVIEWS

The following questions will be used to develop a picture of how interviews are used in selecting pilots in the industry.

10. What type(s) or form(s) of interview is (are) conducted with pilot candidates? *(Mark all that apply)*

- ☐ One-on-one by human resources or personnel representative
- ☐ One-on-one by flight operations manager
- ☐ Informal or unstructured interview by panel from HR and flight operations management
- ☐ Formal, structured, or behavioral interview by panel from HR and flight operations management
- ☐ Formal, structured, or behavioral interview by panel from HR (personnel), flight operations management, and pilots
- ☐ Other interview format *(Please describe below)*

_____

11. Who makes the final decision regarding a candidate?

- ☐ HR
- ☐ Flight Ops
- ☐ Joint Board of Review
- ☐ Chief Pilot
- ☐ Other *(Please describe below,*

_____

12. Which of the following key factors are assessed during the interview(s)? *(Mark all that apply)*

- ☐ Review of applicant information
- ☐ Communication skills
- ☐ Leadership
- ☐ Decision making
- ☐ Policies and procedures
- ☐ Corporate culture
- ☐ Motivation
- ☐ General demeanor
- ☐ Cultural sensitivity
- ☐ Other *(Please describe below)*

_____

13. About how long does the interview process take (exclusive of flight simulator or check-ride)?

- ☐ No interview is conducted
- ☐ Less than 1 hour
- ☐ 1 to 2 hours
- ☐ 2 to 4 hours
- ☐ 4 to 6 hours
- ☐ More than 6 hours

14. Is the interview formally scored?

- ☐ Yes
- ☐ No

15. What proportion of candidates, if any, is eliminated or removed from consideration solely on the basis of results from the interview(s), exclusive of flight simulator or check rides?

_____ %

FLYING SKILL EVALUATIONS

The following questions will be used to develop a picture of how candidate flying skills are evaluated in the industry.

Pilot Log Books

16. Are applicant pilot log books reviewed as a way to evaluate the candidate's flying skills?

- ☐ Yes
- ☐ No

Simulator Flights

17. Are simulators/training devices used to assess candidate flying skills?

- ☐ Yes
- ☐ No

18. How do you evaluate candidate performance on the simulator/training device(s)?

- ☐ Observation
- ☐ Computer
- ☐ Observation and Computer

19. What performance dimensions are evaluated in the simulator/training device(s)? *(Mark all that apply)*

- ☐ Motor ("stick and rudder") skills
- ☐ Normal flight procedures
- ☐ General flight knowledge
- ☐ Crew communications
- ☐ Decision making
- ☐ Flight management
- ☐ Workload management
- ☐ Situational awareness
- ☐ Other *(Please describe below)*

_____

_____

20. What proportion of candidates, if any, is eliminated or removed from consideration solely on the basis of results from the flight simulator run(s), exclusive of tests and interviews?

_____ %

Aircraft Check Rides

21. Are check rides given in the aircraft type the candidate may operate?

    ☐ Yes

    ☐ No

22. What proportion of candidates, if any, is eliminated or removed from consideration solely on the basis of results from the check ride(s), exclusive of tests and interviews?

    _____ %

OVERALL ASSESSMENT PROCESS

23. Rate (1=*Low*, 5=*High*) the relative importance of each of the following factors in the final decision to hire a pilot in your organization.

    1 2 3 4 5 Experience

    1 2 3 4 5 Interview

    1 2 3 4 5 Simulator performance

    1 2 3 4 5 Written test performance

    1 2 3 4 5 Personality test results

    1 2 3 4 5 Reference checks

    1 2 3 4 5 Recommendations

    1 2 3 4 5 Intelligence test results

    1 2 3 4 5 Other cognitive tests

    1 2 3 4 5 Medical examination

    1 2 3 4 5 Psychological examination

24. What studies have you conducted on the components or steps of your pilot selection process? *(Mark all that apply)*

    ☐ Have not conducted studies on selection process

    ☐ Formal review/judgement

    ☐ Content-oriented validation studies

    ☐ Criterion-related validation studies

    ☐ Construct-oriented validation studies

    ☐ Other *(Please describe)*

PERFORMANCE IN TRAINING

25. In 1996, what percentage of your new hire pilots were involuntarily failed during the probationary period?

    _____ %

26. What percentage of the involuntary terminations were due to:

    a. Behavior

    _____ %

    b. Performance

    _____ %

Survey Findings

The following summarizes outcomes from the ARAC pilot selection survey that was conducted during June-August 1997. The instrument was designed by the ARAC working group to provide up-to-date information on the status of pilot selection within both the regional and major air carriers.

CHARACTERISTICS OF THE REGIONAL AIR CARRIERS SURVEY SAMPLE:

- RESPONSES WERE RECEIVED FROM A TOTAL OF 29 ORGANIZATIONS
- FLEET SIZE RANGED FROM 2 TO 205 AIRCRAFT (Median= 37)
- NEARLY HALF HAD A FLEET SIZE BETWEEN 20 AND 70 AIRCRAFT
- NUMBER OF PILOTS RANGED FROM 9 TO 2,100 (Median= 206)
- NUMBER OF PILOTS HIRED IN 1996 RANGED FROM 3 TO 546 (Median= 48)
- ANTICIPATED PILOT HIRES IN 1997 RANGED FROM 2-250 (Median= 40)
- A PROJECTED TOTAL OF 1,836 PILOTS WILL BE HIRED IN 1997

- THESE AIR CARRIERS ACCOUNTED FOR 79% OF THE NUMBER OF REGIONAL AIRLINE PASSENGERS IN 1996

CHARACTERISTICS OF THE MAJOR AIR CARRIERS SURVEY SAMPLE:

- RESPONSES WERE RECEIVED FROM 10 OF THE 14 AIR CARRIERS SURVEYED
- FLEET SIZE RANGED FROM 26 TO 574 AIRCRAFT (Median= 190)
- NUMBER OF PILOTS RANGED FROM 251 TO 9000 (Median= 2507)
- NUMBER OF PILOTS HIRED IN 1996 RANGED FROM 3 TO 540 (Median= 166)
- ANTICIPATED PILOT HIRES IN 1997 RANGED FROM 29 TO 900 (Median= 144.5)
- A PROJECTED TOTAL OF 2,780 PILOTS WILL BE HIRED IN 1997

- THESE AIR CARRIERS ACCOUNTED FOR 43% OF THE TOTAL NUMBER OF AIRLINE PASSENGERS IN 1996

(The above summarizes information gained from Items 1-4)

Respondents were requested to provide an estimate of the proportion of pilots hired by their organization in 1996 that came from the following employers (Item 5).

	REGIONALS		MAJORS	
PREVIOUS LOCATION	Mean	Range	Mean	Range
MILITARY	9 %	0-45%	37 %	0-60%
UNIVERSITY AVIATION PROGRAM	8 %	0-45%	1 %	0-5%
FLIGHT INSTRUCTION SCHOOLS	20 %	0-100%	0 %	0 %
AIR TAXI OPERATORS	23 %	0-80%	0 %	0 %
REGIONAL AIRLINES	17 %	0-100%	40 %	0-76%
CORPORATE	7 %	0-50%	8 %	0-35%
MAJOR AIRLINES	<1 %	0-12%	4 %	0-20%
OTHER*	12 %	0-30%	15 %	0-100%

*cargo operators – 50%, cargo operations, foreign government, non-flying jobs (e.g. flight attendants, retired military, etc.), general aviation, simulator instructor, regional/military experienced pilots, some combination usually, former military flying for regional/corporate operation, military/civilian (14.1%), civilian (69.6%).

PILOT RECRUITING

The overall median number of persons who applied to be a pilot at a regional air carrier was 800 in 1996 (Item 6). The range was from 30 pilots to 7,000, for a total of some 41,956 applications. Within the majors the median was 5,590 pilots. The range was from 500 to 10,500 pilots, for a total of 55,090 applications. We of course have no way of knowing how much overlap there is on each of the applicant lists.

The published standards for a pilot to qualify as a candidate for the air carriers are presented below (Item 7a):

	REGIONALS		MAJORS	
QUALIFICATION STANDARDS	Median	Range	Median	Range
TOTAL FLIGHT HOURS	1,500	750-5,000	1,750	350-3,000
FLIGHT HOURS AS PIC	1,000	250-5,000	500	100-2,000
MULTI-ENGINE/PISTON HOURS	300	75-2,000	1,000	200-1,000
MULTI-ENGINE/TURBO HOURS	500	200-2,000	500	200-1,000

Percentages of respondents in the two groups who reported that they require the listed credentials and/or licenses are presented below (7b).

PILOT CREDENTIALS AND/OR LICENSES

	REGIONALS	MAJORS
ATP	61.1	70.0
COMMERCIAL	75.9	80.0
HIGH SCHOOL EDUCATION	62.1	60.0
COLLEGE GRADUATE (2 YEARS)	20.7	10.0
COLLEGE GRADUATE (4 YEARS)	6.9	50.0
FIRST CLASS MEDICAL	79.3	100.0
FE WRITTEN OR CERTIFICATES	3.4	90.0
OTHER*	38.1	50.0

*CFI preferred, some 135 or 121 experience preferred, 2nd Class Medical (2), FCC, Passport (2), multi-engine (3), instrument (6), seaplane experience, ATP written, (125 actual instrument, 500 total multi engine, ATP, college preferred), radio telephone, telephone radio permit.

APTITUDE TESTING (8a,b)

	REGIONALS	MAJORS
WRITTEN TEST(S) OF FLIGHT KNOWLEDGE AND FEDERAL AVIATION REGULATIONS	64.3	70.0
WRITTEN TEST(S) OF GENERAL EDUCATION AND/OR ACHIEVEMENT	25.0	20.0

The list of written, computer, or other special tests administered to the pilot candidates was relatively small. It included: the Wide Range Achievement Test; Mechanical Aptitude Test; Prevue assessment by Profiles International (4); ComAir Academy, computer test/behavior test assessment systems; basic instrument/Federal Aviation Regulation procedures; various computer administered aptitude, intelligence and flight knowledge tests; personality characteristics inventory (UT); multiaptitude dimensional battery, (2); survey; weather; pre-employment exam; Assessment Systems, Inc. response test; and the Wonderlich[6] test. Another regional respondent indicated that they would soon be using personality tests.

Surprisingly, there was only a single reference to use of a personality test. The percentage of pilots removed from consideration on the basis of their test scores was generally small. For the regionals, the mean for 15 respondents was 25.3%, with a range from 1 to 75%. For the major air carriers, responses were received from only 5 air carriers. The mean was 19%, with a range from 3 to 50%.

[6] *Wonderlich is an older test of general mental ability that is often used in various industrial and business settings for personnel selection*

INTERVIEWS(10)

	REGIONALS	MAJORS
ONE-ON-ONE BY HUMAN RESOURCES PERSONNEL REPRESENTATIVE	24.1	20.0
ONE-ON-ONE BY FLIGHT OPERATIONS MANAGER	41.4	20.0
INFORMAL OR UNSTRUCTURED INTERVIEW BY PANEL FROM HR AND FLIGHT OPERATIONS MANAGEMENT	27.6	10.0
FORMAL, STRUCTURE, OR BEHAVIORAL INTERVIEW BY PANEL FROM HR AND FLIGHT OPERATIONS MANAGEMENT	13.8	70.0
FORMAL, STRUCTUED, OR BEHAVIORAL INTERVIEW BY PANEL FROM (PERSONNEL), FLIGHT OPERATIONS MANAGEMENT, AND PILOTS	6.9	20.0
OTHER INTERVIEW FORMAT*	34.5	30.0

*one-on-one by pilot; two-on-one technical review; ATC 810 Sim Ride; one-on-one with check airman; behavioral interview by panel from HR, Flight Opts, Flight Standards and Training and Line-Pilots; formal by flight operation; Management and pilots – no HR; informal interview with Flight Operations and ALPA rep.; informal panel flight ops and pilots; one-on-one by chief pilot or asst. chief pilot; one-on-one with Flt Ops manager –if successful, a second interview with at least two line pilots; flight ops and joint review board; captains board and simulator check; simulator evaluation; scenario-based conducted by flight ops management and pilots; informal or unstructured interview by panel from HR and flight ops pilots.

INTERVIEWS

WHO MAKES THE FINAL DECISION (Item 11)	REGIONALS	MAJORS
HR	3.4	20.0
FLIGHT OPS	27.6	40.0
JOINT BOARD OF REVIEW	44.8	50.0
CHIEF PILOT	13.8	10.0
OTHER*	20.7	0.0

*chief pilot & HR, chief pilot and president, Chief Executive Officer, jointly between HR and Flt. Management.

KEY FACTORS ASSESSED DURING THE INTERVIEW(S) (Item 12)

	REGIONALS	MAJORS
REVIEW OF APPLICANT INFORMATION	100.0	100.0
COMMUNICATION SKILLS	100.0	100.0
LEADERSHIP	69.0	90.0
DECISION-MAKING	86.2	100.0
POLICIES AND PROCEDURES	44.8	80.0
CORPORATE CULTURE	55.2	60.0
MOTIVATION	96.6	90.0
GENERAL DEMEANOR	96.6	90.0
CULTURAL SENSITIVITY	37.9	70.0
OTHER*	20.7	60.0

*technical knowledge, gender sensitivity, professionalism, basic values and standards, longevity, verification of pilot-in-command time and likelihood of a strong instrument background, service orientation, reliability, judgment (2), teamwork, aviation-oriented situational awareness, includes some technical questions, trainability, CRM skills, interpersonal skills, technical skills,

LENGTH OF INTERVIEW

	REGIONALS	MAJORS
NO INTERVIEW	0.0	0.0
LESS THAN 1 HOUR	20.7	30.0
1-2 HOURS	37.9	40.0
2-4 HOURS	31.0	10.0
4-6 HOURS	3.4	10.0
MORE THAN 6 HOURS	0.0	10.0

Of the regionals, 41.4% report that the interview is formally scored, compared with 80% of the major air carriers (Item 14).

The proportion of candidates eliminated or removed from consideration solely on the basis of results from the interview ranged from 10 to 100% for the regionals and from 5 to 85% for the major air carriers (Item 15). The means for the two groups were 41.2% and 28%, respectively.

FLYING SKILLS EVALUATIONS

Of the regionals, 89.3% reported that they reviewed the applicant pilot logbooks as a way to evaluate the candidate's flying skills (Item 16). This compared to 90% of the major air carriers.

Simulators/training devices were used to assess candidate-flying skills in 66.7% of the regionals and 90% of the major air carriers (Item 17).

Candidate performance on the simulator/training device(s) is evaluated through observation (61.9% - regionals and 88.9% -major air carriers), computers (0% for both), and observation and computer (38.1% and 11.1% respectively) (Item 18).

Of the alternatives provided, many of the respondents indicated that they evaluated the following knowledges, skills, and abilities in the simulator/training device(s) (Item 19).

	REGIONALS	MAJORS
MOTOR ("STICK AND RUDDER") SKILLS	67.9	100.0
NORMAL FLIGHT PROCEDURES	71.4	100.0
GENERAL FLIGHT KNOWLEDGE	71.4	88.9
CREW COMMUNICATIONS	46.4	88.9
DECISION-MAKING	71.4	77.7
FLIGHT MANAGEMENT	57.1	88.9
WORKLOAD MANAGEMENT	42.9	88.9
SITUATION AWARENESS	71.4	100.0
OTHER*	10.7	11.1

*Checklist usage, ATC compliance, (evaluation categorized – pre departure, take-off/climb, en route, arrival, approach), CRM, FSI Sim. Ride.

The proportion of candidates removed from consideration solely on the basis of results from the flight simulator run(s) was varied (Item 20). It ranged from 2 to 100% for the regionals and 2 to

65% for the major air carriers (Mean of 35% and 17.1%, respectively). One additional regional respondent indicated that they would be using simulation runs with their next class.

AIRCRAFT CHECK RIDES

Of the respondents, 24% of the regionals and 80% of the major air carriers reported that the candidate is given a check ride in the type of aircraft they may operate (Item 21).

Information concerning the proportion of candidates eliminated from consideration solely on the basis of results from the check ride(s) is limited (Item 22). The seven regional respondents reported a range of 2-15%. Only one of the majors responded, with 30% reported.

A majority of the regionals (58.6%) indicated that they have not conducted any studies on the selection process (Item 24). This compares to 10% of the major air carriers. Of the listed approaches, 24.1% of the regionals reported that they have conducted a formal review/judgment, with 13.8% completing content-oriented validation studies, 10.3% criterion-related validation studies, and 6.9% construct-oriented validation studies. For the major air carriers, 50% had completed a formal review/judgement, 30% - content-oriented validation studies, 20% - criterion-related validation studies, 20% - construct-oriented validation studies, and 20% reported other approaches. A written comment indicated that an analysis was conducted by the Human Resource Analysis group to insure consistency of application, product, and non-bias. Continuous audit, review, and evaluations.

PERFORMANCE IN TRAINING

There was considerable variability in the percentage of new hire pilots who were involuntarily failed during the probationary period for the regionals (1% to 55%, with a mean of 12.14%) (Item 25). For the major air carriers, the percentage ranged from 1-10% (Mean of 3.6%). Of this group, an average of 33.25% was removed due to their behavior and 55.4% for performance for the regionals (Item 26). This compares to an average of 21% behavior and 40.5% performance among the major air carriers. Once again, there was considerable variability in the percentages.

OVERALL ASSESSMENT PROCESS

Information concerning ratings made in response to the "Overall Assessment Process" (Item 23) question is provided on the next two pages. The first figure represents the percentage of respondents who selected the two highest response categories (4 and 5) in rating the importance of each of the 11 listed factors. The second reflects the average rating provided for each of the factors. Some caution is needed in interpreting the overall ratings since all of the respondents did not provide ratings for each of the factors. For example, in response to personality test results only two of the majors responded and they provided ratings of 4 and 5. This must be considered in the context of the other six who did not provide ratings (the final page was missing for one respondent). More than half of the major air carrier respondents also did not provide ratings for the intelligence test

results, other cognitive tests, and psychological examination factors. Likewise for the regionals, the number of respondents who did not provide ratings for the personality test results, intelligence test results, other cognitive tests, medical examination and psychological examination factors were high (ranging from 10 to 14).

Commentary/Major Air Carriers

Pilot hiring at major airlines is at historically high levels. According to AIR Inc.[7], major airlines hired over 3,800 pilots during 1997. Of the pilots hired, approximately 37 percent came directly from the military, while an additional 40 percent came directly from regional air carriers. However, there are major airlines that have not had to hire any pilots over the past few years.

Despite the record hiring, major air carriers reported that the available pool of pilot applicants remains large and well-qualified. One major air carrier, which hired 1,013 pilots during the past year, reported that it still had applications on hand from more than 8,500 qualified pilots. Another air carrier, which hired approximately 400 pilots, reported over 9,000 qualified applicants. A third had 17,000 qualified applicants on file. Others reported similar large banks of applicants.

In this regard, it must be acknowledged that the major air carriers clearly benefit from being at the "top" of the pilot career path ladder. Many pilot candidates of lesser quality never reach the stage of applying to a major airline because they "wash out" when applying to either the military or the regional airlines. The candidates that are accepted by and successfully serve with the military and regional airlines are generally the elite pilots, and the major airlines gratefully reap the benefits of this winnowing process.

The pilot hiring process is a lengthy one, which can easily take up to a year. Several air carriers only accept applications during a limited "window" once a year. One air carrier only accepts applications that are postmarked on a particular date. While the individual pilot applicant may find the process to be tedious, the extended period allows air carriers to carefully sift through the applicant pool and extensively check each applicant's background and qualifications.

Hiring procedures at major air carriers are constantly evolving. One major air carrier reports that it regularly audits its internal procedures, and has abandoned criteria/steps that proved non-productive. As a result, it has completely revamped its hiring process since the mid-1980's. For many years, the major air carriers have maintained an informal organization of pilot recruiters, the Pilot Employment Group, to serve as a forum for exchanging information on pilot selection tools.

In support of efforts to document existing procedures for employment screening of pilot applicants, scientists from CAMI developed an annotated bibliography of the available scientific literature (*see Appendix C*). The information compiled from 1990 through the present clearly demonstrates that there is little documented evidence of the approaches used by major air carriers in selecting pilots. Most of the available scientific information comes

---

[7] *AIR, Inc., is a private job referral service for pilots based in Atlanta which produces a monthly publication that tracks pilot hiring.*

from the military. Information on current practices for pre-employment screening of pilot applicants by major air carriers was obtained from two primary sources:

(1) an ARAC Pilot Selection Survey of 10 major air carriers (14 air carriers were contacted) that was conducted from June to August, 1997; and

(2) information provided to the working group by air carrier representatives.

Pre-Interview Screening

All carriers reported that the first step of the hiring process was to review and screen applications to weed out prospective pilots who lacked sufficient flying time and other relevant experience. Among the criteria which the air carriers look for are:

Medical: All air carriers require candidates to either have first class medical certificates, or the ability to quickly obtain one.

College Degree: While only 50 percent of the major air carriers surveyed require candidates to have a college degree, over 95 percent of the new hires have a college degree.

ATP Rating: Seventy percent of all major air carriers mandate that the candidates have an ATP rating.

Minimum Hours: Competitive candidates at most major air carriers generally need to have 3,000 to 5,000 flying hours, and frequently much more. Pilot-in-command time is critical to selection for an interview.

References: Most airlines give added weight to referrals from current pilots, particularly if the incumbent pilot has flown with the applicant. Reference checks are often completed by either professional background investigation services or active pilots.

To determine which applicants will be interviewed, many major air carriers have established computer-based scoring procedures for ranking applicants. For example, one major air carrier screens applications on 12 different dimensions. In most instances, a human resources representative then reviews the computer-generated list of the top candidates and calls in for interviews the most promising of those candidates.

Interviewing, Testing, and Selecting

The interview and testing stages of the selection process at all major air carriers is rigorous, and most pilot candidates do not successfully complete the journey. One air

carrier reports that job offers were made to less than 30 percent of the pilots who came for interviews. For another, the hire rate was only 20 percent of those interviewed.

Formal interviewing packages are the norm, with one air carrier reporting that it uses a 60-page manual to standardize and guide the interview, testing, and decision-making process. Typically, considerable time and expense is required to train the interviewers to ensure that they use a standardized approach during each of the interview sessions. All major air carriers use both flight operations personnel and human resources representatives during the interview and testing stages.

Almost all of the major air carriers use a 2-day format, with many candidates dismissed after the first day. The most common aspects of the interview and testing stage are:

Simulator/Training Devices. Ninety percent of the major airlines use a simulator or other training device to evaluate the candidate's flying skills. Candidate performance is judged on the basis of observational ratings made by simulator check pilots or a combination of observation and computer ratings. Air carriers that do not perform simulator or training device assessments generally require that the applicant have a current ATP rating.

Pilot Logbooks. Ninety percent of the major air carriers who responded to the survey reported that flight personnel reviewed the applicant's logbooks as a way of evaluating the quality of the pilot's prior flight time. Discrepancies in the logbook will often result in the elimination of a pilot's candidacy.

Written Tests. Seventy percent of the major air carriers administered a written or computerized test of flight knowledge and of Title 14 of the Code of Federal Regulatoins (14 CFR) to their pilot candidates. An additional 20 percent administer written tests of general education and/or achievement. The battery of tests include the Wide Range Achievement Test; Prevue assessment by Profiles International; various computer-administered aptitude, intelligence and flight knowledge tests, personality inventories; the Mechanical Aptitude Test; and the Wonderlich.

One major air carrier reported that it had recently instituted a new battery of tests including a specially developed Knowledge-Based Test; CogScreen a computerized neuropsychological test battery; the NEO Personality Inventory; and the Minnesota Multiphasic Personality Inventory. The result was a significant decrease in training failures during the new hire pilot's probationary period. Conversely, another major air carrier, which does not use any standardized testing protocol, but relies on an extensive recommendation and interview process, also reported a very low failure rate for probationary pilots.

Personal Interviews. While all air carriers conduct interviews, the timing and format of the interviews varies considerably. As previously noted, some air carriers eliminate candidates on the basis of abilities and skills assessments (e.g. simulator checks and/or written exams) before the interview is conducted. Other air carriers utilize an

opposite approach and use the interview to screen out applicants, before sending them on for assessments of their skills and abilities.

In terms of format, all major air carriers use a panel of human resources and flight operations personnel for at least one of the interviews. Several air carriers also employ one-on-one interviews conducted by either a flight operations manager or a human resources representative. Interviewers from the flight operations department will often include Chief Pilots and Fleet Captains, along with line pilots. In most cases, the interviewers' inquiries come from a predetermined, structured set of questions.

Most major air carriers reported that success during the interview stage was key to the pilot's candidacy. Since the overwhelming majority of the applicants have the technical and flying skills necessary to pilot the aircraft, the key to long term success at a major air carrier frequently lies in the more subjective but equally vital "personality characteristics." As one recruiter noted: "They all have the aptitude; we're looking for the ones with the right attitude." Among the qualities which major air carriers look for are: Leadership Capability; Communication Skills; Decision-Making Capacity; Motivation; Cultural Sensitivity; and Judgement.

Final Selection. Based on survey responses, fifty percent of the major air carriers give the final selection of pilot candidates to a Joint Board of both Human Resources and Flight Personnel. Others leave the final decision with either the Flight Operations or the Human Resources division.

The success of the current pilot selection processes at major air carriers is clear. All major air carriers in the United States have excellent safety records, which would seem to indicate that the selection process is producing a highly qualified group of pilots. As previously noted, the role of the armed services and regional airlines in sifting out pilots with lesser credentials at earlier stages in the pilot career path undoubtedly contributes to the success of pilot hiring at the major airlines.

Aside from the strong safety record, another criteria for measuring success of the pilot hiring process is to examine the rate at which new-hire pilots fail to complete their probationary period. During the course of the ARAC working group's meetings, several air carriers reported training failure rates of 1% or less for new-hire pilots.

Variations in the pilot hiring selection process do not appear to have any statistically significant impact on training failures for new hire pilots. One major air carrier, which recently introduced new standardized tests, reported that its failure rate had dropped to only 2 of approximately 1000 new-hire pilots. Conversely, another major air carrier, which abandoned standardized testing in 1992, has also seen its failure rate drop to just 3 out of approximately 1,000 new hire pilots. A third major air carrier, which utilizes neither standardized testing nor simulator checks, reported that only 1 out of 220 recent new hire pilots had failed to complete training.

Pilot selection techniques by major air carriers are both similar and diverse, but always evolving. Major air carriers should continue to exchange information regarding their respective programs to ensure that the current excellent safety and training success records are maintained and enhanced.

Although pilot hiring by major airlines is at record levels, the current pool of pilot applicants to major air carriers remains large and well qualified. In many respects, the key steps and criteria used in hiring pilots are common to all air carriers. Other aspects of the pilot hiring process vary from air carrier to air carrier. These differences in the selection process, however, do not lead to any notable difference in the quality of the candidates hired. Regardless of the selection criteria utilized, all major air carriers surveyed report strong safety records and exceedingly low failure rates by probationary pilots during initial training.

Commentary/Regional Air Carriers

Information on the recruiting and hiring process for regional airlines was obtained from a survey of airlines that are members of the RAA. Human resources and flight operations personnel involved in the selection and training of new pilots provided additional information.

A regional airline is defined as a short-haul scheduled air carrier providing service between small- and medium-sized communities and the nation's hub airports. These airlines primarily use turboprop aircraft with 19 to 70 seats, although some air carriers operate small jets with 50 to 100 seats. In 1996 there were approximately 109 regional airlines operating in the United States.

A total of 29 members of the RAA responded to the ARAC survey in June 1997. These airlines transported 79 percent of the 62 million passengers carried by the regional airline industry in 1996. While there were some differences in company standards and practices, the majority of the airlines followed very similar procedures in recruiting and interviewing pilot applicants.

According to AIR, Inc., there were 1,762 pilots hired at U.S. regional airlines operating turboprop aircraft in 1997. Information on pilot hiring at regional airlines operating jet aircraft is not available.

	1993	**1994**	**1995**	**1996**	**1997**	**Estimated 1998**
Operating Turboprop Aircraft	1,193	2,566	1,745	1,825	1,762	2,323

Source: AIR, Inc.

More than 41,000 applications for pilot employment were received by the regional airlines participating in the survey, with a range from 30 to 7,000 and a median of 800. Given the practice for pilot applicants to send applications and/or resumes to many airlines simultaneously, it is likely that there is considerable duplication in the number of applications received by air carriers. The regional airlines participating in the survey indicated that the majority of their pilot applicants came from general aviation, primarily air taxi operations and flight instruction schools (see table below).

Previous Employment	Mean Percentage	Range of Percentages
Military	9	0 – 45
University Aviation Program	8	0-45
Flight Instruction Schools	20	0-100
Air Taxi Operations	23	0 - 80
Regional Airlines	17	0-100
Corporate Aviation	7	0 - 50
Major Airlines	Less than 1	0 - 12
Other 1/	12	0 - 30

1/ Other included the following: cargo operations, foreign government, non-flying positions (i.e. flight attendants), simulator instruction, and combinations of these employment sources.
Source: ARAC Pilot Selection Survey, June 1997

Minimum qualifications for pilot applicants vary within the industry. However, data received during the ARAC survey and that is available in published sources indicate that the average minimum number of total flight hours to be employed as a regional airline pilot is approximately 1,500. Flight hours as a pilot in command averaged 1,000 hours, with the required number of hours reported by air carriers ranging from 250 to 5,000. All air carriers responding to the survey required multi-engine flight hours, with an average of 300 hours for multi-engine piston aircraft and 500 for multi-engine turboprop aircraft.

The majority of regional airlines require successful completion of high school for their pilot applicants. Approximately 28 percent of the regional airlines surveyed require a college degree (2-year or 4-year) to be considered for employment. Additionally 25 percent of regional airlines require their pilot applicants to pass a written test of general education and/or knowledge as part of their interview process. However, 64 percent of the air carriers require successful completion of a written test of flight knowledge and of 14 CFR.

In 1996 none of the regional airlines participating in the survey were using personality testing to evaluate regional airline pilot candidates. However, one airline indicated that it would begin using such tests in 1998.

More than 75 percent of regional airlines require their pilot applicants to have a commercial pilot's certificate when the individual applies for employment.

Approximately 61 percent of the airlines require an airline transport pilot certificate for such consideration. Additionally a current first-class medical certificate issued by the FAA is required by 80 percent of the regional airlines providing survey information.

All of the regional airlines surveyed conducted an interview of pilot candidates. However, the interview structure differs significantly within the industry, with one-on-one interviews by flight operations personnel being the practice for 41 percent of the surveyed regional air carriers. Additional information on interview structure is shown in the table below:

Type Of Interview	**Percentage**
One-On-One By Human Resources Representative	24.1
One-On-One By Flight Operations Representative	41.4
Informal Or Unstructured Interview By Panel From Human Resources And Flight Operations	27.6
Formal, Structured Or Behavioral Interview By Panel From Human Resources And Flight Operations	13.8
Formal, Structured Or Behavioral Interview By Panel From Human Resources, Flight Operations and Line Pilots	6.9
Other Interview Format 1/	34.5

1/ Includes the following types of interviews: one-on-one by pilots; one-on-one by chief pilot; two-on-one technical review; one-on-one with check airman; behavioral interview by panel of human resources, flight operations, flight standards and training and line pilots; management and pilots; and informal interview with flight operations and representative of the ALPA.

Approximately 38 percent of the respondents indicated that the interview lasted 1 to 2 hours, with 31 percent indicating duration of 2 to 4 hours. Twenty percent indicated that the interview was less than 1 hour. The primary factors assessed during the interview include communication skills, motivation, general demeanor, and decisionmaking skills (see table).

Factors Assessed During The Interview	**Percentage**
Review Of Applicant Information	100.0
Communication Skills	100.0
Motivation	96.6

General Demeanor	96.6
Decision-Making	86.2
Leadership	69.0
Corporate Culture	55.2
Policies And Procedures	44.8
Cultural Sensitivity	37.9
Other 1/	20.7

1/ Other factors assessed include technical knowledge, gender sensitivity, professionalism, basic values and standards, reliability, judgement, teamwork, and aviation-oriented situational awareness.

The percentage of candidates eliminated from consideration solely on the basis of the interview ranged from 10 to 100 percent, with a mean of 41.2 percent.

The flying skills of the pilot candidate are also thoroughly evaluated during the interview process. Applicant logbooks were reviewed by 89.3 percent of regional airlines and simulators or training devices were used to assess candidate-flying skills at 67 percent of the regional airlines responding to the survey. The vast majority of airlines (61.9 percent) use observation to evaluate performance while the remaining air carriers (38.1 percent) use a combination of computer and observational evaluation. The following chart lists the knowledges, skills, and abilities evaluated in the simulator/training devices.

Criteria Evaluated	**Percentage**
Normal Flight Procedures	71.4
General Flight Knowledge	71.4
Decision-Making	71.4
Situational Awareness	71.4
Motor (Stick And Rudder) Skills	67.9
Flight Management	57.1
Crew Communication	46.4
Workload Management	42.9

Other 1/	10.7

1/ Includes checklist usage, ATC compliance (pre-departure, take-off/climb, enroute, arrival, and approach), and CRM.

The mean proportion of candidates removed from consideration based solely on performance in the flight simulator/training device was 35 percent.

Approximately 24 percent of the regional airlines require the pilot candidate to undergo a check ride in the type of aircraft the individual will operate. The proportion of candidates removed from consideration solely on basis of the check ride ranged from 2 to 15 percent.

It is the general industry practice to offer the pilot conditional employment, pending successful completion of required background investigations, pre-employment drug testing, and training. Air carriers are required to obtain various employment, safety, training, and FAA records covering the prior 5 years from hiring any pilot who first applies to the airline after February 6, 1997.

According to information obtained from human resources and flight operations personnel, on average regional airlines extend conditional offers to 30 to 60 percent of those individuals who complete the interview process.

Survey results indicate considerable variability in the percentage of new hire pilots who are involuntarily terminated during their training or probationary period, with a range from one to 55 percent. The regional airline industry average was 12.4 percent. Of those terminated, 55 percent were terminated due to their performance and 33 percent for behavior.

A majority of the regional airlines (58.6 percent) surveyed indicated that they have not conducted any studies on their pilot selection process. About 24 percent of the airlines that undertook studies conducted formal review/judgement studies with 13.8 percent completing content-oriented validation studies, 10.3 percent criterion-related validation studies, and 6.9 construct-oriented validation studies.

Perspectives

Changes, Trends, Influencing Factors in Pilot Supply

The following report is directed at the changing trends in the airline industry that has an impact on pilot staffing.

Seniority Issues

Almost all airlines employ a seniority system for airline pilot personnel. This has been the foundation for pilot advancement since the early days of air mail transportation. Seniority is issued on date of hire and remains with the individual until termination or retirement. As individuals leave, the remainder of the pilots move up the list. Rank, aircraft, domicile base, monthly and vacation bidding are all dependent upon the ubiquitous seniority number and it is therefore sacrosanct amongst airline pilots.

If one could gather up the pilot seniority lists of the major airlines and a few regional air carriers, it would pretty much reflect the transition of the airline industry and the national economy. A quick view shows major hiring in the years 1955-'56, '63-'70, '78-'80, '85-'90 and what may prove to be the granddaddy of them all, 1994 - 2005. Those old enough to correlate the hiring booms with the national economy would be witness to major recessions from '57 - '61, late '70 through '73 and then again from '74 - '77, '81 -' 84 and most recently '90 - '94. This connection cannot be dismissed as it is an early crystal ball as to what will occur in the future as pilot attrition is directly tied to individual medical well-being and age 60.

So it is no surprise that the 21-33 year olds hired in the '60's will approach retirement age from now until 2005. Collaterally, a 21 year old hired today will face retirement in 2037 under current law. Therefore one can anticipate the next "pilot shortage" by factoring in the issues of mandatory retirement age, business demand, and number of aircraft on a particular property.

The change in age discrimination laws has also affected the hiring process. Where 32 was the absolute maximum age several years ago, we now see new-hires at the majors who are past 50 years of age. Indeed this tends to serve the military pilot who can enjoy a 20-year fruitful career and then join up with an airline in the chronological age timeframe of 41-47 and still put in a 19-13 year airline career with all of its attendant benefits. The major air carriers broke the gender barrier in the early '70's.

Pilot Source

In the '30's, '40's, and '50's, the major source of pilots was the military. Superbly trained, highly experienced --some in aircraft larger than anything operated by the airlines—these pilots provided a comfort level for management as well and for the travelling public-at this time a small segment of the population. Still in its infancy, the airlines could always depend on a readily available pool of over-qualified individuals whenever the need arose.

By the early '60's, increased passenger demand, spurred by the introduction of the jet, caused all of the airlines to go into the hiring mode. It was here that the first blip on the pilot hiring scene developed wherein the military was unable to keep pace with the demand. The Vietnam war had most military pilots tied down to that objective, the Korean war pilots were approaching their '40's and the WWII pilots were too old to be utilized. The industry then turned to civil aviation and this resulted in a dwindling of the military source such that it was necessary to offer employment to those with little or no time at all. By 1966, when each major airline was hiring 600 pilots annually, the companies turned to a "zero time program" where college campuses were scoured for individuals willing to undertake flight training with a guarantee of a flying job when the FAA Commercial Pilot and Instrument Rating was attained. This resulted in pilots starting work with a little more than 190 hours of flight time, most of it in an airplane that weighed less than the galley of a Boeing 707. While on the surface this seems to be a less than safe approach, in reality the new hires were assigned as a three-man crew on the aircraft. Here they served as flight engineers on the Constellations, DC6/7, Boeing 707, and DC8 airplanes where they could observe two veteran pilots and absorb the cadence of the flight regime.

It was not until the late '60's that the Vietnam war flyers reached their separation dates and left the service to join the airlines, thus averting a shortage of flight personnel to crew the airplanes and meet passenger demand.

Military Supply

By the mid '80's the advancement of smart weapons diminished the requirement for large fighter and bomber fleets. Collaterally, the manpower availability was shifting from an active pilot role to the ready reserve which is made up almost exclusively of airline pilots. And finally, the Executive Branch of government launched a successful effort to downsize the military.

This has resulted in the pilot source shifting significantly with the military pilot becoming a much smaller segment of the available pool. In 1997, part 121 air carriers hired approximately 12,000 pilots.[8] This trend will continue.

---

[8] *AIR, Inc. See the ARAC suvey.*

Civilian Supply

Regulations under 14 CFR governing the certification of pilots have not changed much in the last 30 years. To qualify for the minimum certificates to be employed by an airline one must transition from Student Pilot (not allowed to carry passengers), to Private Pilot (allowed to carry passengers, but not for hire), Instrument Rating (allowed to fly in minimum weather conditions), Multi-Engine Rating (allowed to fly aircraft with two or more engines) and Commercial Pilot Certificate (allowed to fly passengers for hire). The minimum required flight time to accomplish this is approximately 190 hours.

The highest certificate--the Airline Transport Pilot--allows the individual to act as pilot in command of an aircraft in part 121 operations. It requires a minimum flight time of 1500 hours and a minimum age of 23 years. Information presented to the working group indicates that the lowest amount of flight time that an air carrier will hire is 350 hours. Civilian pilots generally acquire the hours needed to meet airline minimums by flight instructing, banner towing, crop dusting, or other flight time that can be acquired to meet the airline minimum hiring requirement.

Regulations under 14 CFR leading to the commercial certificate, as well as flight time acquired by flight instructing, do not require experience in a crew environment. So upon arrival at an air carrier, the new-hire pilot must be trained and gain experience in operating in an airline environment.

Aircraft to Flight Simulator Transition Training

By the mid '60's, a predominant U.S. simulator manufacturer, the LINK Corporation, began to turn out flight simulators that closely portrayed the flight characteristics of the actual airplane. This was stimulated by the availability of early digital computers that could "crunch the numbers" quick enough to allow the flight simulator to replicate the airplane. The industry and the FAA began to allow reductions in required flight training in airplanes on the basis of experience gained in a flight simulator.

By 1980, the digital computers--now aided by microchip technology--had reached such an advanced state that the FAA adopted part 121, Appendix H, that allowed even more flight training to be transferred to the simulator if the aircraft and simulator manufacturers could inject more flight dynamics fidelity into the simulator. The result is that we now have flight simulators that more accurately portray the airplane in almost every regime from normal to emergency procedures and from pushback to landing.

Three-Crew To Two-Crew Transition

By the early '80's the aircraft manufactures introduced aircraft that eliminated the flight engineer position by introducing more aircraft system automation. By 1984 this was accomplished and all new airplanes now are manufactured without the flight engineer station. By 2010 or so, the flight engineer position will have vanished from the

passenger aircraft scene but will still be a major player in the cargo fleet. The downside is the loss of a cockpit seat that allowed for on-the-job training.

Regional Jet influence

Perhaps the most interesting paradigm shift that will shape the landscape in the future is the arrival of the regional jet. Just as the turbojet replacement of propeller aircraft in the late '50's and '60's revolutionized air travel, an identical metamorphosis may occur at the regional airline level.

Following economic deregulation, the turboprop commuter air carrier was designed to offer air services to small communities. So the concept grew as operators began service from distant communities whose only alternative to reach an air carrier hub was by driving. Now commercial air service was available which matched the hub major airline traffic flow. The strategy was amplified by interlining and code sharing with a hub airline.

There was now in place almost a seamless traffic plan where a passenger could leave Fresno, California on a regional air carrier, using ticket stock that was identical to the code share partner, and arrive at the Los Angeles or San Francisco major airline hub for a flight to anywhere in the world.

The regional jet resembles a large turbojet and is now an attractive option. A flight from Fresno direct to Phoenix or Albuquerque offfering complementary service with the major airline or, in some cases, bypassing the hub is a win-win for the passenger and, coincidentally, the regional.

For the pilots who must fly these aircraft, however, a seniority system is in place-the captain for a regional turboprop now becomes the commander of the regional jet and a co-pilot moves up to that coveted pilot-in-command slot on the turboprop.

PILOT HIRING FORECAST vs. ACTUAL[9]

The FAA Pilot and Aviation Maintenance Technician Blue Ribbon Panel, which studied the upcoming pilot shortage, concluded its work in 1992 and published its report in 1993. It made the following forecasts which are annotated by the actual figures:

[9] *AIR, Inc.*

	1993	1994	1995	1996	1997
Forecast:	4112	4085	4539	4993	4246
Actual:	5187	8044	8814	10625	12234 (est)
Over/Underestimated	26%	97%	94%	113%	188%

Career Path/Ab Initio Training Programs

Ab initio is a term that has been adopted by the airline industry to refer to a specific type of airline pilot training. The term *ab initio* is from the Latin for "from the beginning" and it describes the key element of *ab initio* airline pilot training-selecting individuals who have little or no flight experience and training them specifically for the task of airline flying.

A pilot (or pilot-to-be) may receive *ab initio* training in one of two ways. An airline may screen and hire a pilot candidate and provide the individual with the required training, or an individual may pay for his or her own training and then seek a pilot position. Training organizations refer to these students as "self-sponsored."

In North America there is no strong tradition of *ab initio* airline pilot training with the exception of a few U.S. schools which train foreign airline *ab initio* pilots. Except for relatively brief periods in the 1960's, airlines have been able to tap a source of pre-trained pilots—ex-military—pilots to fill the bulk of their pilot needs. Since World War II until the mid-1990's, more than 80 percent of all airline pilots for U.S. air carriers have come from the military. Today, however, the tables have turned. With military downsizing, airline growth, and an airline pilot retirement bubble that will last well into the next decade, ex-military pilots fill only a small percentage of the airlines' new-hire pilot needs. The rest are civilian-trained pilots who have typically paid for their own training and then gained flight experience in general aviation pilot positions such as flight instructing.

Ab initio pilot training has played a significant role in filling airline pilots' needs outside of North America. In Europe, the Middle East, and the Pacific Rim, air carriers have not had large pools of ex-military pilots available to them. In addition, the prohibitive cost of civilian aviation and the often very severe air space restrictions in some regions of the world have limited the number of civilian-trained pilots available to airlines. A significant amount of the *ab initio* training for non-U.S. airlines has been done by professional flight training schools in the United States. Thus, air carriers have been forced to hire non-pilots and train "from the beginning" for the role of airline pilot.

It is worth noting that while *ab initio* pilot training for airlines has not been common in the United States, the military has provided what we would consider *ab initio* training to its pilots since the advent of military flight. Non-pilot recruits are developed into military pilots in very short periods of time and put at the controls of some of the most expensive and sophisticated aircraft flying, often with fewer hours in their logbooks than most commuter airline first officers.

Airlines that have been regular consumers of *ab initio*-trained pilots have either developed internal *ab initio* pilot training programs or have outsourced their training to flight training organizations.

Relatively few airlines have developed internal *ab initio* programs because of the cost of creating an effective training curriculum and because of the cyclical nature of new pilot demand. Airlines often can justify the cost of internal type-specific initial and recurrent training programs because they are used on a constant basis by their entire pilot roster. *Ab initio* programs, however, are needed only when the airline needs new pilots and cannot meet its hiring needs from other sources. Some airlines with internal programs have attempted to deal with the cyclical need for *ab initio* training by selling their services to other air carriers.

Private flight training organizations have been a source of *ab initio* pilot training for airlines for several decades. These organizations work with client air carriers to tailor a program to the air carriers' needs and budget.

When an airline chooses an *ab initio*-trained pilot, it has control over how that pilot is trained. The airline can be involved in every aspect from screening through selection and training. Students are taught ground school and flight training concepts entirely within the context of airline flight operations. The best programs place considerable emphasis on human factors and CRM training that are rarely found in traditional civilian training courses. In addition, advanced technical knowledge is a hallmark of the best *ab initio* programs covering such topics as advanced and high-speed aerodynamics, advanced aviation meteorology, and global navigation techniques.

Career Path/New Hire Programs

While ab initio training provides training to an individual "from the beginning," a New Hire program is used to classify and recruit well-qualified pilots who meet airline-or-corporate-identified individual pilot needs. A candidate profile is developed from the pilot's completed application and screening evaluation results. The profile is used to match candidates that meet the requirements identified by air carriers as well as the mandatory requirements stated under the Pilot Records Improvement Act of 1996. Pilot candidates selected by the airline are asked to attend the air carrier's specific FAA-approved training program. Pilot candidates are enrolled for initial training after receiving a "conditional job offer" from the air carrier. Pilots who successfully complete all phases of the air carrier's training program join the air carrier as an employee and continue with Initial Operating Experience. After completing this final phase pilots are fully qualified as a first officer for the air carrier.

Career Path/Academic Programs

A component of growing importance in the U.S. aviation infrastructure is education through aviation programs offered by over 200 colleges and universities. These programs divide almost equally between 2-year Associate (112) programs and 4-year Baccalaureate (93) programs, with a small number of Master's (8) programs.

The three most common Associate degree programs--flight, electronics/avionics and aircraft maintenance--are designed to meet unique technical requirements. Generally these Associate programs require around 60 semester hours with 15 to 20 hours devoted to general studies.

The flight programs, sometimes referred to as professional flight or career pilot, focus on flight operations leading to the commercial pilot certificate and instrument rating with options for multi-engine and/or flight instructor certificates. Many institutions are now using flight training devices extensively and emphasize cockpit resource management. An increasing number of institutions are including turboprop and/or turbojet simulators and flight education in their flight programs.

The Baccalaureate aviation programs typically are 120 to 130 semester-hour programs and, on average, require 4 years or more to complete. The major difference between the Associate and Baccalaureate programs are the general studies component and the wider range of required aviation courses. A typical Baccalaureate program requires 45 to 60 hours of general studies including English, communication, humanities, and social science; math, science, and technology; algebra or calculus, chemistry and/or physics; computer science; and management. Optional courses include management, flight, avionics, or maintenance and usually require 36 to 40 semester credit hours. Aviation management, for example, prepares the students for a variety of administrative and management positions and generally includes a strong foundation in business and management courses that prepare graduates for entry-level positions in such areas as airport management, airline management/operations, and general aviation management/operations.

In addition to the basic degree programs, many institutions offer specialty options such as space studies, aviation computer science, atmospheric science, and air traffic control. Such programs may be appropriate for students who already have a specific career in the industry segment in mind and want the specialized education leading to the career field.

A better understanding of today's collegiate aviation programs can be gained by tracing their development. Prior to World War II, most of the programs in the U.S. were commercial schools and a few colleges and universities with programs which combined

aeronautics and engineering. When the Civil Pilot Training Program was established under government sponsorship in 1939 to help America prepare for war, over 1,000 colleges and universities in the United States responded to the call and developed airport facilities and training programs. Following World War II, many of these programs continued as aviation curricula. In the early 1950's, the government again suggested collegiate aviation through the Reserve Office Training Corps and flight orientation programs for preparing future military flight officers.

The advent of the jet age in the 1960's led to the development of more programs that addressed the challenges presented by the new generation jet aircraft. Initial aviation curricula generally were management, flight, maintenance, and avionics with other options to come later. Some of the pre-World War II commercial schools became part of colleges or universities, or were accredited as universities in and of themselves. Some college programs were offered through an institute which led to certificates but not necessarily degrees. These new programs because of the wide disparity among them often confused prospective students and the aviation industry. To address this problem, the University Aviation Association (UAA)[10], in 1976, published recommended standards for curricula, courses, and credits for Associate, Baccalaureate, and Master's programs.

In 1982, then-FAA-Administrator J. Lynn Helms saw the need for a formal education program that would address the challenges of developing and implementing the FAA National Aviation System Plan designed to modernize, over a decade, the navigation and air traffic control system in the United States. The air traffic control strike in 1981 served as a catalyst for Helms to launch this program with the assistance of the UAA. In 1982, a task force of educators, lead by the University of North Dakota's John Odegard, working with FAA personnel, designed a Baccalaureate curriculum to provide the FAA with its future technical managers. The program, Airway Science (AWS), was very comprehensive, requiring calculus, physics, and management and computer science courses as part of a rigorous core. This was augmented by five areas of concentration leading to flight, aircraft maintenance, avionics, and management and computer science specializations.

UAA's experience with the AWS program evaluation for the FAA led the Association to develop a formal accrediting organization, the Council on Aviation Accreditation (CAA), in 1989. After a 3-year development period, CAA was incorporated in 1992 as an independent accrediting organization for non-engineering aviation programs at colleges and universities. CAA has formalized its relations with industry through a structure that involves equal representation of educators and industry representatives on CAA's governing board, the use of industry members on every accreditation visiting team, and the development of a formal industry advisory board to provide input on the CAA

[10] *UAA is a national organization devoted to collectively representing the interests of 2-year, 4-year, and graduate aviation degree-granting institutions. UAA members include accredited institutions of higher learning, aviation faculty, staff and students, and corporations and individuals interested in promoting aviation education.*

standards used for accreditation. As of December 1997, 12 institutions have earned CAA accreditation and another 10 institutions have applied for program accreditation.

A look to the future indicates that the aviation industry could have greater reliance on the product of the collegiate aviation programs, with the last retirements of World War II aviators and the significant decline in the U.S. military as a source for trained aviation personnel. Through the networking efforts of UAA and CAA, the industry is gaining a better understanding and acceptance of the collegiate aviation product. This will lead to more direct support by the aviation industry, recognizing that they will be the benefactors of such support through better-educated hires. This support can consist of expanded formal or informal partnerships between certain companies and colleges and universities leading to cooperative education internship programs, interviews, and placement after graduation. The sponsorship of scholarship programs, equipment donations and grants, faculty industry exchange programs, and industry participation in institutional industry advisory boards are other significant areas where industry can support education.

Workforce 2000

The transition to the next millenium will bring with it a dramatic shift in the composition of the American workforce. This was widely reported when Workforce 2000[11] was published in the 1980's. There was a lot of concern with the statement that 85% of the new entrants into the workforce would be minorities and females. The publication of Workforce 2020 further defined the changing face of the population and the growth regions of the nation.

U.S. Population Growth 1950-2000

Between 1950 and 2000 the population will grow from 151 to 275 million, an increase of 124 million. Since 1960 the population growth has shown a slight decline except for 1990. This trend is projected to continue after 2000.

Female Share of the Workforce

Since 1970 the female participation rate in the workforce has steadily increased from 43% to a projected 61% by the year 2000. This means that an ever-increasing percentage of women are entering the workplace for various reasons. At the same time the female share of the total workforce has increased from 38% to 47.5%. It is predicted that some time between 2000 and 2010 females will become a majority in the American workplace.

Non-white Share of the Workforce

From 1970 to 2000 the non-white share of the total workforce will grow from 11% to 15.5%. This trend is predicted to accelerate rapidly after the turn of the century. By the year 2000 the non-white percentage of the net new entrants to the workforce increase will grow to 29% as the non-white segment becomes the fastest growing segment of the population.

New Entrants to Workforce

Between 1985 and 2000 85% of the net new entrants into the workforce will be females and non-whites. The fastest growing segment in this increase is the Latino/Hispanic population. By 2010 they are projected to replace the Blacks as the second largest segment of the population. It is predicted that between 1994 and 2005 females will

account for 62% of the net new entrants into the work place. The population growth will not be evenly spread across America. The projection is that 82% of the growth between 1995 and 2025 will occur in the west and south. Approximately 45% of this growth will occur in the states of California, Texas, and Florida.

Appendices

Appendix A
ARAC Tasking

Section 503 language

H.R. 3539

Federal Aviation Reauthorization Act of 1996

SEC. 503. STUDIES OF MINIMUM STANDARDS FOR PILOT QUALIFICATIONS AND OF PAY FOR TRAINING.

(a) STUDY- The Administrator of the Federal Aviation Administration shall appoint a task force consisting of appropriate representatives of the aviation industry to conduct--

(1) a study directed toward the development of--

(A) standards and criteria for preemployment screening tests measuring the psychomotor coordination, general intellectual capacity, instrument and mechanical comprehension, and physical and mental fitness of an applicant for employment as a pilot by an air carrier; and

(B) standards and criteria for pilot training facilities to be licensed by the Administrator and which will assure that pilots trained at such facilities meet the preemployment screening standards and criteria described in subparagraph (A); and

(2) a study to determine if the practice of some air carriers to require employees or prospective employees to pay for the training or experience that is needed to perform flight check duties for an air carrier is in the public interest.

(b) REPORT- Not later than 1 year after the date of the enactment of this Act, the Administrator shall transmit to Congress a report on the results of the study conducted under subsection (a)(2).

Tasking Statement to ARAC

ARAC TASK STATEMENT

The FAA was directed to appoint an industry task force to study minimum standards for pilot qualifications and training under the Federal Aviation Reauthorization Act of 1996. Specifically, Congress requested a study on standards and criteria for pre-employment screening of a pilot applicant's mental and physical capacities and also standards and criteria for pilot training facilities that would have to accommodate this pre-employment screening. The FAA requests that ARAC conduct the study. FAA resources will be used to gather available information and assist in drafting the report. If necessary, the FAA will provide support for additional outside resources.

Under Section 503 (a)(1) of the Reauthorization Act, Congress directed the FAA to appoint an industry task force, consisting of appropriate representatives of the aviation industry, to conduct a 2-part study. This study is directed at identifying standards and criteria for the following:

(a) Pre-employment testing that would measure the psychomotor coordination, general intellectual capacity, instrument and mechanical comprehension, and overall physical and mental fitness of pilots applying for employment with air carriers; and

(b) Changes to pilot training facilities, if needed, that incorporate the pre-employment testing described in (a).

In anticipation of this directive from Congress, in mid-1996 the FAA devised an action plan and identified a number of individuals within the aviation community who have an interest in pilot selection to conduct the study. Because Congress has directed that an industry task force conduct the study, and since most of the individuals already identified by the FAA are from organizations affiliated with ARAC, the FAA has determined that it would be appropriate to task ARAC with the study.

SCOPE OF THE TASK

It should be noted that the FAA is not tasking ARAC to devise any regulatory solutions but to conduct a 2-part study as directed by Congress based on data currently available to the aviation industry. The working group should first review the part of the tasking (paragraph (a) above) that addresses pre-employment screening. A suggested approach to identifying generally applicable standards and criteria would be for the working group to review the following: current pre-employment practices and procedures among the air carriers; the knowledges, skills, and abilities required for pilots to maintain safe

operations; suggested approaches to enhancing pilot selection; and data available both on-line and in the literature on human factors as well as the knowledge base of industry experts.

Once completed, the group should then proceed to a review, if necessary, of how pilot training facilities (paragraph (b) above) would incorporate the identified standards and criteria.

WORKING GROUP

The working group should be comprised of individuals with diverse backgrounds in pilot training who are able to identify corporate, economic, and safety issues. These individuals would include, for example, recruitment specialists, flight personnel managers, employment coordinators, human resources specialists, human factors specialists, medical specialists, and flight crew administrators, as well as representation from among the various aviation associations, air carriers, commuter operators, and the Defense Department.

FINAL PRODUCT

The working group should submit one report that would address both portions of the Congressional directive. Although the working group is not tied to any specific format, the report should be structured in a manner suitable for presentation to Congress. The FAA envisions that this report will, as concisely as possible, address the group's findings and also any conclusions that may have been reached.

A suggested format for the report would be to include the following: this tasking statement (for background); a list of the working group members with their respective affiliations and contributions to the effort; recognition of any contributions from persons who were not members of the working group; a brief description of the process used to conduct the study; the overall findings from conducting the general research; the impact, if any, that the study may have; and conclusions, if any, that can be drawn.

TASK ASSIGNMENT

The FAA recommends that this task be assigned to ARAC Training and Qualifications Issues.

SCHEDULE FOR COMPLETION

Within 24 months following the date that acceptance of the task is noticed in the Federal Register.

FAA REPRESENTATIVE

Dr. David Schroeder from the Office of Aviation Medicine will be the FAA Representative on the Minimum Standards for Pilot Qualifications Working Group.

If further information is needed, please contact Judi Citrenbaum, Office of Aviation Medicine, (AAM-210) 202-267-9689.

Appendix B
Working Group Members

Working Group Chair:

Richard J. Nelson/Interim Dean/University of North Dakota

Working Group Alternate Chair:

Deborah McElroy/Vice President/Regional Airline Association

Working Group Members:

Captain Robert A. Pastore/Chairman Pilot Training Service Committee/Air Line Pilots Association

Russell B. Rayman, M.D./Executive Director/Aerospace Medical Association

Judy Tarver/President/Universal Pilots Application Service

Robert DeLucia/Vice President/AIR Conference

Wayne Knittel/Captain/Delta Airlines

Carl Hoffmann/President/Hoffman Research Associates

David K. McKenas, M.D./Corporate Medical Director/American Airlines

Barry Strauch/Board Member/National Transportation Safety Board

Al Gleske/Vice President Governmental Affairs/Flight Safety International

Captain Leon Johnson/Chair/International Black Aerospace Council/Manager/United Parcel Service Airlines

Marie Emeott/Manager, Human Resources, Flight Operations/Northwest Airlines

Nancy Stuke/Manager of Flight Officer Employment/United Airlines

Alternates:

Mike Shelton/Staff Engineer-Engineering and Air Safety Division/Air Line Pilots Association

Dick Trumbo/Assistant Executive Director/Aerospace Medical Association

Roger Vesley/Senior Staff Representative/United Airlines

FAA Support:

David Schroeder, Ph.D/CAMI/Oklahoma City, Oklahoma

David Hunter, Ph.D/Office of Aviation Medicine/Washington, D.C.

Woody Davis, M.D./ Office of Chief Counsel/Washington, D.C.

Judi Citrenbaum/Office of Aviation Medicine/Washington, D.C.

Special Thanks:

The working group wishes to acknowledge and thank the following individuals for their informative presentations:

Sonny Childers (Southwest Airlines)
Ken Gile (Southwest Airlines)
Sue Golabek (United Express)
Gary Kay, Ph.D. (Georgetown University)
Lonnie Robinson (US Airways)
Stephanie Skaggs (Southwest Airlines)
Jim Ward (ALPA)

FAA Action: Report forwarded to Congress on Mar -09-00.