AIRFRAME MECHANICS TECHNOLOGY
NEEDS ASSESSMENT

Prepared by
The Office of Institutional Research
Oakland Community College
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CONTENTS

EXECUTIVE SUMMARY

-Previous needs assessment (1980) indicated that the FAA required facilities that were beyond means of OCC, hence the program was canceled.

-ACAI has met FAA requirements (January 1990) and wishes to affiliate with OCC.

-Program could be easily instituted at OCC similar to the Cosmetology program.

-Literature indicates strong need for aviation mechanics now and in the future.

-Wages start modest; can become lucrative.

-Only three aviation mechanic schools in Southeast Michigan; none in Oakland county.

-OCC's program could easily support and supplement ACAI.

OVERVIEW

Program Initiation

The current investigation into the need for an Airframe Mechanics Program (AMP) at Oakland Community College was initiated by Dick Thompson, Bill O'Mahoney, and Jim Warner in a meeting with Tom Barlow and Tom Parker of American Christian Aviation Institute (ACAI) on February 19, 1990. It was then noted that ACAI had been approved by the Federal Aviation Administration (FAA) under Part 147 (see appendix A) as of January 3, 1990 to have two classes with a maximum of 24 students each in Airframe Mechanics. Students in the program are required to meet a total of 1,280 hours, 8 hours/day, 5 days/week.

The cost of the program to students is $5,000. Salaries for graduates were reported to range from $15,000 for entry level mechanics in small shops, to $40,000 for seasoned workers with large national carriers, and even larger salaries for persons able to reach management levels. Employment opportunities appear to be abundant. The advantage of the Associate Degree would be first to better prepare those students who lack necessary basic mathematics, science, and English skills, and secondly to provide a broader background for professional advancement.

Previous Needs Assessment (1979)

A needs assessment study was prepared by Oakland Community College's Department of Instructional Technology in the fall of 1978. Members of the committee were: W. E. McGran (Lefty), J. D. VanderVeen, Dr. John Wohler, Leonard Mapes, Dr. Bill Rose, and Dr. Marion Rice. The four separate groups surveyed were: 1) high school and community college students, 2) Michigan flight schools, 3) small plane owners, and 4) aviation repair schools. Their survey reached the following conclusions:

> "The survey has revealed an outstanding affirmative response from the high school level as to student interest in choosing Aviation Technology as a career. Also, the community college student survey displayed that a large number of students already attending the community college would be interested in taking Aviation Technology type courses."
>
> "The community response to surveys, other than students, reveals a very high interest. Surveys of small plane owners, Michigan Flight Schools, and FAA repair stations indicated a definite need for an

> Aviation Technology Program as well as demonstrated that graduates would have good opportunities for employment as aviation mechanics."

A demand for the Aviation Maintenance Technology Program was also stated in letters to Provost Dr. Marion Rice from J. David VanderVeen, Manager of Aviation at Oakland/Pontiac Airport, and by James D. Ramsey, Director, Michigan Aeronautics Commission, State of Michigan, Department of State Highways and Transportation.

It was noted that Oakland County Pontiac Airport, "in terms of aircraft traffic, was the second busiest only to Chicago's O'Hare in the FAA Great Lakes Region." It was concluded that:

> "It must become evident that a good market exists for training aviation mechanics to fill the need for support technicians for the general aviation industry in Oakland County. Oakland Community College has adequate facilities and a geographic advantage at the Auburn Hills Campus to fulfill the needs of the immediate future for well-trained aviation industry in Oakland County."

The program, however, was never instituted at Oakland Community College as it was later realized that FAA certification required resources beyond the means of the college. These FAA certification requirements have now been fulfilled by ACAI.

Program Description

The current initiative into the Airframe Mechanics Program has a great advantage over the aborted 1980 program in that the FAA certification, including airframe-specific courses and facilities, are all provided by ACAI at an estimated initial cost of $250,000. A program offering the Associate Degree in Airframe Mechanics would be set up in a similar manner as the OCC Cosmetology program. The catalogue might state:

> "The Airframe Mechanics Program is an Associate Degree Program in applied science. Oakland Community College will grant a block of 30 credit hours to students who have completed an approved 1,280 total hours of training provided by an FAA 147 approved school of Airframe Mechanics."

Thus of the total 62 credits for the Associate Degree, 32 credits would be provided by ACAI as required by the FAA over a period of 8 months for full-time students attending lecture and practical training 8 hours/day, or over a period of 16 months for half-time students attending class 4 hours per day (see Appendix

B). The remaining 30 credits for the Associate Degree would provide students with any necessary remedial skills needed in mathematics, reading, and English, as well as background courses in algebra, technical reading, communications, physics, chemistry, blueprint reading, electrical circuitry, and basic machine shop.

Oakland Community College and Airframe Mechanics

The Oakland Community College mission statement states "OCC will offer learning opportunities and experiences that anticipate and respond to the vocational, ... needs of the communities it serves." Further it states, "OCC will maintain a curriculum responsive to the changing educational needs of the residents of the district. The range of learning experiences provided will include theory, practical applications, and real-life situations." The Airframe Mechanics Program fits this description as a desirable program to be instituted both for the needs of the residents and the growing demands of the aviation industry in Southeast Michigan.

Six million residents in Southeast Michigan are served by only three FAA approved aircraft maintenance schools, of which ACAI is the most recently certified, and the only one located in Oakland County. Oakland-Pontiac Airport is the second busiest airport in the state. Its location at M-59 and Airport Roads makes it only three miles from the Highland Lakes Campus.

As a need was seen over ten years ago for an aircraft maintenance school in this area the demand for qualified mechanics appears not to have diminished. The problem of ten years ago of lacking proper facilities has now been resolved with the January 1990 certification by the FAA of ACAI. OCC currently is affiliated with ACAI in the licensing of pilots, and further affiliation is thus more easily facilitated.

LITERATURE REVIEW

Strong Demand

Historically, demand for aviation maintenance personnel has always been strong. As early as 1930 there was concern for shortages of maintenance personnel in aviation[11]. With the passage of the Airline Deregulation Act of 1978, passenger air travel grew explosively[11]. In 1982 the number of new graduates of aircraft maintenance schools peaked out at 16,000, but has diminished to 10,000 new graduates in 1989[4]. FAA records indicate that as of December 31, 1988 there were 312,419 individuals who held agency issued A&P certificates. Of those, 149,907 were added during 1988. The total of 312,419 represents a reduction from a peak of nearly

500,000 names a decade ago as a result of continuing efforts to purge the register of individuals who died or who did not exercise privileges of the certificate[11]. Unlike pilots, inspection authorization (IA), and other certificates issued by the FAA, A&P's are not required to go through any review process, and therefore it is difficult to maintain accurate counts of currently active A&P's. Major carriers increased hiring by 326% in the first 10 months of 1988 from 2,825 to 7,421, and hired a total of 7,759 that year[11]. Total hiring of new aircraft maintenance workers for 1988 was reported at 9,200[14]. In that year the FAA reported issuing 14,900 maintenance licenses, which was down slightly from 15,000 in 1987[8]. Thus, not only has there been a shortage in the field, but fewer people are entering the field[11].

Currently, there appears to be a shortage and demand for A&P's, even though schools graduate an estimated 8,000 A&P's annually[2]. A recent survey by Air Transport Association shows aviation employers begging for experienced mechanics, with 4,000 positions now vacant out of 69,000 total jobs, and schools report three to five job openings for every graduate[8]. Robert Garlin, co-director of the Benjamin O. Davis Aerospace Technical Center at Detroit City Airport notes a 98%-100% placement in the field and an overwhelming demand[12]. This shortage is being experienced in the midst of a surge in air travel forcing airlines to hire mechanics with less experience[14]. Major airlines use to hire mechanics with 3-5 years of experience, but now feel fortunate to find new employees with any experience at all, resulting in lower hiring standards and greater on the job training[2].

Several factors appear to account for this shortage. First, a large number of veterans of World War II, and the Korean conflict are now retiring and leaving the job market[8 12]. Second, many mechanics are leaving the job market because of better opportunities in fields which also can capitalize on the job skills of A&P's[2 4 8 14]. Estimates of proportions of graduates actually entering the job market vary from 50%[2 11 14], to 72%[4]. The remainder go into such related fields as industrial plant maintenance, sheet metal work, air conditioning, electronics, including computers, automotive repair, and practical engineering[11]. Reasons for not seeking employment in the aviation field include: 1) equal or higher wages elsewhere[11 14], and 2) less stress that one's mistake could cause a crash, especially with the labor shortage and demand to quickly get aircraft back into service[14]. The future demand for A&P's generally appears to be positive[8]. By 1995 there will be a need for 60,000 new technicians which at current rates will result in a shortfall of 28,000 to 38,000 A&P's by 1995[4]. Future Aviation Professionals of America (FAPA) estimates 50,000 new mechanics will be needed in the next 10 years, doubling the work force[2 4 8 14].

Some caution as to the extent of the shortage is, however in order. Conflicting opinions among authorities might lead one to believe the so-called aircraft mechanic shortage is a matter of

perception rather than reality. The overall picture probably is no more threatening than that for flight crew, design, engineering, manufacturing and other specialties extending across the scope of civil aviation[11]. Demand for A&P's will grow, but not critically. The problem is really that pay for A&P's is not much higher than other areas involving much less stress, with too few incentives to stay in aviation. Employers expect recent graduates of mechanics schools to be proficient in all facets of all types of aircraft from helicopters to the newest jet aircraft without providing additional training. It should also be noted that air travel tends to fluctuate with general economic trends. Current sluggish trends and threats of recession are likely to have trickle down effects towards the hiring of new mechanics.

The future for A&P technicians has been described as rosy, and FAPA estimates that 50,000 new mechanics will be needed in the next 10 years, nearly doubling the current work force and promising good advancement opportunities[8]. FAPA notes this estimate to be conservative and the actual demand may be as high as 70,000 depending on retirement trends and the loss of technicians to other industries[2]. It is estimated that by 1995 alone the industry will demand 60,000 new technicians resulting in a shortfall of 28,000 - 38,000, if current trends continue with airline service doubling by the year 2001[4]. It is probably fair to say that growth is expected but will not be critical. Following basic economics, supply is likely to meet demand, and salaries will rise[11].

Developing countries are also creating a demand for an increasingly larger international market[8]. Graham Howat, who is the managing director of Hong Kong Aircraft Engineering Company (HAECO) describes the international market as huge and straining capabilities[1]. United Airlines is cutting back contracts for other airlines to concentrate on maintaining their own expanding fleet. Newly mandated modifications will intensify demand for British and U.S. repair authorizations. This international demand for maintenance is expected to increase from the 2.1 million hour workload in 1990 to 3.7 million hours in 1995[1].

Future demand for minority groups will be significantly increased if an FAA proposal for minority businesses is approved. Under the proposal, at least 10% of concessions and other businesses at an airport, including Fixed Base Operators (FBOs) must be owned by "socially and economically disadvantaged individuals," including women for any airport receiving grants under the FAA's Airport and Airway Improvement Act.

Wages can be relatively low for starting mechanics, but can be above average for seasoned A&P's, and higher for those who earn the Inspection Authorization or go into airline management. The low starting pay of $6 per hour is found at the traditional entry level positions at small FBO's[11]. However, a survey of 1,000 FBO's by the National Air Transportation Association (NATA) in 1989 with a

response rate of 25% showed an average pay for mechanics of $10.78 per hour[11]. The FAA reports starting pay for maintenance workers at 77 regional carriers to be $8.89 per hour, and Eastern Airlines offers salaries ranging from $10 to $18 per hour, pay progression at six month intervals, a $1,000 bonus upon completion of probationary period and up to $2,000 in relocation fees in addition to other benefits. Other sources indicate similar salaries increasing to an average of $18.22 per hour with five years experience and topping out at $20.84 with major airlines[2 8]. Regional airlines lag behind major carriers, paying an average of $11.57 per hour, since they tend to work on less sophisticated turboprop airplanes[2]. Corporate and business aviation tend to pay their maintenance personnel better[2]. These hourly wage rates for all types of mechanics translate to annual salaries ranging from $28,000 for a new hire to $47,000 for a chief of maintenance at a major airline[2]. A five year follow-up study by the Alabama Aviation and Technical College recently completed found that more than 80% of its graduates were in the aviation field with annual salaries ranging from $25,000 to $50,000[12]. Leo Weston, repair station branch manager for the FAA Flight Standards Office in Washington D.C., said, "Many people think A&P technicians have been grossly underpaid in the past, but today and in the future with respect to salary levels I believe that the person who is interested in getting into aviation maintenance is going to make a salary equal to or higher than that in other industries."[11]

The demand for aviation mechanics appears to be high, but not critical. Future hiring appears strong, but may be affected by fluctuations in the economy and may be regional. Better pay scales tend to be found with the major airlines and corporate/business sectors, but the highest demand for entry level positions lies with the smaller FBO's, where wages are the lowest. The shortage of certified mechanics is compounded by the demand for these skills in fields outside aviation where there is less responsibility and stress, better working conditions and often higher pay. Yet the potential for a promising career remains high as demand becomes increasingly acute. The president of Alabama Aviation and Technical College, Shirley Woodie, said, "It is just a great opportunity for a person with a good work ethic and good skills. I see this as a wonderful means of upward economic mobility."[12]

Education of Mechanics

Aircraft mechanic schools are regulated by the FAA. Aircraft mechanics are the only mechanics certified by the federal government and the certification process is both lengthy and expensive. There are two ways to get the experience that allows prospective mechanics to take the tests for the coveted certificates for airframes (A) or powerplants (P) or both (A&P). One way is by attending an A&P school; there are more than 160 in the United States. The program at these schools usually lasts for

two academic years, or about 18 months, and consists of a minimum of 1,900 hours of instruction. About 20,000 people are currently enrolled.

In the course work, the prospective A&P encounters training in airframe structures, electrical systems, hydraulic systems, environmental and pneumatic systems, fiberglass, sheet metal work and welding. Basic course work in physics, mathematics and chemistry is included and both reciprocating and turbine engines and accessories are covered. Classroom work and practical experience on actual airframes and engines are performed with some schools offering work with "live" aircraft (aircraft being routinely flown).

The second way to certification is through an apprenticeship at the hands of an established A&P. At least 18 months of practical experience with the "procedures, practices, materials, tools, machine tools and equipment generally used in constructing, maintaining or altering airframes, or powerplants appropriate to the rating sought" is the minimum required before FAA examiners will administer the practical test for either airframe or powerplant. At least 30 months of practical experience is required for an applicant who wants to take both tests.

Probably fewer than 10% of A&P's go the apprenticeship route, according to Harold Summers, vice-president of maintenance of Petroleum Helicopters, Inc., a large oil-field helicopter company in Louisiana. "It's a hard way to go, because they have to do all the book work, the studying, on their own after learning the practical part on the job."

After graduation from an FAA approved maintenance technician school or an apprenticeship, the mechanic applicant is faced with three examinations covering 41 subject areas, from dope and fabric to complex airframe structures, from reciprocating engines to turbines.

After the applicant proves he has the academic knowledge by passing the written examinations, there are two practical exams, one for airframes and the other for engines. Practicals take about eight hours to complete and test the level of skill by having the applicant show and explain how a particular job is accomplished[8].

In 1988 there were 170 FAA approved A&P schools across the country producing more than 12,000 graduates who successfully completed the written, oral and practical examinations required to earn the A&P certificate[11]. These totals do not appear to satisfy the need for mechanics[4] and both American Airlines and Northwest are considering establishing their own 147 schools[8,11]. The General Aviation Manufacturers Association (GAMA) in Washington D.C. was told by the American Education Association that one solution might be to increase the number of institutions offering A&P training[11].

However, James R. Rardon, GAMA vice president and associate professor of aviation technical programs at Purdue University believes that potential maintenance manpower shortages can be stayed or delayed simply by establishing more Part 147 programs. "We've got a number of well meaning schools out there now that turn out 15 or 20 students a year. They've had to make an enormous investment to do that. The same investment put into larger, well established institutions, such as Colorado Aero Tech (Denver), PIA and others, might enable those facilities to produce substantially more A&P graduates at a lower cost. It would bother me to see massive investments made in new facilities when that may not be the best solution to the problem, if indeed there is a problem."[11]

FAA 147 schools have also been criticized for not properly training graduates. Ben Schrick, vice president of Evangeline Airmotive in Lafayette, Louisiana claimed, "the lack of ability to troubleshoot is the greatest problem he experiences in orienting the 16 to 25 new hires he brings aboard each month. Their tendency is to keep replacing parts until the defective part is finally discovered. From a business standpoint, that's just too costly to tolerate."[11] Also small budgets, declined emphasis in technical education and quality of education have been cited as part of the problem[4]. The Professional Aviation Maintenance Association (PAMA) convention in Houston in February of this year concerned itself largely with upgrading the stature and professionalism in aircraft maintenance industries through continuing education[5]. Panel sessions were devoted to possible revision of FAA's Part 65 of the 147 regulations. It was felt that organizations outside of the FAA, such as PAMA should have as much input into the revision process as possible. Consolidation has been seen as another solution to the school shortage problem. Macomb Community College, MI, and Wayne County Community College, MI early this year (1990) joined forces with the Detroit Public Schools and the Benjamin O. Davis Aerospace Technical Center to offer aviation mechanics training. By day, the center at the Detroit City Airport is a high school specializing in aviation classes for Detroit youngsters. By night, it becomes a community college.

One of the reasons Wayne County and Macomb forged the partnership with the Detroit school system is the high cost of many aviation programs. Flight simulators and turbine engines have big price tags and airplanes are out-of-the-question for most colleges."[12]

A national survey was taken in 1982 of 256 educators in 147 schools to examine their feelings on mechanic training[7]. Of the 64% who replied, 69% indicated a strong need to update the 147 Federal Aviation Regulation (FAR). These regulations are based on a Study by Allen in 1970 which at that time stressed the advent of the then new 747. Now, however, the industry needs to cope with the solid state electronics and new complexities of the 757, 767's and others. There was also a concern noted that the FAA norms for

their written tests do not demonstrate content validity of program quality. It was felt that the validity is compromised by publication of sample tests and answers. This causes cramming sessions and reportedly raised the average on the test from 50% to 85%. Some respondents indicated a need for courses in written and verbal communication and computer operation.

Computers appear to be increasingly useful for both cataloguing of parts and diagnostics. New rules by the FAA governing repairs and replacement of parts (the minimum equipment list) will sharply increase airlines' inventories of spare parts and put a premium on timely delivery, expanding the need for computerized parts data bases.[13] A new computerized maintenance system was introduced in 1989 by CTA Inc. The Automated Maintenance Management System (AMMS) takes information from the aircraft's data base to monitor the health of aircraft systems and log performance and operating times. After the aircraft lands, a floppy disk containing the information is inserted into a ground station that quickly identifies problems. The information aggregated there would supplement and eventually replace paper logbooks as the master records for aircraft[9].

Another survey was taken in 1985 to monitor perceptions of small FBO owners and employers of mechanics regarding the effectiveness of recent graduates of FAA approved maintenance schools.[10] The 68% response rate among 100 owners surveyed indicated a need for more training and that the curriculum is outdated. They also indicated a need for computer orientation as well as familiarity with microfiche maintenance manuals, which are often unknown to instructors.

A school interested in screening potential trainees might be interested in examinations with demonstrated criterion related validity. The Specific Aptitude Test Battery (SATB) developed specifically for Airframe and Powerplant Mechanic screening by the State of Oregon in affiliation with thirteen other states, has been shown to "produce a useful increase in the proportion of highly competent workers ... from 66 percent to 77 percent." It also found, "no evidence of differences in validity for blacks and non-minorities."[3] Two other tests used to screen applicants are the Career Placement Assessment Test offered by ACT, and the Differential Aptitude Test by Psychological Corporation.

OCCUPATIONAL OUTLOOK

Nationally

The occupational outlook for airframe mechanics has been described by FAPA as booming. Data provided by FAPA (see Appendix

D) indicate, 7,500 mechanics were hired in 1988 and nearly 12,700 in 1989. Hiring levels reached a new peak in 1989 after four years of relatively stable hiring. The total number of 1989 new hires represented a 69% increase over the 1988 hiring levels. The exceptionally large hiring numbers for 1989 were precipitated in part because of increased hiring by Eastern after its maintenance personnel went on strike in March. As for 1990, FAPA estimates that at least 8,700 to 9,200 airline maintenance technicians will be hired. In the first quarter of 1990, there were 700 more new hires than were hired in the same period in 1989. The 12-month total ending in March, 1990 is 13,565. Should this trend continue, this projection will be exceeded. FAPA forecasts a total of 50,000 more openings over the next ten years. The seasonal charts (see Appendix D) show a slight increase in hiring during the warmer months which was supported in telephone conversations with people familiar with the field.

In a telephone conversation with the national FAPA office in Atlanta, GA, Wes Powell noted that due to current sluggish trends in the economy, passenger carriers have experienced a 20% drop in business in the last six months, and all major airlines except Southwest experienced losses. This, accompanied with mergers and acquisitions in the industry have resulted in a 50% reduction in new hires. The Michigan Employment Security Commission (MESC) projects a 4.7% increase in aircraft mechanics nationally in the period of 1985-2000 as compared with a 19.2% increase in all occupations. Northwest manager Ken Northcutt notes no hiring in 1990 at all at Northwest.

By category, the major airlines currently employ 85% of all technicians. For the new airline technician jobs, major airlines filled 71% or approximately 4,000 openings.

Locally

In Michigan the MESC 1988 revision of the Michigan Occupational Supply and Demand reports the number of aircraft mechanics to increase from 1,250 in 1985 to 1,850 in 1995 which is an increase of 3.9% annually or 39% over the ten-year period. This rate is described as "much higher than the average growth rate of 9.37% of all jobs in the state." Their Supply/Demand & Student Follow-up summary indicates that new employees will be able to meet the increased demand. These forecasts are based on assumptions made in an econometric model with assumptions made for: population growth, GNP growth, staff patterns growth, and historical time series studies. The figures also assume the proposed expansion of Metropolitan Airport will be carried out. The MESC Michigan Occupational Forecasts 1990 reports the number of aircraft mechanics to increase from 1,550 in 1980 to 1,650 in 1990 which is a 6.6% change.

Northwest manager at Detroit Metropolitan Airport, Ken Northcutt reports no hiring for 1990. He notes, however that at times as many as 60 new people will be hired in one year at Metropolitan Airport. These positions are usually filled through bidding from within the airlines, usually hiring from their Minnesota facility. Northcutt notes a proposal for a new Airbus 320, which if instituted will generate 1,200 new positions nationally.

Local air carrier manager, Les Marshall, of Zantop indicates that there is always a demand shortage, but it is a feast or famine situation which fluctuates with the economy. He does not see many leaving aviation for other sectors, but finds many of his employees going to the major airlines where salaries and benefits are higher. Tim Fox of Transcontinental at Detroit Metropolitan Airport indicates that although they are not hiring now, the job outlook is good.

EDUCATIONAL OPPORTUNITIES

ACAI

American Christian Aviation Institute (ACAI), located at Oakland Pontiac Airport, holds FAA certification as an FBO as well for training of pilots, and airframe mechanics. They seek affiliation with Oakland Community College to offer their students the opportunity to earn the Associate Degree along with the Airframe licensed program they offer. It is felt the association would allow the students the opportunity for remedial skills where necessary, as well as background courses in technical reading, mathematics, electronics, science, and communication skills necessary for training as an airframe mechanic as well as to prepare the way for an advanced degree. It is also felt the Associate Degree, while not a threatening title, would lend more credence to the graduate's skills, and thus make the graduate more marketable and upwardly mobile.

ACAI began its flight school in 1982 as a missionary training facility, and also has ties to William Tyndale College in Farmington Hills. The purpose for the flight school, and the more recent maintenance school, is to train missionaries for travel to remote areas of primarily Third World countries. ACAI has, however, no religious affiliation, or subsidies, and has open enrollment in much the same manner as the University of Detroit. ACAI was first certified by the FAA for Airframe Mechanic training on January 3, 1990 for two classes with 24 students per class. Their current enrollment is at about 50% of this capacity. ACAI currently holds no Powerplant certification which is seen as a disadvantage by Roy Johnson of the FAA at Metropolitan Airport. Johnson notes that having only the Airframe license limits the

mechanic to what operations can be performed. Some parts of an aircraft, such as the prop and hydraulics are "grey areas" which may require the airframe mechanic to get someone else to finish maintenance on an aircraft. The additional certification requires an additional 18 months of on the job training, along with successful passing of FAA tests. Certification for the Airframe license cost ACAI an estimated $250,000, and the additional certification for Powerplant is likely to be more expensive. Tom Barlow, President of ACAI, intends to gain the additional certification within one year if it can get funding.

ACAI currently has 24 students enrolled in two 12 student classes. There are currently no women and "very few" minorities enrolled. A few (10% - 15%) of their students come from military backgrounds, and many are laid off from the automobile industry. Admission requirements include a high school diploma or GED, and an interview. They have experienced a 25% dropout rate attributable to their students finding luring employment opportunities elsewhere. They report inquiries have already been made for their graduates from larger carriers.

Its FAA approved program in Airframe Mechanics requires 1,280 contact hours, 8 hours per day, 5 days per week, over a period of 8 months at a student cost of $5,000. The curriculum covers basic mathematics, physics, blueprint reading, electricity, welding hydraulics, sheet metal repair, heating and cooling, and many other areas as required by the FAA (see Appendix B). These courses total 32 semester credit hours leaving Oakland Community College to provide an additional 30 semester credit hours in liberal arts.

Other Michigan Schools

Of the 170 programs in aviation mechanics nationally, nine are located in Michigan, and only three, including ACAI are in southeast Michigan. All other eight programs offer or require both Airframe and Powerplant programs. All are located at or near airports, but are not necessarily FBO certified. Most are small schools graduating less than 25 students per year. Programs for A&P certifications tend to be very similar, as required by the FAA, of 1,900 contact hours of course work over a two academic year (18 month) period. Two or four year degrees vary somewhat in required ancillary courses. All require a high school diploma or the equivalent, but only those indicated require any further testing. Macomb Community College and Wayne County Community College are not listed, since their A&P training is conducted at the Benjamin O. Davis facility at Detroit City Airport. Credits are listed as semester credit hours, unless otherwise indicated.

Andrews University (Quarter Credits)

The university has a Seventh-day Adventist affiliation. Students may earn credits towards either Airframe, or Powerplant license, or both. The university offers the following degree programs:

1. Bachelor of Science in Engineering Technology which combines the aviation maintenance program and other engineering courses to prepare the individual for activities between the pure engineer and the skilled craftsman (223-226 credits).

2. Bachelor of Science in Industrial Technology which combines business courses with either flight or maintenance areas for business responsibilities (190 credits).

3. Bachelor of Technology combines two of the three areas: flight, maintenance, or avionics, to allow for greater career choices (190-194 credits).

4. Associate of Technology can be obtained with only a few additional courses beyond those required for the certification (96 credits).

Benjamin O. Davis Aerospace Center

Students may take either the Airframe or Powerplant program (57 credits each) or both. The director, Robert Gartin, reports 100% of students earning both licenses in the FAA mandated program. He also notes 95% going on to earn Associate Degree at either Macomb Community College, or Wayne County Community College.

Macomb requires 18 credits in Arts and Sciences beyond the 57 taken at Davis for a total of 75 credits for its Associate of Applied Science Degree. On the other hand Wayne County Community College requires an additional 23 credits for the Airframe and 20 for the Powerplant program for its Associate of Applied Science Degree. The hours include six credits in English and at least one social studies elective.

Detroit Institute of Aeronautics

The school was purchased in April of 1989 and is currently upgrading and expanding its program. It reports many more applicants than the 25 students per class for which they are currently certified by the FAA

and use interviews and testing to select applicants. They have no formal affiliations with other academic institutions, but report referring students who seek the Associate Degree to Wayne County Community College or Washtenaw Community College.

Grand Rapids School of Bible and Music

The school is a missionary-oriented facility requiring two years of Bible study and study in both Airframe and Powerplant maintenance. The school offers no degree programs.

Kirtland Community College

The college is certified to teach 35 Airframe and an additional 35 Powerplant students, and the college reports most students getting both. The program requires 90.5 credit hours for certification in both areas and 96.5 hours total for the Associate Degree. The twelve semester hours in general education for the Associate Degree consists of three hours each of: English composition, introductory American government, humanities or social science elective, and speech. They also require mathematics and physics for the degree program and the certification program. Applicants are also tested using the ASSET test as well as for achievement in reading, English and mathematics.

Lansing Community College

The 90 credit hour Associate Degree program in Aviation Maintenance Technology takes 24 months to complete. The college offers 51 credit hours of courses in Airframe and 65 credits in Powerplant. They report a waiting list for admission.

Southwestern Michigan Community College

The Associate of Applied Science is a 90 credit hour program covered in twenty months beginning in the fall only. The program includes technical mathematics and physics, and English (communications) 1 and 2. Vocational courses account for 70 credits, with the remaining 20 from general education areas. They report being close to their limit of 24 students per class, and 100% placement. They use their own diagnostic testing process.

Western Michigan University

The University offers no programs less than the Bachelor Degree. They offer two programs:

1. The Bachelor of Science in Aircraft Maintenance Engineering Technology (139 credits). This new program requires physics 1 and 2, pre-calculus, and regular calculus, chemistry, elementary statistics, and electronics. The program prepares graduates for positions in aircraft maintenance such as performance testing, engineering maintenance liaison, maintenance logistics, flight test engineering, product technical support, and aircraft maintenance engineering.

2. The Bachelor of Science in Aviation Technology and Operations requires elementary physics 1 and statistics, chemistry 1, electronics, calculus, airport management, and legal environment. Students must choose one of the following two options. The Technical Management Option (128 credits) leads to careers in areas such as technical sales or service or production, and general aviation management and also requires courses in business and management including decision making and business economics and finance. The Aviation Maintenance Option (136 credits) emphasizes aircraft systems, reliability and maintainability, licensing requirements, and repair facility management and also requires courses in public speaking, and marketing.

CONCLUSIONS

This needs assessment study was initiated on July 24, 1990 in a meeting with Jim Warner, Sarah Serra, Martin Orlowski, and Rob West of Oakland Community College, and Tom Barlow of American Christian Aviation Institute. This meeting followed a letter dated February 22, 1990 from Jim Warner to Richard Saunders indicating the need for an Airframe Mechanics program. A previous needs assessment was conducted in 1978 for an Airframe and Powerplant program to begin at OCC in the fall of 1981. Although a need was indicated at that time, the program was aborted as it was discovered its initiation would require FAA certification requiring facilities beyond the means of OCC.

The present program would use ACAI facilities, and thus would allow OCC to provide the Associate Degree in Aircraft Maintenance

without itself becoming FAA certified. The program would be listed in much the same way as OCC's Cosmetology program with 32 credits offered at ACAI and 30 at OCC (see Appendix C).

The literature indicates a general strong demand for aircraft mechanics, although the intense demand has diminished somewhat in the last few years, and is somewhat dependent on the general economy which presently appears sluggish. Graduates of this type of mechanics programs are also in high demand in areas outside of aviation, and 25% to 50% of the graduates have taken positions outside the aviation industry. If adopted, a new FAA proposal for minority hiring will greatly increase demand for minorities in aircraft maintenance areas. Wages range from $6 per hour for entry level positions at small repair facilities, to $24 per hour for management level personnel at major airlines.

There are 170 FAA certified institutions in the United States offering aircraft maintenance training, nine of which are in Michigan, three of which are in Southeast Michigan, including ACAI. FAA approved courses require 1,900 contact hours of instruction over a two year period for combined A&P licenses. A mechanic may also become certified by participating in an eighteen month apprenticeship program for either Airframe or Powerplant mechanics, or a 30 month program for both A&P, although less than 10% of mechanics follow this route. Graduates must pass written, multiple choice tests in their area(s), as well as a comprehensive, eight hour practical evaluation by an FAA employed examiner. FAA 147 requirements for mechanics programs are constantly being reevaluated and modifications to certified programs are periodically required. Three tests have been shown valid in screening applicants.

Institutions in Michigan are identical in their curricula for A&P certification, as required by the FAA, but vary considerably in their degree programs from no degrees at small theological schools to Bachelor Degrees at large, four-year universities.

ACAI was first certified as an airframe facility in January of 1990. It currently does not have Powerplant certification found at all other Michigan institutions and this is seen as a disadvantage. However, ACAI hopes to earn this certification as soon as possible.

The need for aviation mechanics appears strong now and in the future. The problem experienced with a previous attempt of implementing the program in 1980 has now been eliminated with ACAI's fulfilling the FAA certification requirements. It is, however, recommended that ACAI seek the additional certification in Powerplant to par its status with the other institutions in Michigan. The program could be better marketed, since ACAI is relatively new and other schools indicate waiting lists for admission. Demand for minorities will be especially enhanced if the FAA proposal for minority owned businesses is realized. Demand

for graduates is enhanced by demands outside of aviation in such areas as business machine repair, sheet metal work and heating and cooling. This should be seen as an advantage to the program's success in providing trained technicians for the community as described in OCC's mission statement.

The courses that OCC will provide should prepare the student for the technical training offered at ACAI as well as provide background for the student seeking a four year degree. OCC should first offer diagnostic testing and remedial help in reading, mathematics, and writing, where necessary. Secondly background courses which are currently offered at OCC which would aid in preparation for the technical courses offered at ACAI might include: technical reading; algebra skills (needed for electronics), electronics and related courses; physics (for familiarity in electricity), fluid mechanics, gas laws, and general mechanics; chemistry (for familiarity of materials) pneumatics, and other heating and cooling courses. In addition, drafting courses including Computer Aided Design (CAD) needed for blueprint reading; computer applications for cataloguing, and diagnosis of mechanical problems using on board electronic monitoring systems; metallurgy; and mechanic courses offered in the automotive curricula are needed. Finally, OCC may consider incorporating courses which would enhance the graduate's background leading to a four year degree or job advancement. Such courses currently offered at OCC include: technical writing, business writing, speaking courses, and business and management courses, and courses from the Aviation Flight Technology Programs.

Appendix A
Terminology

Terminology

Airframe and Powerplant Mechanic (A&P): A person holding FAA certification in both Airframe and Powerplant Mechanics.

Airframe Mechanic: A FAA certified mechanic responsible for nonpowerplant (engine) areas of the aircraft such as the sheet metal skin, hydraulics, mechanical parts, and electrical wiring, but not the electronic (avionic) repair. Electronic parts may be replaced, but not repaired.

Aviation Technician Education Council (ATEC): An organization of educators formed for the purpose of implementing improvement of training in the aviation industry.

Federal Aviation Administration (FAA): A government bureau charged with the safety of air commerce in the US. One of the largest responsibilities is licensing of all airmen, mechanics, pilots, and anyone within the aviation industry.

Future Aviation Professionals of America (FAPA): A private organization centered in Atlanta, Georgia, which monitors and promotes employment in the aviation industry.

Federal Aviation Regulation (FAR): One of the methods used by the FAA to regulate and control the aviation industry. FAR 147 for title 14 is a code of Federal Regulation pertaining to aviation maintenance, including Airframe and Powerplant Mechanics.

Fixed Base Operator (FBO): A maintenance facility employing one or more FAA certified maintenance persons, which is responsible for repair or replacement of worn or damaged parts, and maintaining aircraft in safe flight condition.

General Aviation Manufacturers Association (GAMA): A private organization centered in Washington, D.C. which monitors and lobbiess for the interests of aircraft manufacturers.

Power Plant Mechanic: A person who is FAA certified to repair and maintain aircraft engines and powerplants such as generators.

Supplemental Structure Inspection Document: A document the FAA may issue directing all US airlines to inspect or repair certain parts based on conditions discovered in a sample of all aircraft in an airlines fleet after a predetermined number of flights.

Appendix B
ACAI Federal Aviation Administration Approval

UNITED STATES OF AMERICA
DEPARTMENT OF TRANSPORTATION
FEDERAL AVIATION ADMINISTRATION

Air Agency Certificate

Number DA8T079Q

This certificate is issued to

AMERICAN CHRISTIAN AVIATION INSTITUTE

whose business address is

1525 Airport Road
Pontiac, Michigan 48054

upon finding that its organization complies in all respects with the requirements of the Federal Aviation Regulations relating to the establishment of an Air Agency, and is empowered to operate an approved

AVIATION MAINTENANCE TECHICIAN SCHOOL
with the following ratings:

AIRFRAME

This certificate, unless canceled, suspended, or revoked, shall continue in effect INDEFINITELY

By direction of the Administrator

Date issued:

JANUARY 2, 1990

C. David Hobgood

C. DAVID HOBGOOD
MANAGER, AGL DETROIT FSDO

This Certificate is not Transferable, AND ANY MAJOR CHANGE IN THE BASIC FACILITIES, OR IN THE LOCATION THEREOF, SHALL BE IMMEDIATELY REPORTED TO THE APPROPRIATE REGIONAL OFFICE OF THE FEDERAL AVIATION ADMINISTRATION

Any alteration of this certificate is punishable by a fine of not exceeding $1,000, or imprisonment not exceeding 3 years, or both

FAA Form 8000-4 (1-67) SUPERSEDES FAA FORM 390.

Appendix C
ACAI Curriculum

American Christian Aviation Institute
and Tyndale College

Course ATG - 101 Basic Math and Physics, Drawings, Ground Operations and Weight and Balance.

Understanding mathematical principles, measurements, conversions, charts and graphs. The study of matter, energy, work, stress, and heat; laws of motion, gases, and fluid systems.

Study of various perspective drawings; learning to read blueprints. Application of principles of levers in weight and balance.

Learning run-up and taxi procedures. Safety in servicing today's aircraft. 12

Credit Hours 3

Class Hours 80

Lab. Hours 80

Total Hours 160

Course ATG - 102 Basic Electricity D.C. and A.C.

Study the production of D.C. Current mechanically, chemically, and thermally. Understanding D.C. Circuits, their diagrams, functions and uses in Aircraft. Trouble shooting and measurement techniques.

Study the production of A.C. Current through mechanical and electronic means. Transforming and using A.C. Current. Radio wave propagation. Measuring power, voltage, resistance and current in electrical circuits.

Credit Hours 3

Class Hours 80

Lab. Hours 80

Total Hours 160

Course ATG - 201 Maintenance Publications, Forms, Materials & Processing, Corrosion, Control, Fluid Lines and Fittings

Use of the various maintenance publications available to the Aviation Technician and the use of maintenance Forms.

Study and recognition of the various types and uses of aircraft hardware. Uses hand tools properly and safely. Use of precision measuring devices.

A study of the various materials used in the manufacture of aircraft; corrosion of these materials and its control.
A study of the various techniques of non-destructive inspection.

Credit Hours 3

Class Hours 80

Lab. Hours 80

Total Hours 160

12

Course ATA - 100 Aircraft Instrument and Electrical Systems.

Use of the basic principles of electronics in the trouble shooting of aircraft electrical systems.

Understanding of the various types of instrument systems; gyroscopic, electronic, pneumatic, differential pressure, direct pressure, and mechanical systems, trouble shooting and repair procedures.

Credit Hours 3

Class Hours 80

Lab. Hours 80

Total Hours 160

Course ATA - 101 Aircraft Structures, Aircraft Covering and Finishing, Welding Hydraulic & Pneumatic, and Position Warning

Understanding the various types of structures; the materials with which they are constructed; proper methods of repair and manufacture, including the various methods of covering and finishing of modern aircraft.

An understanding of the principles of fluid systems and their use in modern aircraft. Hydraulics as used in landing gear systems, both retract and shock absorbtion, Hydarulics in aiding surface controls. Pneumatics as used in shock absorbtion and in instrumentation.

An understanding of the principles and practices of welding used in aircraft construction.

A study of the various position and warning systems.

12

Credit Hours 3

Class Hours 80

Lab. hours 80

Total Hours 160

Course ATA - 102 Sheet Metal Structural Repair, and Landing Gear Systems.

A detailed study of the tools, hardware and their use in repair of sheet metal structures. Inspection and repair of sheet metal structures. A detailed study of the various fabrics used in Airframe manufacture. An understanding of repair techniques in fabric coverings.

A comprehensive study of aircraft landing gear systems.

Credit Hours 3

Class Hours 80

Lab. Hours 80

Total Hours 160

Course ATA - 201 Aircraft Assembly and Rigging, Cabin Atmosphere Systems

Proper techniques used in the assembly of major parts of the aircraft structure. Understanding the various methods of surface control and how they are to be adjusted.

Understanding the physiology of light, maintaining physiological needs at altitudes, pressurization techniques, airconditioning systems, their maintenance, trouble shooting and repair.

Credit Hours 3

Class Hours 80

Lab. hours 80

Total hours 160

12

Course ATA - 202 Aircraft Inspection, Fuel Systems, Ice and Rain Control. Fire Detection and Protection Systemnms

A thorough study of the inspection procedures and use of check lists in the examination of aircraft for airworthiness standards.

A study of the various methods of dealing with ice and rain condition in flight.

Fuel systems analysis, trouble shooting and repair procedures.

A study of fire detection and protection systems

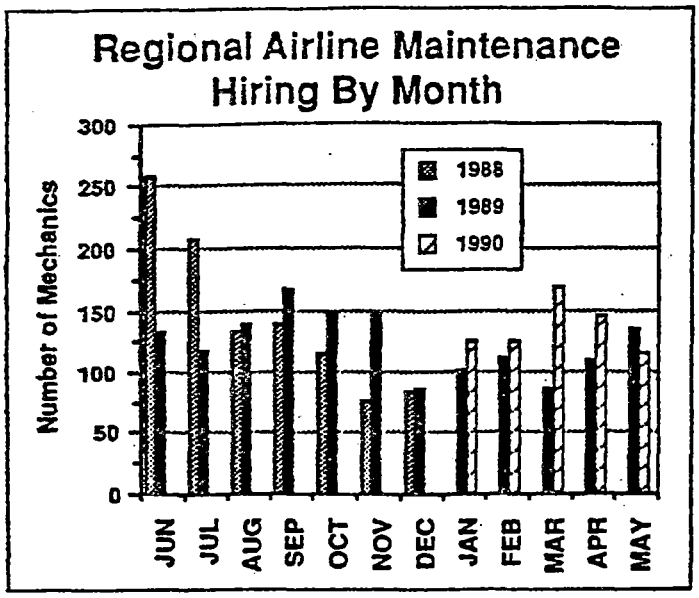
Credit Hours 3

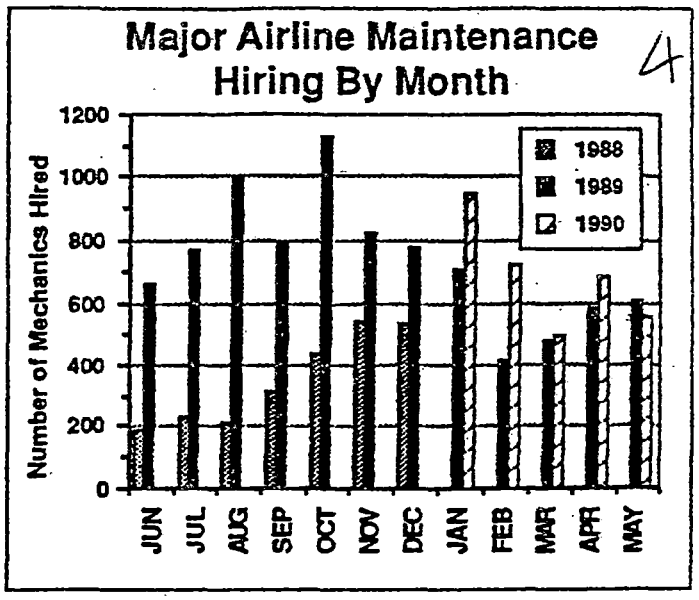
Class Hours 80

Lab. Hours 80

Total Hours 160

Appendix D
FAPA Data





4

Regional Airlines: Approximately 4,000 technicians repairing non-jet aircraft.

Hiring 1,500 - 2,000 per year.

Improvements in pay and benefits are occurring.

Increased percentage of larger and jet equipment.

Attrition makes for rapid advancement.

Many prefer experienced technicians.

Merger possibilities.

The Case For A Major Airline Job: Approximately 68,000 technicians.

The major, national and turbojet airlines represent more than 80 percent of all jet airline hiring in the past 12 months.

This airline group will account for the majority of new jobs on large jets in the next 10 to 15 years.

Most established major airlines will have a significant number of technician retirements in the next 13 years (50 to 80 percent). These retirements will create job openings.

Only large airlines will be able to compete and grow in the deregulated environment.

Most experts predict that the number of airlines will decrease to five or six in the near future.

The opportunities for advancement to lead/foreman positions, due to attrition and growth, are with the major airlines.

Your earning power at the major airlines is substantial. The average starting foreman pay for the major airlines is $43,145 per year.

B Scale

We predict future major airline technicians will earn 85 to 95 percent of what they make today (in constant dollars).

This will be achieved by lower rates of increases in A scale technicians' contracts.

At the same time the B scale will be brought up to merge with the A scale, usually within five to nine years.

Do not judge the outcome of this new pay system before it has a chance to settle down. To turn away from your career now when the average fifth year income is more than $37,800 a year is premature.

Unions

During your probationary year you will not be asked to join the company union. Once off of probation however, you will be asked to join.

Dues - Monthly Payments:

The dues rate for active union members is based on 1 ¼ - 1 ⅜ percent of monthly income or two hours of base pay per month.

Dues Payment Methods:

- Monthly dues checkoff through your airline (payroll deduction)
- Annually in advance payable directly to the union
- Monthly dues payable directly to the union

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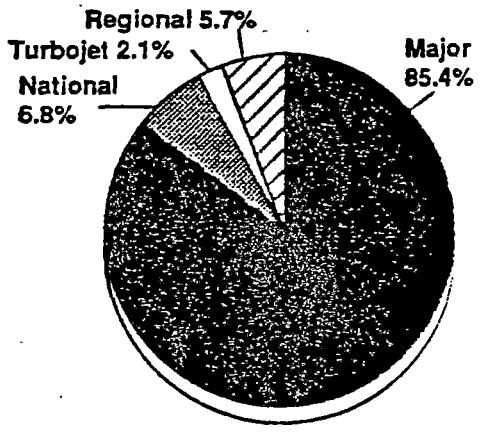
Major/Regional Relationships - May 1990

Major	Network	Regionals
American	American Eagle	Chaparral Command Executive Air Charter Metroflight Nashville Eagle Inc. Simmons Airlines Wings West
Continental	Continental Express	Bar Harbor Britt Rocky Mountain Airways Southern Jersey
Delta	Delta Connection	ASA Business Express Comair Skywest
Eastern	Eastern Express	Bar Harbor Eastern Metro Express Southern Jersey
Midway	Midway Connection	Iowa Airways Midway Commuter
Northwest	Northwest Airlink	Mesaba Express I Precision
Pan Am		Pan Am Express Resort Commuter
TWA		Air Midwest Metro Airlines Northeast TWExpress (MO)
United	United Express	Air Wisconsin Aspen Mesa NPA WestAir Airlines
USAir	USAir Express	Allegheny Commuter Airlines Inc. CCAir Chautauqua Commutair Crown Henson Jetstream Pennsylvania StatesWest

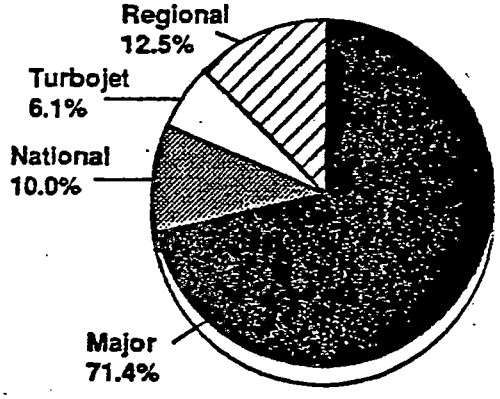
4

Technician Work Force By Category–1990

Total technicians = 73,375



New Airline Technician Jobs for 12 months ending 3/90 - 13,565



SPECIAL REPORT

AIRLINE MAINTENANCE TECHNICIAN CAREER DAY

Introduction

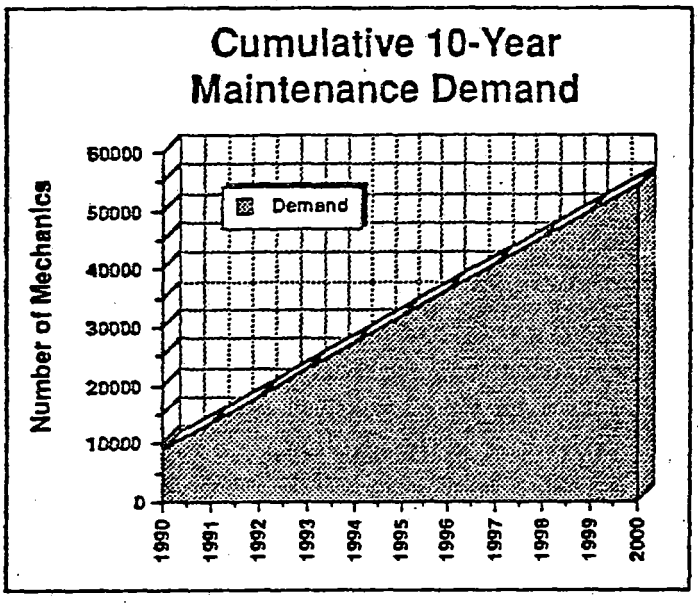
Purpose:

To assist you in maximizing your potential for employment in the airline industry.

To provide you a fast and efficient path to a career.

Assumptions:

Your career goal is to secure employment as an airframe and/or powerplant mechanic, aircraft inspector or avionics technician with a U.S. airline.



Your Task:

You must market yourself and play by the current rules.

Timing is everything and the time is now.

- Today's market holds a special opportunity for technicians.
- We do not know how long this window of opportunity will last.

Technician Opportunities Now And In The Future:

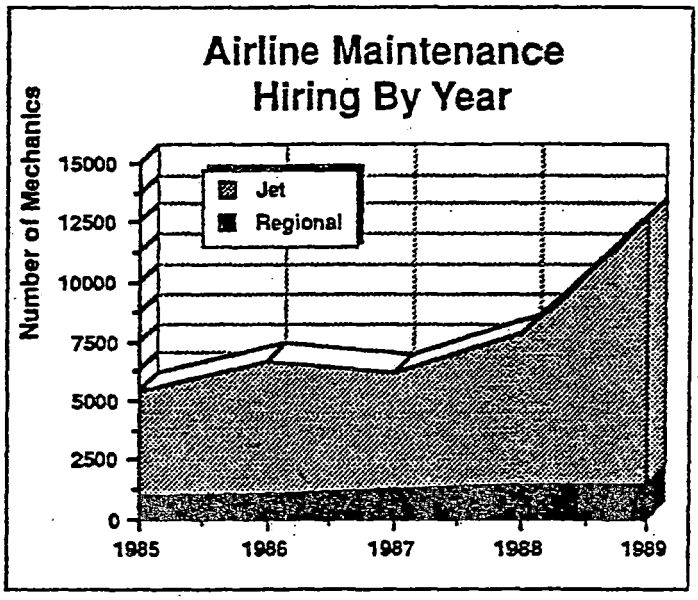
Today, all financially sound major airlines are hiring technicians.

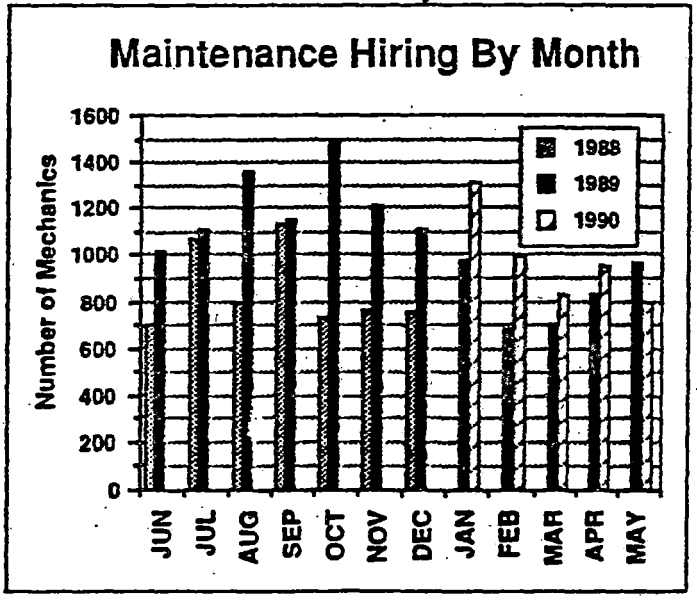
FAPA estimates 1990 technician demand will continue strong with a total of 8,700 to 9,200 new positions.

- Major airlines will dominate the hiring with approximately 4,000 openings.
- National and turbojet regional airlines will hire approximately 2,500.
- Regional airline technician demand is expected to be 1,500 to 2,000.
- Helicopter hiring will continue with approximately 700 technicians.

Future demand is based on known retirements and a modest five percent growth rate.

- FAPA estimates the industry will need 46,000 technicians in the next 10 years: 35,000 in large jets and 11,000 in the non-jet regional category airlines.





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HE-4185-II-B-3 3/90

AUTHORITY: PL 98-524
COMPLETION: Voluntary (Consideration for funding will be possible only if form is returned.)

Michigan Department of Education
Higher Education Management Services
COMMUNITY COLLEGE SERVICES UNIT
Box 30008, Lansing, Michigan 48909

Direct questions regarding this form to the Community College Services Unit at (517) 373-3360.

APPLICATION FOR NEED STUDY

July 1, 1990 to June 30, 1991

SUBMITTING EDUCATIONAL AGENCY	Name of College: Oakland Community College	College Code: 23/A 2804
	Project Contact Person: Martin A. Orlowski	
	Title: Director of Institutional Research	Telephone: (313) 471-7746

GENERAL INSTRUCTIONS:

1. Complete this project application and submit it with the Planning and Application Form by MAY 18, 1990.
2. Specific definitions, guidelines, program components, and reporting requirements related to this application are found in Section 3 of the "Dean's Guide to Federally Reimbursed Community College Occupational Programs."
3. Submit a final financial report for this activity by AUGUST 16, 1991.

PART I. PROGRAM IDENTIFICATION

C.I.P.	PIN	College Program Title
49.0105		Air Traffic Control

PART II. DEFINITIONS

NEED STUDY: The project for which this funding is requested must adhere to the process and procedure as defined in the "Occupational Education Program Need Studies Handbook" as identified in Section 3 of the Dean's Guide.

PART III. APPLICATION ACTIVITY

Attach a description of specific activities and dates to be accomplished.

See attached.

Proposed Program: Air Traffic Control
Schedule of Activities

1.	Review of the Literature	Sept. - Oct.	1990
2.	Analysis of Occupational Outlook	September	1990
3.	Review of Existing/Similar Programs at other Institutions	Sept.- October	1990
4.	Draft report based on activities 1-3	November	1990
5.	In depth data collection Surveys, Focus Groups, Interviews	Dec. - Feb.	1990
6.	Initial cost analysis	December	1990
7.	Draft report based on activities 4-6	March	1991
8.	In depth Feasibility Analysis	April - May	1991
9.	Final Report	June	1991

COLLEGE: Oakland Community College

ACTIVITY: Need Study

PART IV. BUDGET FORMAT

Provide a line item description for activities to be funded. These funds require a 50% non-federal (cash) match.

STATE USE ONLY	BUDGET				
Function Code	Line Item Description	Salaries	Services	Other	TOTAL
	Research Assistant	$ 1,500.00			$ 1,500.00
	Clerical	750.00			750.00
	Computer		$ 50.00		50.00
	Mileage			$ 50.00	50.00
	Supplies/duplication			250.00	250.00
	Postal		200.00		200.00
	Miscellaneous			200.00	200.00
290	TOTAL	$2,250.00	$ 250.00	$ 500.00	(A) 3,00.00
			DEPARTMENT of EDUCATION (FEDERAL) SHARE: (B)		1,500.00
			LOCAL (non-Federal) SHARE (Item A minus Item B): (C) (must equal at least 50% of Item A)		1,500.00

PART V. SIGNATURES

I certify that the information submitted on this application is accurate and complete to the best of my knowledge.

DATE 5-9-90 CONTACT PERSON/ NEED STUDY Martin A. Orlander (Signature)

DATE _____ CONTACT PERSON/ OCCUPATIONAL EDUCATION _____ (Signature)

FINAL REPORT FORMAT

1. ASSURANCE

   Verify that all FEDERAL FUNDS were expended and/or encumbered during the grant period of JULY 1, 1990 to JUNE 30, 1991.

2. NEED STUDY

   The "Occupational Education Program Need Studies Handbook" (Chapter 5, page 27) indicates the contents of the report to be submitted to the Michigan Department of Education.

   The final report is due at the state agency on or before AUGUST 16, 1991.

3. FINANCIAL

   The Financial Funding Report, Form DS-4492-A, is used to request funds for this project. The Final Expenditure Report, DS-4044, will be required and must contain the expenditure per the Function codes on the approved budget. See Section 12 of the Dean's Guide for instructions.

OCC

HIGHLAND LAKES CAMPUS

MEMORANDUM

TO: *Richard Saunders, President*

FROM: *Jim Warner, Dean* JW

SUBJECT: *Air Traffic Control Program at the Community College of Beaver County*

DATE: *March 15, 1990*

On Friday, March 9, Tom Barlow, Peter Grass, Sarah Serra and I traveled to the Community College of Beaver County in Monaca, Pennsylvania, to observe the College's Air Traffic Control Program. While there we met with James Johnson, Coordinator of the Aviation program; Robert Powell, ATC Instructor/Facility Manager; and Leon Pitt, Counselor. We toured the entire College Aviation Program facility located at the Beaver County Airport. We spoke to students, supervisors and faculty in the Air Traffic Control, Professional Pilot and Avionics options within the Aviation Program. Everyone we spoke to was extremely helpful and cordial. The following is a brief summary of our findings and recommendations.

AIR TRAFFIC CONTROL PROGRAM

Their ATC graduates receive FAA certification and a private pilot license. They receive a control tower rating and a CTO certificate with facility rating. They are examined by an FAA examiner.

Nationally, about 2% of those who apply to become air traffic controllers are successful. Graduates of the program have a much higher success rate. While Beaver County currently has 90 students who "claim" to be ATC majors, according to R. Powell, the actual number is somewhat less. There are 20 to 25 students usually enrolled in the last two semesters of the ACT program. Fourteen can graduate each year. Students must spend 230 hours in control tower positions.

There are five full time supervisors/instructors, the full time instructor/facilities manager and three part-time supervisor/instructors employed in the ATC program. Facilities include classroom buildings, dedicated solely to the aviation program, a prefabricated building consisting of a simulated control tower and air field, and an operating county airport control tower.

The cost to construct the control tower was $80,000 in the early 1970's. $250,000 was required to equip it. It is fully owned and operated by the College. A new aviation building is scheduled for completion next fall.

The FAA is not currently encouraging two-year schools to develop Air Way Science Programs in general or ATC programs specifically. We received a list of two-year schools which have formed a consortium to address the need for FAA recognition and support. Tom Barlow has that list.

PROFESSIONAL PILOT PROGRAM

The College currently employs 3 full time and 15 part-time flight instructors. There are 440 student pilots enrolled and they fly a total average of 40,000 hours per year. The cost range for a commercial pilot rating in the program is $13,000 to $14,000. Students in Pennsylvania do receive a 45% reduction in flight instruction costs from the State Department of Education.

AVIONICS

The Avionics Program at Beaver County has been in existence for three years. The College has over $300,000 invested in avionics equipment. There are two full-time instructors. They have had 18, 22 and 26 students enrolled in the three years. To successfully complete the program, each student will be required to obtain the FCC General Radiotelephone Operator License and an Avionics Manufacturer's Repairman Certificate.

The coordinator and faculty are currently considering the addition of an Air Frame Mechanics Program so that their students may be certified in Avionics and Air Frame Mechanics.

RECOMMENDATIONS

Given our current efforts to increase enrollment in the OCC Flight Program and initiate an Air Frame Mechanics program in cooperation with ACAI, and considering the expense involved in setting up an ATC program, I would recommend that we not proceed with the development of an ATC program for at least two years. At that time, we should review the FAA's position on two-year ATC programs, the viability of our Aviation Flight Technology Program and financial resources available to the College. Should we decide to further assess the need for and feasibility of an Air Traffic Control program at that time, the Beaver County Community College Program should be considered as a possible model for replication.

er
Traffic

pc: T. Barlow
J. Marshall
P. Grass
S. Serra