A SABBATICAL REPORT

Presented to
the Board of Trustees, Faculty, and Administration of
Mt. San Antonio College

In Partial Fulfillment
of the Requirements Specified for a
Sabbatical Leave

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by
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THE PURPOSE AND DEFINITIONS OF TERMS USED

The Federal Aviation Administration has certified over 125 organizations in the United States as Approved Airframe and/or Aircraft Powerplant Technician schools. Approximately one sixth of all approved schools are located in the state of California. It is interesting to note that more schools are located in Southern California than in the state of Texas which places second in the number of schools approved by the FAA. Mt. San Antonio is one of the ten approved schools in Southern California. In recent years it has been considered to be one of the leading schools in this area.

Being classed as a leader does involve certain dangers. Unless the competetive desire to excell is very strong, other schools will continue to improve both their facilities and instructional quality while the "leaders" mark time. There is also a tendency for experienced instructors to feel that the methods and procedures successfully followed over a relatively long period of time must be the best way to accomplish the desired training goals. There is always room for improvement.

I. THE PURPOSE

A basic reason for requesting this sabbatical was

simply to observe the training methods and procedures used by instructors in a large number of schools located in many sections of the country. FAA approved curriculums tend to be similar, but the course duration, training sequence, use of training aids, and other methods employed by instructors vary considerably.

Other goals. It was believed that useful data could be secured by comparing facilities, instructor-student ratios, available information on financial data, employment opportunities, and the exchange of ideas with other instructors. Additional information was to be obtained by visiting airports and maintenance facilities in various sections of the country. A wealth of information is available through brief visits with fixed base operators at local airports. Many A & P technicians will find their initial employment in the aviation industry with this type of company.

Aerospace activities and agencies such as the NASA space centers, the FAA Aeronautical Center, and aviation museums were scheduled for visitation. National historic sites and parks were also considered for the itinerary; many of these do have educational significance.

In appreciation. It is appropriate at this time to thank the faculty, administration, and Board of Trustees of

Mt. San Antonio College for granting this sabbatical. The benefits obtained through travel and visitation this past semester should enhance the instructional capabilities of the local A & P technician training program.

II. DEFINITIONS OF TERMS USED

FAA. The Federal Aviation Administration, usually referred to as the FAA, was authorized by Congress to promote, regulate, and administer the various facets of aviation. Its predecessor, the Civil Aeronautics Administration, was known as the CAA.

A & P. This is the standard term used to designate a technician authorized by the Federal Aviation Administration to maintain, repair, and release civilian aircraft and powerplants to flight status. A certificate in either the Airframe (A) or Powerplant (P) category is issued to applicants meeting FAA experience and educational requirements. The majority of applicants try to obtain certification in both categories.

Approved School. An institution offering technician training in Aircraft Powerplants and/or Airframe mechanics meeting all the facility and curriculum requirements specified in FAR Part 147 may be certified as an approved school by the Federal Aviation Administration. Approval is independent of state or district requirements. FAA approval will

insure maximum student benefit from the training. Instructors in approved A & P programs are required to hold an FAA certificate in the subject area being taught. Periodic surveillance inspections conducted by FAA personel will insure compliance with applicable regulations.

Approved Repair Station. A repair and maintenance facility approved by the FAA as meeting the requirements of FAR Part 145. Certification may be in one or more categories of airframe, powerplant, propeller, radio, instruments, and accessories.

FAR. Federal Air Regulations are documents relating to civil aviation matters requiring regulatory procedures.

FBO. A company, large or small, operating an aviation business from a fixed base on a local airport. Activities of such an operator may include new aircraft sales, rental space for customer aircraft, flight instruction, maintenance of aircraft, and many other associated aviation services. Some large fixed base operators may operate from more than one location.

CHAPTER II

TRAVELS AND OBSERVATIONS

This portion of the sabbatical report is divided into three main areas of travel: (1) the southern states, (2) the Southern California area, and (3) Northern California and the Pacific Northwest. This chapter is intended to present highlights of the various visitations and not offer conclusions or suggestions.

I. EAST TO THE DEEP SOUTH

A total of nineteen schools, sixteen bearing the FAA stamp of approval, were visited during the first phase in February and March. Approximately 7,600 miles were traversed through twelve southern states. In one of the three non A & P schools, a mission school for Navajo Indians located in Rock Point, Arizona, we were invited to give a talk on aviation. The visiting lecturer had no previous experience talking to young Indians in grades three through seven; the "scholars" did not counter with a war dance, so the talk was considered to be reasonably successful.

Private venture schools. Five of the A & P schools visited were privately owned. These ranged from top rated Spartan School of Aeronautics in Tulsa, Oklahoma to one in East Texas that appeared to be operating on the proverbial

"shoe string". Embry-Riddle University of Daytona Beach, Florida was another well known aviation school, but on our rating sheet it placed lower than Spartan and some public institutions. Although enrollment was high, facilities of the A & P school were old and quite crowded. New labs and classrooms are planned. The training environment will be enhanced upon completion of these facilities. Hallmark Aero Tech of San Antonio, Texas and Florida Academy of Aerospace Technology at St. Petersburg were rated below Embry-Riddle but were enjoying near capacity enrollment. A sixth private school--Bay Area Technical of St. Petersburg, Florida--had apparently succombed to financial pressures some months prior to our scheduled visit. The experience requirements of private school A & P instructors was relatively low when compared to community colleges in Southern California.

Public school systems. It would be difficult to pick the outstanding approved A & P school from the eleven tax supported institutions visited. The George T. Baker Aviation School of Miami was the largest in this group. Up to 300 tenth graders from twenty Miami area high schools attend aviation classes for two hours in the morning; approximately 200 survivors of the first year course would attend three afternoon hours daily when promoted to grades eleven and twelve. A late afternoon and evening program for post high school students was also conducted. It was from the latter

group that any significant number of qualified A & P students was graduated. The school was excellently equipped, but the building itself could have doubled for a concrete jungle. Near the opposite end of the population spectrum, Texas State Technical of Amarillo, employed three instructors for the twenty six students currently enrolled. A few more students were expected to enter later on in March. The aviation labs were large and contained sufficient aircraft, engines, and test equipment to train up to 100 students. Perhaps the Atlanta Area Technical School (Georgia) should be considered the best of this group with Cochise College of Douglas, Arizona in a three way tie for second place with George T. Baker and Texas State Technical. Although the Atlanta school A & P enrollment was similar to MSAC, their supply and equipment budget was much larger. Current enrollment in the Atlanta Area Technical A & P program was ninety two students with 100 day students considered maximum. Seven instructors were on the payroll, each of whom specialized in one phase of the program. Equipment and facilities for the rated capacity of 100 students were very good indeed.

One school, South Georgia Technical and Vocational of Americus, Georgia was of especial interest. During the early part of 1941 the author of this report had journeyed south to work for Graham Aviation, a company holding a contract with the Army Air Corps to train primary cadets. Graham Aviation

leased Souther Field in Americus, Georgia. New hangars for the Stearman trainers and other facilities were constructed since Souther had been slowly stagnating since its heyday in World War I. Thirty five years later one of the brand new 1941 hangars was the home of the FAA approved A & P portion of South Georgia Technical! Current enrollment in the A & P course was forty students. The two instructors had done an excellent job of obtaining and placing equipment, utilizing space, and maintaining a relatively well organized training facility under somewhat difficult conditions. This school could not be considered on a par with its sister in Atlanta despite a sentimental attachment to Souther Field and the 1941 hangar.

Related aviation facilities. A visit to the Naval Aviation Museum at the Air Station in Pensacola, Florida is well worth the time it takes to browse among the exhibits. From the Navy's first Curtiss flying boat through the 1919 NC-4 of trans-Atlantic fame and finally the command space-craft which flew to and from the Skylab in 1973, the museum is packed with historic aircraft and engines. Then, to vividly bring to life the words of Daniel, "Many shall run to and fro, and knowledge shall increase", one should visit the Kennedy Space Center near Titusville, Florida. After viewing the various exhibits and film presentations in the Visitor Center it is wise to take the two hour conducted

tour of the center by bus. Major launch pads, rockets and support equipment, plus the huge Vehicle Assembly Building, can be inspected at close range. Despite environmentalist fears of the past decade--and the noise of modern aerospace machinery--birds and other wild life seem to enjoy their habitat at the center. A short drive to Port Canavaral permits one to see the U. S. Navy missile tracking ships and an occasional nuclear submarine entering the channel.

The FAA Aeronautical Center located on Will Rogers Field in Oklahoma City is of particular interest to people who deal with FAA personel. After visiting with Mr. Keith Teasley and several others associated with certification and testing of A & P technicians we came away almost as confused as if we had just spent several hours reading FAA regulations. Needless to say, this is a large center employing a sufficiently large staff to meet any potential assignment.

A number of airports were visited. In Arizona we visited John and Thelma Butler, former MSAC Continuing Education Powerplant students, who now operate a flight service from a small airport in Rimrock. Other visits ranged from the intermediate size Hobby Airport in Houston to Birmingham Municipal and busy Memphis International Airport. Largest of all was an Air Force installation at Warner Robins, Georgia. This large control depot brought back memories of

the 1942-1946 era when we tried valiantly to make aircraft inspectors from Georgians more familiar with automobiles and cotton fields than military airplanes. They must have had compassion for our gnawing ulcers since they soon learned the rudiments of aircraft quality control. Warner Robins was a very large maintenance and supply depot in 1945 and it incorporates additional facilities today.

Historic sites and parks. Old missions and the Alamo were the major attractions in San Antonio, Texas. Florida provided the Everglades National Park, the Singing Tower in Lake Wales, Castillo de San Marcos and St. Augustine. This state is not famous for its high mountains, but one notable pass deserved a picture. A large sign on the shoulder of Highway 27 in Everglades National Park identified the area as Rock Reef Pass, elevation three feet! Some of yesteryear's charm seemed to have been lost in old St. Augustine, perhaps because residents have grown more progressive in the art of extracting tourist dollars. If the tourist reciprocates by scowling and tightly clutching his or her wallet, many points of interest can still be found in this old city.

The Okefenokee Swamp in Georgia not only looks like the stereotype of a swamp, but also spawns the beautiful Suwannee River. Okefenokee was referred to by early Indian residents as the "land of the trembling earth". Other sites visited in Georgia were the Ocmulgee National Monument at

Macon and the infamous Civil War prison camp, now a national cemetary, at Andersonville.

Several "minor" attractions were of interest on the homeward journey. One was Judge Parker's Court and Museum in Fort Smith, Arkansas. Side trips were also made to points of interest that had been bypassed on previous excursions to Arizona. The Saguaro National Monument near Tucson and old Tombstone were visited early in February. On the return trip we stopped, seemingly in the middle of nowhere, to visit the Hubbell Trading Post founded in 1878. Next on the agenda was awe inspiring Canyon de Chelly. A few contemporary Indians farm the canyon floor in the shadow of structures built by prehistoric cliff dwellers. Montezuma's Well and Montezuma Castle National Monument were relatively small in area but extremely interesting. The castle is one of the best preserved cliff dwellings in the United States. The origional dwellers either enjoyed climbing for reasons of health, or did not relish having strangers at their doors. Both park sites are only a short distance from the Flagstaff to Phoenix highway.

There is another attraction that can not be categorized as a historic site, park, or aviation facility. The Oral Roberts University of Tulsa, Oklahoma is outstanding for at least one major feature--its architecture. Design and layout of campus structures is indeed striking.

II. THE SOUTHERN CALIFORNIA AREA

Most Southern California residents realize that this is a much larger area than it appears to be when looking at a map in order to find the shortest route between two points. Like many other residents, we were somewhat surprised to find out just how quickly a thousand miles can be recorded on the odometer when traveling between cities. During the latter part of March and the first three weeks in April we visited ten schools and numerous fixed base operations located on various airports in the Southland.

Private venture schools. The only privately owned school in this area with an FAA approved A & P program is Northrop University in Inglewood, California. This major is under the direction of Mr. Anthony Vai and is one of several degree programs offered by Northrop. Mr. Vai indicated that 540 students were currently pursuing A & P studies under the supervision of thirty instructors. Some faculty members are seasoned and do have considerable experience, but many meet only the minimum FAA instructor requirements. It should be noted that salary ranges are below those found in community colleges. The A & P enrollment may be maintained at a fairly constant level since a new class will start every four weeks. Northrop also offers a six week helicopter and a twelve week avionics course over and above the basic A & P program.

Public school systems. All tax supported schools offering an FAA approved A & P curriculum in this area are community colleges. Four of the programs are located in Los Angeles County, three in San Bernadino County, and one each in Orange and San Diego Counties. Most are quite well organized and should be classed as very good, one neither "hot nor cold", while two seem to be operating under less than ideal conditions. Day enrollments ranged from thirty seven (three instructors) at Victor Valley to approximately 200 at the Sepulveda campus of Los Angeles Trade Tech.

Orange Coast had just moved into a new facility. The labs and classrooms were well equipped and certainly make an excellent impression on both the student and visitor. This impression is perhaps enhanced by the fact that neither student nor visitor has to walk down an aisleway littered with metal chips from lathes in order to reach the aviation lab! Orange Coast plans to increase the A & P enrollment from the current maximum of fifty by adding a third instructor in the fall. Late in the spring of 1976 the Glendale College program moved into their new Powerplant Lab. This relieves the somewhat overcrowded condition existing in the present structure; only the Airframe class will remain in the older building. Both Glendale and Orange Coast personel visited MSAC on more than one occasion to study our labs and test cells. We apparently were able to assist them in avoiding some of

the design aberrations (test cell entry doors, hoist, fuel line routing, etc) that surfaced in our engine test area.

Chaffey, San Bernadino Valley, and Miramar College in San Diego all have good programs. Each would probably excel in certain aspects, but in the overall picture they just were not an Orange Coast or MSAC. Miramar College has relatively new and well equipped labs. There are no engine test cells on the Miramar campus so hangar space is rented at Montgomery Field--several miles away--for engine runup and other maintenance operations. The daytime A & P enrollments at Miramar and Mt. San Antonio College are similar.

It would be difficult to classify the Victor Valley A & P program. There is sufficient equipment, including a T-33, several other aircraft, helicopters, engines, and training aids to operate a fairly large program. However, the relatively crowded A & P labs plus the randomly stored equipment in the back yard may give a visitor the impression that he either is in an airplane wrecking yard or a surplus agency! Only one classroom adjacent to the engine lab has been provided since the building is relatively small.

The other two schools, Long Beach City College and Los Angeles Trade Tech, have operated successful A & P programs for many years. Both facilities are in need of a face lifting after many years of wear and tear.

Airports and related operations. The Western Airlines facility was visited at Los Angeles International Airport. Although this was a normal mid-week day, the parking lots at the airport were almost full. Parking has been a serious problem, especially during holiday seasons, so the airport has provided additional spaces north of the central parking area. It is more of a pleasure to visit either the terminal or an aircraft company at Ontario International than at the Los Angeles Airport. Less walking energy need be expended moving sore feet to and from distant parking areas, therefor, more will be available for the business at hand.

Cable, Brackett, and Chino airports cater to general aviation activities. The big jets conduct their business at LAX and Ontario while the "little" fellows feel more welcome at airports like Cable. It should be pointed out that even the smaller commercial airplanes are becoming quite complex and costly to maintain. Chino attracts a variety of aircraft owners. Here one can find home built aircraft, restored and flyable World War II fighters, commercial airplanes listed in the antique category, and the latter day Beech, Cessna, and Piper aircraft. Rialto Municipal Airport has the usual service and flight activities plus the modern and well equipped Western Helicopters, Inc. maintenance base. A & P graduates from the MSAC program find employment at many of the Southern California airports.

Two of our A & P graduates are working for Mercy Airlift. Should a major catastrophe occur almost anywhere on earth, the planes of Mercy Airlift will be used to fly food, medicine, and like needs to the stricken area. The airlift is sponsored by World Gospel Crusades. Major rework on two venerable old DC-3s and a C-54 was in progress when we visited their hangar on the Ontario Airport.

Brackett Field, Cable, Corona, and Rialto Municipal are among the 162 airports designated by the FAA as Reliever Airports. Although not an imposing title, it certainly is a descriptive term. A reliever airport has the function of easing conjestion at major air carrier airports by handling general aviation (non-airline) traffic.

Nickson's Inc., a well known FAA Certified Repair Station, performs many specialized welding and machining operations on aircraft crankshafts, cylinders, and crankcases. A visit to the Santa Maria airport was in order after touring Nickson's shops. This airport features a relatively large and modern terminal building for a city of 33,000 people. Further south, the little town of Santa Ynez appears to have a very active airport. A notable feature here is the large fleet of rental cars, all of which are almost identical 1958 Chevrolets! An interesting school is located nearby in the village of Ballard. The "little red schoolhouse" was built in 1882 and has been in continuous service since 1883.

III. NORTHERN CALIFORNIA AND THE PACIFIC NORTHWEST

Thirteen FAA Approved Maintenance Technician Schools were visited during this phase, nine in Central and Northern California, two in Oregon, and two in Western Washington. With the exception of San Jose State University, all of the programs are sponsored by community colleges. The weather conducted itself beautifully most of the time, so the 3200 mile round trip was indeed a pleasure. Even Seattle was in a cooperative mood and allowed the sun to shine in May!

Central and Northern California Schools. San Jose State University offers an aviation curriculum wherein the student can obtain a bachelor's degree in various aviation disciplines plus the FAA A & P certificate. The University has constructed modern facilities on the San Jose Municipal Airport to house the various aviation engineering and technician programs. The labs and classrooms are very well maintained and equipped. One hundred and fifty eight students are enrolled in the A & P course, but with the lab areas so clean and orderly on the day of this visit some thoughts surfaced: (1) the quality of the students is very high, (2) the labs may not be subjected to heavy usage, and (3) the faculty utilizes some undivulged secret weapon! It should be pointed out that many A & P labs are clean and orderly, however, the San Jose labs were most impressive on the day of this visit.

Four other schools in the peninsula area were visited, with the San Francisco Airport School (a branch of the City College of San Francisco) being the most interesting. This school occupies a brand new building leased to the college by Flying Tiger Airlines. It is located on a portion of the airport which fronts right on the Bay. A full time counselor is assigned to this complex in addition to faculty and support staff. Apparently this school has been overshadowed by the well established program at San Mateo College for many years and the staff is trying very hard to reverse the positions.

Students in the Central Valley of California can find interesting variations in the A & P curriculum by attending Reedley or Sacramento City Colleges. Both colleges supply hand tools used by A & P students. Sacramento City College, with over 225 students, has the largest program in the area. One interesting feature of the curriculum is that all students complete their final semester at the college owned facility located on the Sacramento City Executive Airport. Two full time faculty members are assigned to teach students assigned to the Airport Lab. The training environment simulates conditions found at a fixed base operation. The first three semesters are completed in aviation labs located on the college campus. The school owns a dozen flyable aircraft.

The A & P program at Reedley College differs from

typical FAA approved schools in California in that Reedley students are rebuilding large numbers of four and six cylinder engines for re-sale to flight operators each year. This simulates actual operations encountered by the student after graduation. The monies received are placed in a revolving fund to purchase run out engines and replacement parts when the normal supply budget is depleted. There are, however, certain inherent risks for both the school and faculty with this type of operation. The Powerplant Lab was very well organized from the standpoint of work areas, cleaning equipment, machine tools and inspection devices.

Fresno City College and Shasta College in Redding have more modest A & P schools. Classrooms and labs are located on the main college campus of each institution. The Fresno City College program occupies a reasonably modern building, although no test cells are available on campus. Both Fresno and Shasta do have access to airport facilities.

Oregon and Washington. Lane Community College of Eugene, Oregon and Portland Community College sponsor the only two approved A & P schools in the state. Both schools charge from $99.00 to $110.00 tuition per quarter, with six quarters usually required to complete the course. Lane's aviation facilities are on the main campus, whereas Portland has leased space from the Air National Guard on the Portland International Airport. Lane College has a unique feature in

an "open entry-open exit" plan which permits A & P students to arrange schedules to fit their individual requirements and not attend classes during fixed periods. This is convenient for students. The arrangement is being modified since problems have arisen relative to scheduling. Portland is moving to a "modular" plan wherein the A & P curriculum is divided into smaller three and four week segments, with four segments per quarter. This enables students with varying experience backgrounds to enroll only in the portions needed to complete the minimum requirements for FAA certification. Both schools are well equipped, with Lane taking one more step by qualifying the Powerplant Lab as an FAA Approved Repair Station.

Other "innovations" soon became apparent after moving on to the state of Washington. Clover Park Vocational Tech, located just south and west of Tacoma, enrolls almost 200 A & P students. Approximately 25 per cent of the total are eleventh and twelfth graders from local high schools. This is not only an approved school, but also is a fully approved FAA Repair Station. All students spend considerable time on the repair and inspection of airworthy aircraft and engines prior to graduation. Instructors indicate that no District funds for supply and capital outlay budgets are required. Tuition of $176.00 per year for adults, a $75.00 lab fee, and funds generated from operating the repair station are sufficient to cover supply and equipment needs. In order to ease

tensions between the school and commercial fixed base operators, a release signed by any FBO (local or not) is required before an aircraft or engine is accepted for work by Clover Park. Students perform much of the work so repair costs are comparatively reasonable.

And it was in Seattle that we encountered a picket line! The faculty of the Seattle Community College District "walked out" the very morning that a visit had been scheduled to South Seattle Community College. No one was sure just how long the strike would continue so the AFT pickets did not object if this Southern Californian crossed over into "no man's land" to hunt up the department chairperson. This man at first did not seem overjoyed to receive visitors, but soon turned into a source of information and a semigracious host. This college does have an excellent A & P facility housed in a modern building. College students are charged a tuition of $76.00 per quarter, but approximately thirty of the 180 A & P students were from local high schools. The Powerplant Lab contained some sophisticated overhaul and testing equipment and Mr. Kogle advised that they were seeking approval as an FAA Repair Station. Reported supply and equipment budgets were generous and this was quite evident while touring the labs. No students or faculty were on campus so some of the impressions one usually obtains from a school visitation were obviously not available.

Airports and related operations. Airports visited ranged from San Francisco International to the municipal airport at Hollister. Airlines in the San Francisco area were reported to be hiring A & P graduates again, but like other areas, the largest group of employers was found among the fixed base operators. It should be noted that the smaller companies usually can not offer as "generous" a salary and benefit package to employees as do the airlines. Further north, venerable old Boeing Field is still very active even though it is surrounded by Seattle, suburbs, and highways. Obviously Seattle and Boeing are still happily married!

The most unusual airport was really a section of the Lane Community College parking lot. On the very morning this college was visited an auto shop instructor was bringing his Luscomb in to complete some minor repairs in the A & P labs. Between various distractions and the early morning sun, the pilot managed to strike a concrete divider right after touchdown. The pilot escaped with a distressed ego, but the airplane now required major repairs!

Historic sites and parks. Only a few of the many points of interest visited on this trip will be mentioned. From their perch on Seal Rocks near Point Lobos in the San Francisco area, large numbers of seals were bellowing. In Coloma, between Placerville and Auborn, the gold discovery site was revisited. While following I-5 through Oregon on

previous occasions we had noticed a covered bridge near Sunny Valley. We turned off for a closer look and discovered that this had recently been registered as a Historical Landmark.

But the most striking part of the trip, even considering the profusely blooming Dogwood, Rhododendron, and Scotch Broom along Oregon and Washington highways, was California's own Yosemite National Park. Even on this May weekday there were thousands of visitors in the park. The many waterfalls were spectacular when compared to their late summer performances. This was a dry year, but there still was some snow in protected areas alongside the road to Glacier Point.

CHAPTER III

CONCLUSIONS AND RECOMMENDATIONS

A rating sheet was prepared on each of the schools visited. Along with other items of information, buildings and equipment were rated on a scale of one to five--with the number five being considered as ideal or perfect. It was recognized that no school could be completely and accurately rated in the few hours spent at each facility. The ratings did, however, permit a comparative appraisal. Many schools were rated quite high (some excellent), while others appeared to be conducting training programs under conditions that were considered adverse.

Mt. San Antonio College did rate in the upper 20 per cent of all schools visited, however, the local program could stand some upgrading in the area of lab equipment. Two major factors involved in the success of any program would be the personel on the staff and the financial support available for operations. Factors other than the schools overall reputation would be the support received from the counseling, public relations, and placement staffs.

Without adequate recruiting and counseling even a fine program can suffer. Consider the examples set by Northrop University, Embry Riddle Aeronautical University, and Spartan

School of Aeronautics. These schools enroll from 300 to over 1,000 students paying between $2,700.00 and $3,700.00 tuition for A & P curriculums quite similar to those offered tuition free in California Community Colleges. The quality of the programs at large private venture schools was not superior to those found in many community colleges. Northrop was rated on a par with Mt. San Antonio College, whereas the facilities utilized by Embry Riddle would place this school below the local program. Their success depends on quality and reputation--plus good promotion and an active, intelligent plan of recruitment.

The smaller privately owned schools were able to maintain enrollments of fifty to one hundred students. All were operating near their rated capacity in relatively cramped quarters, even though they charged an average tuition fee of $2,750.00. The question of just how a school can maintain its enrollment at or near rated capacity while barely meeting minimum FAA standards may be difficult to answer completely. Three possible factors involve the ability to enroll new students every few weeks, active recruitment, and a placement officer who knows the aviation industry--and is willing to search out potential employers.

Several community colleges do permit students to enter the A & P program in mid-semester. San Mateo College is in

the process of rewriting their aviation curriculum to provide for eight week segments. Portland Community College plans to incorporate even shorter modules. It is believed that this will help maintain a more constant enrollment throughout the school year and provide added flexibility for the needs of individual students. It should be noted that more frequent enrollment periods usually requires a curriculum change and may require greater specialization among A & P personel. If the forecasts by aviation "seers" are valid, the requirements for A & P technicians in General Aviation will be far greater than the number of graduates currently completing their aviation training. Each school should devise methods of increasing its output without necessarily enlarging facilities.

What about the local program? The quality of graduates recommended for FAA certification is good, the physical plant is very good, and the faculty is certainly at least equal to their counterparts in other schools. We are in need of semimodern aircraft, engines, and accessories. Then, if one is in a generous mood, some of the World War II machines and test equipment in the labs should at best be considered elderly enough for replacement. Many top rated schools owned inspection, test, and cleaning equipment presently not available on the local campus. Although it is realized that costs are high, some attempt should be made towards improving the weaker segments of our labs.

It was noted that several schools, including some in California, charged a lab fee for students enrolled in Technology classes. Perhaps a modest fee should be considered for our A & P program, especially if the additional funds are used to bolster existing supply and capital outlay budgets. A large portion of the supply budget must be expended each year on consumables used in student projects.

Certain minor improvements will be phased into the program at opportune times. Some may require departmental concurrence, others involving training aids of local manufacture will be completed as time and materials are available. A large bundle of records and paperwork obtained from other schools may provide some useful ideas. The probable resting place of most of these papers is "File 13".

This sabbatical provided an excellent opportunity to review our A & P training procedures from a somewhat detached viewpoint. Intangible benefits accruing from the many school visitations can not be easily tabulated. The net result, however, should be an increased enthusiasm for teaching students at Mt. San Antonio College.

APPENDIX

LOG OF FAA APPROVED SCHOOL CONTACTS

FEBRUARY, 1976.

1. Cochise College
   Highway 80, Douglas, Arizona

2. Halmark Aero-Tech
   4234 Roosevelt Avenue, San Antonio, Texas

3. Rice Aviation (A Division of A & J Enterprises)
   9011 Randolph, Houston, Texas

4. Sowella Technical Institute
   501 Broad Street (Main Campus), Lake Charles, La.

5. Del Gado Junior College
   615 City Park Avenue, New Orleans, Louisiana

6. Lewis M. Lively Aera Vocational-Technical
   500 N. Appleyard, Tallahassee, Florida

7. Florida Academy of Aerospace Technology
   Airport Branch Post Office, St. Petersburg, Florida

8. George T. Baker School of Aviation
   3275 N. W. 42 Avenue, Miami, Florida

9. Embry Riddle Aeronautical University
   Box 2411, Regional Airport, Daytona Beach, Florida

10. South Georgia Technical and Vocational
    Box 1088, Americus, Georgia

MARCH, 1976.

1. Atlanta Area Technical School
   1560 Stewart Avenue S. W., Atlanta, Georgia

2. School of Aviation Technology
   Marion County Airport, Hamilton, Alabama

3. Memphis Area Vocational Technical
   2752 Winchester Road, Memphis, Tennessee

4. Spartan School of Aeronautics
   8820 East Pine Street, Tulsa, Oklahoma

MARCH, 1976 (continued).

5. Oklahoma City Vocational Technical
   4901 South Bryant, Oklahoma City, Oklahoma

6. Texas State Technical Institute
   Municipal Airport, Amarillo, Texas

7. Chaffey College
   5885 Haven Avenue, Alta Loma, California

8. San Bernadino Valley College
   701 South Mt. Vernon, San Bernadino, California

9. San Diego Community College (Miramar Campus)
   10440 Black Mountain Road, San Diego, California

10. Northrop Institute of Technology
    1155 Arbor Vitae, Inglewood, California

APRIL, 1976.

1. Los Angeles Trade Technical College
   9700 S. Sepulveda, Los Angeles, California

2. Glendale Community College
   1500 North Verdugo, Glendale, California

3. Victor Valley College
   18422 Bear Valley Road, Victorville, California

4. Long Beach City College
   1305 East Pacific Coast Highway, Long Beach, Ca.

5. Mt. San Antonio College (two visits)
   1100 North Grand Avenue, Walnut, California

6. Orange Coast College
   2701 Fairview Road, Costa Mesa, California

7. Chaffey College (second visit)
   5885 Haven Avenue, Alta Loma, California

MAY, 1976.

1. Gavilan College
   2310 San Felipe Road, Hollister, California

MAY, 1976 (continued).

2. California State University, San Jose
   Main Campus--125 S. Seventh, San Jose, California
   Aviation Campus--San Jose Municipal Airport

3. College of San Mateo
   1700 W. Hillsdale Blvd., San Mateo, California

4. Skyline College
   3300 College Drive, San Bruno, California

5. City College of San Francisco
   International Airport School
   International Airport, San Francisco, California

6. Sacramento City College
   3835 Freeport Blvd., Sacramento, California

7. Fresno City College
   1101 E. University Ave,, Fresno, California

8. Reedley College
   Reed and Manning Avenues, Reedley, California

9. Shasta College
   1065 N. Old Oregon Trail, Redding, California

10. Lane Community College
    4000 E. 30th Avenue, Eugene, Oregon

11. Portland Community College
    1200 S. W. 49th Avenue, Portland, Oregon

12. Clover Park Voc-Tech School
    45 Steilacoom Blvd., Lakewood Center, Washington

13. South Seattle Community College
    6000 16th Avenue S. W., Seattle, Washington

SAMPLE COPY OF "SCHOOL RATING SHEET"

SCHOOL _____ LOCATION _____

PERSON CONTACTED _____ DATE _____

PROGRAM DATA:

Enrollment A_____ P_____ A&P_____ Capacity_____ ED _____

Hours A_____ P_____ General_____ Total A&P _____

Instructors A_____ P_____ General_____ Total A&P _____

Lab hours A_____ P_____ Lecture hours A_____ P _____

FINANCIAL (est. ?) _____

Tuition _____ Tools, etc._____ Texts _____

Supply Budget A _____ P _____ Total _____

Capital outlay A _____ P _____ Total _____

Cost--FAA practical A _____ P _____ School Examiner __

Do students work on airworthy components (shool or private)?

_____

Field trips/year _____ Advisory Committee? _____

Employment opportunities _____

COMMENTS AND OBSERVATIONS (NOTE: Lines omitted in sample)

Buildings _____

Aircraft _____

Engines _____

Other equipment _____

Comments _____

School rating (1--5) Buildings____ Equipment____ Average_____

AIRPORTS AND MAJOR AEROSPACE CENTERS

FEBRUARY, 1976.

1.	Stinson Field	San Antonio, Texas
2.	Hobby Airport	Houston, Texas
3.	Chennault Field	Lake Charles, Louisiana
4.	Naval Aviation Museum	Pensacola, Florida
5.	St. Petersburg--Clearwater International Airport	St. Petersburg, Florida
6.	Sarasota--Bradenton Airport	Sarasota, Florida
7.	J. F. Kennedy Space Center Kennedy Air Force Base	Titusville, Florida
8.	Regional Airport	Daytona Beach, Florida

MARCH, 1976.

1.	Hartfields Atlanta International Airport	Hapeville, Georgia
2.	Souther Field	Americus, Georgia
3.	Warner Robins AMA	Warner Robins, Georgia
4.	Birmingham Municipal Airport	Birmingham, Alabama
5.	Marion County Airport	Hamilton, Alabama
6.	Memphis International Airport	Memphis, Tennessee
7.	Tulsa International Airport	Tulsa, Oklahoma
8.	FAA Aeronautical Center Will Rogers World Airport	Oklahoma City, Oklahoma
9.	Municipal Airport	Amarillo, Texas
10.	Rim Rock Airport	Rim Rock, Arizona
11.	Bowman Field	San Diego, California

APRIL, 1976.

1.	Los Angeles International	Los Angeles, California
2.	Ontario International	Ontario, California
3.	Brackett Field	La Verne, California
4.	Cable Airport	Upland, California
5.	Chino Airport	Chino, California
6.	Rialto Municipal Airport	Rialto, California
7.	Santa Ynez Airport	Santa Ynez, California
8.	Santa Maria Airport	Santa Maria, California

MAY, 1976.

1.	Hollister Municipal Airport	Hollister, California
2.	San Jose Municipal Airport	San Jose, California
3.	San Francisco International	San Francisco, California
4.	Sacramento City Executive Airport	Sacramento, California
5.	Weed Airport	Weed, California
6.	Boeing Field	Seattle, Washington

JUNE, 1976 (Return wisits).

1.	Ontario International	Ontario, California
2.	Cable Airport	Upland, California
3.	Brackett Field	La Verne, California
4.	Rialto Municipal Airport	Rialto, California

RELATED VISITS AND POINTS OF INTEREST

1. NATIONAL PARKS, MONUMENTS, AND HISTORICAL SITES.

Canyon de Chelly National Monument	Arizona
Montezuma Castle National Monument	Arizona
Saguaro National Monument	Arizona
Castillo de San Marcos National Monument	Florida
Everglades National Park	Florida
Ocmulgee National Monument	Georgia
Yosemite National Park	California

Several national and state registered historical sites.

2. SCHOOLS--OTHER THAN FAA APPROVED A & P SCHOOLS.

Southwestern Academy, Beaver Creek Ranch Campus	Arizona
Navajo Lutheran Mission School	Rock Point, Arizona
Oral Roberts University	Tulsa, Oklahoma

3. PARTIAL LISTING OF AVIATION COMPANIES.

Piper Sales and Service Sarasota, Florida	Western Airlines, Inc. Los Angeles, California
Beech Sales and Service Birmingham, Alabama	Western Helicopters, Inc. Rialto, California
Air National Guard Birmingham, Alabama	General Electric Aviation Ontario, California
Foothill Aircraft Upland, California	Wells Aviation Maintenance Ontario, California
Pomona Valley Aviation La Verne, California	Lockheed Aircraft Service Ontario, California
Nickson's Repair Station Santa Maria, California	Chino Valley Aviation Chino, California

REPRESENTATIVE RATING SHEETS

SCHOOL Hallmark Aero-Tech LOCATION 4234 Roosevelt Avenue San Antonio, Texas 78414 (Located on Stinson Field)

PERSON CONTACTED Jim Mayo, Dick Fessler (Director) DATE Feb. 9, 1976

PROGRAM DATA:

Enrollment A --- P --- A&P 105 Capacity 125 ED No

Hours A 800 P 800 General 400 Total A&P 1,975 (combined)

Instructors A Two P Two General One Total A&P Five, plus Mayo

Lecture hours A 50% P 50% Lab hours A 50% P 50%

FINANCIAL (est. ?) J. Mayo

Tuition $2,895.00 Tools, etc. $170.00 Texts $34.70

Supply budget A _____ P _____ Total ---

Capital outlay A Private school--figures not for release, but budgets appear to be P marginal. Total ---

Cost--FAA practical A Included in tuition. School Examiner? Yes (Computed at $50.00 plus $25.00 for second)

Do students work on airworthy components (school or private)? Yes--but accept work only from outside area so as not to "upset" local FBOs.

Field trips/year Two Advisory Committee? Yes--different from ours.

EMPLOYMENT OPPORTUNITIES: Mayo says excellent. Records as of 12-31-74 show 81% placed in aviation, 5-7% in allied occupations, unknown 9%, etc.

COMMENTS AND OBSERVATIONS:

Buildings: Lab space very cramped for number of students, classrooms minimal. Separate and very small lab for recips, turbines occupy portion of main hangar. Small tool crib doubles as faculty lounge. Labs unheated and chilly when I visited.

Aircraft: No complete aircraft visible in immediate area of labs, although school apparently owns one or more.

Engines: Four J-34s (do disassemble and run on unleaded gas), piston engines include several A-65s, O-235s, and a few six cylinder types. Engines run on portable test stands.

Other Equipment: All labs, including small electrical lab, have only the bare necessities. School buys tools in bulk quantities, assembles into tool kits and sells same to students.

Comments: Enroll every ten weeks. A & P completed in fifty weeks (7.5 hours daily). Faculty works fifty weeks, eight hours daily--seem qualified but only need A & P plus some practical experience. Tool crib man also maintains repair manuals.

School rating (1--5) Buildings 3.0 Equipment 3.0 Average 3.0

SCHOOL Embry-Riddle Aero University LOCATION Regional Airport Daytona Beach, Florida 32015

PERSON CONTACTED Frank Moran (plus other instructors) DATE Feb. 24, 1976

PROGRAM DATA:

Enrollment A --- P --- A&P 300 Capacity 300 ED No

Hours A 900 P 900 General 300 Total A&P 2,050 (combined)
1350 total if either A or P.

Instructors A --- P --- General --- Total A&P Seventeen

Lecture hours A 50% P 50% Lab hours A 50% P 50%

FINANCIAL (est. ?) Mr. Moran

Tuition $3,350.00 (About 4 1/2 tri-mesters) Tools, etc. $200.00 Texts $30.00

Supply budget A P Total

Private school--not for release. Appears to be adequate,
Capital outlay A --- P --- Total but not generous.

Cost--FAA practical A $25.00 P $25.00 School Examiner? Yes

Do students work on airworthy components (school or private)? Yes--in "advanced" portion of program. School maintains a fleet of aircraft for the flight program, overhauling about four airworthy engines per month.

Field trips/year 2 to 5 Advisory Committee? Yes

EMPLOYMENT OPPORTUNITIES: Poor at local airport, good if leave local area.

COMMENTS AND OBSERVATIONS:

Buildings: Present A & P buildings crowded and require some paint. Plan new facilities on other side of airport near "new" campus. When completed new building will have individual labs for airframe, P'Plant, General, etc. Present prop shop very good, electricity lab fair. Present A & P labs somewhat inadequate.

Aircraft: Pitts Special, Helio, C-45s, Piper, non-operational F-102 located in A & P area. Flight school equipment is not adjacent to technology area.

Engines: 65 turbine engines, including 12 T-53s, T-40s, 18 J-34s (standard overhaul and run turbine), J-69; recips--seven O-200s, O-320s (new "std." four cylinder engine for shops). Portable engine runup stands used.

Other Equipment: Standard equipment found at most aviation schools. Expect to start avionics course this year, helicopter course next January.

Comments: Moran indicates 40% of students require remedial math or English. Tuition $750/tri-mester for A & P, $850 if academic subjects included. Faculty on 12 month basis with two weeks vacation. Classes meet 7 AM to 1 PM daily, 5 days/week. Faculty is more "specialized" than at MSAC.

School rating (1--5) Buildings 3.4 Equipment 4.6 Average 4.0

SCHOOL Memphis Area Vocational Tech. (Aviation Division) LOCATION 2752 Winchester Road Memphis, Tennessee 38116

PERSON CONTACTED Archer, ch., Dody, Brown, Trudell DATE March 3, 1976

PROGRAM DATA:

Enrollment A -- P -- A&P 76* Capacity 100 ED No
*109 total incl. H. S. 11th & 12th graders--3 hr. per day.
Hours A 900 P 900 General 450 Total A&P 2,250 (5 phases)

Instructors A Specialized -- General -- Total A&P Five, plus two in H. S. program.

Lecture hours A 40% P ---- Lab hours A 60% P ----

FINANCIAL (est. ?) Mr. Archer

Tuition Free Tools, etc. $125.00 Texts $35.00

Supply budget A No specific P budget. Total Archer sends requisitions to "Hdq."--seldom turned down, but process is slow.
Capital outlay A --- P --- Total ---

Cost--FAA practical A $35.00 P $35.00 School Examiner? No--arrange with local DME.

Do students work on airworthy components (school or private)?

Yes--if engine or component is owned by student or instructor.

Field trips/year 3 to 4 Advisory Committee? Yes

EMPLOYMENT OPPORTUNITIES: Fair, some graduates places in allied non A & P positions.

COMMENTS AND OBSERVATIONS:

Buildings Hangar used (on airport)--front end modified for offices and instructor lounge. Classrooms in hangar but partitioned off. Electrical systems and components in individual rooms. Engine overhaul in separate room (some in hangar). Not well organized (engines).

Aircraft Five T-34s (one to be used for taxi instruction), C-45, twin Commanche (engines runable). No helicopters on "campus".

Engines Two T-34 turboshafts, small Solar turbine, some cut-aways, Cont. axial flow MA-1 starter unit, some opposed engines. Mr. Archer indicates Powerplant section requires upgrading--and I agree.

Other Equipment Magnaflux, Zyglow, paint spray booth like ours, good Snap-On generator-starter tester. No permanent test cells for engines so must run those installed in aircraft.

Comments Faculty on 12 month basis with two weeks plus holidays off. No paid tool crib attendant. Had snack bar in hangar. Final "A" lab test includes sheet metal project which is timed.

School rating (1--5) Buildings 3.8 Equipment 3.6 Average 3.7

(Mr. Motter visited this school last year)

SCHOOL Spartan School of Aeronautics LOCATION 8820 East Pine Street Tulsa, Oklahoma 74151 "North" campus on airport.

PERSON CONTACTED Carl Bennet, Le Roy Broesder, Staggars Turner and Jones (North Campus) DATE March 5, 1976

PROGRAM DATA:

Enrollment A ---- P --- A&P 965 Capacity Varies ED Yes

Hours A 840 P 840 General 480 Total A&P 2040 (combined)

Instructors A All specialize General --- Total A&P 47

Lecture hours A 3 hours P 3 hours Lab hours A 3 hours P 3 hours (daily)

FINANCIAL (est. ?) Mr. Bennet

Tuition $3,740.00 Day $3,485.00 Evening Tools, etc. $275.00 Texts $65.00--65 series ≠ Spartan books.

Supply budget A _____ P _____ Total _____

Capital outlay A _____ P _____ Total _____ Not available, but seems quite adequate.

Cost--FAA practical A $30 (20) P $30 (20) ($10.00 per section) School Examiner? 9 DME on staff

Do students work on airworthy components (school or private)? Some--school has an active flight program and owns sufficient "live" aircraft for training on airworthy equipment.

Field trips/year Yes Advisory Committee? Yes--different from ours.

EMPLOYMENT OPPORTUNITIES: Very good--sign in lobby indicates 364 job openings during the month of March.

COMMENTS AND OBSERVATIONS:

Buildings South campus buildings relatively new--contains many labs and lecture rooms (including instrument and avionics). North campus consists of two large hangars. Modifications are being made to provide additional labs and classrooms. Hangars are relatively old, but are in fairly good condition.

Aircraft Two F-101s, several C-45s, several Cessna 150s, one operational helicopter, plus partial aircraft. These aircraft are not part of the flight training fleet.

Engines Most turbines are J-35 engines--these are mounted in overhaul stands and were in various stages of disassembly. Each of ten test cells have one engine mounted in same--one jet, one t'prop, one geared engine, various radial and opposed engines utilized during the test run phase of training.

Other Equipment The school has a wide variety of equipment that seems adequate for the enrollment, but is somewhat weak in the turbine phase. Classrooms on the south campus are well equipped with audio visual, comfortable chairs, etc.

Comments Faculty on 12 month basis--no contract used. Most specialize. Spartan enrolled 185 foreign A & P students and had to set up classes in English so people could communicate! Spartan offers a 20 month avionics course, plus courses in NDT and instruments.

School rating (1--5) Buildings 4.6, 4.2 (N) (S) Equipment 4.7 Average 4.55

SCHOOL Victor Valley Community Coll LOCATION 18422 Bear Valley Road Victorville, Ca. 92392

PERSON CONTACTED Roy Russell, Joe LaBudda, Aubuchon DATE April 6, 1976

PROGRAM DATA:

Enrollment A 15 P 12 A&P 35-37* Capacity 75 (?) ED 35 (A&P)
*Several enrolled only in General.

Hours A 750 P 750 General 400 Total A&P 1,900

Instructors A One P One General One Total A&P Three, plus ED.

Lecture hours A 40% P 40% Lab hours A 60% P 60%

FINANCIAL (est. ?) Aubuchon

Tuition Free Tools, etc. $100.00 Texts $35.00

Supply budget A --- P --- Total $3,000.00

Capital outlay A --- P --- Total $2,000.00

Cost--FAA practical A $25.00 P $25.00 School Examiner? Not at present. Lower fee when by faculty.

Do students work on airworthy components (school or private)?

No--except for equipment owned by instructors and VIPs.

Field trips/year Several Advisory Committee? Neglected to ask!

EMPLOYMENT OPPORTUNITIES: Fair--very good in helicopter field.

COMMENTS AND OBSERVATIONS:

Buildings: Sheet metal structure (former maint. bldg.), one classroom. Temporary partitions for specific labs, tools and supplies kept in area enclosed by chain link fence. P'Plant lab very small. Entire area looks crowded and cluttered.

Aircraft: T-33, Howard, NASA F-5D on loan, light twin, Bell helicopter, part of McCulloch auto gyro, Sikorsky H-16D, etc. Building a sailplane ground trainer to tow behind a car.

Engines: J-57 plus two in cans, cutaway of turbine powered AC generator, operational J-33 in T-33, few small 4 & 6 cylinder engines plus engines installed in aircraft. No test cells--do run engines installed in aircraft.

Other Equipment: Paint booth like ours, sand blast, grit blast, Kelite steam-chem. cleaner. Have many mockup boards in outside yard and have built some for inside use. Usual brakes, saws, etc.

Comments: Both the ramp and storage area outside should be cleaned and organized--as well as the interior of the building. ED classes taught by "outsiders" and this causes some interference with day projects. If enrollment ever reaches seventy five, hours would have to be staggared.

School rating (1--5) Buildings 3.4 Equipment 4.0 Average 3.7

SCHOOL Mt. San Antonio College LOCATION 1100 N. Grand Ave. Walnut, Ca. 91789

PERSON CONTACTED R. Hanson & cohorts. DATE March, 1976 April, 1976

PROGRAM DATA:

Enrollment A 38 P 48 A&P 86 Capacity 100 ED 50
(Approximately 50 enrolled in various "General" subjects.)

Hours A 770 P 770 General 385 Total A&P 1,925

Instructors A Two P Two General One ~~/~~ Total A&P Five ~~/~~
(Full time equivalents)

Lecture hours A 27.3% P 27.3% Lab hours A 72.7% P 72.7%

FINANCIAL (est. ?) _____

Tuition Free Tools, etc. $100.00 Texts $30--35.00

Supply budget A $3,978.00 P $3,409.00 Total $7,387.00

Capital outlay A -- P -- Total $700-3,500.00 average
(varies each year)

Cost--FAA practical A $15.00 P $15.00 School Examiner? Yes--Two DME.

Do students work on airworthy components (school or private)? Some--two flying club aircraft plus some live aircraft and engine overhauls. Night students also bring in engines and aircraft components.

Field trips/year One or two. Advisory Committee? Meets once per year.

EMPLOYMENT OPPORTUNITIES: Good with fixed base operators and allied vocations.

COMMENTS AND OBSERVATIONS:

Buildings Good tool room, two test cells (central control room), separate NDT, magneto, carb, hydraulics labs as well as electrical, welding, etc. A & P share large shop area with machine shop. Classrooms in same building complex.

Aircraft Beech 35, one helicopter, two 150s belonging to Flying Club, parts of Stearman and other aircraft. Some say that Stearman has become a permanent MSAC asset after all these years of rebuilding!

Engines J-35, J-47, three Boeing 502s, two J-34s, T-58, TPE-331, etc. Several four and six cylinder opposed, plus radials. Many engines are quite elderly but students must run same after each overhaul.

Other Equipment AC Magnaflux, Zyglow, small grit blaster, vapor degrease, large enclosed paint spray booth, plus necessary test equipment. Some mockups (local manufacture, others from industry or surplus). Well equipped even though many items of World War II vintage.

Comments Visitor must walk through shavings from lathes in machine shop area to reach A & P labs (same situation for student and instructor). Perhaps a divider and more aisle protection might be advantageous.

School rating (1--5) Buildings 4.6 Equipment 4.6 Average 4.6

SCHOOL Sacramento City College LOCATION 3835 Freeport Blvd. Sacramento, Ca. 95822

PERSON CONTACTED Bob Wilson, ch., Luther, Lincoln DATE May 10, 1976

PROGRAM DATA:

Enrollment A -- P -- A&P 225 Capacity 275 ED Yes--not part of approved A & program.

Hours A 750 P 750 General 400 Total A&P 1900 (1,932 hours available)

Instructors A Four P Four General Three Total A&P Eleven

Lecture hours A Two P Two Lab hours A Four P Four (daily)

FINANCIAL (est. ?) Wilson

Tuition Free Tools, etc. Furnished by College. Texts 65 series ≠ NIT $65-70.00

Supply budget A -- P -- Total $20,000.00 plus (Supply budget based on $2.20 per contact hour).

Capital outlay A -- P -- Total Varies each year.

Cost--FAA practical A $10.00 P $10.00 School Examiner? Yes--two DME (Oral and practical partly completed on school time).

Do students work on airworthy components (school or private)? School owns twelve flying aircraft, also some outside work if "donee" or friend of college program. Students full time at airport during last semester.

Field trips/year Two Advisory Committee? Yes

EMPLOYMENT OPPORTUNITIES: Very good for certificated graduates.

COMMENTS AND OBSERVATIONS:

Buildings 48,000 square foot lab area including airport facility which is completely self contained. A & P area each divided into three separate labs. Test cell has TV monitors. Three lecture rooms, two paid tool crib men--one at airport facility.

Aircraft T-33 plus twelve aircraft at airport. Several Hughes and Hiller helicopters plus other aircraft in various stages of repair in aircraft labs.

Engines Several J-44s, three TPE-331s, T-58, J-57, J-69, T-53 plus a number of piston engines. Students run engines overhauled by other students on a random selection. One jet and one recip. test cell (good).

Other Equipment Separate NDT class (mostly during evening). Labs well equipped--actual hardware used instead of mockups where possible. All hand tools owned by school, on inventory to students.

Comments Students assigned to airport facility during last semester. Each semester--9 weeks P'Plant, 9 weeks Airframe--have had trouble with Ntl. Norm in P'Plant. Can add students at end of 9 week segments if approved by Wilson.

School rating (1--5) Buildings 4.5 ≠ Equipment 4.7 Average 4.6 ≠

SCHOOL Lane Community College LOCATION 4000 E. 30th Avenue Eugene, Oregon 97405

PERSON CONTACTED L. Davis, C. Woodbury, Dickenson DATE May 12, 1976

PROGRAM DATA:

Enrollment A 40 P 40 A&P Not combined / Capacity 100 ED ---

Hours A 840 P 840 General 270 Total A&P 1,950

Instructors A Two P Two General One plus lab asst. Total A&P Five / lab asst.

Lecture hours A 50% P 50% Lab hours A 50% P 50%

FINANCIAL (est. ?) Mr. S. L. Davis

Tuition $110.00 per quarter. (six quarters) Tools, etc. $130.00 Texts NIT & AC series $75 to 80.00

Supply budget A --- P --- Total $7,000.00

Capital outlay A --- P --- Total $4,000.00

Cost--FAA practical A $20.00 P $20.00 School Examiner? Yes

Do students work on airworthy components (school or private)? Yes--several "outside" units, especially airworthy engines.

Field trips/year One Advisory Committee? Meets two times per year.

EMPLOYMENT OPPORTUNITIES: Majority of graduates with A & P certificate are placed, many away from local area.

COMMENTS AND OBSERVATIONS:

Buildings Very good A & P labs. Small machine shop between areas, plus individual labs and classroom areas. Six concrete test cell bays, three control rooms (only three test bays are completely equipped). All labs clean and orderly.

Aircraft Luscomb, Cessna 210, Beech D-18, two helicopters (every student operates a copter). One Luscomb being flown on day I was there cracked up when landing in parking lot!

Engines Boeing, Wright YT-49, J-35, J-34s, four and six cylinder opposed, plus radials. A museum of Curtiss "Challenger", OX-5, Lambert, Kinner, ABC Gnat, Anzani, etc. Good prop lab.

Other Equipment Labs are well equipped; P'Plant lab is a certificated repair station. Good electrical and magneto areas.

Comments A & P students can enroll in various sections on an "open entry-open exit" plan. General taught on a more formal class hour basis. Some students work with FBO up to 80 hours in "return to service" section. A & P may phase into a more formal class basis (similar to General).

School rating (1--5) Buildings 4.6 Equipment 4.6 Average 4.6

SCHOOL Clover Park Voc-Tech School LOCATION 4500 Steilacoom Blvd. Lakewood Center, Wa. 98499

PERSON CONTACTED John Rush (A), Hilstrum (P) DATE May 13, 1976

PROGRAM DATA:

(Enrollment includes 45 H. S. students on 1/2 day)

Enrollment A --- P --- A&P 190 Capacity 190 ED No

Hours A 840 P 840 General 420 Total A&P 2100--FAA combined. 2500--Wa. State.

Instructors A Three P Three General One Total A&P Seven + two lab technicians.

Lecture hours A 35% P 35% Lab hours A 65% P 65%

FINANCIAL (est. ?) Instructors and "fact" sheet.

Tuition $88.00 per segment $176.00 per year $75.00 instr. supply fee. Tools, etc. $510.00 full set. $150.00 min. Texts $50.00

Supply budget A --- P --- Total Varies--obtained from fees, plus aircraft and engine work. Apparently no cost to District.

Capital outlay A --- P --- Total ---

Cost--FAA practical A $30.00 first $20.00 second --- School Examiner? Yes

Do students work on airworthy components (school or private)? Definitely--this school also is an FAA Approved Repair Station--considerable outside work plus maintenance of flight instructional fleet.

Field trips/year Rarely Advisory Committee? Yes

EMPLOYMENT OPPORTUNITIES: Excellent.

COMMENTS AND OBSERVATIONS:

Buildings An "older" building--one end used for work on airworthy aircraft, other portions divided between A, P, & Gen. lab areas. Portable engine test stands, also install in aircraft for testing.

Aircraft School owned--five 172s, 172B, Commanche, Hiller, VH-12, Cherekee 140 (some used in flight program--school hires a chief flight instructor. Lots of customer aircraft and engines.

Engines Some undergoing overhaul in lab were school owned, most were customer owned at time of this visit. Students start on school O-290s, then to "live" engines. Two J-34 turbines.

Other Equipment Supplies kept in well stocked tool room. Lab fairly well equipped and includes an approved NDT section. Separate avionics service.

Comments Enroll in 70 day segments, with A & P completed in one and one half years. Clover Park is an approved school and repair station. Five adult and two H. S. classes (11th and 12th grades). Some H. S. students obtain "A" by 12th grade, then enroll in "P". Release required from FBO to bring in work.

School rating (1--5) Buildings 4.2 Equipment 4.6 Average 4.4