

Big Bend Community College

Aviation Maintenance Technology Program

October 24, 2003

Report to the Director of the Office of Financial Management

Big Bend Community College is grateful to OFM for the assistance in the investigation of this incident and has provided a detailed response describing our follow up of the recommendations of the Loss Prevention Review Team (LRPT). We believe these steps will increase the level of program safety for both students and staff and enhance a program already noted for its quality and outstanding safety record.

You may recall that immediately after the incident the college contacted several state agencies to request an immediate investigation and advice on how to preserve the site prior to that investigation. We were unable to locate any agency who would accept responsibility to investigate and so did our best to preserve the site. Obviously an outside agency is better suited to conduct the investigation for the state. Therefore, we are encouraged, with OFM's response.

We also acknowledge that the LPRT is part of a new process designed to address a statewide concern over loss prevention and that this incident at BBCC was the first use of the LPRT. As such, we have offered comments from our viewpoint designed to address challenges, perhaps unique to this particular LPRT or the process in general, which we believe should be changed or improved.

BBCC AMT Response to LPRT Recommendations

The BBCC AMT Safety Committee has formulated the following response to the report and recommendations of the Loss Prevention Review Team (LPRT) concerning the BBCC Incident of June 28, 2002. Each section of the LPRT report was reviewed and responses to each of the reports recommendations are listed below. All portions of the report have been considered in detail by the BBCC IT/AMT Safety Committee. Corrective actions related to each recommendation have been or are in the process of being implemented. The corrective actions that have been implemented are so indicated. Other corrections, by their nature, require implementation over a period of time and have been made a part of the safety committee's ongoing evaluation and assessment process. All recommendations and comments contained in the LPRT report are considered important and have been evaluated with the goal of ensuring a safe and healthy work place for everyone in the AMT areas.

Some comments and recommendations of the LPRT report were not related to the direct cause of the incident nor were they something required by the FAA. These will be evaluated and their implementation considered by the safety committee and the BBCC administration. Those that lead to increased safety or better program management will be implemented. Anticipated dates

for completion of changes to safety policy and procedures are provided. In some cases, there are no specific dates for completion because they require further study, administrative approval or additional funding. Recommendations requiring additional funding are noted with an estimate of the costs, as per Director Brown's directions in his letter to President Bonaudi on February 27, 2003.

As of this date all direct cause factors to the June 28, 2002 incident have been reviewed and recommended changes have been implemented to prevent their reoccurrence. Effective implementation of general safety policies and procedures, as well as implementation of all recommendations or specific new procedures will be reviewed, inspected, enforced and documented by the safety committee.

In some instances, recommendations or solutions contained in the report were already in place. In some cases there wasn't sufficient written documentation and in others the LPRT had failed to review existing information that would have shown this. Procedures have been implemented to improve written document of AMT safety policies and procedures. The following are the specific LPRT recommendations followed by the BBCC response in bold and italics:

Section 1. EQUIPMENT

Engines

- Develop a process for obtaining, reviewing, maintaining and controlling all documentation associated with acquired engines, including condition code, manuals, circulars, logbooks, and inspections results. For example, review each manual yearly for missing pages.

There has been a process in place for this procedure and the documentation is now being provided to further complete this process. Refer to forms 1-1 and 1-3. Specifically Form 1-1 Item 6, addresses the issues of documentation. A final date of completion is not specified for most of these items and is an on-going control process and more forms will be developed as identified.

A file and control process will be set up for each engine. The forms will go into the file for the particular engine. If AMT does not have a manual for a particular engine, no one works on that engine until we have a manual in custody.

The AMT manuals will be reviewed on an on-going basis as part of the instructional process. The engines used in the program are not airworthy, therefore it is not cost effective to constantly update manual. The increased costs to keep all manuals current would be prohibitive. As updates are received, the manuals will be updated. If AMT intends to work on anything airworthy, the manuals will be current and up-to-date.

- Develop a Technical Library with controlled access and maintained- check-in, checkout process and a maintenance/accountability program.

A new library area is being developed with a control process (card system, log out). The students are involved in the process of using and inspecting manuals as a training tool. It is better for the students if the manual are accessible and students are responsible to have adequate information prior to working on engines, because ultimately the mechanic will be responsible when entering the work environment.

- Develop a communication plan or process for ensuring consultation and communication with product manufacturers and other technical experts in the area.

The Big Bend Community College Aviation Maintenance instructors and students are in contact with manufacturers on a regular basis. This has been an on-going policy. New policy and procedures were implemented, along with the documentation. See Program Policies Form 1-1 (Item #6) and New Turbine Engine Inspection Form 1-3 (Item #12).

- Develop an inspection process for ensuring safety on engines prior to student use and ensure process includes documentation of inspections and a records retention policy.

The instructors saw that they were lacking in this area and policies and procedures have been developed and the process has been initiated. See Program Policies Form 1-1 and New Turbine Engine Inspection Form 1-3.

Test stand

- Develop a process to ensure that all test stands meet safety requirements. At a minimum, test stands should include (list not included here):

New policies and procedures have been developed and the process has been initiated in all these areas

Recommendation 5.a. – Form 1-2, Item #1

Recommendation 5.b. – Form 1-2, Item #2

Recommendation 5.c. – Form 1-2, the piston operated stands have had a steel barrier between the engine and the tank.

Recommendation 5.d. – Form 1-2, new administrative policies and procedures have been put in place to keep students/people from run up hazard area. Fencing will be installed to keep students from the area. The fencing has been ordered and is expected by November 1, 2003.

Recommendation 5.e. - Form 1-2, a new test containment area will have fuel separated by a containment wall and needs funding, which will be addressed later. A steel wall is currently in place to provide a physical separation for exposure to students until a permanent area can be built. Before the APU is run again, a steel protective containment shroud will be in place. Anticipated date of completion – November 30, 2003.

Recommendations 5.f.; 5.g. and 5.h. –The new containment area will incorporate a test stand that will meet or exceed FAA requirements and the recommendation of the LPRT report. This will require further additional funding. (See Exhibit D)

Section 2. PHYSICAL PLANT

- Develop safety policies, procedures and practices in the facilities that include:
 - Safety areas clearly marked and communicated to students.

Detailed written policies and procedures have been developed and initiated, restricting all students access to the run up area. See Form 1-2, #11. See form 1-6, #18.

- Test cell containment area
New policies and procedures have been implemented on a temporary basis until a permanent containment area is constructed. Portable fencing will be erected around the run-up area prior to engine operation. It is not expected that any turbines will run during Fall quarter. The college is seeking funding for the project. The new test containment area construction bids are attached as Exhibits B & D.
- Appropriate engine tie downs
Appropriate engine tie downs are in place and will be used when operating the engines. The instructors developed the policies and procedures and the process has been initiated. See Form 1-2, #8.
- Engine wet brake or other load device.
The instructors saw that they were lacking in this area and policies and procedures have been developed and the process has been initiated. A load device will be needed to run certain engines and this will require further funding. See Form 1-1, #8 and Form 1-2, #5 and Exhibit D.
- Appropriate power source for the engines to be used, power supply cords of appropriate length or stand alone power cart.
An appropriate power source is in place and policies have been developed and the process has been initiated. See Form 1-2, #6.
- Emergency telephone in area closer to engine and aircraft run-up areas.
Permanent emergency phones will be in place in the permanent containment area and portable phones will be used until that time. Policies have been developed and the process has been initiated. See Form 1-2, #13.
- Assessment of fire protection devices.
A fire inspection by the Port of Moses Lake Public Safety Division was conducted and the area is in compliance. Completion date: October 2003. Policies have been developed and the process has been initiated. See Form 1-2, #9 and #10; see Form 1-4, #27; see Form 1-6, #19.
- Signage to restrict entry.
Restricted area signage is posted on all restricted access areas.
- Enforcement of a no children policy.
The Children on Campus policies, BP7100 and AP7100, both adopted in 1998, will be enforced by the AMT program with renewed vigor. "No employee, student or visitor to the College shall leave a child unsupervised at the College, nor may such person leave a child with a College employee or student, unless that child is enrolled in an authorized program." The Board policy statement, specifically states, "...in order to create a safer environment on campus and all other BBCC educational sites..." See attached Exhibit C. Children have never been allowed to be in the area when hazardous operations are under way. The instructors have developed policies and the process has been initiated. See Form 1-1, #5 and Form 1-6, #17.

- Security - No access by students after hours unless accompanied by an instructor.

This has been and will continue to be the policy. See Form 1-6, #17 and Form 1-1, #4.

Summary - New policies and procedures have been implemented that addresses each item by policy or physical plant procedures and practices with a view toward completing a containment area that permanently satisfies issues in these areas.

Section 3. INSTRUCTORS AND ADMINISTRATIVE STAFF

Operational Management

- Develop a policy, procedure or system to ensure that at least one instructor is present during lab time and that all instructors and instructional techs that will be present during lab time are fully trained in first aid.

Procedures have been developed and the process has been initiated. See Form 1-1, #1 and #3.

- Develop a system to ensure that all instructors are trained in safety processes and procedures.

BBCC has hired a professional safety consultant to assist the Industrial Technology Safety Committee (ITSC) in planning an on-going safety training program for faculty and staff. The ITSC has also contacted certified safety professionals in the area to assist in the planning and conducting of an on-going safety training program for the faculty and staff at BBCC.

- Develop a system where instructors will be able to have administrative time set aside in order to develop, maintain, improve, and grow the program in a safety conscious manner.

The instructors will document their allocation of time towards safety issues within their workload schedules. The current five-day instruction schedule was implemented to assist in attaining the FAA required student contact time. This instructional schedule was initiated after consideration for the program and the best way to assist students to progress through the program. This type of offering allows the instructors to maintain the open entry, self-paced delivery that has an excellent success record. This is exemplified in the student success record in obtaining the FAA A & P license. The program has a very good safety record, excluding the turbine accident.

Administrative Staff

- Need a trained risk manager and safety officer. Develop a plan to ensure those assigned these duties get the appropriate training.

Implementation of this recommendation has begun. During this planning stage, the campus has retained the assistance of a safety consultant and is utilizing other in-house and regional expertise. Employment of a full-time, trained risk manager and safety officer will require additional funding. (See Exhibit D)

- Review staffing levels, duties, and oversight to ensure effective and efficient staff is in risk management and safety.

Implementation of this recommendation has begun. During this planning stage, the campus has retained the assistance of a safety consultant and is utilizing other in-house and regional expertise. This will be an on-going process.

Section 4. POLICIES AND PROCEDURES

- Develop formal, written safety policies and student conduct procedures for the AMT program. Ensure that the policies are effectively communicated to the students and enforced with effective consequences. The policies and procedures should address the issues found in this review. Ensure that persons are assigned responsibility for compliance and enforcement of safety procedures.

New policies and procedures have been implemented by instructors in the AMT program. This item is currently under the review by the safety committee to be implemented specifically by the AMT program. This recommendation is currently being implemented. See Form 1-4, see Form 1-5 and Form 1-6.

- Develop a process to ensure proper written documentation is available for all aspects of the program. Develop a records retention system to ensure documents are accessible and available when needed.

New policies and procedures have been implemented by instructors in the AMT program. This item is currently under review by the safety committee to be implemented specifically for the AMT program. See Form 1-4; see Form 1-5; see Form 1-6.

- Develop a program specific emergency response plan. Ensure the plan is effectively communicated and easily accessible.

We are currently expanding the BBCC emergency response plan to include to specific areas of concern in the AMT program.

- Develop a post incident review process and ensure that there are either trained persons available to conduct the review properly or resources that can be asked to perform this function.

The Industrial Technology Safety Committee is in the process of reviewing and adopting the campus policy which will be further expanded and headed up by Steve Matern, Industrial Electrical Technology instructor, who is trained in this area. This will be an on-going process of development, completion and training.

- The IT safety committee is a good idea but this committee needs to be properly developed with membership, training, procedures, standards, documentation, meeting clarification; take action. The committee should partner with outside resources when expertise is needed that is lacking on the committee.

The Industrial Technology Safety Committee was formalized at the President's Cabinet Meeting on September 19, 2003. This committee will consist of three industrial technology instructors, one classified staff, two students and one administrator.

- Revise and improve the safety policies and procedures manual at the college level. Expand meeting times and follow-thru, ensure minutes are properly posted and provide a process that allows and encourages student participation and input.

The Industrial Technology Safety Committee is currently working on the process and procedures in this area.

Section 5. EMERGENCY RESPONSE AND POST INCIDENT PROCEDURES

- A program specific emergency response plan and post-incident review process needs to be developed. The plan and process should include the system to be used to ensure qualified persons are available to execute the emergency plan and to conduct the post incident reviews. It should also include the means to be used to ensure effective communication of the emergency response plan to all students.

The Industrial Technology Safety Committee is currently working on the process and procedures in this area, which is expected to be completed by Spring 2004.

BBCC OBSERVATIONS AND COMMENTS REGARDING THE LPRT

The college has reviewed the investigative process utilized by OFM to select and direct this first LPRT. AS detailed above we have responded to all recommendations of the team and feel that our AMP program has been improved.

The comments and suggestions that follow are related to LPRT composition, methods of investigation and team collaboration in the narrative of the report.

All of us in state government are aware of the need to avoid conflicts of interest and the appearance of conflicts of interest. Due to the critical nature of the report that aspect of this particular team needs to be noted. We believe two of the team members presented at least the appearance of a conflict of interest. To begin with, one LPRT member is the spouse of a BBCC faculty member.

Secondly, another team member, the LPRT leader, is also the leader of a competing AMT program from a sister institution. This represents the potential of bias against the BBCC program from the viewpoint of competition of the schools in recruiting and placing students and competing for program funding at the state level.

Also, in this particular instance, BBCC and the sister college are intimately involved in competing bids of our respective communities for the location of the Boeing company's 7E7 assembly site. An exaggerated negative report of the BBCC program, chiefly authored by this competitor certainly smacks of bias.

The report inferred that the behavior of this student and his lack of obedience exemplified the general action and behavior of the other students in the program. This is not at all the case. We thought it would helpful here to provide a little background information concerning the injured student. The injured student in this incident had many years of military training and experience as a tank mechanic working with turbine engines. He was at the time of the incident in the military reserves and had already completed the powerplant portion of the BBCC AMT program. At the time of incident, this student had already received the FAA certification for a mechanic

with powerplant rating. His on-going military experience included instances where he was required to work on turbine engines in tanks and other field situations where safety procedures such as those recommended by the LPRT are not required, nor possible to be implemented. This student was a very knowledgeable and highly experienced person, exuding very strong self-confidence. This contributed to a sense of overconfidence on his part, which was a significant factor in his tendency to ignore certain rules or feel that he was a better judge of what rules to follow.

We are not trying to deny the responsibility for losing control of the student. The failure of the qualified AMT person in charge on the day of the incident, to require this student to follow existing safety policies was a contributing factor in the incident. Current policy requires strict enforcement of all rules and includes new procedures for bringing disciplinary action for disobedience of any rules (see attachments, Form 1-1). It should be noted that while there are many safety procedures that are effective in reducing potential hazards, they are not an absolute guarantee against willful violation.

It seems to us that there were a number of deficiencies within the report, such as: inaccurate information presented as fact, failure to gather important information, incorrect or incomplete conclusions, and faulty inferences, comments or statements. It is, therefore, prudent to point out what we believe to be some of the more obvious cases.

There was relevant information available that somehow was not collected by the team. The need for this information could have been identified during an exit interview or in follow up discussions so the college could provide the materials that the LPRT was missing. Perhaps two days is not enough to do a thorough risk analysis and post-review process in a systematic manner required by the general safety industry. Since this document is a public document we wish to point out some examples of deficiencies in the report as we see them.

The following examples are offered to bring forth facts to help correct some of these deficiencies and the misconceptions of the LPRT report dated, June 28, 2003, produced by them:

1. Under Executive Summary, page 2, the 2nd and 3rd complete paragraphs make the following statements: "...the BBCC AMT program's top priorities and goals are to recruit as many students as possible and get them through the program in the shortest time span," and "addressing safety issues appears to be a lower priority to getting more students enrolled and through the AMT program."

The assertions that the top priority is to get students through the program at top speed while sacrificing safety and quality of program content or educational experience is completely false. The top goals and priorities have always been to provide students with the highest quality educational experience, in a safe and healthy environment. The FAA CFR 14, Part 147, has set a minimum hour requirement for the AMT curriculum and every student in the BBCC program meets or exceeds these requirements. The FAA monitored the self-paced, competency-based curriculum for two years prior to approving the current curriculum design. The program is designed to enable students the opportunity to progress at their own pace, if they are able to demonstrate proficiency in the required knowledge and skills. Each module has a detailed safety component related to the specific set of competencies. The students are

not pushed through the program, but it is a self-paced, competency-based curriculum. Safety has never been sacrificed for speed. The AMT program is dedicated to improving safety and that it would definitely benefit from additional funding. This does not mean that safety was a low priority. The inference that there was a willful disregard for safety or an intentional sacrifice of safety is thoroughly and utterly false.

2. Section II – Facts, page 7, 2nd paragraph, the report states: “The FAA Part 147 mechanics program purchases surpluses (*sp*) jet turbine engines from the military and pays what is essentially scrap price.”

The engines that are purchased come out of certified aircraft and all of them come with paperwork relating to this. This paperwork is kept by the AMT program and was available for inspection, had the LPRT requested it. No engine is operated unless it is inspected prior to operation. The report’s reference to the price has no significance unless it is to infer that the engines are junk or scrap engines.

3. Section II - Facts, page 7, 3rd paragraph, states: “During the incident class session, the instructor left the class unsupervised to go to an appointment.”

Facts: Sherman Morris was in charge of the class at the time of the incident and met all of the FAA requirements as a temporary instructor for the class. Sherman is a former BBCC student, has been employed as a lab tech at that time for approximately 4 years and was under summer contract for this class. Sherman was completely familiar with the policies and procedures of the AMT program.

4. Section II – Facts, page 7, 3rd paragraph, the report states: “From there the victim was airlifted to Harborview Hospital where most of the shrapnel was removed from his right kidney.”

Facts: All but one piece of the shrapnel was removed at Samaritan Hospital in Moses Lake without surgery, by the use of a simple pair of tweezers. The only remaining piece of shrapnel was lodged in his kidney and Samaritan Hospital sent him directly to Harborview for medical review. After overnight observation, it was decided by Harborview Hospital to leave that piece where it was. Mr. Dunlap had a medical release and was back in class on the following Monday.

5. Under category 1, Equipment, Engine, page 8, the 1st paragraph, the report states, “The College was not able to produce the history, maintenance practices, or supporting documentation related to the engine to the LPRT when asked.”

Facts: Further research by the LPRT would have shown that the engine was removed from a UH-1H Helicopter purchased from the military. The aircraft as a whole was given a condition code, not the engine. Only when engines are purchased separately do they receive a condition code for them. BBCC has the original paperwork that came with this aircraft. The program does and did do a documented inspection of its engines and this engine before allowing the students to operate them/it. It was explained to the LPRT that this engine and all engines receive an inspection by each student before any operation is performed. This engine as like all other engines had the lubricating system, fuel and fuel metering system, ignition system, starting system, air bleed system, thoroughly inspected. The engine then underwent numerous dry motor checks

and wet motor checks. Then it was started for the first time by the instructor. Each start of the N1, N2, and EGT was closely monitored for abnormalities. All the inspection documentation that is generated by the students is retained by the students as a part of their required FAA project documentation. The instructor was never asked to provide any manuals for this engine. The BBCC program has the military version (book and CD), and the manufacturer's (Lycoming/Allied Signal) version. BBCC students are required to acquire a thorough understanding of the structure of the manuals, technical publications and the process to obtain them. The power plant instructor was never asked to provide any of this information. The instructor and students are in communication with the product manufacturers on a very regular basis. Follow up interviews with the instructors were not conducted to clarify information the review team obtained in subsequent interview. There was no exit interview conducted to express and convey some of these deficiencies, which would have given the BBCC staff the opportunity to provide missing information.

6. Category 2, Physical Plant, page 9, stated as fact: "...the power supply for the plant was limited and therefore inadequate for running more than one engine."

Fact: The fact that two engines were sharing the same power source is not in itself a dangerous condition, since the engines were never operated at the same time. Students were instructed to be clear of the other engine while in operation. The need for a separate run area is recognized and addressed in our proposed containment area resolution. Until this incident the students had followed this rule. The Ground Power Unit (GPU) was never intended to operate more than one engine at a time and was not used to do so.

7. Category 2, Physical Plant, page 9, stated as fact: "students may be allowed in the facility without any instructor present."

Fact: The individual they are referring to, who was in the facility, had the authority to act on contract with the college as a tutor and was working with a student. He never had a key to the area. This was a graduate of the program, both qualified and competent, had the authority to intervene or correct any unsafe act or condition.

8. Category 3, Instructors and Administrative Staff, Operational Management, under paragraph 3, page 9, states: "there is a question as to who is in charge on a day-to-day basis"

Fact: There is no question at all as to who was in charge. This appears to be an arbitrary and inflammatory statement. Each instructor is clearly in charge of his area and is fully aware of it. Under Part 147, the operational management is entirely consistent with FAA CFR 14 Part 147 requirements. The LPRT seemed to have a complete misunderstanding of the structure of the AMT department. There are no junior and senior lead-type instructors in this department.

- 9.. Category 3, Instructors and Administrative Staff, Operational Management, paragraph 3, page 9, states: "The senior instructor did not place emphasis on safety and felt that most safety procedures were just a matter of common sense."

Fact: A single reference to "common sense" was taken as a total disregard for safety. This is not true at all, it is a component of safety. The program itself has a 35-year

history of being a safe program; 12 years of that time, this particular instructor has held high regard for individual and program safety.

10. Category 3, Instructors and Administrative Staff, Operational Management, paragraph 3, page 9, states: “A consultant was hired to write policies and procedures, but these were not specific to the program.”

Fact: The safety procedures written did not make specific reference to the AMT program, but the safety policies and procedures that were written for BBCC were inclusive and applicable to hazards found in the AMT program.

AMT EQUIPMENT RECOMMENDATIONS

PRIORITY	DESCRIPTION	RESPONSIBLE PARTY	DATE TO BE COMPLETED BY:	THIRD PARTY FOLLOW UP:
	1. ENGINES - Develop a process for obtaining, reviewing, maintaining and controlling all documentation associated with acquired engines, including condition code, manuals, circulars, logbooks, and inspections results.	Dan Moore	4/1/2004	
	2. ENGINES - Develop a Technical Library with controlled access and maintained check-in, check-out process and a maintenance/accountability program.	Dan Moore / Erik Borg	4/1/2004	The campus will be enlisting the services of an independent third party; the name has been provided and initial contact made.
	3. ENGINES - Develop a communication plan or process for ensuring consultation and communication with product manufacturers and other technical experts in the area.	Dan Moore / Erik Borg	9/22/2003	
	4. ENGINES - Develop an inspection process for ensuring safety on engines prior to student use and ensure process includes documentation of inspections and a records retention policy.	Dan Moore	9/22/2003	
	5. TEST STAND - Develop a process to ensure that all test stands meet safety requirements:	Dan Moore	9/22/2003	
	5.a. Adequate instrumentation at least equal to the airframe that the engine is from.	Dan Moore	9/22/2003	
	5.b. Fuel and lubrication supplies must be physically protected.	Dan Moore	9/22/2003	
	5.c. Physical protection for the fuel and lubrication supply tank or use of a remote fuel supply.	Dan Moore	9/22/2003	
	5.d. Physical protection for operator and observer.	Dan Moore	9/22/2003	
	5.e. Physical separation between an operating engine and the people who are operating it (such as a wall).	Dan Moore	9/22/2003	
	5.f. Controls compatible to engine type.	Dan Moore	9/22/2003	
	5.g. Throttle controls must have a positive capability to limit maximum RPMs or engine output and must have complete RPM instrumentation, which permits full-time display of all rotor speeds on multiple shaft engines.	Dan Moore	4/1/2004	

AMT EQUIPMENT RECOMMENDATIONS

		5.h. Permanently displayed checklist for operation so it is displayed right in front of the operator - includes pre-run safety check, operating instructions and limitations and post-run instructions.	Dan Moore	9/22/2003
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AMT PHYSICAL PLANT RECOMMENDATIONS

PRIORITY	DESCRIPTION	RESPONSIBLE PARTY	DATE TO BE COMPLETED BY:	THIRD PARTY FOLLOW UP:
	DEVELOP SAFETY POLICIES, PROCEDURES AND PRACTICES IN THE FACILITIES!			
	1. Safety areas clearly marked and communicated to students.	Erik Borg	10/1/2004	The campus will be enlisting the services of an independent third party; the name has been provided and initial contact made.
	2. Test cell containment area.	Dan Moore	Pending Funding	
	Temporary test cell containment area	Dan Moore	November 2003	
	3. Appropriate engine tie down.	Dan Moore	9/1/2003	
	4. Engine wet brake or other load device.	Dan Moore	February 2004	
	5. Appropriate power source for the engines to be used, power supply cords of appropriate length or stand alone power cart.	Dan Moore	Completed for temporary containment	
	6. Emergency telephone in area closer to engine and aircraft run-up areas.	Dan Moore	11/1/2003	
	7. Assessment of fire protection devices.	Erik Borg / Dan Moore	10/15/2003	
	8. Signage to restrict entry.	Erik Borg	10/1/2003	
	9. Enforcement of a no children policy.	Erik Borg / Dan Moore	9/1/2003	
	10. Security - No access by students after hours unless accompanied by an instructor.	Erik Borg / Dan Moore	9/1/2003	
	11. Engine tie-downs.	Dan Moore	10/1/2003	

AMT INSTRUCTORS AND ADMINISTRATIVE STAFF RECOMMENDATIONS

PRIORITY	DESCRIPTION	RESPONSIBLE PARTY	DATE TO BE COMPLETED BY:	THIRD PARTY FOLLOW UP:
	<p>1. OPERATIONAL MANAGEMENT - Develop a policy, procedure or system to ensure that at least one instructor is present during lab time and that all instructors and instructional techs that will be present during lab time are fully trained in first aid.</p>	Richard Larson and IT Safety Committee	September 2003	The campus will be enlisting the services of an independent third party; the name has been provided and initial contact made.
	<p>2. OPERATIONAL MANAGEMENT - Develop a system to ensure that all instructors are trained in safety processes and procedures.</p>	Richard Larson and IT Safety Committee	September 2004	
	<p>3. OPERATIONAL MANAGEMENT - Develop a system where instructors will be able to have administrative time set aside in order to develop, maintain, improve, and grow the program in a safety conscious manner.</p>	Richard Larson and IT Safety Committee	NA	
	<p>4. ADMINISTRATIVE STAFF - Need a trained risk manager and safety officer. Develop a plan to ensure those assigned these duties get the appropriate training.</p>	Richard Larson and IT Safety Committee	Pending Planning Decision	
	<p>5. ADMINISTRATIVE STAFF - Review staffing levels, duties, and oversight to ensure effective and efficient staff is in risk management and safety.</p>	Richard Larson and IT Safety Committee	Pending Planning Decision	

AMT POLICIES AND PROCEDURES RECOMMENDATIONS

PRIORITY	DESCRIPTION	RESPONSIBLE PARTY	DATE TO BE COMPLETED BY:	THIRD PARTY FOLLOW UP:
	<p>1. Develop formal, written safety policies and student conduct procedures for the AMT program. Ensure that the policies are effectively communicated to the students and enforced with effective consequences. The policies and procedures should address the issues found in this review. Ensure that persons are assigned responsibility for compliance and enforcement of safety procedures.</p>	Dan Moore / Erik Borg	9/22/2003	The campus will be enlisting the services of an independent third party; the name has been provided and initial contact made.
	<p>2. Develop a process to ensure proper written documentation is available for all aspects of the program. Develop a records retention system to ensure documents are accessible and available when needed.</p>	Dan Moore / Erik Borg	9/22/2003	
	<p>3. Develop a program specific emergency response plan. Ensure the plan is effectively communicated and easily accessible.</p>	Dan Moore/ Erik Borg	January 2004	
	<p>4. Develop a post incident review process and ensure that there are either trained persons available to conduct the review properly or resources that can be asked to perform this function.</p>	Steve Matern	January 2004	
	<p>5. The IT safety committee is a good ideal but this committee needs to be properly developed with membership, training, procedures, standards, documentation, meeting clarification; take action. The committee should partner with outside resources when expertise is needed that is lacking on the committee.</p>	Richard Larson	9/19/2003	
	<p>6. Revise and improve the safety policies and procedures manual at the college level. Expand meeting times and follow-thru, ensure minutes are properly posted and provide a process that allows and encourages student participation and input.</p>	Ken Turner	September 2003	

AMT EMERGENCY RESPONSE AND POST INCIDENT PROCEDURES RECOMMENDATION

PRIORITY	DESCRIPTION	RESPONSIBLE PARTY	DATE TO BE COMPLETED BY:	THIRD PARTY FOLLOW UP:
	<p>A program specific emergency response plan and post-incident review process needs to be developed. The plan and process should include the system to be used to ensure qualified persons are available to execute the emergency plan and to conduct the post incident reviews. It should also include the means to be used to ensure effective communication of the emergency response plan to all students.</p>		<p>Spring, 2004</p>	<p>The campus will be enlisting the services of an independent third party; the name has been provided and initial contact made.</p>
	<p>Aviation Maintenance Technology</p>	<p>Dan Moore / Erik Borg</p>	<p>January, 2004</p>	
	<p>Automotive Technology</p>	<p>Chuck Cox</p>	<p>Spring, 2004</p>	
	<p>Commercial Drivers License</p>	<p>Randy Miller</p>	<p>Spring, 2004</p>	
	<p>Industrial Electrical Technology</p>	<p>Steve Matern</p>	<p>Spring, 2004</p>	
	<p>Maintenance Mechanics Technology</p>	<p>Bill Autry</p>	<p>Spring, 2004</p>	
	<p>Welding</p>	<p>Makoto Enokazono</p>	<p>Spring, 2004</p>	
	<p>Aviation (Commercial Pilot)</p>	<p>Pete Hammer</p>	<p>Spring, 2004</p>	

Appendix

Form 1 – 1	Program Policies
Form 1 – 2	Engine/Run Stand Inspection
Form 1 – 3	New Turbine Engine Inspection Form
Form 1 – 4	Safety Signoff Sheet
Form 1 – 5	Shop Safety Violations
Form 1 – 6	Shop Safety
Form 1 – 7	Safety Input Form
Exhibit A	Engine Test Stand advertising
Exhibit B	Bid for Containment Cell
Exhibit C	Board Policy 7100 and Administrative Process 7100
Exhibit D	Summary of Implementation Recommendation Requiring Additional Funding

BIG BEND COMMUNITY COLLEGE AVIATION MAINTENANCE TECHNOLOGY

PROGRAM POLICIES – FORM 1-1

1. At least one college employee will be in the building any time students or non-employees are present.
2. Only qualified personnel will run engines with instructor approval.
3. All instructors and lab techs will be trained in first aid.
4. No Student will be allowed in the hanger area without an instructor or lab assistant supervising them.
5. No children will be allowed in the hanger area without an instructor or lab assistant supervising them.
6. Any new engine entering the AMT program will have the following components or systems inspected, serviced and repaired as necessary prior to operation.

SEE NEW TURBINE ENGINE INSPECTION FORM

- _____ 1. Manuals inspected and reviewed
- _____ 2. Starting system inspected
- _____ 3. Ignition system inspected
- _____ 4. Fuel System inspected
- _____ 5. Proper instrumentation inspected
- _____ 6. Fire detection and protection systems inspected
- _____ 7. Electrical systems inspected
- _____ 8. Lubrication systems inspected
- _____ 9. Pneumatic systems inspected
- _____ 10. Internal Boroscope inspection completed
- _____ 11. Log books inspected and reviewed
- _____ 12. Manufacturer called

An internal boroscope inspection of the turbine engine shall be accomplished prior to engine operation. These inspections will be documented and placed on file at Big Bend Community College Aviation Maintenance Technology Department.

7. The instructors and lab assistants are responsible for safety in the shop and must enforce all shop safety rules.

The minimum enforcement actions to be taken are:

Steps	Safety violations	Actions
1	1 st and 2 nd	Verbal warning
2	3 rd	Office visit with both instructors present and letter in file
3	4 th	Student is sent to vice president of student services

SEE BIG BEND COMMUNITY COLLEGE 2003-2004 STUDENT HANDBOOK
PAGES 41-49

**BIG BEND COMMUNITY COLLEGE
AVIATION MAINTENANCE TECHNOLOGY
ENGINE/RUN STAND INSPECTION – FORM 1-2**

Date: _____ Engine Make and Model: _____

Note: Approved BBCC employee must be present during all engine runs

1. Adequate instrumentation at least equal to the airframe that the engine is from turbines have N1 and N2 RPM's display. Instructor initials: _____ Student initials: _____
Comments: _____
2. Fuel and or oil supply secure and physically protected and properly serviced.
Instructor initials: _____ Student initials: _____
Comments: _____
3. All controls are compatible with engine type and operate positively.
Instructor initials: _____ Student initials: _____
Comments: _____
4. Max RPM stops are installed at desired settings, if required.
Instructor initials: _____ Student initials: _____
Comments: _____
5. Propeller or load devices checked for security. **Safety:** At no time will any engine be run without a load device. Instructor initials: _____ Student initials: _____
Comments: _____
6. APU checked for proper connection and AMP loads or battery checked for proper connections and adequate charge. Instructor initials: _____ Student initials: _____
Comments: _____
7. Run checklist(s), operating instructions, limitations and post run instructions reviewed, signed by instructor and student, and displayed for operator. Instructor initials: _____ Student initials: _____
Comments: _____
8. Engine test stand secured. Instructor initials: _____ Student initials: _____
Comments: _____
9. Fire bottle inspected. Instructor initials: _____ Student initials: _____
Comments: _____
10. Trained fire guard positioned and ready. Instructor initials: _____ Student initials: _____
Comments: _____
11. Safety areas clearly marked and communicated to student.
Instructor initials: _____ Student initials: _____
Comments: _____

ENGINE/RUN STAND INSPECTION – FORM 1-2

12. Area cleared of non-participating personnel and instructed where to be.

Instructor initials: _____ Student initials: _____

Comments: _____

13. Emergency phone located by run area. Instructor initials: _____ Student initials: _____

Comments: _____

14. If this is a new turbine engine to be run the new turbine engine inspection form must be completed prior to the first run. Instructor initials: _____ Student initials: _____

Comments: _____

15. Record all discrepancies on the appropriate discrepancy form and attached to this form.

Instructor initials: _____ Student initials: _____

Comments: _____

16. Assure that all discrepancies are repaired. Instructor initials: _____ Student initials: _____

Comments: _____

CAUTION: Make sure engine run area is clear before cranking. This is the responsibility of the person running the engine. Use your checklist every time you start an engine.

Instructor: _____

Student(s): _____

BIG BEND COMMUNITY COLLEGE AVIATION MAINTENANCE TECHNOLOGY

New Turbine Engine Inspection Form – Form 1-3

Date: _____ Engine Manufacture _____ Engine Model: _____

To be completed by instructor before engine is to be run.

TASK	COMMENTS & RECOMMENDATIONS
1. Manuals inspected	
2. Starting system inspected	
3. Ignition system inspected	
4. Fuel System inspected	
5. Proper instrumentation inspected	
6. Fire detection & protection systems inspected	
7. Electrical systems inspected	
8. Lubrication systems inspected	
9. Pneumatic systems inspected	
10. Internal Boroscope inspection completed	
11. Log books inspected	
12. Manufacturer called	

Instructor

Date

**BIG BEND COMMUNITY COLLEGE
AVIATION MAINTENANCE TECHNOLOGY**

SAFETY SIGNOFF SHEET – FORM 1-4

STUDENT _____ DATE: _____

Items must be signed off before student can use equipment.

1. Eye and face protection per chapter 3 paragraph 1.4 of the AMT Safety Manual.

Student Signature

Instructor Signature

2. Hand protection per chapter 3 paragraph 1.6 of the AMT Safety Manual.

Student Signature

Instructor Signature

3. Foot protection per chapter 3 paragraph 1.7 of the AMT Safety Manual.

Student Signature

Instructor Signature

4. Hearing protection per chapter 3 paragraph 1.8 of the AMT Safety Manual.

Student Signature

Instructor Signature

5. Clothing per chapter 3 paragraph 1.9 of the AMT Safety Manual.

Student Signature

Instructor Signature

6. Hand Tools per chapter 3 paragraph 3.0 of the AMT Safety Manual.

Student Signature

Instructor Signature

7. Power Equipment per chapter 3 paragraph 8.0 of the AMT Safety Manual.

Student Signature

Instructor Signature

8. Bench grinder per chapter 3 paragraph 8.1 of the AMT Safety Manual.

Student Signature

Instructor Signature

9. Portable grinders per chapter 3 paragraph 8.2 of the AMT Safety Manual.

Student Signature

Instructor Signature

10. Drill press or lathe per chapter 3 paragraph 8.3 of the AMT Safety Manual.

Student Signature

Instructor Signature

*Watch lathe operating video before lathe use.

11. Power cutoff saw per chapter 3 paragraph 8.4 of the AMT Safety Manual

Student Signature

Instructor Signature

12. Skill saw per chapter 3 paragraph 8.5 of the AMT Safety Manual.

Student Signature

Instructor Signature

13. Band saw per chapter 3 paragraph 8.6 of the AMT Safety Manual.

Student Signature

Instructor Signature

14. Press operations per chapter 3 paragraph 8.7 of the AMT Safety Manual.

Student Signature

Instructor Signature

15. Batteries per chapter 3 paragraph 8.8 of the AMT Safety Manual.

Student Signature

Instructor Signature

16. Table saw per chapter 3 paragraph 8.11 of the AMT Safety Manual.

Student Signature

Instructor Signature

17. Jointer per chapter 3 paragraph 8.13 of the AMT Safety Manual.

Student Signature

Instructor Signature

18. Planer per chapter 3 paragraph 8.15 of the AMT Safety Manual.

Student Signature

Instructor Signature

19. Sanding machines per chapter 3 paragraph 8.16 of the AMT Safety Manual.

Student Signature

Instructor Signature

20. Ladders per chapter 3 paragraph 9.0 and 9.1 of the AMT Safety Manual.

Student Signature

Instructor Signature

21. Step Ladders per chapter 3 paragraph 9.2 of the AMT Safety Manual.

Student Signature

Instructor Signature

22. Jacks per chapter 3 paragraph 11.0 and 11.1 of the AMT Safety Manual.

Student Signature

Instructor Signature

23. Compressed air use per chapter 3 paragraph 12.0 of the AMT Safety Manual.

Student Signature

Instructor Signature

24. Compressed air tools per chapter 3 paragraph 12.1 of the AMT Safety Manual.

Student Signature

Instructor Signature

25. Pneumatic powered tools and hose per chapter 3 paragraph 12.2 of the AMT Safety Manual.

Student Signature

Instructor Signature

26. How to lift properly per chapter 3 paragraph of the AMT Safety Manual.

Student Signature

Instructor Signature

27. Fire Extinguisher Training taught by fire Department.

No Student is to act as fireguard for engine starts unless they have had this training.

Student Signature

Instructor Signature

**BIG BEND COMMUNITY COLLEGE
AVIATION MAINTENANCE TECHNOLOGY
SHOP SAFETY VIOLATIONS – FORM 1-5
VERBAL AND WRITTEN VIOLATIONS**

Any egregious violation will be sent directly to the Vice President of Student Services.

Student Name: _____

Verbal warning #1Date _____

Reason for verbal warning:

Instructor: _____

Verbal warning #2Date _____

Reason for verbal warning:

Instructor: _____

Verbal/Written warning #3Date _____

Office visit with both instructors present. Reason for safety violation:

Instructor Signature: _____

Date: _____

Date: _____

Student Signature: _____

Date: _____

Verbal/Written warning #4Date _____

Date _____

Reason for safety violation:

Office visit with both instructors present. Student sent to Vice President of Student Services (See student handbook pages 41-49)

Instructor Signature: _____

Date: _____

Date: _____

Student Signature: _____

Date: _____

BIG BEND COMMUNITY COLLEGE
AVIATION MAINTENANCE TECHNOLOGY

SHOP SAFETY – FORM 1-6

It is the responsibility of each student working in shop areas to observe all safety rules and to practice standard safe working procedures. Everyone must observe the following rules. If you observe an unsafe condition in the shop area, we would appreciate it being called to the attention of any instructor in the shop.

1. Approved goggles or safety glasses must be worn at all times by all personnel in the shop area.

NOTE: Epoxy and especially polyester resins and accelerators are extremely hazardous to eye safety.

2. When painting, proper breathing protective devices must be worn. Using polyurethane, epoxy, or any other two-part paint including acrylic enamel which uses a polyurethane “gloss hardener” requires the use of a full head covering hood with an approved outside air supply. Instructors will monitor these operations. When using one-part paints or dope, an approved respirator must be worn. This respirator will filter organic vapors and dust and be checked for fit and operation by an instructor before entering the painting area. When possible, amyl acetate (“banana oil”) will be used to check respirator operation. Students are strongly urged to use the respirator when working with organic solvents such as MEK, cleaning solvent, naphtha, any type of alcohol, acetone, gasoline or jet fuel.

NOTE: A respirator MUST be worn when working with toluene or toluol.

3. If a student is working with battery fluids, either sulfuric acid or potassium hydroxide, full protective clothing will be worn. Instructors will monitor these operations. Additionally, batteries and battery fluids will be stored and serviced only in the appropriate battery servicing areas.
4. Gasoline and oil spillage will be cleaned up immediately from workbenches and floor areas.
5. All oily and dirty rags are to be placed in containers provided in the shop area.
6. Some of the electrical test equipment used in the shop is high voltage. When in doubt about proper use of this equipment, check with an instructor. Do not take a chance that may cause injury to you or someone else
7. All small quantities of flammables liquids used in the shop must be in approved type safety containers. Do not use empty food cans, glass jars, or other makeshift arrangements.
8. Workbenches shall be cleaned of all refuse and spillage of any nature before leaving the shop at the end of your shop period. Leave it clean for the next person’s use.

9. Before mixing acids or other components check with an instructor as to proper procedures.

NOTE: In the event of acid accidentally being spilled upon your person, wash immediately with copious amounts of fresh water and notify an instructor.

10. Fire extinguishers that are located about the buildings are to be used only in the event of a fire in the shop and for no other purpose.

NOTE: There are portable extinguishers that will be used for engine starting. Check with an instructor to locate the proper extinguisher for this use.

11. Loose clothing such as string ties, large sweaters and jackets must not be worn when operating drill presses, lathes, or other power equipment where entanglement will cause injury.

12. Open-toed shoes or sandals must not be worn when working in shop areas. Short pants or tank tops will not be worn. Good quality shoes will be worn when welding, grinding or cutting.

13. Rings and jewelry of any nature will not be worn when working with electrical equipment or power tools. Before using the equipment, please remove them.

14. Turbine engines can be extremely dangerous. Students must not spin the compressor or turbine wheels. These are high inertia devices with very close tolerances. They will easily remove fingers, etc.

15. Dispose of used substances (such as oil, fuel, etc.) in appropriate containers.

16. Student has been advised on location of fire extinguisher, first aid kits, MSDS sheets, and eye wash stations.

17. No children or students are to be in the hanger without an instructor or lab assistant supervision.

18. No students are to be allowed on the airport ramp area during AMT engine runs. Unless they are part of the engine run team or are in a safe area designated by the instructor in charge.

19. No student is to act as fireguard unless they have had fire extinguisher training.

20. No engine starts will be made unless an AMT approved person is present.

21. Students will not use shop floor equipment without training and instructors signoff.

22. Do not use any machinery, tool, material or equipment, which is not in safe operating condition.

23. I understand the Emergency Procedures Handbook and where it is located

Failure to follow any of these safety rules will be grounds for suspension or expulsion. We take safety very seriously.

The instructors and lab assistants are responsible for safety in the shop and must enforce all shop safety rules.

The minimum enforcement actions to be taken are:

Steps	Safety violations	Actions
1	1 st and 2 nd	Verbal warning
2	3 rd	Office visit with both instructors present and letter in file
3	4 th	Student is sent to vice president of student services

SEE BIG BEND COMMUNITY COLLEGE 2003-2004 STUDENT HANDBOOK PAGES 41-49

AT NO TIME WILL HORSEPLAY BE TOLERATED IN THE SHOP OR CLASSROOM

Big Bend Community College is not liable for any damage, loss, or theft of personal tools, personal projects, or personal property from the Big Bend Community College premises.

I have read and understand the preceding safety regulations. I will do my utmost to promote safety in the shop where I may be working while a student at Big Bend Community College.

Student Name (PLEASE PRINT CLEARLY) _____

_____ Date

Student Signature _____

Review Dates Beginning of each quarter

_____	_____
_____	_____
_____	_____
_____	_____

Big Bend Community College has a student insurance policy available to all students

I have received information concerning this student insurance policy and have elected to:

Enroll in the student insurance policy: _____

Not enroll in the student insurance policy: _____

WASHINGTON STATE SCHOOL EYE SAFETY LAW
(House Bill #158. Title 70)

What are the law's basic requirements?

It requires any person (faculty member, student, or visitor) who participates in any function or observes any operation or is in any area where he/she may be subjected to the hazard of injury to the eyes. Shall wear approved eye protection devices and shall wear such devices at all times when a hazardous condition exists in the area which may cause eye injury.

NAME _____ SSN# _____

LOCAL ADDRESS _____ CITY _____ ZIP _____

HOME ADDRESS _____ CITY _____ ZIP _____

TELEPHONE NUMBER _____ E-MAIL _____

PERSON TO BE NOTIFIED IN CASE OF EMERGENCY

1. Name _____ Relationship _____ Phone _____

2. Name _____ Relationship _____ Phone _____

CALL DOCTOR _____ PHONE _____

TAKE ME TO _____ HOSPITAL

AMBULANCE SERVICE PREFERRED _____

PHYSICAL PROBLEMS:

Heart Disease _____ Diabetes _____

Epilepsy _____ Other (Explain) _____

I have read and understand the preceding safety regulations. I will do my utmost to promote safety in the shop where I may be working while a student at Big Bend Community College, Aviation Maintenance Technology Department.

Student signature

Date

**BIG BEND COMMUNITY COLLEGE
AVIATION MAINTENANCE TECHNOLOGY**

SAFETY INPUT FORM 1-7

Student Name: _____ Date: _____

Powerplant _____

Airframe _____

General _____

RECOMMENDATIONS OR SUGGESTIONS FOR GREATER AMT SAFETY:

Student Signature

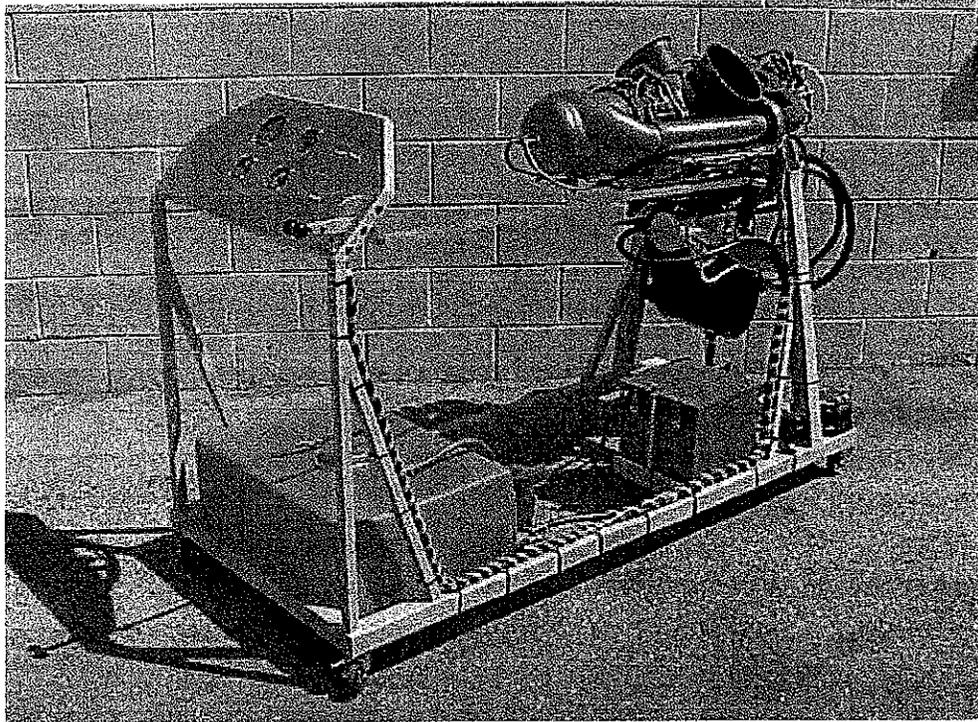
Instructor Signature

FOLLOW UP

Instructor Signature

AVON AERO SUPPLY INC.

GAS TURBINE ENGINE TRAINING HARDWARE



Avon Aero Supply is a dealer in gas turbine engines and parts. We can supply to the aviation technology marketplace various gas turbine engines and associated material for educational purposes.

**Allison 250 Pratt & Whitney PT6
Solar & Garrett APU's**

TRADES WELCOME

We will also purchase your excess engines, aircraft and helicopters

**CONTACT: BRUCE LINSMEYER
AVON AERO SUPPLY INC.**

2001 East Main St. Danville, IN 46122
Phone 317-745-6600 Fax 317-745-6700
bruce@avonaero.com www.avonaero.com

EXHIBIT A

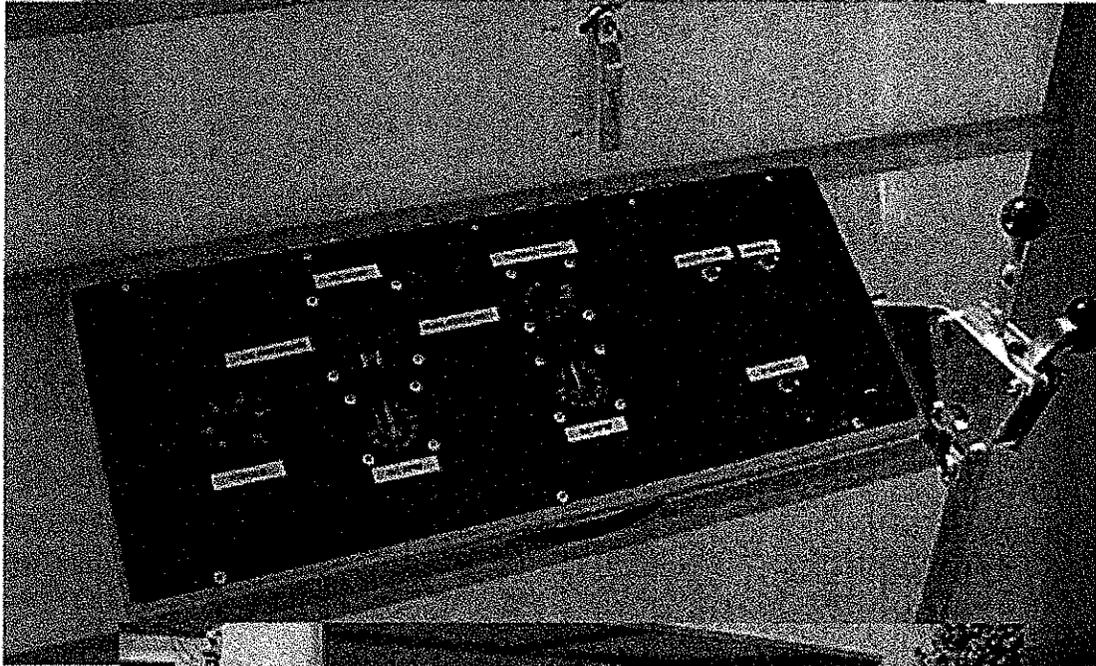
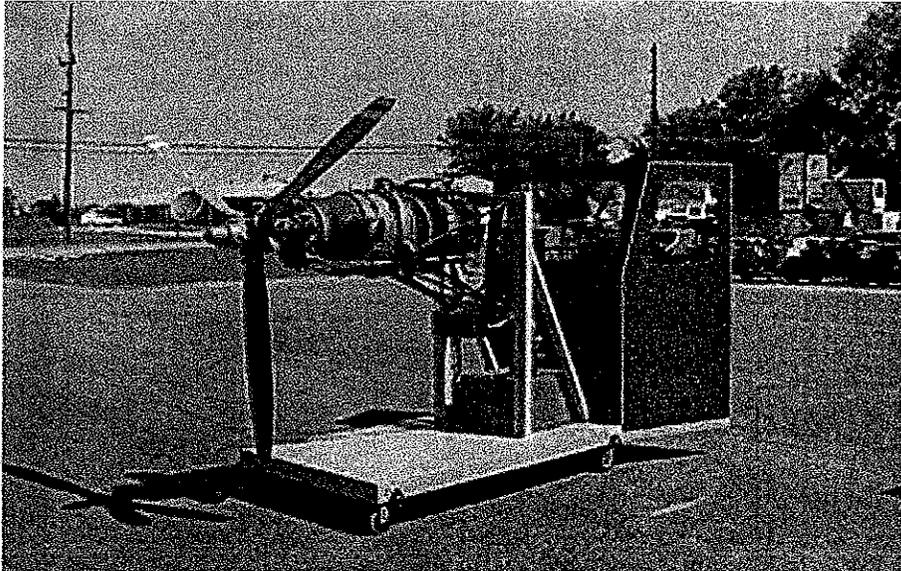


EXHIBIT A

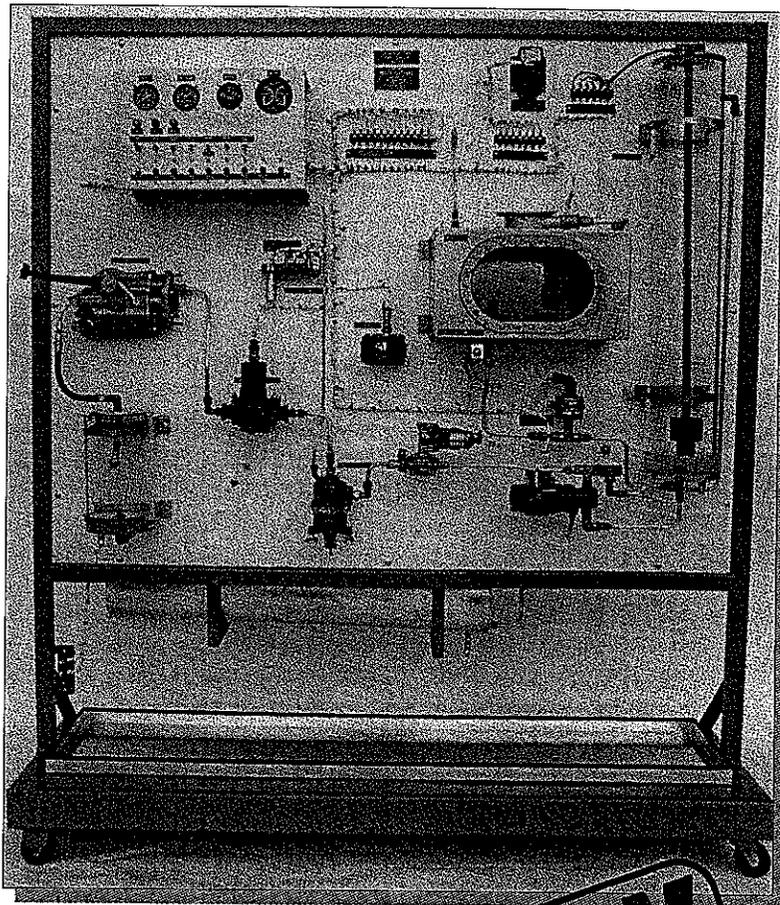
AVOTEK®'s functional Fuel System is an advanced turbine type system. It features a fuel management panel, fuel transfer system and capacitance and resistance fuel quantity indicating systems. An instructor's panel is included allowing faults to be added to assist in teaching troubleshooting.

Features

- This unit is completely functional and operates like a typical turbine engine aircraft fuel system. It is delivered ready to plug in and operate. The system is fully tested and assembled prior to delivery.
- An instructor's panel is included allowing the introduction of typical system faults and errors. Aircraft style troubleshooting charts are included in the training manual to assist in training the student using troubleshooting tools found in the real world.
- Complete system training manuals including explanatory text, symbols charts, wiring diagrams, flow schematics, and component cut-away diagrams.
- The system requires standard aircraft 28 volt DC power. An industry standard external power receptacle is included to allow easy connection to an APU.
- All wiring is aircraft quality and corresponds to wiring diagrams as in an aircraft to allow easy troubleshooting, comes with complete system wiring diagrams.
- Includes 14 page Instructor and Student Operations Training Manuals (with all wiring diagrams).
- Dimensions: 65"l x 19"w x 74.5"h

Components

- Capacitance Type Fuel Quantity Indicating System with signal conditioner, resistance spool, fuel quantity probe and indicator
- Resistance Type fuel Quantity Indicating System with fuel quantity probe and indicator



NEW

- Fuel Management Panel with fuel quantity indicators, fuel pressure indicator, fuel flow indicator, system indicator lights, system circuit breakers and system control switches
- Fuel Transfer System with fuel transfer pump, transfer pump pressure switch with check valve, automatic transfer pump activation sensor and switch, transfer system timer relay, and transistorized transfer switch
- Main and Auxiliary Fuel Tanks
- Turbine Type Fuel System with fuel boost pump, pressure bypass relief valve, firewall shut-of valve, fuel gascolator with drain and fuel flow transmitter
- Turbine FCU Section with Throttle, Fuel Nozzle and See-Thru Combustion chamber
- Power Requirements: 28 Volts DC

Turbine Fuel Systems Trainer Item F51

The Cockpit Instrumentation Trainer is a complete, functional simulation of a standard aircraft cockpit. It includes standard flight and engine instrumentation. All indicating systems are fully functional. The system can be used to demonstrate the proper functioning of gyros, altimeters, and the standard engine instruments. It is also useful for teaching instrument removal and replacement. All of the systems are completely plumbed and functional.

Flight Instruments

- Directional Gyro
- Attitude Indicator
- Airspeed Indicator
- Turn and Bank Indicator
- Altimeter
- Rate of Climb Indicator

Engine Instruments

- Engine Tachometer: Function controlled by Propeller Control
- Manifold Pressure Gauge: Function controlled by Throttle and Propeller Control as on a normally aspirated engine with a constant speed propeller
- Oil Temperature Indicator: Operates when engine in "Run" position
- Vacuum Indicator

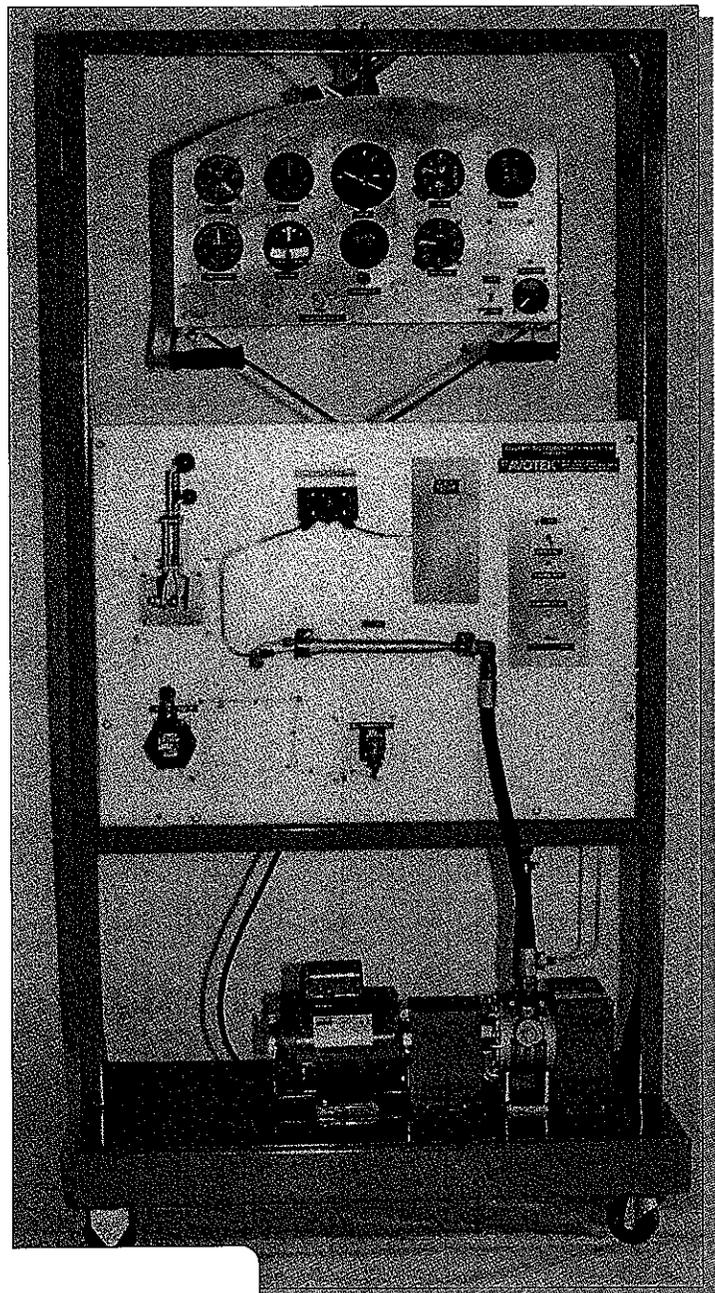
Systems

- Pitot-Static System including:
 - Pitot Tube
 - Fuselage Side Static Port
 - Alternate Static Source
 - Static Source Selector
 - Vacuum Filter
 - Vacuum Pressure Regulator
- Vacuum Pump
- Tach Generator
- Oil Temperature Sensor
- Instrument Panel is mounted using a tilt/swivel mechanism to permit full demonstration of gyro function

Other Features

- Includes 36 page Operations Training Manual (with all wiring diagrams)
- Power requirements: 110V AC
- Dimensions: 37"l x 19"w x 75"h

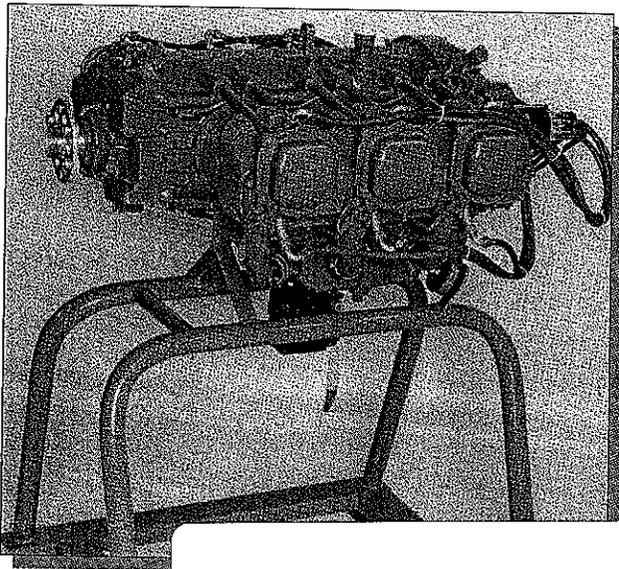
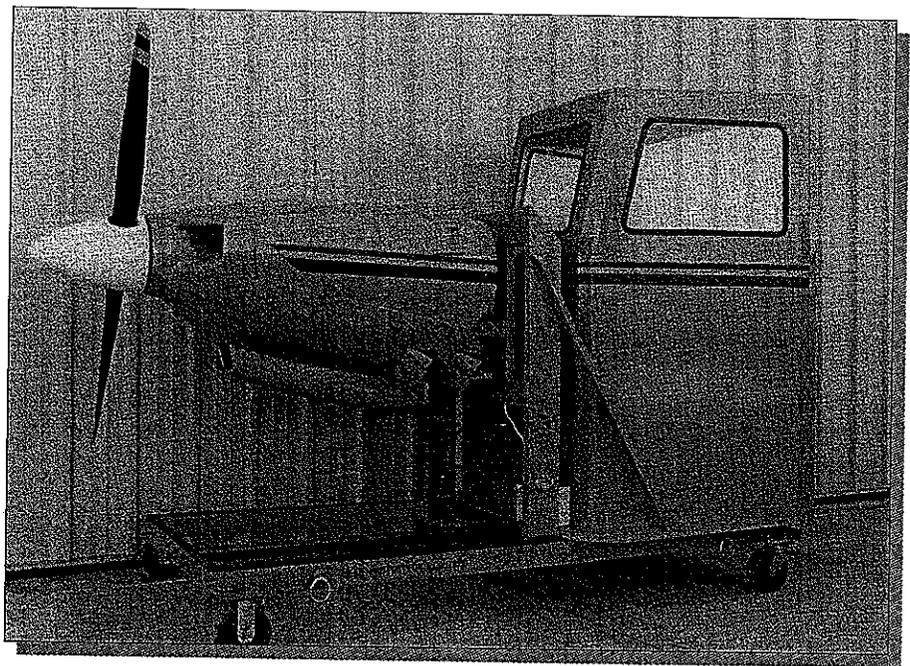
Cockpit Instrumentation Trainer. Item AS76



**AVCO Lycoming O-540/IO-540
Complete Ready-to-Run (below)**

Complete AVCO Lycoming O-540/IO-540 Item E15 or E16 (as described on pages 20). With the addition of AVOTEK®'s custom manufactured run-up stand this unit is ideal as a stand alone test cell. This engine is delivered fully tested and operational, ready for your use. Included are operating instructions and a complete test-cell wiring schematic.

AVCO Lycoming O-540 or IO-540 Engine
on Test Stand, Complete Runnable Items E21 and E22



**AVCO Lycoming O-540
and IO-540 (left)**

for teardown and reassembly

- Easy to Roll Maintenance Stand
- Carburetor or Fuel Injection (Bendix)
- Magnetos
- Ignition Harness

AVCO Lycoming O-540 Engine Item E13
AVCO Lycoming IO-540 Engine Item E14

EXHIBIT A

Air Conditioning and Heating System

The Air Conditioning and Heating System is a complete, functional system typical of a turbine aircraft heating and cooling system. This system meets the FAR requirements for level two training on air conditioning systems. The system is delivered complete, ready for classroom operation, with training manuals.

Heater

- Combustion Chamber with jacket (100,000 BTU)
- Heater Over-Temperature Safety Switch
- Heater Cycling Switch
- Heater Discharge Sensor
- Cabin Air Temperature Sensor
- Outside Air Temperature Sensor
- Cabin Temperature Control Box
- Heater Ignitor
- Vent Blower with Differential Pressure Switch
- Combustion Blower with Differential Pressure Switch
- Combustion Heater with Solenoid Valve
- Self-contained Fuel System including tank, pump, filter, regulator, solenoid valve and fuel heater

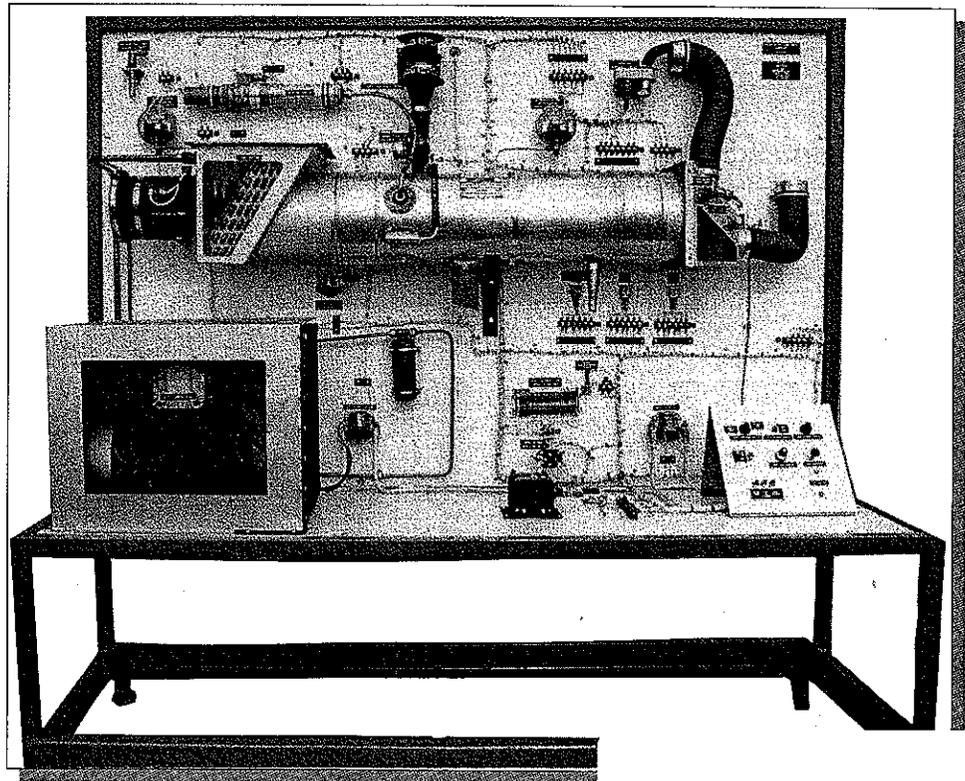
Air Conditioner

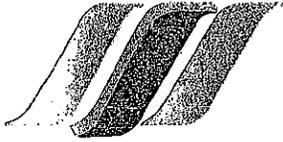
- Compressor (Freon Type, 16,000 BTU)
- Compressor Motor and Condenser
- Receiver: Dryer
- Expansion Valve and Evaporator
- 35° Thermal Switch
- Vent Blower Low Speed Resistors

General

- Applicable Relays, Switches, Circuit Breakers, and Controls to operate system
- APU Plug
- Wiring is numbered and coded to wiring diagrams to allow easy troubleshooting
- The system includes an instructors panel in the rear of the trainer which can be used to simulate numerous shorts, open circuits and other system malfunctions.
- Power Requirements: 28VDC 50 amps; 110VAC 15 amps
- Easy to Roll, Self-Contained Display Stand
- Includes 26 page Instructor and Student Operations Training Manuals (with all wiring diagrams)
- Dimensions: 79"l x 29"w x 75"h

Air Conditioning and Heating System Item AS66





SYSTEMS WEST, LLC

1705 South 24th Avenue - Yakima, WA 98902
Phone (509) 452-5000 - FAX (509) 452-2767

WA Contractor Lic # STSTEWLOO0BK OR Contractor Lic # 88955

August 20, 2003

**Mr. Dan Moore
Big Bend Community College
7662 Chanute Street
Moses Lake, WA 98837**

Dear Dan:

It is with pleasure that we furnish the following budget for your proposed Engine Run Cell building. The building would be 20' wide, 66' long, 20' high, with 3-22' open bays.

SCOPE OF WORK

- A. Reinforced concrete foundations including excavation and backfill on a level site prepared by others.**
- B. Six-inch concrete slab over 6" of compacted crushed rock. The slab will be reinforced with 6x6/10x10 welded wire fabric.**
- C. Four tilt-up concrete walls, one at each end and two intermediate.**
- D. Galvanized steel roof purlins and Galvalume steel roof paneling. The roof will slope one way at 1/2 :12. Each bay will be X-braced at the low side.**
- E. One end bay will receive full-height fencing in both sides with one side having a pair of gates approximately 4'x10'.**

LUMP SUM PRICE

Lump sum price for the above work-----\$42,539.00

The following items are not included: electrical, mechanical, painting, site work, building permit fees, or Washington State Sales Tax.

Thank you for this opportunity to be of service. If you have any questions or comments please feel free to call. We will be most happy to discuss this proposal with you.

Sincerely,

Dave Green

EXHIBIT B

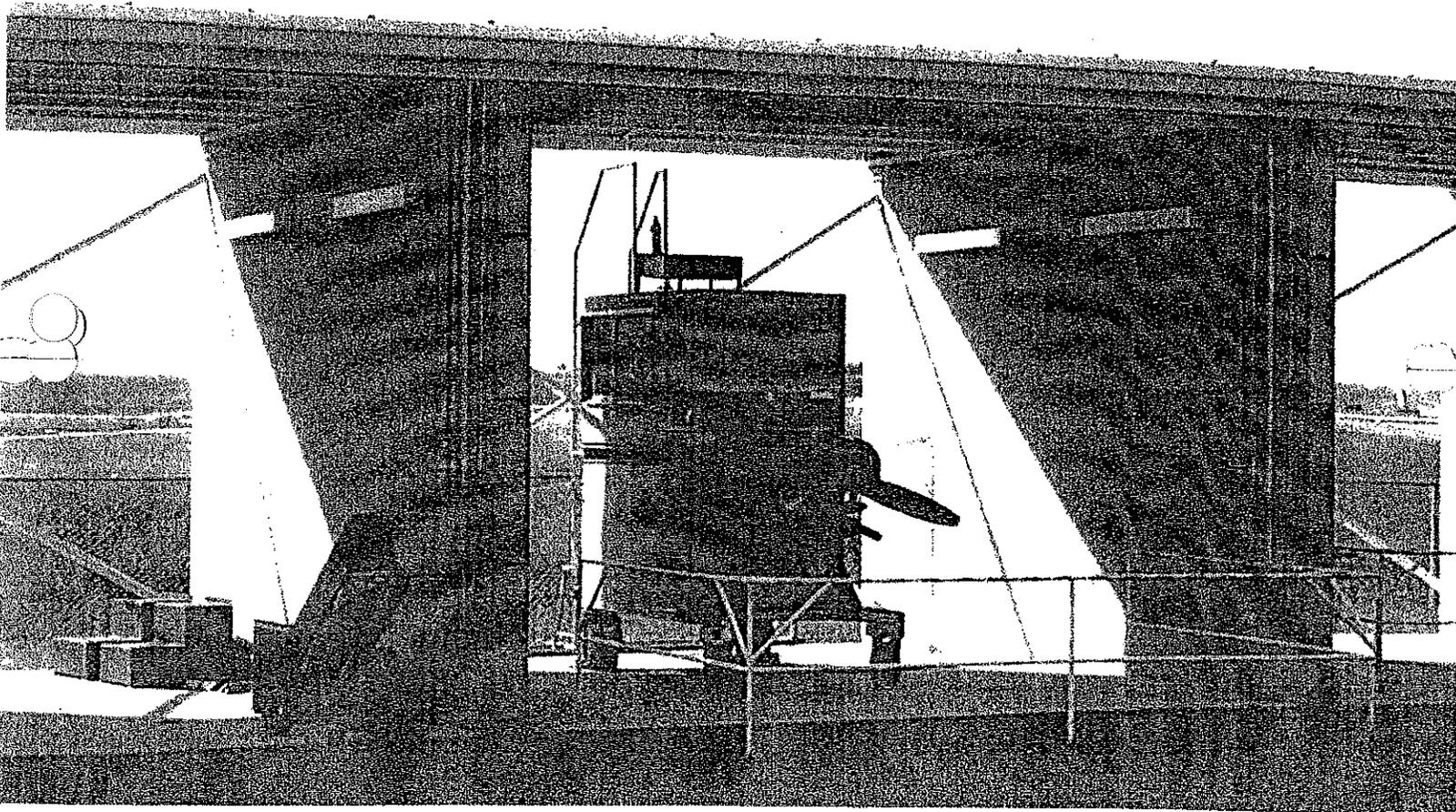
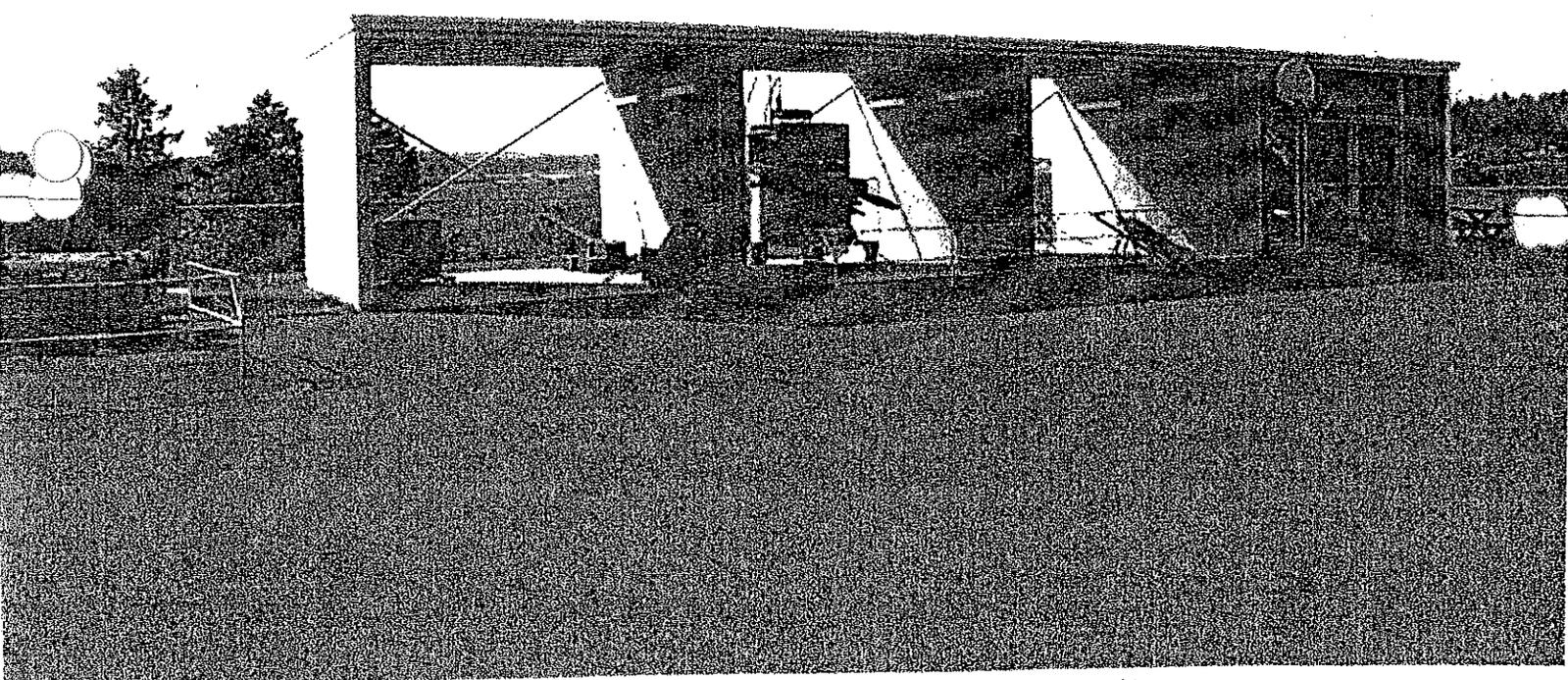


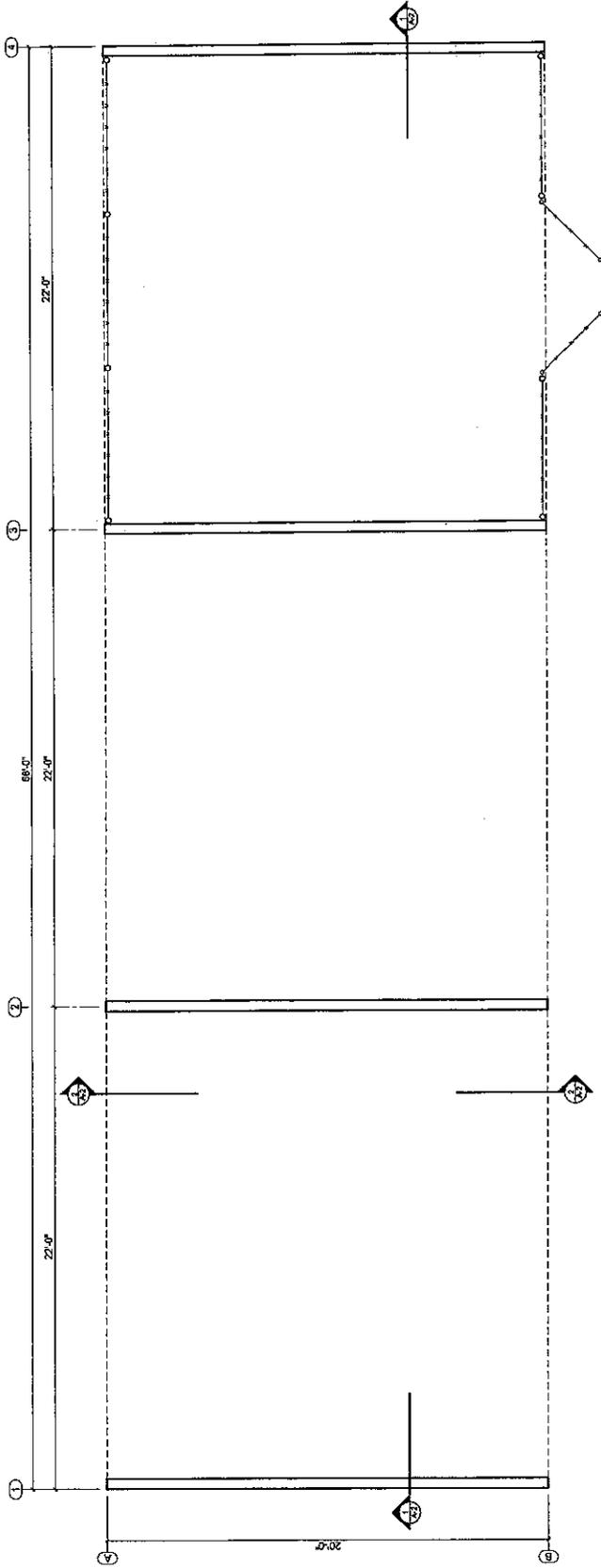
EXHIBIT B

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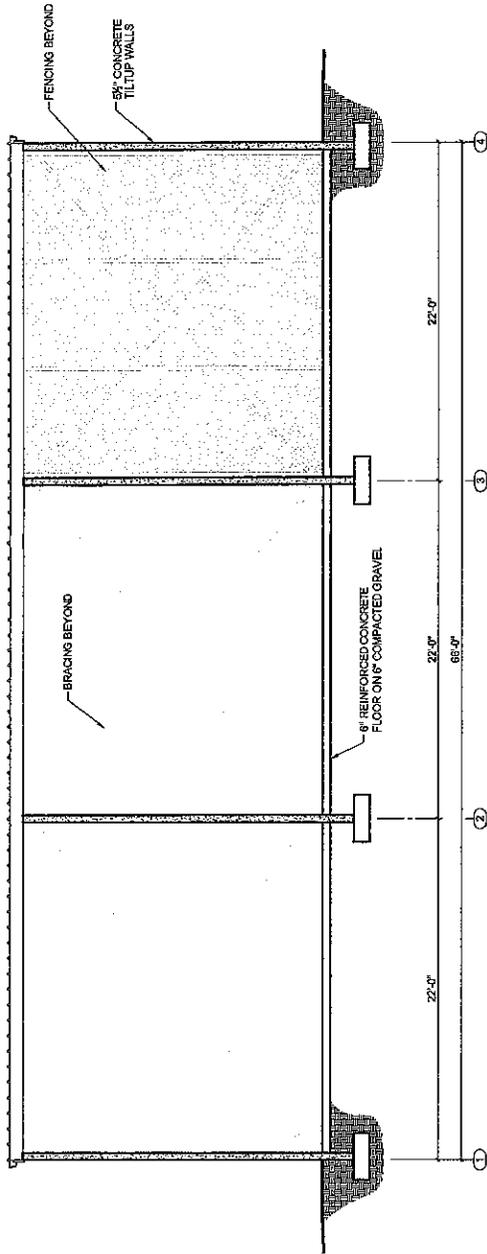
9

EXHIBIT B

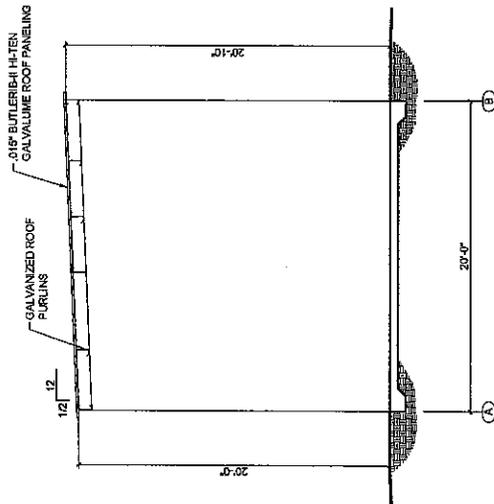


① FLOOR PLAN 3/16" = 1'-0"

SYSTEMS WEST, LLC GENERAL CONTRACTORS <small>1702 South 24th Avenue • Federal Way, WA 98003 Phone: (206) 885-1100 • Fax: (206) 885-2222</small>	
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BIG BEND COMMUNITY COLLEGE ENGINE RUN CELL BUILDING <small>INDONESIA LAKE, WASHINGTON</small>	
DRAWING TITLE FLOOR PLAN	
FILE NO. 038BCC_PV1	DATE 8-28-03
DRAWN BY AS NOTED	NO. OF SHEETS 0
A-1	



① BUILDING SECTION
1/8" = 1'-0"



② BUILDING SECTION
1/8" = 1'-0"

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BIG BEND COMMUNITY COLLEGE
ENGINE RUN CELL BUILDING
MOORE LAKE, WASHINGTON

DATE: 9-28-03
DRAWING NO. 088BCC_301
SCALE: AS NOTED

BUILDING SECTIONS

A-2

Background

The primary mission of Big Bend Community College is to serve the educational, social and cultural needs of the adult learners of the local service district population and other adult Washington State residents.

The College is a public institution of the state of Washington, and as such it is available to its students as well as to the general public who may wish to use its facilities, learn about its services and programs or attend functions. Individuals have the right to use the facilities of the College and to visit the campus during normal business hours of operation.

The College recognizes that children often appropriately accompany adults during visits to campus. However, children must be under the supervision of an adult at all times. It is inappropriate for the adult to ask members of the college community such as administrators, faculty, staff, or students to assume the responsibilities of child care, unless he or she is leaving the child in a college program sanctioned for children as defined in these procedures.

Children may disrupt the educational process or the work setting when left on campus without supervision or when supervision is imposed on College employees or other students. Leaving children unsupervised may also create unsafe conditions for the children themselves or for others on the College campus.

Policy Statement

The college will establish procedures relating to the presence of children on campus in order to create a safer environment on campus and all other BBCC educational sites, which is conducive to the mission of the College and maintains an orderly and effective educational process.

Reference AP7100

EXHIBIT C

Authority

For purposes of these procedures and pursuant to RCW 13.34.030 – the Juvenile Court Act, RCW 74.13.020 – Child Welfare Services, and RCW 26.28.010 – Age of Majority, a child is any individual under the age of 18. At Big Bend Community College, the exception is the 16 to 18 year old student who has applied for admission and registered for classes after graduating from high school or receiving authorization for college admission from his/her high school principal (p. 6 Admissions, 1997-99 BBCC catalog).

Procedures

1. As a general rule, employees and students shall not bring children with them to their work sites or to classes. Employees and student may bring children to their work sites and/or classrooms only upon approval of the appropriate supervisor and upon their compliance with College rules.
2. No employee, student or visitor to the College shall leave a child unsupervised at the College, nor may such person leave a child with a College employee or student, unless that child is enrolled in an authorized College program.
3. Big Bend Community College offers certain programs and activities targeted towards children, such as youth sports camps, the Missoula Montana Children's Theater, and the Parent Education Cooperative Preschool Program. The college provides supervision for children enrolled in these activities. However, the College does not supervise children outside of these settings, and neither the College nor its employees, agents or students may accept responsibility to do so on behalf of the College.
4. Parents of unsupervised children on the Big Bend Community College campus will be asked to take the children home or to a day care. Failure to comply may result in referral to local Child Protective Services and to the Student Disciplinary Council for disciplinary action. Children who arrive on campus without their parents and are unsupervised will be asked to leave.
5. This procedure pertains to all employees and persons who visit the College, or participate in classes, programs, events or other activities.

Reference BP7100

EXHIBIT C

Big Bend Community College District endorses the standards for safety as set forth in the "Safety and Health Committee Plan" (WAC 296.24.045). The safety of students and staff in all college activities, both on and off college property is of paramount importance. All college employees will work safely, in a safe environment. All college sponsored activities will be planned with proper attention to safety. Students and staff will be made aware of necessary safety precautions essential to their activity or location. Refer to Administrative Process Manual, AP7700.

- 7700.1 The Vice President, Administrative Services, in conjunction with the Safety Committee, shall develop a campus accident prevention program.
- A. The program shall be reviewed by the President's Cabinet and Board of Trustees for approval.
 - B. The guidelines shall be distributed to all full-time staff members and posted on appropriate safety bulletin boards.

7700.2 **SAFETY AND HEALTH COMMITTEE PLAN**

The Big Bend Community College Occupational Safety and Health Manual is a college-wide compendium of safety practices. The College Safety Committee, under the coordination of the Vice President for Administrative Services, distributes and maintains the manual.

- A. The program shall be reviewed by the President's Cabinet and approved by the Board of Trustees.
- B. The guidelines shall be distributed to all full-time staff members and posted on appropriate safety bulletin boards.

(Reference: WAC 296-24-045)

EXHIBIT C

SAFETY POLICY

All Big Bend Community College programs will have established safety procedures for instructional laboratory areas which conform to the following minimum requirements:

1. All students will be required to read the current laboratory safety procedures for their program and acknowledge that they have read these procedures by signing a copy.
2. Copies of student acknowledgments will be kept on file in the respective program faculty offices. If a student is taking classes in two or more program areas, an acknowledgement is required for each area. Please see sample below.
3. All students are required to conduct themselves in a safe manner and to maintain an attitude that will provide a safe learning/working environment.
4. No smoking is allowed in any instructional area.
5. All persons in science and industrial laboratory areas will be required to wear approved eye protection meeting current federal, state, and program requirements DURING ALL LABORATORY WORK PERIODS.
6. Foot protection requirements will be established for each laboratory area by adherence to standards for the corresponding industry. Except that hard soled shoes are advised for all students in vocational shops and that no person shall be allowed in a shop area in canvas-type shoes.
7. All hazardous materials will be properly labeled and their storage areas properly identified. Material Safety Data Sheets (MSDS Sheets) will be posted according to current regulations for all potentially hazardous materials.
8. Students who do not comply with this policy will not be allowed to work in the laboratory and will not receive credit for that laboratory session. A failing grade for the course will be awarded for continued non-compliance.
9. It shall be the responsibility of the program/course instructors and the instructional administrators of the college to enforce safety policy provisions.
10. Each laboratory area will maintain a labeled, readily available file of its safety procedures.

I, _____, have read these safety procedures
on _____ [date] and agree to meet them in all respects.

Big Bend Community College
Aviation Maintenance Technology Program
October 24, 2003
Report to the Director of Financial Management
Summary of Implementation Recommendation Requiring Additional Funding

Document Reference	Description	Estimated Cost
Page 3	Test Stand for test cell containment area to be constructed	\$20,000
Page 4	Total Project cost to construct a test cell containment area	\$100,000
Page 4	Engine wet brake or other load device	\$15,000
Page 5	Salary & Benefits for a full-time, trained, risk manager and safety officer	<u>\$75,000</u>
	Total	\$210,000