OFFICE OF FINANCIAL MANAGEMENT

STATE OF WASHINGTON

LOSS PREVENTION REVIEW TEAM

BIG BEND COMMUNITY COLLEGE INCIDENT OF JUNE 28, 2002

Report to the Director of the Office of Financial Management

JUNE 11, 2003

Visit the Loss Prevention Review Team website at:
http://www.ofm.wa.gov/rmd/lprt/loss.htm

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Loss Prevention Review Team

Big Bend Community College Incident of June 28, 2002

Executive Summary

In accordance with RCW 43.41.370, Marty Brown, Director of OFM, is authorized to appoint a loss prevention review team when an incident resulting in death, serious injury to a person, or other substantial loss is alleged or suspected to be caused at least in part of state agency action. Mr. Brown determined that this reported incident should be reviewed by a loss prevention review team.

An accident injury during an aviation maintenance technology (AMT) class at Big Bend Community College (BBCC) on June 28, 2002, was reported to the Office of Financial Management (OFM). A student was injured when the interior turbine blades of a running helicopter engine on a test stand failed and exploded, shattering the engine housing, resulting in metal fragments that flew into the student's back. The student required hospitalization and surgery, and has recovered.

On February 25, 2003, Mr. Brown appointed Dwight Hagihara, William Loomis and Trooper Jim Nobach to a loss prevention review team. The team was asked to review the incident, evaluate the causes, and make recommendations regarding BBCC's policies, procedures or processes to prevent accidents and reduce future losses. The review is not intended to determine individual fault or liability, but is intended to look at Big Bend Community College's safety and risk management policies, procedures and systems. The team is authorized to review documents, interview persons, and is required to provide OFM a written report containing the team's findings and recommendations within ninety days. To facilitate the review, BBCC was required to provide the team with "ready access" to relevant documents and knowledgeable employees.

The team developed a Review Plan at their first meeting on March 11, 2003. This review plan is provided in Section I of this report. After conducting their review, the team organized the facts, analyzed the facts, and made recommendations in five categories.

1. Equipment
2. Physical Plant
3. Instructors and Administrative Staff
4. Policies and Procedures
5. Emergency Response Procedures and Post Incident Process

- The facts are provided in Section II.
- Analyses of the facts are provided in Section III.
- Recommendations are found in Section IV.

During the process of gathering specific facts, analyzing them, and making recommendations, the team also identified some consistent and root causes that affected all five categories listed above.

It appears that 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. To meet these goals a self-paced AMT program has been developed and approved by the Federal Aviation Administration (FAA).

While AMT instructors or BBCC administrative officials are able to recognize the need to improve the safety of AMT program (equipment, physical plant, policies and procedures, emergency response, and post incident response), they are challenged with several other responsibilities, lack of resources, or addressing safety issues appears to be a lower priority to getting more students enrolled and through the AMT program.

It has been almost a year since the incident. The team could not find any physical corrections to the equipment or physical plant associated with BBCC's AMT program. While minor improvements to written safety procedures for the specific activity associated with this accident have been developed and a new safety committee was formed, well documented campus wide, systematic, safety, emergency response and post incident response programs are still not developed, communicated or implemented.

Therefore the team's recommendations include action items to first provide training for administrative staff (or to provide professional safety staff) so effective safety policies and procedures can be developed along with a means for ensuring their communication, implementation, and enforcement. Also, through this process, a documented system to ensure safety issues are addressed during the acquisition and maintenance of equipment, and to promote the construction or modification of facilities for safety must also be developed.

It was also apparent to the Loss Prevention Team that it is imperative that focus and emphasis for safety come from the highest administrative levels and made a priority campus wide. Without this leadership, commitment, and emphasis, the faculty, staff and students will not develop or follow safety policies or procedures to protect students at BBCC. What the students learn at BBCC will also affect their safety behavior after they graduate and are working.

Improving the safety systems and procedures at BBCC can prevent similar injuries. Without improvements more accidents will likely occur.

Over time, additional accidents and their associated publicity can negatively affect BBCC's ability to:

- Recruit and retain students;
- Find employment for its students;
- Recruit and keep qualified instructors and staff; and
- Find and retain support and donations from industry.

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Section 1 – Review Process

The Loss Prevention Review Team (team) for the Big Bend Community College Incident of June 28, 2002, was appointed by Marty Brown, Director of the Office of Financial Management (OFM) on February 25, 2003. The appointment letter requested the three member team to review the incident that was reported to OFM, attached as Appendix A, evaluate the causes and make recommendations regarding agency policies, procedures, or processes that may reduce future risk of loss. The three members appointed are:

- Dwight Hagihara, Director of Environmental Health and Safety, Washington State University

- William R. Loomis, Department Chairman, Aviation Maintenance Technician School, Everett Community College

- Trooper Jim Nobach, Training Officer/Instructor Pilot, Aviation Division, Washington State Patrol

The appointment letter further requested that the review be completed within ninety days of the team's first meeting. Each team member was given the incident report, initial documents collected by OFM, and the Loss Prevention Review Team Review Guidelines.

The team held its first meeting on March 11, 2003. At that meeting the team determined the initial areas to explore, interviews to be conducted, documents to review, and a schedule within which these tasks would be accomplished. These decisions were memorialized in the Loss Prevention Review Plan, attached as Appendix B.

The team began to work its plan and document their activities on the Activity Log, (Appendix C). Documents were requested and subsequently received and distributed to the team members. The team held a conference call to discuss the documents and finalize the interviews they wished to conduct during a two-day visit to Big Bend Community College. The team members visited BBCC on April 22-23, 2003, where they toured the Aviation Maintenance Technology School and conducted interviews as reflected on the Interview Conducted list (Appendix D). The team held another conference call to review the documents received to date and the interviews conducted. At that time, a decision was made to conduct three additional interviews and obtain additional documents. Those interviews were and are reflected on the Interviews Conducted. The additional documents were received and added to the Document Log (Appendix E), which contains a list of all documents received and reviewed during this process. Finally, the team

met on June 3, 2003, for a full day session to review all information obtained and agree on the facts found, findings and recommendations.

Section II - Facts

The team was given some initial facts that were provided by the college. The team was informed that:

> Big Bend Community College has an extensive aviation program. The school owns approximately 15 single and twin-engine aircraft for their FAA Part 141 pilot training program. The FAA Part 147 mechanics program purchases surpluses jet turbine engines from the military and pays what is essentially scrap price. These engines are not guaranteed and have not been inspected or tested by the military. They are sold to the school "as is". The engines are primarily used by the school to study their construction and systems. The turbine sections are not disassembled or repaired because of the need for specialized equipment and training that is expensive, and the school does not possess either the tools or specialized training. The engines are mounted on a metal framed run stand to be operated outside in the out door training area without any sort of safety enclosure or safety shroud around the turbine for containment purposes. Students are typically advised to wear plastic safety glasses and not to stand beside the turbine section if they attempt to operate the engine.
>
> During the incident class session, the instructor left the class unsupervised to go to an appointment. He believed that a Lab Technician would be able to supervise activities. Two students were working on a T-53 turbine engine and decided to start it. The injured student was working within six feet of the turbine on another project. He allegedly was told to stand back and had temporarily left, but later returned. When the turbine engine reached turbine disc over speed, it exploded both radially through its case and axially to the rear, shooting numerous pieces of red-hot shrapnel into the student's back. The victim was taken by an AMT student/flight school faculty member in his private vehicle to the local hospital. From there the victim was airlifted to Harborview Hospital where most of the shrapnel was removed from his right kidney. There are indications that this student had failed to follow safety procedures in the past and had been warned about his noncompliance.

In conducting the review of this incident, the team made many additional findings of facts. These facts were determined from the documents received, the tour of the facilities and the interviews conducted. A summary of all the interviews conducted is available for review. The facts found have been divided into five categories.

1. EQUIPMENT

There were basically two types of equipment reviewed, the engine and the test stand.

Engine

- The College was not able to produce the history, maintenance practices, or supporting documentation related to the engine to the LPRT when asked.
- Engines provided from the military have a condition code associated with the engine. This code provides a grading that determines whether the engine is operable or should be used for demonstration purposes only. The College was not able to produce any paperwork that came with the subject equipment and should be kept by the program. Without reliable documentation, the engine should not be operated, which in this case, led to its structural failure.
- There was no logbook for the engine. The logbook provides the engine's history and validates the engines condition. Without documentation, you would either have to tear down or otherwise inspect the engine to evaluate its condition.
- The program does not do a documented inspection of its engines before allowing students to operate the engines as part of the program.
- The program did not produce any supporting documents regarding the engine. Supporting documents would include any other records, maintenance manuals, parts manual, service package, or up-to date useable documents. This is important in that the curriculum, required by the Federal Aviation Administration requires that the students have the appropriate manuals for safe operation and to have an understanding of the structure of the manuals, technical publications, and the process to obtain them.
- The program staff does not engage in any communication with product manufacturers. Even after the incident, the instructors made no attempt to contact the product manufacturer (Textron Lycoming) to obtain any information that could reduce the risk of future occurrences.
- Where the program does have documents associated with the equipment, it appears that control of these documents is lacking. There is no one responsible party or any organization in place to control or maintain the documents.

Test Stand

The test stand is the structure on which the engine mounts. It holds the engine in position for operation. It takes the place of the airframe for training purposes. It could include the engine controls, fuel and oil supplies, and instrumentation.

The test stand was inadequate and had been modified prior to the incident. There was no safety lockout to limit operation speed. The controls on the test stand were not compatible with the engine. The test stand did not provide an adequate barrier between the engine and the student operator. The instrument panel did not allow the display of both revolutions per minute (RPM) for the free turbine speed (Nf) and the shaft (Ng) so that both rotor speeds could not be viewed at the same time during the operation of the engine. Therefore, the students could not tell what the free turbine was doing if they were looking at the gas generator. There was no local containment for the turbine section by containment ring, blanket, or similar device. Finally, the test stand allows the engine to run without a load, which allows the engine to run without resistance.

2. PHYSICAL PLANT

The initial information included the fact that two engines were being run very close together, using one power source. Because of this dangerous condition, the team conducted a thorough inspection of the facilities.

- The team found that the power supply for the plant was limited and therefore inadequate for running more than one engine.
- There was no physical containment area in which the engines could operate from. A physical containment area would be a barrier for flying debris and other dangerous conditions that can arise when running these engines.
- There are inadequate tie-downs at the locations where the engines are run.
- There are no safety markings in the area where engines are run to indicate operating locations or danger zones. There is also a lack of signage regarding safety procedures. Although there are verbal instructions about safety zones, it appears in this and many instances; the safety instructions are not followed. In this instance, there was no safety instructor present to enforce the verbal safety zones when the students violated it.
- There appears to be a lack of key control to the facility and a lack of access control to the area. Students may be allowed in the facility without any instructor present. During session, the doors are unlocked and anyone can enter. There is no sign in or sign out sheet to the

facility. Students are allowed to bring their children into the facility, which poses a dangerous risk. The team was told that a 12 year-old child was present the day of the incident.

- There are no emergency phones in the shop and outside ramp area. The only phones are in the instructor's offices and the student break area (entry foyer).

3. INSTRUCTORS AND ADMINISTRATIVE STAFF

Operational Management

There is a question as to who is in charge on a day-to-day basis. There are two instructors but neither appear to be the lead. One is the senior instructor to whom the more junior instructor defers. There is also an instructional technician who is a former graduate of the program. He does not have any first aid training although he is left alone to supervise students in the shop area. He was the sole person in charge on the day of the incident. Because this is a self-paced program, the instructors work five days a week and have little or no time set aside for administrative duties. There is also no administrative support for the program and currently, no plan to add administrative time or support. There is also no process to help the continuing growth and health of the program. The senior instructor did not place emphasis on safety and felt that most safety procedures were just a matter of common sense. A consultant was hired to write policies and procedures, but these were not specific to the program.

Administrative Staff

There is a college Risk Manager, but this is only one of many duties he is fulfilling. His main responsibility as Risk Manager is to coordinate with the state risk management office on issues of insurance. He has not received training in regards to his risk management duties.

The college has an assigned Safety Officer, but again this is only one of many duties being fulfilled by this one person. He also has not received specific safety training. He is the person who coordinates with the safety consultant and Labor and Industries representatives.

Although there is an assigned Department Chair, he does not have an active role in the operational control of the program nor the authority over the program. He described his role as more of a communications facilitator, bringing information both down to the instructors and up to the administration. He is also a full time instructor in the Automotive Maintenance Program, with the title of Chair being an additional duty.

The Dean of Professional Technical Education did not appear to have a grasp of technical or regulatory requirements of running an FAA Part 147 Aviation Maintenance Technician School (AMT). He has no prior experience in this area. He appears to be detached from the program, leaving its operation to the instructors without oversight, until this incident.

4. POLICIES AND PROCEDURES

AMT Program

There are very few written safety policies or procedures. Those that have been developed are not clear or complete. Where safety policies or requirements are in place, they do not seem to be enforced. For example, everyone who is in the shop must wear safety glasses. The team spent two days in the shop area and were never given nor required to wear safety glasses. Also, there is a policy regarding children in shop areas, but again, this did not seem to be enforced.

At the beginning of the program, there is general discussion on safety regarding the location of the first aid kit, and other elementary safety issues. The students sign a form regarding safety, however, they are not given a copy of the signed form and could not tell the team what was in the signed document. The safety checklists used and now signed by students prior to engine runs are not retained in any file. This is consistent with the fact that there does not appear to be a system for retaining records or access to those records maintained.

There are no written polices or procedures regarding the operations of engines, for example running one engine at a time or requiring an instructor to be present during the engine run. There are also no written procedures in place to inspect equipment to ensure safety prior to use.

There does not appear to be a policy or system to deal with student discipline, nor a relationship between safety requirements and student expectations or discipline. Student issues are mostly dealt with verbally, with no real consequences. In this incident, the student injured was in a location where he was not supposed to be. He had been told on previous occasions not to stand in these locations during engine runs, however, no record of this was made, nor any consequences for his continued failure to follow safety instructions. Again, there was no instructor present to enforce this standard on the day of the incident.

There is no program specific policy or procedure regarding emergency response or post incident reviews.

Technical Level

Prior to the incident, there was no safety committee or formal process of ensuring safety for the technical programs other than that which was done at the program level. After the incident, Dean Larson created an IT Safety Committee. However, it appeared that membership in the committee was unclear, even to the members. The participation standards are not yet defined; and the committee, which has met only twice, has not developed any standards, policies or procedures. There is little documentation in regards to the committee so it is hard to determine what, if anything has been accomplished in the last eight months.

College Level

There is a College Safety Committee but it appears to have its focus on ADA issues and compliance. The safety bulletin board that is supposed to have the safety committee meeting minutes posted was not current. The last meeting minutes posted were at least a year old. There does not appear to be any process that enables students to bring issues to or participate in that committee.

5. Emergency Response Procedures and Post Incident Process

There are general procedures for emergency response and post incident review on the college level but these are not specific to the AMT program. The AMT program does not have a policy or system in place regarding emergency response to incidents. In this incident, no emergency help was called. The student was transported to the hospital in a private vehicle despite the fact that some witnesses thought he might be going into shock. Lew Mason transported the student and was a full time faculty member. He did have first aid training provided by the college yet neglected to call aid.

The AMT program does not have a post incident review process. There are no persons, either at the college or program level, who are trained in post incident reviews. For this incident, a few sketchy statements were taken, but many students and witnesses were neither interviewed nor asked to give a statement. The person taking photographs of the scene has no training and when asked how she determined what to photograph stated that she followed what she sees on the TV series “CSI”. It is questionable as to whether the scene of the incident was adequately controlled.

Section III - Analysis

From the facts, many conclusions can be drawn regarding the causes of the incident. In general, the root cause stems from the lack of focus and emphasis on safety as a process and system that should be documented and integrated into the entire program. Safety should be part of the program's culture and not something that is believed to be just "using common sense".

There is a lack of clear policies and procedures. The policies that are in place are not effectively communicated or accessible to the students. Finally, those polices are not well enforced, with consequences for failure to follow. All of these aspects regarding the program's policies and procedures, or lack thereof, contributed to the incident.

Finally, the safety focus in the facility and in regards to the equipment are contributing factors. There are no systems that consistently and effectively provide information regarding the engines in order to minimize any risk of loss. Documentation regarding equipment is scarce, communication with product manufacturers nonexistent. There are insufficient procedures regarding the operations in the facility. Students running engines without direct instructor supervision, students allowed in the facility unsupervised. The facility is not set up in a manner that minimizes loss. For example, there is an inadequate power source and tie downs, lack of containment area, load device or wet brake, and failure to mark safety zones.

Below is a more specific analysis for each of the five fact categories:

1. Equipment

Engine

Failure to have proper documentation (condition code, logbook, etc.) or an effective communication process with the product manufacturer, results in the program operating in a vacuum, missing information that could reduce risk. Without information you cannot make proper decisions regarding engine use or to manage risk. The industry sets and updates standards that provide safe operating parameters. If the program is without that knowledge, it places its students at risk. In this instance, the program would have known that the engine turbine section failure is common and could have taken better precautions to avoid injury.

Test Stand

The test stand is a device that provides safe operation of the engine and mitigates injury if an incident occurs. This test stand did not have any of the features that could prevent an incident or mitigate injury.

The engine explosion may have been caused by the students operating the engine above its safe operating speed. A limitation on the throttle would prevent running the engine past idle, preventing over speed. If the control panel would have been able to display both RPMs simultaneously, the students would have been able to determine whether they were beyond ground idle, which would have been another way to prevent over speed. If there is an adequate barrier between the student operator and the engine, which did not exist in this test stand, then the operator would be protected in case of an incident. A local containment of the turbine section with a blanket, containment ring, or similar device would allow the engine to be contained in case of failure, again mitigating potential injury. None of these safety measures were present with this test stand.

2. Physical Plant

Inadequate control of student location is a direct cause of this incident. The injured student was in a place outside the safety zone. However, only verbal instructions or a pre-run briefing would provide that information, as there were no markings.

Students tend to gravitate to areas where they think they get the best view, which many times are unsafe zones. To prevent gravitation to an unsafe zone, a facility would need physical barriers, marked zones and effective enforcement of the plant safety rules, i.e. safety glasses. No personnel should ever be in the plane of rotation of operating propellers, engine turbine wheels or fan sections.

An operating engine can move if unrestrained. In addition, if the engine locks up, the test stand could flip or move violently. Therefore, the facility needs effective and well-placed tie-downs to restrain an engine while it is operating.

One reason the student was injured is that he was working on another engine that was to close in proximity. A reason for this was lack of procedures and inadequate power source, as the two engines were sharing one power source. Two engines should not be operated at the same time in such close proximity or be positioned where students and staff are forced to be in unsafe zones due to relative engine position(s).

3. Instructors and Administrative Staff

Safety begins from the top and must be part of the culture. Enforcement has to come from the Administration. This will not occur if the leaders do not believe in the importance of safety or are not properly trained in the area of safety. Lack of focus and enforcement lead to a failure to have or follow safety rules. In this incident, there were rules not in place, rules in place that were violated more than once, and no appreciation for the risks associated with the lack of procedures or enforcement.

A trained or professional risk manager can provide that leadership at both the program and administration level. He could serve as an additional resource for the program and an additional trained set of eyes that can spot issues and suggest solutions. The risk manager can serve as a credible third party who can raise issues and be an advocate for safety solutions and elevate its status for the students.

4. Policies and Procedures

Policies and procedures can prevent loss or mitigate risk if clearly written, accessible, communicated and effectively enforced. In this incident, if there were better procedures, like having an instructor present, the incident may have been prevented. In addition, if the policies that were in place were effectively enforced, not running the engine past ground idle, the incident would not have occurred. Enforcing the policy of not standing in an unsafe location would have eliminated the injury even though the engine may have still exploded. That is why policies must be communicated with clarity, consistently followed, and effectively enforced with appropriate consequences to all for failure to abide by the standards.

Having a policy sets the standard and gives medium for consistent communication. However, policies need to be reviewed. Revision dates need to be shown on the policies and forms to ensure that the latest versions are in use. Although college safety policies are important, policies and safety procedures at the program level can be focused more on the specific problems that can arise.

5. Emergency Response Procedures and Post Incident Process

In this incident, there were neither program specific emergency response procedures in place nor an effective post incident review. If there is not an effective post incident review, the program will not be able to determine the causes of the incident and therefore mitigate future occurrences. In this incident, there was no full post incident review. A few students were

asked to give a statement, but many were not interviewed at all. Because of this, it appears the program believes the cause of the incident was the fact that the injured student was in an unsafe location. However, the team found other issues that caused this incident, for example the students who were operating the engine were doing so unsupervised and ran the engine above ground idle. This is a direct cause of the incident and was not determined through the college's post incident review process. To have an effective post incident review, a trained person is needed to lead the review. In this case, no one involved had training in this area and they failed to ask for any help from other available persons with expertise. Trained people are essential to ensure that an appropriate post incident review is conducted.

Section IV - Recommendations

From the facts found and the conclusions drawn from these facts, the team recommendations are listed below. As a general comment, a plan should be developed with incremental steps and milestones set out for the program and college to meet. Priorities need to be established and third party follow up should be provided. Where expertise does not exist, persons outside the college should be brought in to help. There are many free sources and resources that can be used to facilitate the development and implementation of effective safety policies and procedures.

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.
- Develop a Technical Library with controlled access and maintained-check-in, checkout process and a maintenance/accountability program.
- Develop a communication plan or process for ensuring consultation and communication with product manufacturers and other technical experts in the area.
- 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.

Test stand

- Develop a process to ensure that all test stands meet safety requirements. At a minimum, test stands should include:
  - Adequate instrumentation at least equal to the airframe that the engine is from.
  - Fuel and lubrication supplies must be physically protected.
  - Physical protection for the fuel and lubrication supply tank or use of a remote fuel supply.
  - Physical protection for operator and observer.
  - Physical separation between an operating engine and the people who are operating it such as a wall.

- Controls compatible to engine type.
- 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.
- 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.

2. Physical Plant

Develop safety policies, procedures and practices in the facilities that include:

- Safety areas clearly marked and communicated to students.
- Test cell containment area.
- Appropriate engine tie downs.
- Engine wet brake or other load device.
- Appropriate power source for the engines to be used, power supply cords of appropriate length or stand alone power cart.
- Emergency telephone in area closer to engine and aircraft run-up areas.
- Assessment of fire protection devices.
- Signage to restrict entry.
- Enforcement of a no children policy.
- Security - No access by students after hours unless accompanied by an instructor.
- Engine tie-downs.

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

- 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.

Administrative Staff

- Need a trained risk manager and safety officer. Develop a plan to ensure those assigned these duties get the appropriate training.
- Review staffing levels, duties, and oversight to ensure effective and efficient staff is in risk management and safety.

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

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.

Appendix A - Incident Report

FORM FOR REPORTING INCIDENTS TO OFM

AGENCY NAME:

Big Bend Community College
7662 Chanute Street NE
Moses Lake, WA 98837-3299

NAME OF PERSON MAKING REPORT:

Ken Turner
Vice President of Administrative Services

DATE OF INCIDENT OR LOSS:

June 28, 2002

NAME OF PERSON, DESCRIPTION OF INCIDENT OR LOSS:

David W. Dunlop – Student in the Aviation Maintenance Technology Program (AMT)
The interior turbine blades of a helicopter turbine engine broke and pushed through the engine housing. Mr. Dunlop ignored written and verbal shop procedures by placing himself in an unsafe zone adjacent to the operating turbine run stand. A piece of metal was lodged in Mr. Dunlop's back.

AGENCY CONTACT PERSON:

Ken Turner

HAS THE AGENCY CONVENED AN INTERNAL REVIEW PROCESS? IF YES, PROVIDE INFORMATION ON THE STATUS OF THE REVIEW:

A complete review of AMT shop safety procedures was conducted by AMT faculty. The faculty is confident that their procedures are safe, if observed. A second review will be conducted by a safety committee comprised of the Dean of Professional Technical Education and professional technical faculty in charge of other shops on campus. These walk through shop inspections will be ongoing and conducted at least once each Academic Quarter.

Appendix B - Loss Prevention Review Plan

Big Bend Community College Incident of June 28, 2002

Agency: Big Bend Community College, Aviation Maintenance Technology Program

Incident: On June 28, 2002, an incident occurred in the Aviation Maintenance Technology Program. A student was injured when the interior turbine blades of a helicopter engine broke and pushed through the engine housing upon startup, injuring a student who was standing in an unsafe zone. It appears that the instructor was not present at class that day.

Team members:

NAME AND TITLE	CONTACT INFORMATION
Dwight Hagihara, Director of Environmental Health and Safety, Washington State University.	Address: PO Box 641172, Pullman, Washington 99164-1172 Telephone number 509-335-3051 Fax number 509-335-4442 Email hagihara@wsu.edu
William "Bill" Loomis, Chairman, Aviation Maintenance Technician School, Everett Community College.	Address: 2000 Tower Street, Everett, Washington 98201-1390 Telephone number 425-388-9533 Mobile number 360-239-5490 Email bloomis@evcc.ctc.edu
Trooper Jim Nobach is a Training Officer/Instructor Pilot for the Washington State Patrol Aviation Section	Address: WSP Aviation Section, 7525 Old Highway 99, Olympia, WA 98501 Telephone number 360-753-6173 Pager number 360-413-4939 Email jnobach@wsp.wa.gov

Review Schedule:

DATES	MILESTONES
March 11, 2003	Initial meeting
March 13-31, 2003	Request, receive and review documents.
April 1-11, 2003	Schedule and prepare for interviews
April 14-25	Conduct interviews, review information.
April 28-May 9, 2003	Additional interviews and documents, if needed.

May 12-16, 2003	Discuss information and begin preparation for final report
DATES	MILESTONES
May 19-23, 2003	First draft of report completed and sent to members for comment
May 30, 2003	Comments due
June 6, 2003	Final report complete, final reviews and corrections
June 11, 2003	Deadline for submission of final report

Issues to explore:

1. What is the process and procedures for obtaining and maintaining equipment used in the AMT program?
2. What are the safety procedures for the AMT program?
    a. What are the polices and procedures regarding student compliance with the safety procedures/
    b. What are the policies and procedures regarding instructor supervision and absences in the AMT program?
3. What are the policies and procedures regarding post incident actions including emergency response plan and communication plans?

Interviews: To be coordinated with the Dean of Professional Technical Education, whenever possible. Members anticipate interviews to be conducted at Big Bend in a two-day period. Below is list of potential persons to interview.

NAME AND TITLE	CONTACT INFO	MEMBERS	TOPICS
Richard Larson, Dean of Professional Tech Ed			
Instructor			
Student Assistant			
Students operating the engine			
Injured student			
AMT faculty who conducted initial review			
Person who took the photos for the initial review			
College Safety Officer			
College Risk Manager			
AMT program Safety Officer			
College Safety Committee members			
AMT program Safety Committee members			
Rep from the Auto mechanics program.			

See attached sheet for information on interviews conducted.
Documents: To be coordinated with the Dean of Professional Technical Education. When received, to be distributed to all team members. **See Document Log for documents received by the Team during the Review.**

DOCUMENT DESCRIPTION	NOTES/COMMENTS
College catalogue in effect at time of incident that includes course description	
Student handbook and any written safety procedures for AMT program	
Student handbook for College	
FAA inspection report from last inspection	
Any other inspection reports within the past year that relate to safety, examples L&I, WISHA, DOE	
Documents related to the engine including code package, record package, historical logs, records of recall, service bulletin or Airworthiness Directive	
Documents related to program instructors including handbook for instructors, any safety training related documents	
Curriculum for AMT program, including course schedule or outlines, including the date of incident to understand the course progression	
Program organization chart	
Academic/business plan for College and AMT program.	
Safety Committee agenda, meeting summaries etc for all meetings that have occurred since the incident occurred.	
Safety Committee minutes from the prior year.	
Emergency response plan and communication plan, if separate document	
Aviation Maintenance Program Advisory Committee meeting minutes before and after the incident	

See separate sheet for questions to be asked and areas to explore.

Final Report: Team will meet on June 3, 2003 to discuss review, finalize issues, findings and recommendations and complete final report.

The initial plan was developed at the first meeting of the review team, March 11, 2003, and has been revised during the course of the review.

Loss Prevention Review Team
Areas to Explore and Questions to Ask
Big Bend Community College Incident of June 28, 2002

1. Equipment.
   a. What is the purchasing process for equipment used in the AMT program?
   b. What is the maintenance process for the equipment?
   c. How and by whom are the records and manuals related to the equipment maintained?
   d. What is the process for obtaining updated information regarding the equipment?
2. Instructors.
   a. What are the procedures and policies regarding instructor supervision in the AMT program?
   b. What safety training is given to instructors?
   c. Other policies and procedures relating to instructor expectations?
3. Safety in the AMT program.
   a. What are and how do you determine the safety procedures?
   b. Policies regarding eye protection, hearing protection, setting and marking safety zones, etc.
   c. How are the safety procedures made know to and enforced on the students?
   d. Is there a process to address safety issues?
   e. How do students raise safety issues and is there student participation on safety committees?
4. Safety program at Big Bend.
   a. What is the College safety program, including whether there is a safety officer, risk manager and safety committee?
   b. What is the AMT safety program, including safety officers, risk manager and safety committee?
   c. For safety committees, who are members, what is the charter, how often do they meet, etc?
5. AMT program.

a. What is the course schedule or outline, so we can understand the progression through your program?

b. Can a student take go through the program out of sequence? If yes, what is the process?

6. Incident.

a. Who was present, who was absent and who was in charge?

b. How was the class conducted, for example, project plan or assignment specified for that day?

c. Where was everyone at the time of the incident?

d. Where was each student in regards to the program curriculum?

e. What is the area set-up, including where are the safety zones and how are they marked?

f. Which section failed?

g. Is a wet brake or other load device used when testing engines?

h. Is a spectrum analyzer vibration box used when testing engines?

i. Where and how are the operating manuals kept and how accessible are they to students?

7. Incident Review.

a. Who conducted the investigation (report states “AMT faculty”) and when was it conducted?

b. How was the investigation conducted?

c. Where is the report from the supervisor of the class?

d. Who took the photos, when and how did the person decide what photos to take? Need more information regarding things in the photos.

e. What, if any, training did the investigator have to conduct post incident investigations?

f. Is the turbine in quarantine, without being handled, since the day of the incident?

8. Post incident.

a. What are the program’s post incident procedures?

b. What is the emergency response plan?

c. How do you communicate with other students, injured student’s family, etc.?

d. What is the recovery plan?

e. What is the investigation process after an incident occurs?

Appendix C - Activity Log

Name of Team Members: Dwight Hagihara, William "Bill" Loomis, Jim Nobach

Incident Being Reviewed: Big Bend Community College Incident of June 28, 2002

Dates of Review from March 11, 2003 to June 11, 2003

DATE	TIME	ACTIVITY UNDERTAKEN	RESULTS OF ACTIVITY
3/11/03	9:00 – 2:00	Initial meeting at Everett Community College meeting	Developed a Review Plan.
4/18/03	1:00 – 2:00	Conference Call	Agreed on interviews to be conducted and docs needed.
4/22/03	8:00 – 5:00	Big Bend Community College Interviews	Conducted interviews and site visit.
4/23/03	7:30 -	Big Bend Community College Interviews	Completed interviews.
5/6/03	9:00 – 9:45 a.m.	Conference Call with LPRT	Agreed 3 more interviews, letter to BBCC President and June 3 to work on the report.
5/20/03	9:00 a.m.	Conference Call with Tom Holland	Interview conducted.
5/20/03	1:00 p.m.	Conference Call with Matt Davis	Interview conducted.
5/23/03	9:00 a.m.	Conference Call with Dennis Hindman	Interview conducted.
6/3/03	8:00 a.m.	Meeting wrap up and work on final report	Final report completed.

Appendix D - Interviews Conducted

Big Bend Community College

Name and Title	Contact Information	Interviewed When? Time and Place	Interviewed by Whom?
Richard Larson Dean of Professional Technical Education	7662 Chanute St. N.E. Moses Lake, WA 98837 Phone: 509-762-6242 FAX: 509-762-6355 Email: mailto:richardl@bbcc.ctc.edu	Wednesday, April 23, 2003 8:00 - 9:00 a.m. Dean Larson's Office 1430 Admin bldg.	Bill Loomis Jim Nobach
Dan Moore Senior Instructor AMT	7662 Chanute St. N.E. Moses Lake, WA 98837 Phone: 509-762-6254 FAX: 509-762-6355 Email: mailto:danm@bbcc.ctc.edu	Tuesday, April 22, 2003 1:00 – 3:30 p.m. AMT Classroom	Dwight Hagihara Bill Loomis Jim Nobach
Erik Borg AMT Instructor and Program Safety Officer	7662 Chanute St. N.E. Moses Lake, WA 98837 Phone: 509-762-6253 FAX: 509-762-6355	Tuesday, April 22, 2003 4:30 – 5:30 p.m. AMT Classroom	Bill Loomis Jim Nobach
Sherman Morris Instructional Technician I	7662 Chanute St. N.E. Moses Lake, WA 98837 Phone: 509-762-6254 FAX: 509-762-6355 Email: mailto:shermanm@bbcc.ctc.edu	Tuesday, April 22, 2003 10:30 – 11:30 a.m. AMT Classroom	Dwight Hagihara Bill Loomis Jim Nobach (joined towards end of interview)
Lew Mason Student Witness and BBCC flight instructor	7662 Chanute St. N.E. Moses Lake, WA 98837 Phone: 509-762-6256 FAX: 509-762-6314	Tuesday, April 22, 2003 10:00 – 11:00 a.m. AMT Classroom	Dwight Hagihara Bill Loomis Jim Nobach
Andy Breeding Student Witness and Current Student		Wednesday, April 23, 2003 9:00 – 10:30 AMT Classroom	Bill Loomis Jim Nobach
Steve Kinne Student Witness and Current Student		Wednesday, April 23, 2003 9:00 – 10:30 AMT Classroom	Bill Loomis Jim Nobach
Katie Holstein Person who took the photos for the initial review	7662 Chanute St. N.E. Moses Lake, WA 98837 Phone: 509-762-6209 FAX: 509-762-2853 Email: mailto:kateh@bbcc.ctc.edu	Tuesday, April 22, 2003 3:30 – 4:30 p.m. AMT Classroom	Dwight Hagihara Bill Loomis Jim Nobach
Bill Wilkie College Safety Officer	7662 Chanute St. N.E. Moses Lake, WA 98837	Tuesday, April 22, 2003 1:00 – 3:30	Dwight Hagihara Bill Loomis

NAME AND TITLE	CONTACT INFORMATION	INTERVIEWED WHEN? TIME AND PLACE	INTERVIEWED BY WHOM?
	Phone: 509-762-6214 FAX: 509-762-6304	AMT Classroom	Jim Nobach
Ken Turner College Risk Manager	7662 Chanute St. N.E. Moses Lake, WA 98837 Phone: 509-762-6201 FAX: 509-762-2853	Tuesday, April 22, 2003 1:00 – 3:30 AMT Classroom	Dwight Hagihara Bill Loomis Jim Nobach
Chuck Cox Instructor Auto Mechanics program .	7662 Chanute St. N.E. Moses Lake, WA 98837 Phone: 509-762-6255 FAX: 509-762-6355	Wednesday, April 23, 2003 7:30 – 9:00 a.m. AMT Classroom	Dwight Hagihara Bill Loomis Jim Nobach
Tom Holland Student Witness		Tuesday, May 20, 2003 9:00 – 10:00 a.m. Telephone Interview	Dwight Hagihara
Matt Davis Advisory Committee Chair		Tuesday, May 20, 2003 1:00 – 2:00 p.m. Telephone Interview	Dwight Hagihara Bill Loomis Jim Nobach
Dennis Hindman Student Witness		Friday, May 23, 2003 9:00 – 10:00 a.m. Telephone Interview	Dwight Hagihara Bill Loomis Jim Nobach

Appendix E - Document Log

Name of Team Member Dwight Hagihara, William Loomis & Jim Nobach

Incident Being Reviewed: Big Bend Community College

Dates of Review from March 11, 2003 to June 11, 2003

DOC #	DATE REC'D	FROM WHOM	BY WHOM	DESCRIPTION OF DOCUMENT
BB-01	3/26/03	Richard Larson, Dean of Professional Technical Education		BBCC Aviation Maintenance Technology Powerplant L.A.P. Assignment **Copy to LPRT 4/1/03**
BB-02	3/26/03	Richard Larson, Dean of Professional Technical Education		BBCC Aviation Maintenance Technology - General **Copy to LPRT 4/1/03**
BB-03	4/06/03	Richard Larson		Big Bend Community College Student Handbook 2002-2003 **Copy to LPRT 4/11/03**
BB-04	4/06/03	Richard Larson		Interview/contact information list **Copy to LPRT 4/8/03**
BB-05	4/06/03	Richard Larson		Aviation Maintenance Technology Aircraft and Engine Operation Procedures **Copy to LPRT 4/8/03**
BB-06	4/06/03	Richard Larson		Shop Safety sheet **Copy to LPRT 4/8/03**
BB-07	4/06/03	Richard Larson		Gas-Turbine Operation, Inspection, Troubleshooting, Maintenance, and Overhaul **Copy to LPRT 4/8/03**
BB-08	4/06/03	Richard Larson		Safety on the Flight Line **Copy to LPRT 4/8/03**
BB-09	4/06/03	Richard Larson		Ground Handling & Servicing Gen-11 **Copy to LPRT 4/8/03**

DOC #	DATE REC'D	FROM WHOM	BY WHOM	DESCRIPTION OF DOCUMENT
BB-10	4/06/03	Richard Larson		BBCC Aviation Maintenance Technology General L.A.P. GEN-11 **Copy to LPRT 4/8/03**
BB-11	4/06/03	Richard Larson		BBCC Aviation Maintenance Technology General L.A.P. GEN-4 **Copy to LPRT 4/8/03**
BB-12	4/06/03	Richard Larson		Eye and Face Protection Selection Chart **Copy to LPRT 4/8/03**
BB-13	4/06/03	Richard Larson		BBCC Aviation maintenance Technology Shop Safety **Copy to LPRT 4/8/03**
BB-14	4/06/03	Richard Larson		Rules to Live By **Copy to LPRT 4/8/03**
BB-15	4/06/03	Richard Larson		Supervisor's Statement of Accident **Copy to LPRT 4/8/03**
BB-16	4/06/03	Richard Larson		BBCC Emergency Procedures Handbook **Copy to LPRT 4/8/03**
BB-17	3/10/03	Richard Larson		Photo No.1 – Control Panel **Copy to LPRT 5/7/03**
BB-18	3/10/03	Richard Larson		Photo No. 2 – Control Panel 2 **Copy to LPRT 5/7/03**
BB-19	3/10/03	Richard Larson		Photo No. 3 – Engine Feet **Copy to LPRT 5/7/03**
BB-20	3/10/03	Richard Larson		Photo No. 5 – Engine Inches **Copy to LPRT 5/7/03**
BB-21`	3/10/03	Richard Larson		Photo No. 7 – Little Hole **Copy to LPRT 5/7/03**
BB-22	3/10/03	Richard Larson		Photo No.9 – Rotor blades **Copy to LPRT 5/7/03**
BB-23	3/10/03	Richard Larson		Photo No. 11 – Shrapnel 2

DOC #	DATE REC'D	FROM WHOM	BY WHOM	DESCRIPTION OF DOCUMENT
				Copy to LPRT 5/7/03
BB-24	3/10/03	Richard Larson		Photo No. 12 – Shrapnel 3 **Copy to LPRT 5/7/03**
BB-25	3/10/03	Richard Larson		Photo No. 13 – Shrapnel 4 **Copy to LPRT 5/7/03**
BB-26	3/10/03	Richard Larson		Photo No. 14 – Two Machines **Copy to LPRT 5/7/03**
BB-27	3/10/03	Richard Larson		Photo No. 15 – Under View **Copy to LPRT 5/7/03**
BB-28	4/22/03	Dan Moore		Advisory Committee Meeting minutes from October 3, 2002 **Copy to LPRT 5/7/03**
BB-29	4/22/03	Dan Moore		BBCC Aviation Maintenance Technology Power plant Course Outline **Copy to LPRT 5/7/03**
BB-30	4/23/03	Chuck Cox		BBCC Automotive Technology Brochure and Course Syllabus **Copy to LPRT 5/7/03**
BB-31	4/23/03	Richard Larson		BBCC 2001-2003 Course Catalog **Copy to LPRT 5/7/03**
BB-32	5/09/03	Richard Larson		AMT Advisory Committee Meeting Minutes October 3, 2002 **Copy to LPRT 5/13/03**
BB-33	5/09/03	Richard Larson		AMT Advisory Committee Meeting Minutes May 30, 2002 **Copy to LPRT 5/13/03**
BB-34	5/09/03	Richard Larson		AMT Advisory Committee Meeting Minutes June 6, 2001 **Copy to LPRT 5/13/03**
BB-35	5/09/03	Richard Larson		AMT Advisory Committee Meeting Minutes October 4, 2000

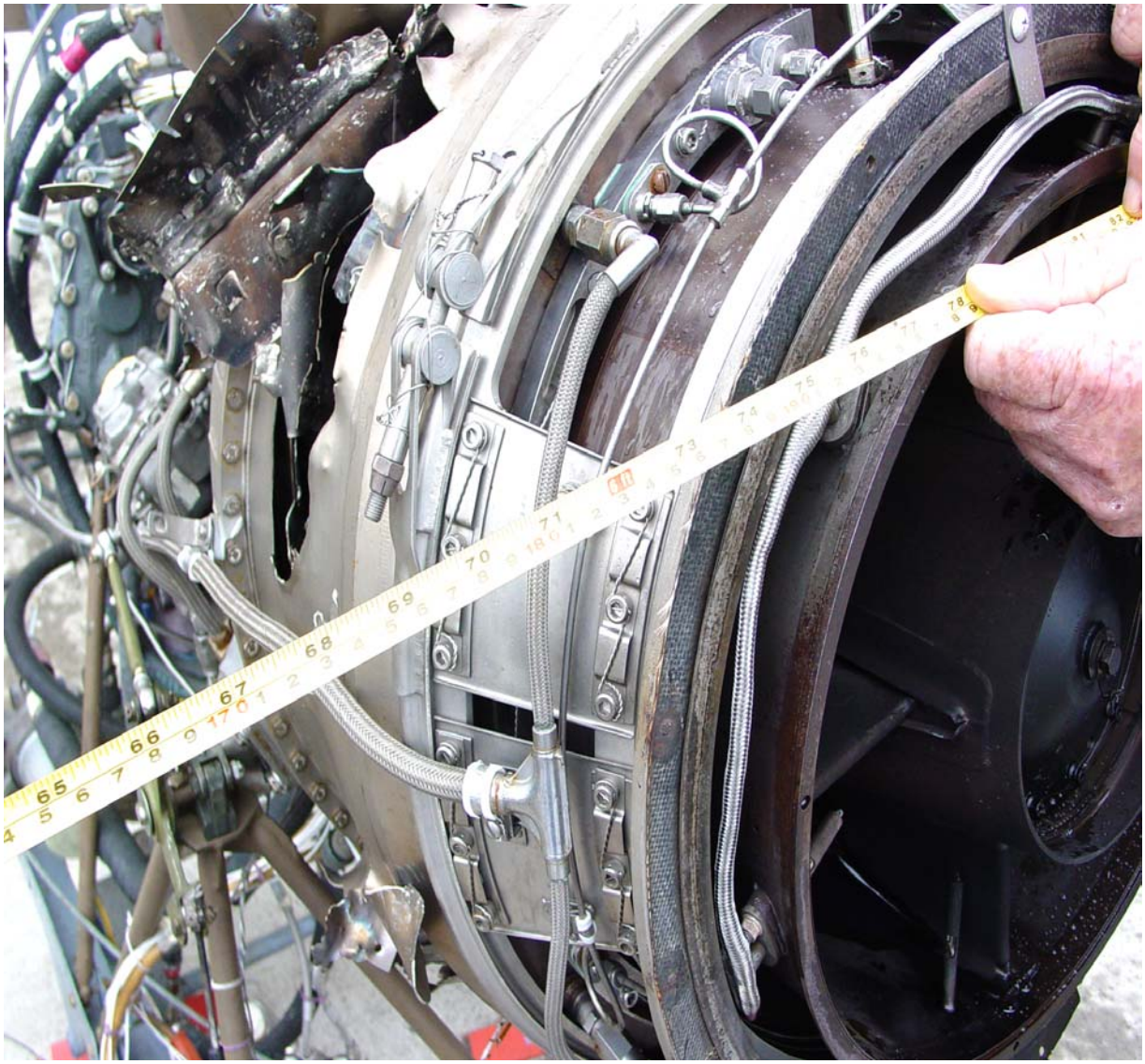
DOC #	DATE REC'D	FROM WHOM	BY WHOM	DESCRIPTION OF DOCUMENT
				Copy to LPRT 5/13/03
BB-36	5/09/03	Richard Larson		AMT Advisory Committee Meeting Minutes May 19, 2000 **Copy to LPRT 5/13/03**
BB-37	5/09/03	Richard Larson		AMT Advisory Committee Meeting Minutes October 7, 1999 **Copy to LPRT 5/13/03**
BB-38	5/09/03	Richard Larson		AMT Advisory Committee Meeting Minutes June 8, 1999 **Copy to LPRT 5/13/03**
BB-39	5/09/03	Richard Larson		Industrial Technology Division Safety Committee meeting Minutes September 17, 2002 **Copy to LPRT 5/13/03**
BB-40	5/09/03	Richard Larson		Industrial Technology Division Safety Committee meeting Minutes October 23, 2002 **Copy to LPRT 5/13/03**
BB-41	5/09/03	Richard Larson		Industrial Technology Division Safety Committee meeting Minutes February 12, 2003 **Copy to LPRT 5/13/03**
BB-42	5/09/03	Richard Larson		Project Schedule from Ken Turner – includes AMT improvement **Copy to LPRT 5/13/03**
BB-43	5/09/03	Richard Larson		Course Syllabus – Automotive Shop Safety and Environmental Issues **Copy to LPRT 5/13/03**
BB-44	5/09/03	Richard Larson		Auto Servicing Student Guide **Copy to LPRT 5/13/03**
BB-45	5/09/03	Richard Larson		Automotive Technology Safety Procedure **Copy to LPRT 5/13/03**
BB-46	5/09/03	Richard Larson		BBCC Automotive Technology Letter of Understanding

DOC #	DATE REC'D	FROM WHOM	BY WHOM	DESCRIPTION OF DOCUMENT
				Copy to LPRT 5/13/03
BB-47	5/09/03	Richard Larson		BBCC Professional/Technical Program Plan **Copy to LPRT 5/13/03**
BB-48	5/09/03	Richard Larson		The Faculty Handbook **Copy to LPRT 5/13/03**

Appendix F – Engine Photos

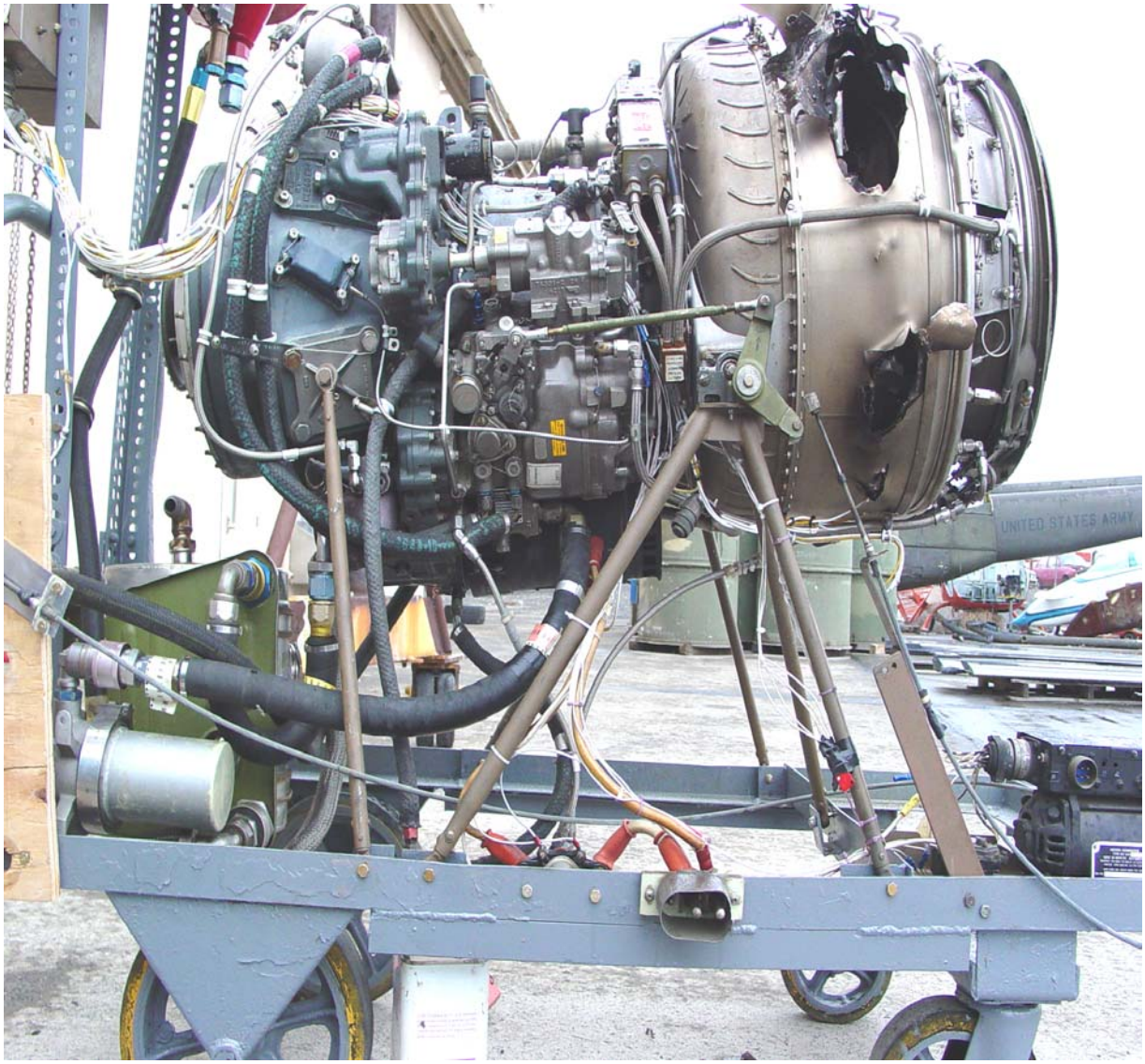
CONTROL PANEL 2
BB-18

ENGINE FEET
BB-19



ENGINE INCHES
BB-20

SCHRAPNEL 3
BB-24



UNDER VIEW
BB-27

WASHINGTON STATE OFFICE OF FINANCIAL MANAGEMENT
INSURANCE BUILDING ◆ PO BOX 43113
OLYMPIA, WA 98504-3113 ◆ (360)902-0555 ◆ FAX (360) 664-2832

Big Bend Community College

7662 Chanute Street N.E.
Moses Lake, WA 98837-3299
http://www.bbcc.ctc.edu

(509) 762-5351
TDD (509) 762-6335
FAX (509) 762-6329

William C. Bonaudi, Ed.D.
President

October 24, 2003

Mr. Marty Brown, Director
Office of Financial Management
Insurance Building
PO Box 43113
Olympia, WA 98504-3113

Dear ~~Mr. Brown~~: Marty

The attached is in response to your letter of February 27, 2003 regarding a student injury in our Aviation Maintenance Technology Program at Big Bend Community College. I'm certain you appreciate the importance we attach to this investigative process in which we have enlisted the assistance of representatives of our entire campus community. We are grateful the injury sustained by the student was not more serious than it was and we welcome the assistance of this Loss Prevention Review Process to help us identify deficiencies so that we can improve safety in all of our instructional and work environments.

Your letter was especially helpful in noting the need for the college to identify funding beyond that in our current operating budget that is needed to achieve permanent solutions. Qualified safety consulting is uppermost in un-funded needs identified with this review. I am sure this is a challenge faced by all of our community and technical colleges.

We are also aware of the value in reporting to you any observations we have made regarding the process and/or the composition of the Loss Prevention Review Team that may enhance the value of future reports. Accordingly you will note a section of our response offers this assistance.

Please feel free to contact me if any additional information or comment is needed.

Sincerely,

Bill Bonaudi

William C. Bonaudi, Ed.D
President

Enclosures

c: Ken Turner, VP Administrative Services
Richard Larson, Dean of Professional/Technical Education

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 instpections results.	Dan Moore	4/1/2004	The campus will be enlisting the services of an independent third party; the name has been provided and initial contact made.
	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	
	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	

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 FACILITIESI			The campus will be enlisting the services of an independent third party; the name has been provided and initial contact made.
	1. Safety areas clearly marked and communicated to students.	Erik Borg	10/1/2004	
	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:
	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.	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.
	2. OPERATIONAL MANAGEMENT - Develop a system to ensure that all instructors are trained in safety processes and procedures.	Richard Larson and IT Safety Committee	September 2004	
	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.	Richard Larson and IT Safety Committee	NA	
	4. ADMINISTRATIVE STAFF - Need a trained risk manager and safety officer. Develop a plan to ensure those assigned these duties get the appropriate training.	Richard Larson and IT Safety Committee	Pending Planning Decision	
	5. ADMINISTRATIVE STAFF - Review staffing levels, duties, and oversight to ensure effective and efficient staff is in risk management and safety.	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:
	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.	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.
	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.	Dan Moore / Erik Borg	9/22/2003	
	3. Develop a program specific emergency response plan. Ensure the plan is effectively communicated and easily accessible.	Dan Moore/ Erik Borg	January 2004	
	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.	Steve Matern	January 2004	
	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.	Richard Larson	9/19/2003	
	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.	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:
	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.		Spring, 2004	The campus will be enlisting the services of an independent third party; the name has been provided and initial contact made.
	Aviation Maintenance Technology	Dan Moore / Erik Borg	January, 2004	
	Automotive Technology	Chuck Cox	Spring, 2004	
	Commercial Drivers License	Randy Miller	Spring, 2004	
	Industrial Electrical Technology	Steve Matern	Spring, 2004	
	Maintenance Mechanics Technology	Bill Autry	Spring, 2004	
	Welding	Makoto Enokazono	Spring, 2004	
	Aviation (Commercial Pilot)	Pete Hammer	Spring, 2004	

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 COMMUNITTY 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	1st and 2nd	Verbal warning
2	3rd	Office visit with both instructors present and letter in file
3	4th	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 COMMUNITTY 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 #1 .....Date_____

Reason for verbal warning:

Instructor:_____

Verbal warning #2 .....Date_____

Reason for verbal warning:

Instructor:_____

Verbal/Written warning #3 .....Date_____

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

Instructor Signature: _____ Date:_____

_____ Date:_____

Student Signature:_____ Date:_____

Verbal/Written warning #4 ..... 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, naptha, 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	1st and 2nd	Verbal warning
2	3rd	Office visit with both instructors present and letter in file
3	4th	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

_____

_____

_____

_____

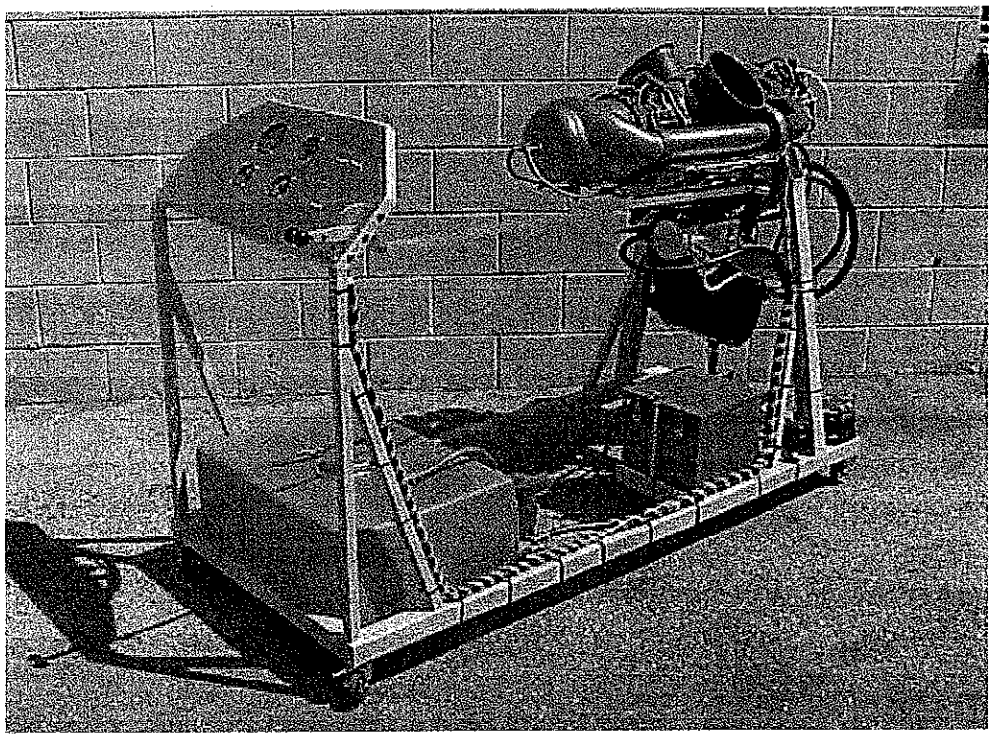
_____

_____

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

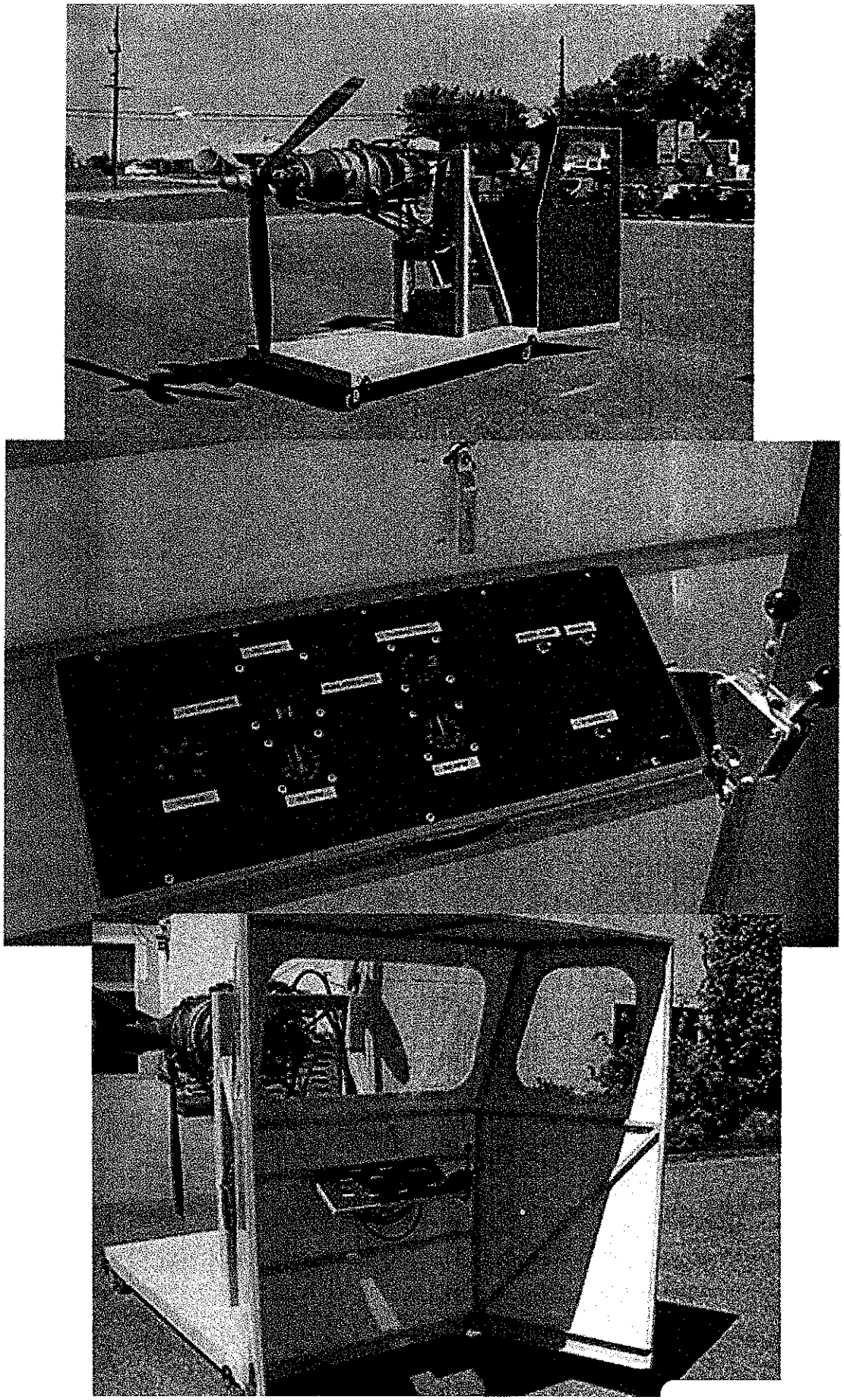
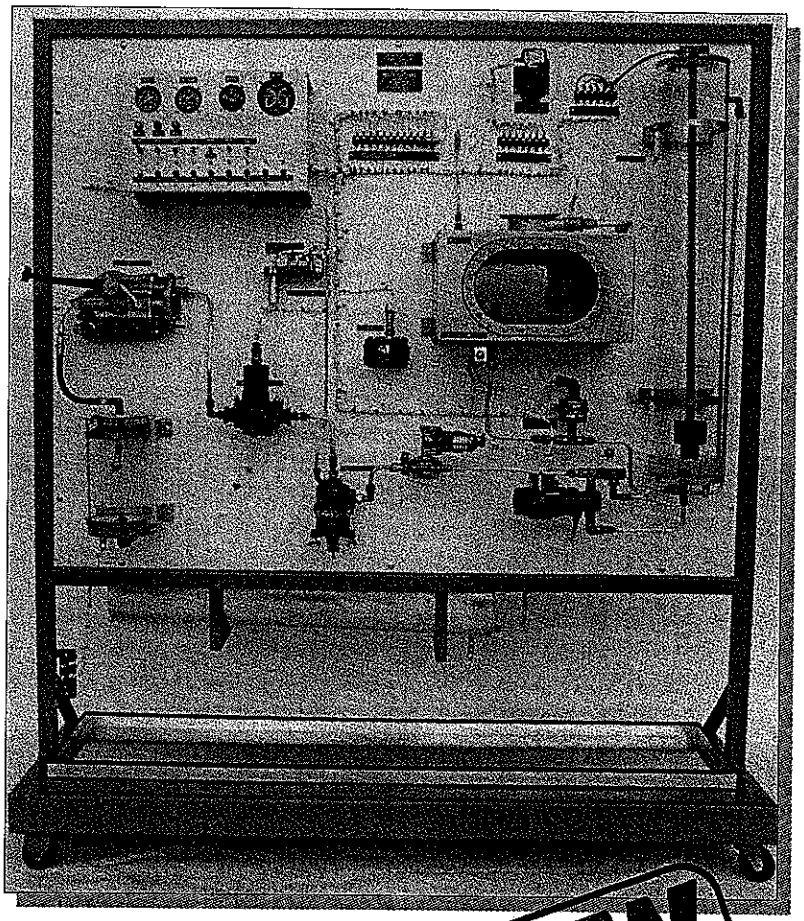


EXHIBIT A

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.



NEW

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
- 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

EXHIBIT A

Cockpit Instrumentation Trainer 2100 Series

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

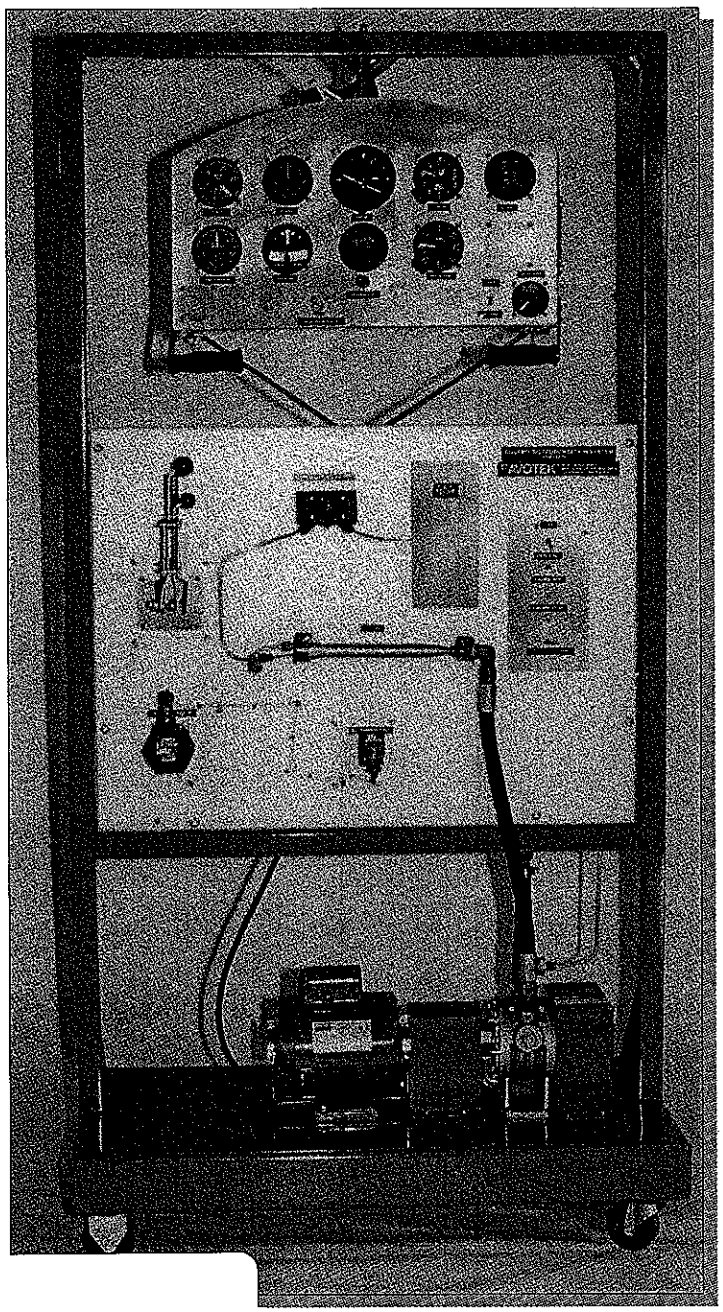
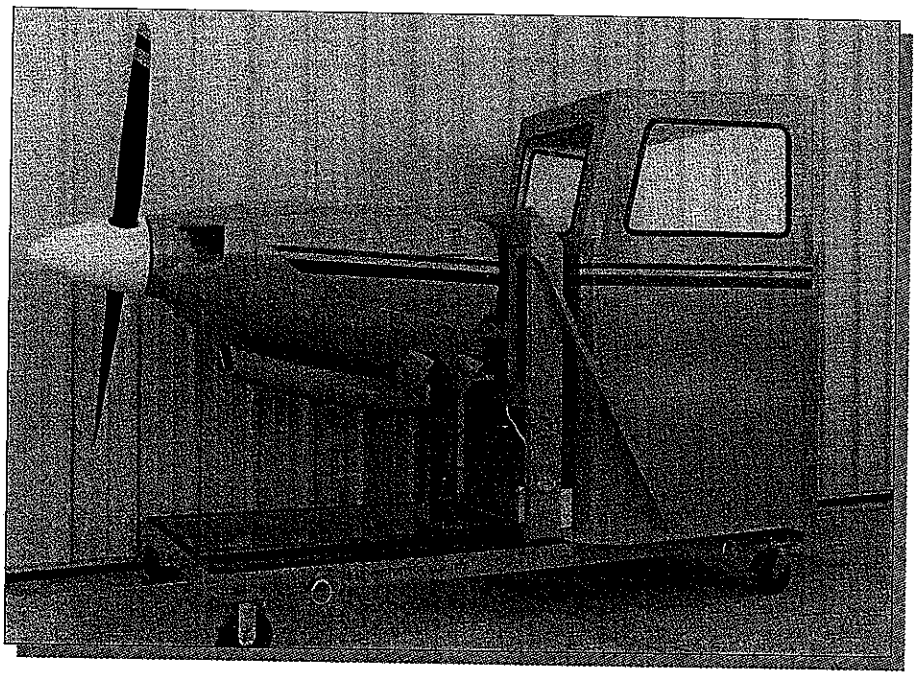


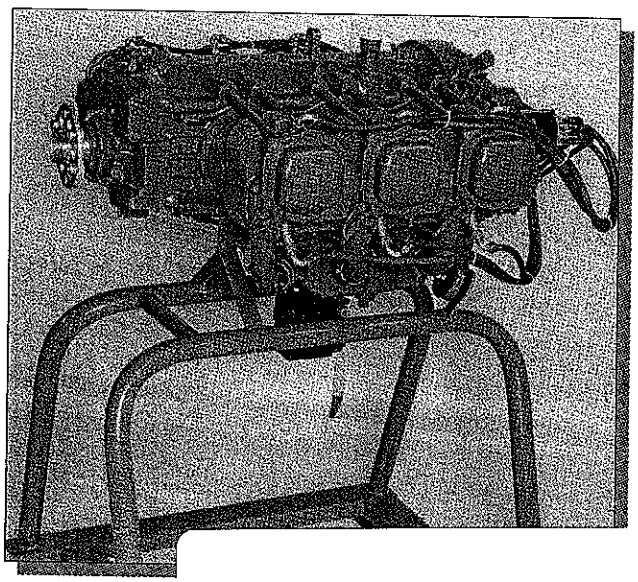
EXHIBIT A

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

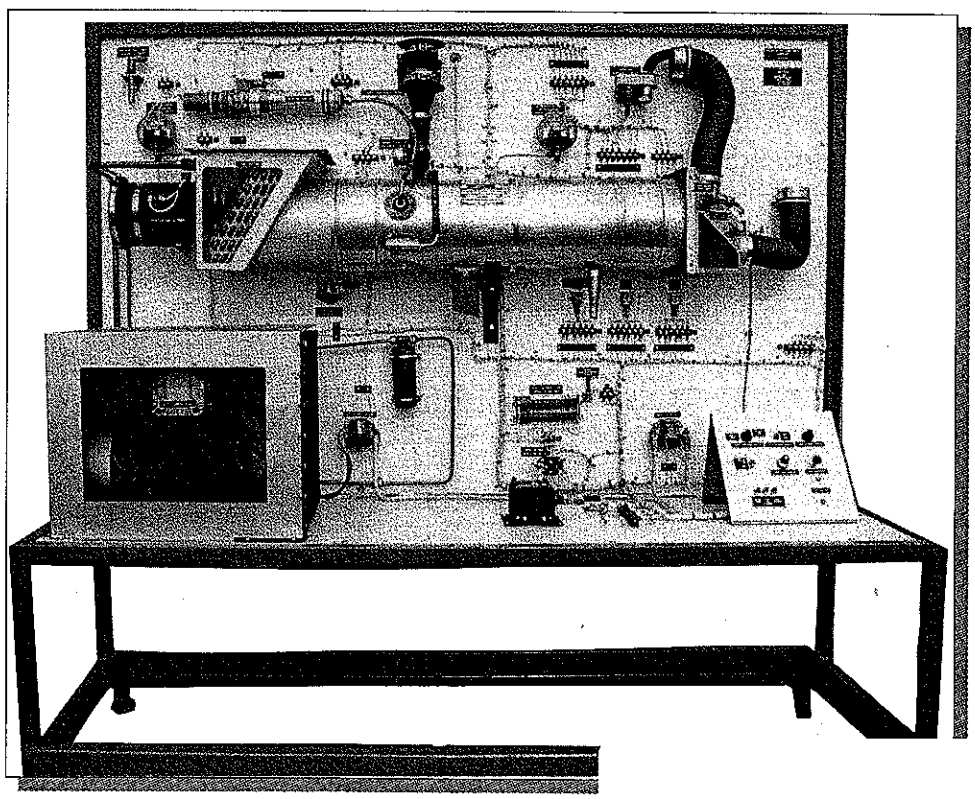


EXHIBIT A

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

WA Contractor Lic # STSTEWLOOOBK 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 ½ :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

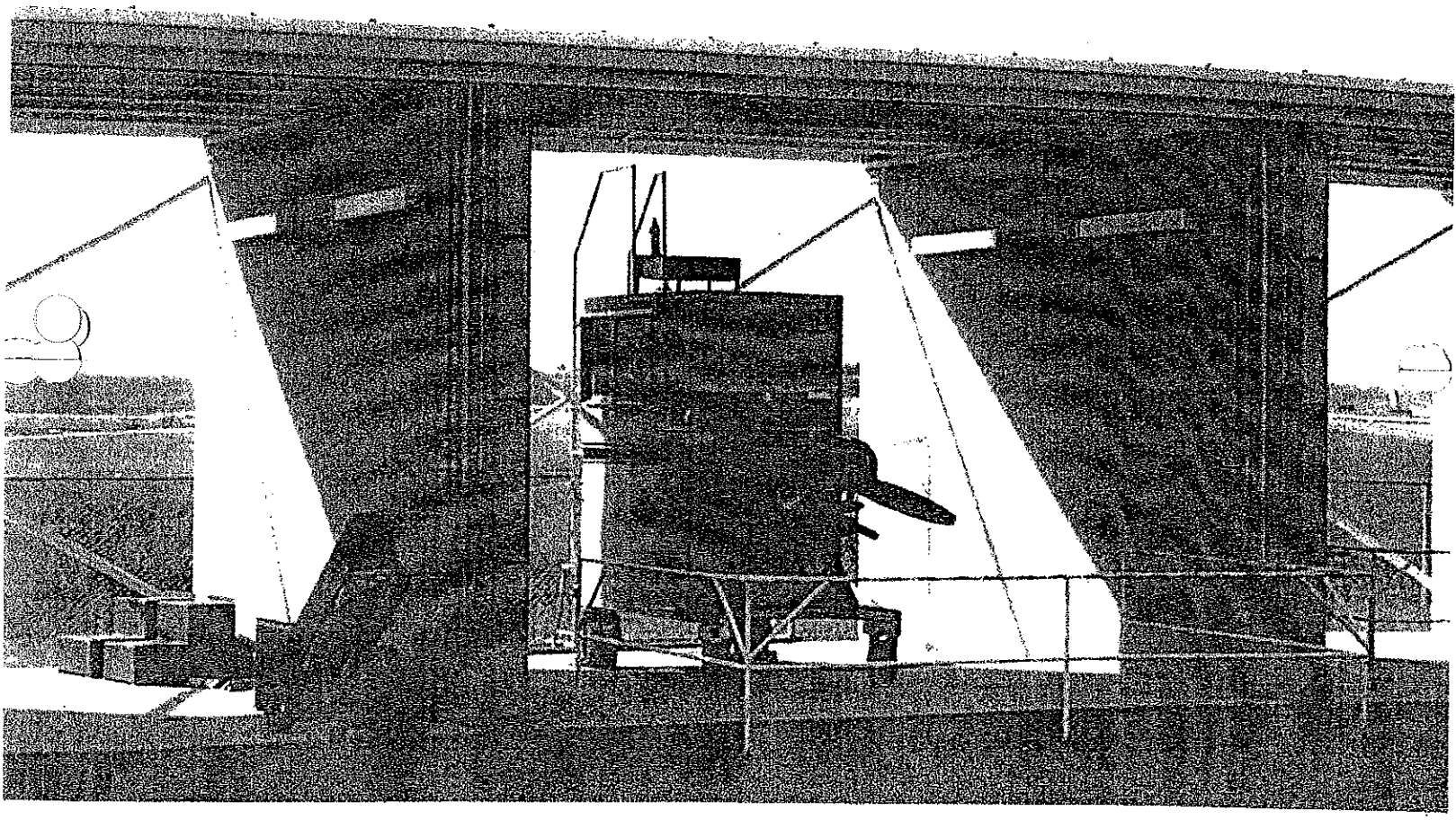
The following items are not included: electrical, mechanical, painting, site work, building permit fees, or Washington State Sales Tax.

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



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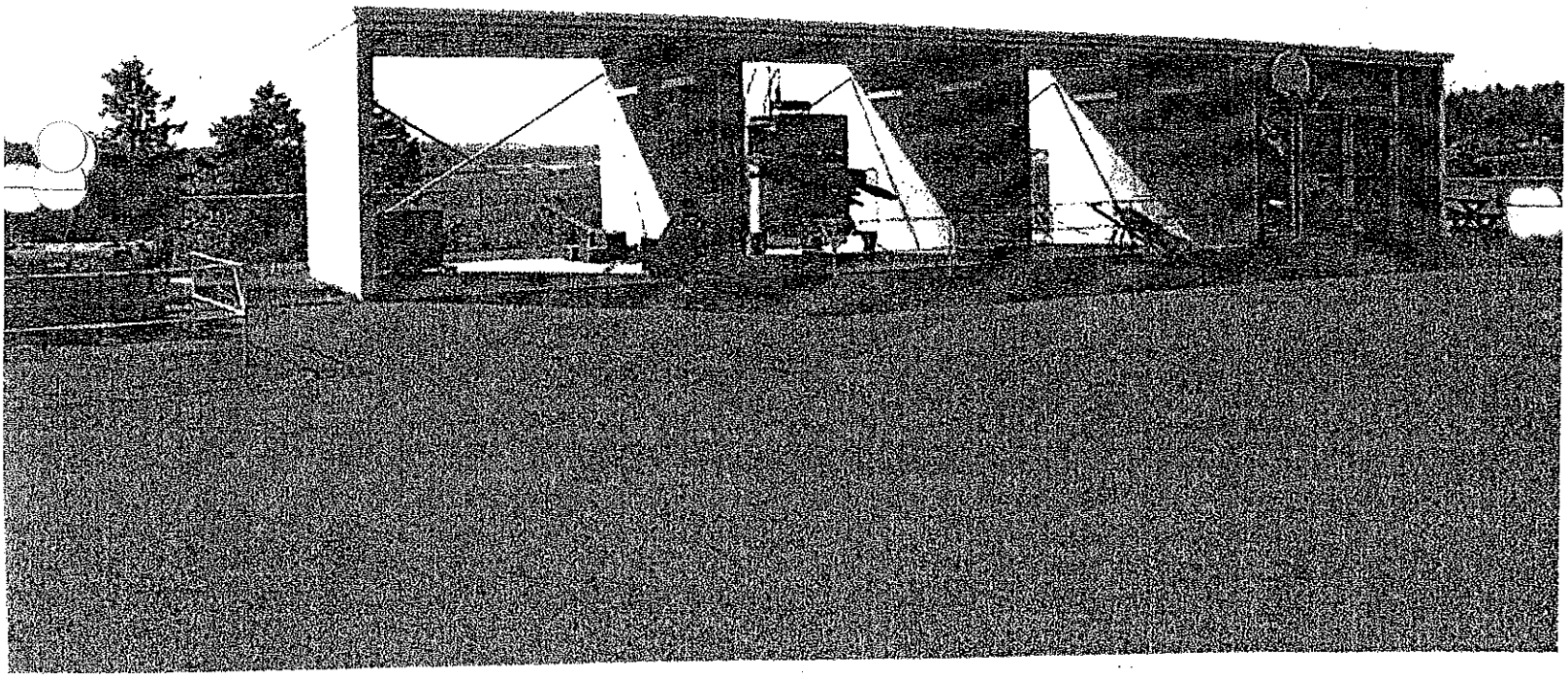

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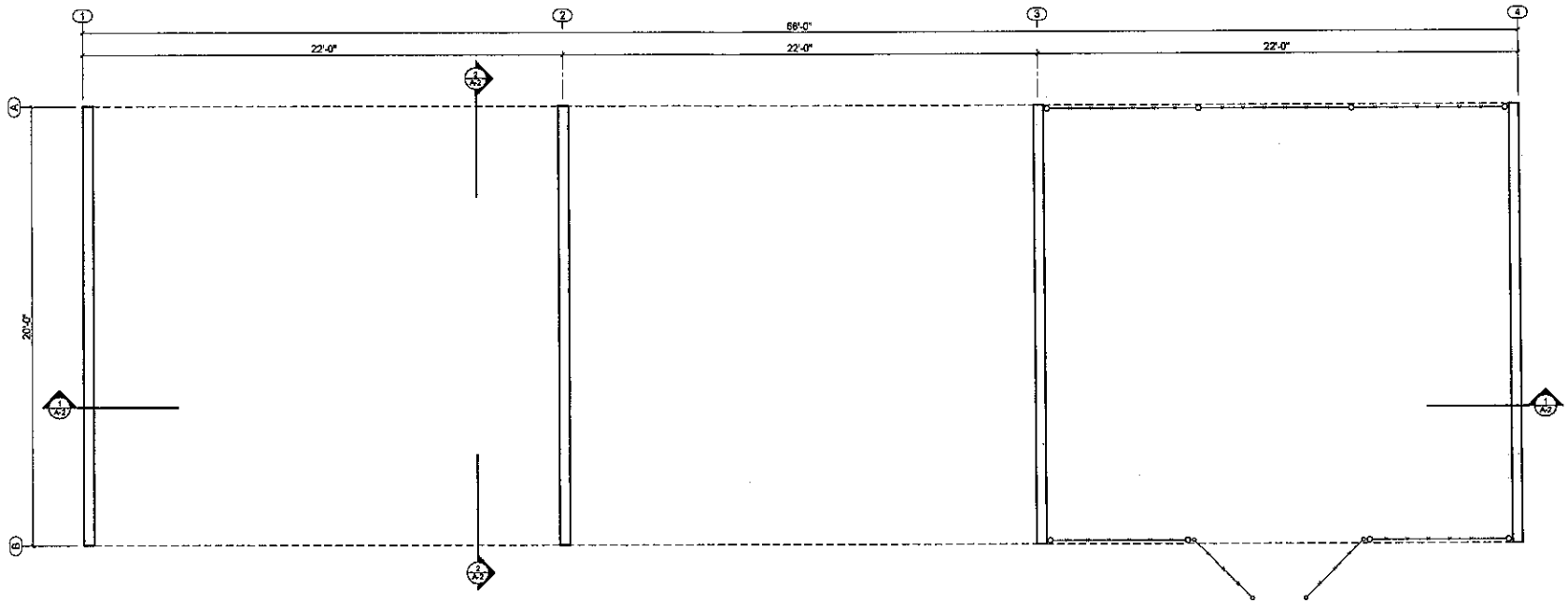


1 FLOOR PLAN
3/16" = 1'-0"

SYSTEMS WEST, LLC
GENERAL CONTRACTORS
1705 Sixth 240 Avenue - Tillitop, WA 99002
Phone (509) 453-5300 - FAX (509) 453-2780
BUTLER

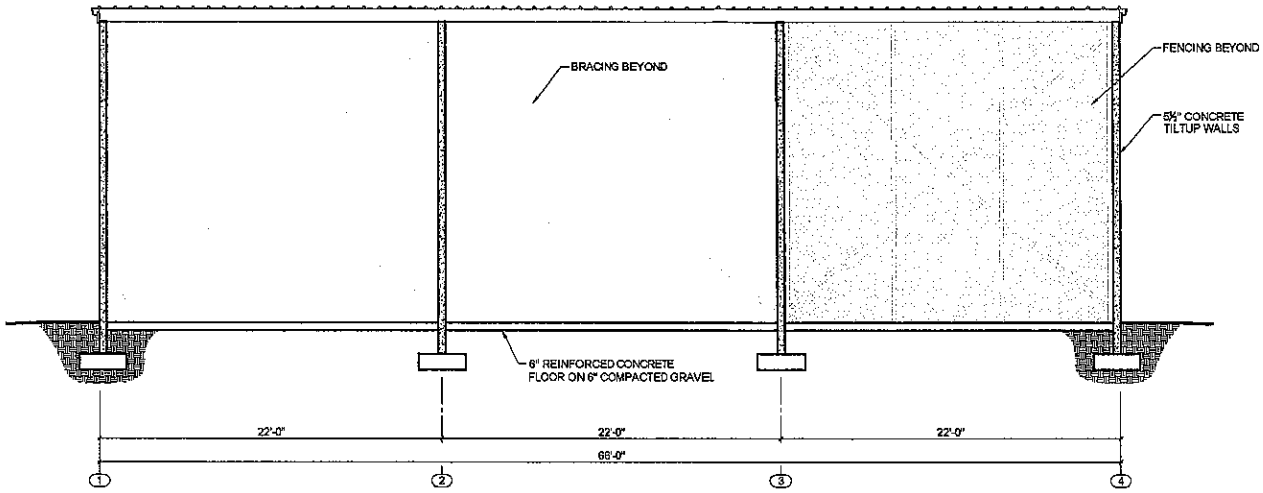
THIS DRAWING IS THE EXCLUSIVE PROPERTY OF SYSTEMS WEST, LLC AND SHALL NOT BE USED OR REPRODUCED IN ANY WAY WITHOUT THE EXPRESS WRITTEN PERMISSION OF SYSTEMS WEST, LLC.

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

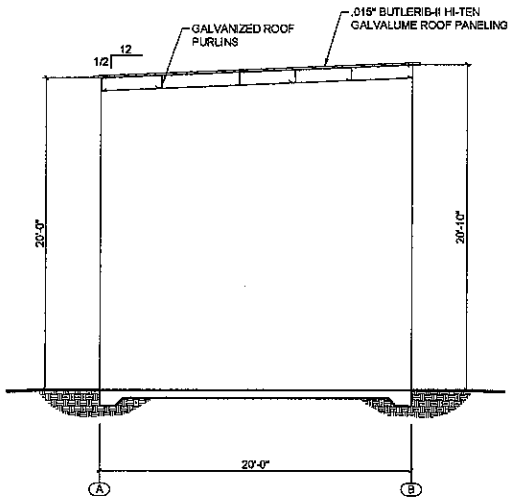
DRAWING TITLE: FLOOR PLAN

FILE NAME	DATE	DRAWING NO.
03BBCC_F01	9-26-03	A-1
SCALE: AS NOTED	REV NO: 0	

EXHIBIT B



1 BUILDING SECTION
1/8" = 1'-0"



2 BUILDING SECTION
1/8" = 1'-0"

SYSTEMS WEST, LLC
GENERAL CONTRACTORS
1705 South 24th Avenue • Yakima, WA 98902
Phone (509) 453-9009 • FAX (509) 453-2787

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

DRAWING TITLE
BUILDING SECTIONS

FILE NAME	DATE	DRAWING NO.
03BBCC_S01	9-26-03	A-2
SCALE: AS NOTED	REV NO: 0	

EXHIBIT B

CHILDREN ON CAMPUS

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

CHILDREN ON CAMPUS

AP7100

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

SAFETY

BP7700

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.

EXHIBIT C

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.

EXHIBIT C

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	$75,000
	Total	$210,000

EXHIBIT D