NATIONAL TRANSPORTATION SAFETY BOARD

Office of Aviation Safety
Washington, D.C. 20594

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Attachment 7 – Collings Foundation SMS Manual

OPERATIONAL FACTORS

ERA20MA001

COLLINGS FOUNDATION

SAFETY MANAGEMENT SYSTEM

Revision – 1.2
10 September 2017

COLLINGS FOUNDATION

SAFETY MANAGEMENT SYSTEM

PURPOSE, SAFETY POLICY, RESPONSIBILITIES, GOALS

1.0 SUMMARY

The Collings Foundation (CF) holds safety above all else, all foundation members have always held safety as the first priority and developed a culture around it. That's why developing a universal Safety Management System (SMS) is the next step in advancing and improving the general operation in all departments of the foundation.

Contemporary safety management is built around the philosophy of catching problems in the early stages of their development before they become hazardous. Historically, aviation safety has evolved in phases. Great effort has been spent on the safety of aircraft design. As aircraft themselves became a smaller part of the safety picture, operational methods were carefully analyzed. Better weather reporting, standard operating procedures, and rest requirements led to higher levels of safety. Crew resource management (CRM) was developed. CRM addressed the idea that with safe aircraft and procedures in place, the attitudes of people in the workplace remained as a risk factor. Aviation now benefits from safe equipment, sound operating procedures and personnel trained in teamwork and resource management.

SMS represents the next step forward in reducing hazard. The CF promotes a safety culture where risks are analyzed ahead of time. Reports of hazards are sought from all members, throughout the organization. These reports are studied. Hazards are mitigated as soon as possible and reports are watched for developing patterns. The goal of the SMS is to make the CF predictive rather than reactive to hazard. SMS philosophy allows an error chain to be broken before harm can occur.

1.1 BACKGROUND

This Safety Management System was developed by the CF to enhance safety within our Aircraft Operations Department. This is not a regulatory or approved document and its contents do not supersede any requirements mandated by the

FAR's, nor does it supersede or amend the manufacturer's type-specific Aircraft Flight Manuals, crew manuals, minimum equipment lists, or any other approved documentation.

The Collings Foundation is committed to maintaining the highest level of safety in our efforts to preserve historic aircraft and educate the public. Central to the effort of implementing and coordinating our safety program is the Safely Management System (SMS). This system provides management with the tools to develop and maintain safety throughout the scope of Collings Foundation operations. Foundation personnel are provided with the awareness, training and tools to implement the SMS. The SMS makes Foundation safety a normal part of operations and is in keeping with contemporary aviation safety practices.

The Collings Foundation Safety Management System is under the direct control of the Exectuve Director. The SMS is implemented and managed by the Safety Officer. Other key personnel are the Chief Pilots.

Executive Director:	Robert Collings
Chief Pilot WOF:	Robert Pinksten
Chief Pilot Houston:	Rick Sharpe
Safety Officer:	Will Dismukes

2.0 SAFETY COMMITMENT

The CF Safety Management System is essential for effectively managing the safety of Aircraft Operations flight activities. It is more than just safe operating practices; it is a total management program. CF management sets the safety standards by:

- Specifying the organization standards.
- Ensuring that everyone knows the standards and accepts them.
- Make sure deviations from the standard are recognized, reported, and corrected.

The CF maintains its standards through the support of the Aircraft Operations staff involved in developing the standards and responsibilities. The ultimate responsibility for safety rests with the management of the CF. CF management has accepted the responsibility for safe operations. However, without the safety commitment of all personnel, the safety program is unlikely to be successful.

The individual to coordinate the CF's safety program is the Flight Operations Safety Officer. The Safety Officer is responsible for promoting safety awareness, overseeing safety training and ensuring that the prevention of incidents and accidents is the priority throughout all activities associated with the Aircraft Operations and the Aircraft Operations unit.

3.0 SAFETY POLICY

The Executive Director and management of The Collings Foundation regard an effective safety program as vital in achieving the mission of the Aircraft Operations Department. In recognition of this fact, the CF is committed to providing a safe and healthful working environment free of recognized hazards for its employees, volunteers, and guests. Safety is also an individual responsibility and must exist in our thinking, planning, and actions. All Aircraft Operations personnel will be held accountable for fulfilling their responsibilities under this safety program.

The cornerstone of an effective safety program is an active accident prevention system. The Aircraft Operations Department is committed to eliminating hazards and minimizing potential risks through the diligent practice of risk analysis. Hazards and incidents resulting from department operations shall be identified at all levels. Conditions and acts posing unacceptable risk shall be eliminated or changed to prevent personnel injury or illness and property damage or loss.

All levels of management embrace the concept that a strong and effective safety program is vital in effectively achieving the mission of the CF. In response to this commitment the CF is dedicated to providing a safe working environment for its volunteer/employees, free of any and all recognized hazards. Further, it is committed to providing the highest level of safety attainable in all of its activities and most especially when dealing with customers and guests.

Every volunteer/employee must recognize that safety is the responsibility of each individual and must always be foremost in their thinking, planning and actions. All personnel will be held accountable for fulfilling their responsibilities under this safety management system.

The underpinning of an effective safety management system is an active, non-retribution reporting system utilized in concert with and effective accident prevention program. The CF is committed to eliminating hazards while minimizing the potential risks through the diligent practice of accident, incident prevention and risk analysis. Hazards will be identified at all levels, while conditions and acts posing unacceptable risks will be eliminated, changed or controlled to prevent personnel injury as well as preventing property damage and/or loss.

4.0 SAFETY CULTURE

A safety culture or climate should be thought of as the Aircraft Operations Department's collective norms, standards, perceptions and behaviors with respect to safety. Management's fostering of a positive safety culture is critical to any effective safety program. The following concepts and actions are elements of our positive safety culture:

- Unqualified commitment to safety as a behavioral pattern and pervasive way of life by top management.
- Unambiguous expectations by management as well as each peer group that, for all employees and volunteers, safe life patterns and work habits must be practiced off site as well as on CF grounds or around CF aircraft
- Availability of quality, standardized equipment with which to accomplish the assigned tasks.
- Clear, easily understood operating procedures, followed without deviation.
- Inclusive system of communications for collecting, analyzing, and exchanging incident data related to safety.
- Non-retribution for submission of incident data.
- Retraining without penalty or stigma when safety is involved.
- System for tracking incident and accident data, analysis of trends, and feedback of results.
- Peer acceptance that accidents/incidents are preventable, regardless of operations.
- Peer acceptance that safety is a matter of culture and lifestyle.

5.0 SAFETY MANAGEMENT SYSTEM

The elements of the CF Aircraft Operations Safety Management System are:

1. An accident/incident prevention program,
2. Employee/volunteer safety and accident prevention education and training,
3. An internal reporting system to allow employees and other personnel to report incidents and recognized hazards.
4. Senior management commitment to the CF safety management system and their dedication to providing the safest environment in which to work and operate.
5. Hazard identification and risk management.
6. Internal safety and compliance audits/assessments.
7. Human factors and safety training are an integral part of all training programs.
8. Emergency response planning and practice are integral to the CF's success and safety culture.

9. That safety is a part of the everyday environment and the CF is committed to regular evaluation and improvement of the program.

5.1 RESPONSIBILITY FOR SAFETY

The responsibility for maintaining a safe environment begins with senior management and extends to each and every employee and volunteer. Ultimately, the responsibility for safety is a decision of lifestyle; one that blends easily between personal and CF related activities. Responsibilities of various individuals are as follows:

Executive Director:	Robert Collings
Chief Pilot WOF:	Robert Pinksten
Chief Pilot VMF:	Rick Sharpe
Safety Officer:	Will Dismukes

5.1.1 SAFETY OFFICER

The Safety Officer is tasked with the overall responsibility for development and implementation of the Aircraft Operations Department Safety Management System. The Safety Officer reports directly to the CF Executive Director on all safety issues and shall also serve all levels of the Aircraft Operations Department as an advisor on safety matters. Specific responsibilities include:

- Develop and implement safety systems for the Aircraft Operations Department personnel to ensure a safe and healthful work environment.

- Advise management of recognized hazards and unsafe/unhealthful working conditions.

- Periodically assess Safety Program effectiveness and compliance.

- Update Safety Management System as necessary to maintain regulatory compliance.

- Perform periodic safety audits.

- Evaluate available training resources. Advise management concerning training requirements, methods, and sources.

- Disseminate safety-related information.

- Process Hazard and Incident Reports for the purpose of identifying and eliminating or mitigating workplace hazards.

5.1.2 SAFETY REPRESENTATIVES

Individuals may volunteer to perform supplemental duties in support of the Safety Management System. Specific responsibilities include:

- Act as the Safety Officer's representative at the respective location.

- Advise the Safety Officer on safety-related issues.

- Disseminate urgent and routine safety information to personnel.

- Respond to the safety concerns of personnel and forward concerns to the Safety Officer.

- Assist the Safety Officer in conducting periodic Safety Audits.

5.1.3 EMPLOYEES/VOLUNTEERS

Employees are essential to the maintenance of a safe and healthy work environment and the conduct of an effective safety program. Specifically, employees and volunteers shall:

- Comply with all safety practices and requirements.
- Implement all safe work practices provided during training.
- Advise the Safety Officer of recognized hazards and unsafe working conditions.

6.0 SAFETY PERFORMANCE GOALS

The goal of this safety management system is to provide a framework for a safety culture throughout the CF and the CF Flight Operations Department to reduce the possibility of accidents/incidents to the lowest possible level.

6.1 SAFETY/INCIDENT REPORTING SYSTEM

A key to any successful Safety Management System is the ability for all participants to report hazards or potential hazards in a confidential non-punitive environment. The reporting system itself must be not only confidential but simple, direct and convenient. Once hazards are identified they must be acknowledged, investigated and actions must be taken to address the safety issues. The CF is dedicated to providing an environment where the above conditions for success are met and encourages all volunteer/ employees to participate in the program.

The success of CF's Safety Management System is contingent upon an effective system to prevent accidents, incidents, and injuries. Essential to this objective is a program to identify and eliminate or mitigate hazards and to prevent the occurrence of accidents, incidents, and injuries. Under normal circumstances, hazards should be identified, reported and corrected as a matter of daily routine at the lowest operational level utilizing established lines of authority and responsibility. For other situations, the Safety and Incident Reporting System provides a means for employees/volunteers to report safety hazards or reportable incidents to management for appropriate action.

6.2 REPORTING PROGRAM DESCRIPTION

The CF has chosen multiple vehicles for reporting hazards or potential hazards. Available Online and per request in paper are the CF Safety Reporting Forms. If a hazard is recognized the observer shall complete a Wings of Freedom Safety report through our anonymous Online system or directly submit it to the Safety Officer.

The following provides a guideline for determining whether a situation warrants the submission of a report. This description is not all-inclusive and the originator should exercise sound judgment and discretion when determining if a report should be submitted. A Safety Report or Flight Operations Incident Report shall be submitted when any situation, practice, procedure, or process is observed that is (See Attachment 2):

- A recognized safety concern, or
- Considered unusual from an operational or procedural standpoint, or
- Considered deficient from a safety standpoint, and in the submitter's opinion, possesses a foreseeable potential for injury or illness to persons or damage or loss of property if not addressed in a timely manner.

Any safety concern that would be of interest to others involved in like activities should be reported. Safety Reports are not required for hazards that are able to be resolved immediately in the normal activities of the workplace, however, when a hazard is likely to be duplicated in other CF workplaces a Safety Report should be submitted for the benefit of other affected employees.

The report submitter's identification on the report is optional but is encouraged in the event that further information is required for elimination of the hazard. Reports should be concise and should accurately and thoroughly describe the hazard. When applicable, reports should include the submitter's recommendation(s) for corrective action. In circumstances where the perceived hazard possesses the immediate potential for injury/illness to persons or damage/loss of property, the Safety Officer and/or the Chief Pilot shall be notified immediately.

6.3 REPORT PROCESSING

Upon receipt of a Safety Report, the Safety Officer will conduct an investigation to determine the content of the report as well as to gain additional information concerning the report's subject matter. Any hazardous situations or equipment shall be either placarded or removed from service until the hazardous situation is corrected. The submitter, if identified, will be advised of the result of the investigation. If a Safety Report or Flight Operations Incident Report identifies a problem that concerns policy or procedures the problem may be forwarded to the Safety Committee(Safety Officer, Chief Pilot). Problems or issues outside the scope or authority of the Safety Program, will be forwarded to the CF Executive Director or the appropriate person responsible The following procedures are used to control the flow of hazard rectification:

- The Safety Officer is responsible for guaranteeing the confidentiality of the report, the ensuing investigation and the problem rectification
- The Safety Officer is responsible for performing any follow up actions necessary to clarify the details or nature of the problem, while ensuring confidentiality is maintained.
- The Safety Officer is responsible for acknowledging and providing feedback to any volunteer/employee who makes their identity known during submission.
- When appropriate the de-identified report will be made available to all volunteer/employees for review and for informational purposes.
- Less complex issues will be resolved by the Safety Officer and the Chief Pilot.
- Issues concerning policy, conflict and incident review will be handled by the CF Aircraft Operations Safety Committee.
- Resolution of complex operational issues will be coordinated with the CF Executive Director and senior staff.
- CF Executive Director, Safety Officer and other senior staff will determine if the resolution requires a change to the General Operations Manual, training manuals or the SMS to insure an equivalent level of safety throughout the organization.

- The key to success in the rectification of any problem is open communications and the CF is committed to ensuring this takes place on a continuing basis.

Final reports will be distributed as follows:

- The original will be kept in the Safety office files
- A copy will be forwarded to the Executive Director
- The individual submitting the hazard report, if they identified themselves.

6.4 NON-REPRISAL POLICY

It is imperative that the CF has uninhibited reporting of all hazards, occurrences and incidents that in any way affect the safety of our operations, employees, volunteers, passengers, or visitors. Thus, it is the policy of the CF to recognize the efforts of individuals who identify and communicate unsafe acts and conditions for the purpose of promoting safety. Consistent with this approach, it is also the responsibility of each employee/volunteer to communicate any and all information that could possibly affect the integrity of both flight and ground safety. All communications made by employees/volunteers pursuant to the reporting process shall be made with the assurance that no retaliation or reprisal shall occur to the employee/volunteer for submitting any information via the Safety Reporting System. The identity of employees and volunteers who provide information through this system shall be protected.

6.5 SAFETY AUDIT/ASSESSMENT

The CF recognizes the value of an ongoing safety audit/assessment program that reviews training, record keeping, and operating procedures.

An important segment of the SMS is the commitment to continually evaluate program on a regularly scheduled basis.

Audits of Aircraft Operations will be conducted by the Safety Officer on a regular basis. The audits will cover general operations, aircraft maintenance, record keeping, operational procedures, observation of flight operations and any other areas requested by the CF Executive Director.

The audit findings will be used to determine if any changes to the current policies and procedures are required. Recommendations for changes to simple operational issues can be dealt with by the CF Aircraft Operations Director and the Safety Officer.

6.5.1 TREND ANALYSIS

The CF accepts the fact that one event can be considered as an isolated incident but two similar events may indicate the start of a trend. If an event recurs after preventive measures are in place, the cause must be determined to ascertain whether the first corrective action was proper, if the steps in the corrective action were not properly followed or if further corrective action is warranted in order to prevent recurrence in the future.

The CF Safety Officer has developed a program to track safety related events. Information from Safety Reports and Flight Operations Incident Reports will be gathered and tracked for trend analysis. The system will enable the Safety Officer to:

- Log safety events under various categories
- Link events to related documents (e.g. reports, photographs, etc)
- Monitor trends
- Review historical records
- Monitor event investigations
- Apply risk factors
- Identify corrective actions and responses
- Report to the Corresponding Chief Pilot of any safety issues

Attachment 1

HUMAN FACTORS

GENERAL

The following discussion is one method of addressing Human Factors issues.

Safety is a main objective in the aviation industry. A major contributor to achieve that objective is a better understanding of Human Factors and the broad application of its knowledge. Increasing awareness of Human Factors will result in a safer and more efficient working environment.

The purpose of this section is to introduce this subject and to provide guidelines for improving human performance through a better understanding of the factors affecting it through the application of Crew Resource Management (CRM) concepts in normal and emergency situations and understanding of the accident model.

THE MEANING OF HUMAN FACTORS

HUMAN ERROR

The human element is the most flexible, adaptable and valuable part of safety. But it is also the most vulnerable to influence, which can adversely affect its performance. Lapses in human performance are cited as causal factors in the majority of incidents/accidents, which are commonly attributed to “Human Error”. Human Factors have been progressively developed to enhance the Safety of complex systems, such as aviation, by promoting the understanding of the predictable human limitations and its applications in order to properly manage the ‘human error’. It is only when seeing such an error from a complex system viewpoint that we can identify the causes that lead to it and address those causes.

ERGONOMICS

The term “ergonomics” is defined as “the study of the efficiency of persons in their working environment.”

It is often used by aircraft manufacturers and designers to refer to the study of human-machine system design issues (e.g. Pilot-Cockpit, Flight Attendant - Galley, etc.). ICAO uses the term ergonomics in a broader context, including human performance and behaviour, thus synonymous with the term Human Factors.

WHAT IS HUMAN FACTORS?

- It studies people working together in concert with machines.
- It aims at achieving safety and efficiency by optimising the role of people whose activities relate to complex hazardous systems such as aviation.
- A multidisciplinary field devoted to optimising human performance and reducing human error.
- It incorporates the methods and principles of the behavioural and social sciences, physiology and engineering.

THE AIM OF STUDYING HUMAN FACTORS IN AVIATION

By studying Human Factors we notice that the human Factor is the most important component and the remaining components must be adapted and matched to the human. In aviation, this is vital, as errors can be deadly.

The human being adapts to mismatches, thus masking any mismatch without removing it, and constitutes a potential hazard. Examples of that are the different cockpit layouts for the many different aircraft flown by Aircraft Operations pilots.

One of the most difficult interfaces to match with the human is the environment in which he operates.

Adding proficient and effective individuals together to form a group or a set of views does not automatically imply that the group will function in a proficient and effective way unless they can function as a team. For them to successfully do so, we need leadership, good communication, crew-co-operation, and teamwork and personality interactions. Crew Resource Management (CRM) is designed to accomplish that goal.

In brief, Human Factors in aviation aim at increasing the awareness of the human element within the context of the system and provide the necessary tools to improve safety and efficiency.

SAFETY & EFFICIENCY

Safety and efficiency are so closely interrelated that in many cases their influences overlap and factors affecting one may also affect the other. Human Factors have a direct impact on those two broad areas.

Safety is affected by the Human-Hardware interface. Should a change affect such interface the result might be catastrophic. In a particular aircraft accident, one causal factor cited in the report was that “variation in panel layout among the aircraft in the fleet had adversely affected crew performance”.

Crew interface also plays a major role in Safety. Failure to communicate vital information can result in aircraft and life loss. In one runway collision, misinterpretation of verbal messages and a breakdown in normal communication procedures were considered as causal factors.

Efficiency is also directly influenced by Human Factors and its application. In turn it has a direct bearing on safety. For instance, motivation constitutes a major boost for individuals to perform with greater effectiveness, which will contribute to a safe operation.

Properly trained crewmembers working in accordance with SOPs are likely to perform more efficiently and safely. The familiarity with layouts of displays and controls in the cockpit enhance Flight Crew efficiency while promoting safety.

FACTORS AFFECTING AIRCREW PERFORMANCE

Although the human element is the most adaptable component of the aviation system that component is influenced by many factors which will affect human performance such as fatigue, circadian rhythm disturbance, sleep deprivation, health and stress. These factors are affected by environmental constraints like temperature, noise, humidity, light, vibration, working hours and load.

FATIGUE - Fatigue may be physiological whenever it reflects inadequate rest, as well as a collection of symptoms associated with disturbed or displaced biological rhythms. It may also be psychological as a result of emotional stress, even when adequate physical rest is taken. Acute fatigues are induced by long duty periods or an accumulation of particularly demanding tasks performed in a short period of time. Chronic fatigue is the result of cumulative effects of fatigue over the longer term. Temperature, humidity, noise, workstation design and hypoxia are all contributing factors to fatigue.

CIRCADIAN RHYTHM DISTURBANCE - Human body systems are regulated on a 24-hour basis by what is known as the circadian rhythm. This cycle is maintained by several agents: day and night, meals, social activities, etc. When this cycle is disturbed, it can negatively affect safety and efficiency.

The CF doesn't almost never travels through more then on time zone at once, however the real threat of disturbing the circadian rhythm lies in the volunteer pilot's traveling long distances to the tour, therefore we must all self evaluate if we are fit to operate an aircraft or if more rest is required.

Symptoms of circadian rhythms include sleep disturbance, disruption of eating and elimination habits, lassitude, anxiety and irritability. That will lead to slowed reaction, longer decision making times, inaccuracy of memory and errors in computation, which will directly affect operational performance and safety.

SLEEP DEPRIVATION - The most common symptom of circadian rhythmic is sleep disturbance. Tolerance to sleep disturbance varies between individuals and is mainly related to body chemistry and emotional stress factors. In some cases sleep disturbance can involve cases of over-all sleep deprivation. When that stage is reached it is called Situational Insomnia, i.e. it is the direct result of a particular situation. In all cases, reduced sleep will result in fatigue. Some people have difficulty sleeping even when living in normal conditions and in phase with the circadian rhythm.

To overcome problems of sleep disturbance one should adapt a diet close to his meal times, learn relaxation techniques, optimise the sleeping environment, recognise the adverse effects of drugs and alcohol and be familiar with the disturbing effects to circadian rhythmic to regulate his sleep accordingly.

HEALTH – Certain pathological conditions (heart attacks, gastrointestinal disorders, etc.) have caused sudden pilot incapacitation and in rare cases have contributed to accidents. But such incapacitation is usually easily detectable by other crewmembers and taken care of by applying the proper procedures.

The more dangerous type is developed when a reduction in capacity results in a partial or subtle incapacitation. Such incapacitation may go undetected, even by the person affected, and is usually produced by fatigue, stress, the use of some drugs and medicines and certain mild pathological conditions such as hypoglycaemia. As a result of such health conditions, human performance deteriorates in a manner that is difficult to detect and therefore, has a direct impact on flight safety.

Even though aircrew are subjected to regular periodical medical examinations to ensure their continuing health, that does not relieve them from the responsibility to take all necessary precautions to maintain their physical fitness. It hardly needs to be mentioned that fitness will have favourable effects on emotions, reduces tension and anxiety and increases resistance to fatigue. Factors known to positively influence fitness are exercise, healthy diet and good sleep/rest management. Tobacco, alcohol, drugs, stress, fatigue and unbalanced diet are all recognised to have damaging effects on health. Finally, it is each individual responsibility to arrive at the workplace “fit to fly”.

STRESS – Stress can be found in many jobs, and the aviation environment is particularly rich in potential stresses. Stress is also associated with life events, which are independent from the aviation system but tightly related to the human element. Such events could be sad ones like a family separation, or happy ones like weddings or childbirth. In all situations, individual responses to stress may differ from a person to another, and any resulting damage should be attributed to the response rather than the stress itself.

In an aircrew environment, individuals are encouraged to anticipate, recognise and cope with their own stress and perceive and accommodate stress in others, thus managing stress to a safe end. Failure to do so will only aggravate the stressful situation and might lead to problems.

PERSONALITY VS ATTITUDE

Personality traits and attitudes influence the way we behave and interact with others. Personality traits are innate or acquired at a very young age. They are deep-rooted, stable and resistant to change. They define a person and classify him/her (e.g. ambitious, dominant, aggressive, mean, nice, etc.).

On the contrary, attitudes are learned and enduring tendencies or pre-dispositions to respond in a certain way, the response is the behaviour itself. Attitudes are more susceptible to change through training, awareness or persuasion.

The initial screening and selection process of aircrew aims at detecting undesired personality characteristics in the potential crewmember in order to avoid problems in the future.

Human Factors training aims at modifying attitudes and behaviour patterns through knowledge, persuasion, and illustration of examples revealing the impact of attitudes and behaviour on flight safety. That should allow the aircrew to make rapid decisions on what to do when facing certain situations.

CREW RESOURCE MANAGEMENT (CRM)

CRM is a practical application of Human Factors. It aims at teaching crew members how to use their interpersonal and leadership styles in ways that foster crew effectiveness by focusing on the functioning of crew members as a team, not only as a collection of technically competent individuals, i.e. it aims at making aircrew work in "Synergy" (a combined effect that exceeds the sum of individual effects).

When introducing CRM some people might see a threat, since it constitutes a 'change'. However, lapses in human performance are a contributing factor in the majority of accidents. With nearly two decades of CRM application in the aviation community revealing a very positive feedback, we see this 'change' as strength.

CRM can be approached in many different ways; nevertheless there are some essential features that must be addressed: The concept must be understood, certain skills must be taught and inter-active group exercises must be accomplished.

To understand CRM, one must be aware of certain topics such as synergy - the effects of individual behaviour on the team work; the effect of complacency on team efforts; the identification and use of all available resources; the statutory and regulatory position of the pilot-in-command as team leader and commander; the impact of company culture and policies on the individual; the interpersonal relationships and their effect on team work.

For a CRM program to be successful it must be embedded in the total training program, it must be continuously reinforced and it must become an inseparable part of the organisations culture. CRM should thus be instituted as a regular part of periodical training and should include practice and feedback exercises during training and checkrides.

CRM SKILLS TO BE DEVELOPED INCLUDE:

COMMUNICATION SKILLS – Effective communication is the basis of successful teamwork. Barriers to communication are explained, such as

cultural difference, rank, age, crew position, and wrong attitude. Aircrews are encouraged to overcome such barriers through self-esteem, participation, polite assertiveness, legitimate avenue of dissent and proper feedback.

SITUATIONAL AWARENESS – Total awareness of surrounding environment is emphasised so is the necessity from the crewmember to differentiate between reality and perception of reality, to control distraction, enhance monitoring and crosschecking and to recognise and deal with ones or others incapacitation, especially when subtle.

PROBLEM SOLVING AND DECISION MAKING – This skill aims at developing conflict management within a time constraint. A conflict could be immediate or ongoing; it could require a direct response or certain tact to cope with it. By developing Aircrew judgement within a certain time frame, we develop skills required to bring conflicts to safe ends.

LEADERSHIP – In order for a team to function efficiently it requires a leader. Leadership skills derive from authority but depend for their success on the understanding of many components such as managerial and supervisory skills that can be taught and practised, realising the influence of culture on individuals, maintaining an appropriate distance between team members enough to avoid complacency without creating barriers, care for one's professional skill and credibility, the ability to hold the responsibility of all crew members and the necessity of setting the good example. The improvement of these skills will all the team to function more efficiently by developing the leadership skills required to achieve a successful and smooth follower in the team.

STRESS MANAGEMENT – Pressure to complete the mission, mental and physical fitness to fly, fatigue, social constraints and environmental constraints are all part of our daily life and they all contribute in various degrees to stress. Stress management is about recognising those elements, dealing with one's stress and help others manage their own. It is only by accepting things that are beyond our control, changing things that we can and knowing the difference between both that we can safely and efficiently manage stress.

CRITIQUE – Discussion of cases and learning to comment and critique actions are both ways to improve one's knowledge, skills and understanding. Review of actual airlines accidents and incidents to create problem-solving

dilemmas that participant aircrew should act-out and critique through the use of feed-back system will enhance crew member’s awareness of their surrounding environment, make them recognise and deal with similar problems and help them solve situations that might occur to them.

Attachment 2

Forms

Collings Foundation Safety Report

Collings Foundation Flight Operations Incident Report

COLLINGS FOUNDATION SAFETY REPORT

To: Will Dismukes	From: (Optional)	Date:

Instructions: Fill in form, using additional sheets as necessary. Forward the completed form to the Safety Officer in an envelope marked "Confidential." Thank you for your interest in the Safety Program!

Description of the incident or observed hazard: (Provide date, time and location, as applicable. Include a detailed and accurate description while being as concise as possible.)

_____
_____
_____
_____
_____

Recommendations to eliminate, correct or minimize the incident or hazard:

_____
_____
_____
_____
_____

Safety Officer's investigation summary:

_____
_____
_____
_____
_____

Referred to: _____
Suspense date: _____

Corrective action taken:

_____
_____
_____
_____

Corrective action completion date: _____ *by:* _____

COLLINGS FOUNDATION
FLIGHT OPERATIONS INCIDENT
REPORT

To: Will Dismukes [redacted]	From: (Optional)	Date: Aircraft:

Instructions: Fill out form using additional sheets as necessary. Forward the completed form to the Safety Officer. Thank you for your interest in the Safety Program!

Type of event – check all appropriate responses

( ) Human factor error	( ) Runway/taxiway excursion	( ) Foreign object damage
( ) Altitude deviation	( ) Runway incursion	( ) Severe wake turbulence
( ) Navigational deviation	( ) Severe turbulence	( )Collision hazard
( ) Communication error	( ) Severe icing	
( ) Crewmember incapacitation		
( ) Aborted takeoff	( ) Other_____	

Weather conditions – check all appropriate responses

( ) IMC	( ) Thunderstorm	( ) Icing
( ) VMC	( ) Turbulence	( ) Crosswind
( ) Precipitation	( ) Windshear	( ) Other _____

Date/time – check or fill out all appropriate responses

Date:_____	
Time:(Local)	

Mode of flight – check all appropriate responses

( ) Ramp	( ) Climb	( ) Descent
( ) Taxi	( ) Cruise	( ) Approach
( ) Takeoff	( ) Holding	( ) Landing

Action taken - check all appropriate responses

( ) Performed emergency procedure	( ) Declared emergency	( ) Followed checklist
( ) In-flight engine shutdown	( ) Requested crash/rescue	( ) Followed SOP
( ) Requested medical assistance	( ) Diverted from destination	( ) Other _____

7. Crewmember's assessment.

Was the above procedure/checklist adequate for this situation? ( ) Yes ( ) No
Was the training adequate for this situation? ( ) Yes ( ) No

8. Comments or suggestions: