APPENDIX L

CREW RESOURCE MANAGEMENT INFORMATION

USAir

Crew Resource Management

Programs and Timeline

Prepared By:
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At request of: National Transportation Safety Board
14 September 1994

Spring 1990 **CRM Steering Committee Formed**

Group of five management and line pilots selected to research other airline offerings of Crew Resource Management training programs. Empowered to make specific course recommendations to the Vice President - Flight Operations.

Summer /Fall 1990 Course Development Continued

Selected segments from other carriers programs were incorporated. Initial course was developed by taking what was considered the best parts of other airline programs and cemented together to form the USAir course. This process did not fully consider the variety of cultures involved and their relationship to USAir.

Spring/Summer 1991 Initial Test Courses Presented

Randomly selected pilots were chosen to receive initial course offering and incorporate their feedback into the design and refinement process. This feedback indicated that the course did not adequately serve the needs of the line pilot, that too much "psychology" was involved and that the larger group of pilots would not receive the program well. Course facilitators (instructors)were selected with input from Chief Pilots.

September 1991 ***Course Redesign***

As a result of the feedback received from the test course a complete redesign was undertaken by the course designers and facilitators. The guiding principle of the redesign process was to ensure that the resultant program was user friendly, developed for the USAir culture and applicable to line operation.

November 1991 **Redesigned Course Evaluated**

The completely redesigned one-day program was tested with randomly selected line pilots and other groups to ascertain the applicability and value of the new offering. The usefulness of the program was validated by this process and with minimal revision, full courses were presented to the line community the following month.

December 1991 **CRM Phase I Course Begins**

Final version of the CRM Phase I program was presented to all line, management, and training pilots over a period of twelve months. The CRM Phase I program was a one-day course, presented by at least two specially trained facilitators to groups of twelve to forty participants. Courses were presented simultaneously at all domiciles during this period. Additional participants included maintenance, dispatchers, in-flight service, customer service and other various groups, in addition to outside agencies - including the FAA and corporations. CRM Phase I continued to be presented at full capacity until December 1992. Phase I continues to be presented on a quarterly basis for pilots returning to the line and for outside groups.

March 1992 **Development of CRM Phase II begins**

Research and design of the Phase II CRM program begins. This is the LOFT phase of the recommended program. Issues surrounding content and medium are researched to discover the best method for practicing CRM skills in the simulator and receiving effective feedback. The intent of this phase is to offer pilots the ability to practice those skills they were introduced to in the Phase I course in a line environment. This phase of the CRM program would require extensive training of the USAir check airmen so that they may consistently train and evaluate CRM skills.

Summer 1992 **Phase II Check Airman Course Design begins**

Phase II requires that all check airmen be trained to effectively promote and evaluate the use of CRM skills. In order to accomplish this, a program was developed to enhance their skills and calibrate their observation in the LOFT. The calibration process was necessary to ensure that each check airman was evaluating pilots in the simulator utilizing similar criteria. In addition to the training requirements, a LOFT Committee was formed to develop the individual LOFT scenarios that the check airmen would use in the simulator.

Fall 1992 **Phase III / Recurrent CRM Development begins**

Phase III of the CRM program - ongoing reinforcement - development begins. It was decided that future recurrent training would be co-developed and presented by both pilots and flight attendants. Recurrent training in CRM skills would center on actual USAir incidents.

November 1992 **Phase II Facilitator/Instructors Trained by NASA**

The selected group of line and training pilots chosen to present the Phase II course to the check airmen were trained by Capt., Roy Butler, from NASA/University of Texas. Capt. Butler was a primary designer of the calibration process used by the industry to evaluate CRM skills.

December 1992 **Phase II Course Presentation**

All USAir check airmen are required to attend the classroom segment of Phase II training. The course is designed to increase the awareness of CRM skills and to calibrate the check airman's ability to evaluate those skills when demonstrated in LOFT. The classroom presentation was the first portion of the training the check airmen would receive. The specially trained facilitator / instructors were also in the simulator with the check airman during their initial LOFT session to offer additional training and critique.

January 1993 **Phase III / Recurrent CRM begins**

Recurrent training in CRM principles begins for both pilots and flight attendants. The joint program is presented to pilot and flight attendant recurrent classes utilizing a pilot and flight attendant facilitator. CRM principles are reinforced and additional issues discussed. A CRM module will be included in all future recurrent training sessions for pilots and flight attendants.

March 1993 **Training Stand Down Day**

On March 29, 1993 all pilot training at USAir was stood down so that one final day of training could occur for the check airman prior to system wide introduction of the Recurrent LOFT / CRM Phase II program. This stand down day was centered around a conference held in Pittsburgh for all check airmen, ground school instructors, flight attendant trainers and management personnel.

April 1993 **Recurrent LOFT Program begins**

Phase II of the CRM program was introduced in the Recurrent LOFT format. This extensive redesign of the training program at USAir was possible through combined effort of the Flight Training Department, Air Line Pilots Association and the FAA. Recurrent LOFT offers the ability to train and practice CRM skills while incorporating traditional technical training. The Recurrent LOFT program revised the training profile for Captains and added additional training for First Officers. Additionally, the concept of "seat-task dependency" was incorporated to ensure that all training was conducted only with a compete crew. Training department adopts the philosophy of "Train the way you fly, fly the way you train".

Winter/Spring 1994 Dispatcher CRM Recurrent Module begins

All USAir dispatchers were invited to participate in Phase I of the CRM program. In order to maintain their awareness of CRM and focus on their specific needs a recurrent module was developed for presentation at their annual training session. This program centered around issues applicable to their duties and pilot/dispatcher interface.

FLIGHT TRAINING - HUMAN FACTORS/ALLIANCE OFFICE
1994 Programs

Current / Ongoing Projects

Trainer Skills Development -
A program for training pilots jointly developed by USAir and British Airways. The goal of this program is to provide a foundation in basic instructional skills for check airmen. Joint presentation with BA and USAir instructors in both London and Pittsburgh.

Captain Development Program -
Program for "new" Captain's to introduce the skills they will need to effectively perform their job and to acquaint them with the resources available to them. This is a joint program under development with British Airways.

Pilot Recurrent CRM Module -
Continuing reinforcement module for pilots as outlined in FAA Advisory Circular 120 - 51b. One hour module at all pilot recurrent classes. Co-facilitated by a pilot and flight attendant facilitator. Basis for eventual combined pilot/flight attendant recurrent programs.

Flight Attendant Recurrent CRM Module -
Awareness module for all flight attendants. Second year of this co-facilitated program. Similar content to pilot recurrent module.

Recurrent LOFT (RLF) Observation Program -
Specially trained Facilitator / Instructors from the Human Factors office observe check airmen conducting RLF's. They are available to the check airman as a resource and as a continuation of the training the check airman received in the LOFT Facilitator / Observer Course.

Phase I CRM Course -
One-day introduction to the principles of CRM. Offered approximately four times per year to accommodate pilots returning to the line who were not available during the initial program. Additionally, outside guests are invited to participate.

Dispatcher Recurrent Module -
General overview program for the dispatchers to raise their awareness of CRM and its application to their job.

LOFT Facilitator / Observer Course -
Designed for check airmen who will be conducting and evaluating pilot performance in the Recurrent LOFT. Two-day program centering on the effective observation and training of human factors skills on the aircraft. Course provided for all newly appointed check airmen.

Senior Check Airman LOFT Evaluator Course -
Designed for Senior Check Airmen who will be observing other check airmen on a fleet - wide basis during the conduct of the RLF. The Senior Check Airman program is the basis for check airman standardization across fleets for the RLF program. The Senior Check Airmen are augmented by the Facilitator / Instructors.

LOFT Facilitator / Observer Training (G/S Instructors) -
Special modification of the original LOFT Facilitator / Observer course for the ground school instructors. This course will give these instructors a basis in human factors skills so that fixed base and simulator training will be seamless in philosophy and application.

737-300 Initial Ground School Revision -
Consultants to the 737-300/400 Flight Manager and Senior Check Airmen during their project to revise the initial ground school program on this fleet. The Human Factors office was requested to supply expertise and assistance during the preparation of the new program.

Recurrent LOFT Survey Analysis -
Collection and data-basing of LOFT Survey's completed by the check airman at the conclusion of an RLF. These survey's are analyzed and trends developed for future planning.

Pilot RLF Critique Analysis -
Collection and data-basing of pilot initiated critiques. These critiques are completed by all line pilots after the RLF.

Senior C/A LOFT Evaluation Analysis -
Collection and data-basing of evaluation forms completed by the Senior Check Airmen. These evaluations are completed during the conduct of the briefing, the RLF and the debriefing. This program serves as a means to evaluate standardization and the effectiveness of the check airman administering the RLF.

USAir

CREW RESOURCE MANAGEMENT

PILOT HANDOUT

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"When anyone asks me how I can best describe my experience in nearly forty years at sea, I merely say, uneventful. Of course there have been winter gales, and storms and fog and the like, but in all my experience, I have never been in a accident of any sort worth speaking about. I have seen but one vessel in distress in all my years at sea.... I never saw a shipwreck and have never been shipwreck, nor was I ever in any predicament that threatened to end in disaster of any sort."

E.J.Smith 1907

On 14 April 1912 RMS TITANIC sank with the loss of 1500 lives - one of which was it's Captain.....E.J.Smith.

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Phase II is the practice feedback phase of CRM training. It is designed to provide crewmembers with self and peer critique in order to improve communication, decision making and leadership. This will be accomplished through the use of simulators and video equipment.

To maintain his annual proficiency qualification, a Captain must take two simulator rides a year. One ride is classified as a check (PC) and the other pilot training (PT). The sessions are alternated every six months with the PC being two hours in duration and the PT being four. A First Officer is only required one simulator ride during the same 12 month period. This leads to a situation where Captains are paired.

The FAA and NTSB have voiced concerns over the breakdown in seat task dependency when training in this format. In other words, when a Captain was flying from the right seat, or a First Officer from the left, there was a noticeable degradation in learning. A way to address these issues, is to bring a First Officer in for an additional period. The additional time would then fulfill seat task dependency and enhance training.

Phase II will be conducted in a two hour **NON JEOPARDY**, video taped LOFT, using a crew concept (Captain and First Officer). The LOFT will be flown during the second two hour block of the Captain's PT. It will be a two leg trip (PIT-DCA-PIT) flown in real time. There will be little to no instructor input, other than as necessary to add realism. The instructor's responsibility is to note crew interaction during the various phases of the trip and to help, afterwards, with the crewmembers self-critique.

Video feedback is extremely effective, for it allows us to see ourselves from a third person perspective. After a review and critique, the crew will erase the tape. No recorded tapes will be allowed to be taken out of the simulator. Remember, this period is a completely **NON JEOPARDY EVENT.**

Phase III is part of a continuing educational program that will be addressed during recurrent ground school.

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(A) Leadership/Followership/Concern for Task. It's the coordination of activities by maintaining a proper balance of authority and assertiveness.

(B) Interpersonal Relationships/Group Climate. Showing sensitivity and ability to adapt to other crewmembers' personalities and styles. Recognizing symptoms of fatigue and stress and taking appropriate action. Maintaining a friendly, relaxed, and supportive tone in the cockpit.

(C) Automation Management. Automated glass cockpit aircraft require a greater effort on behalf of the crewmembers to communicate and coordinate changes that effect flight conditions.

Workload Management and Situational Awareness. This reflects the extent to which crewmembers maintain awareness of their operational environment and anticipate contingencies that may require action. Instruction may address the practices (ie: vigilance, effective planning and time management, task prioritizing, avoidance of distractions) that result in higher levels of situational awareness.

(A) Preparation/Planning/Vigilance. Devotion of appropriate attention to required tasks. Responding to new information. Preparing in advance for required activities.

(B) Workload Distribution/Distraction Avoidance. Proper allocation of tasks to individuals. Avoidance of work overloads. Prioritization of tasks during periods of high workload. Preventing non-essential factors from distracting attention from critical tasks.

Overall Technical Proficiency. This area concentrates on the technical aspects of the flight which is essential for a safe and efficient operation. Demonstrated mastery of CRM concepts cannot overcome a lack of proficiency, as high technical proficiency cannot guarantee a safe operation in the absence of effective coordination.

(A) Adherence to FAR's and ATC requirements, and compliance with company established procedures including checklist management and standard callouts.

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hole. Pilots seldom are victimized by illusions when the final approach is less than two-to-three miles long.

A pilot can use certain precautions to increase altitude and distance awareness during long, straight-in approaches at night when an ILS or VASI is unavailable for descent guidance. (Although a VASI may be visible for 30 miles at night, safe obstruction clearance is guaranteed only within four miles of the runway threshold.)

DME (if available and appropriate) can help establish a safe descent profile using the principle that a 3° descent profile can be maintained by being 300 feet above the ground (AGL) for each nautical mile from the runway. (For example, an aircraft that is three miles from the runway should be at 900 feet AGL.) A 4° descent is established by maintaining 400 feet per nautical mile, and so forth.

Always maintain a watchful eye on airspeed, altitude and sink rate. An excessive sink rate (for the airspeed being flown) indicates either a strong tailwind or an abnormally steep descent profile. Remain alert!

Although stating this might seem silly, be certain that you are descending toward an airport. Pilots have been deceived by highway lights that-from a distance-give the illusion of being runway lights.

Maintain a safe altitude until the airport and its associated lighting are distinctly visible and identifiable.

Like most people, pilots usually believe what they see. In *black-hole* approaches, however, pilots should have compelling reasons to not do so.

Airliner References -

- Night Visual Approaches - Mar-Apr 1969
- The Last Two Minutes - Jan-Mar 1991
- Stopping on the Runway Visual Approaches - Apr-Jun 1991

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COURSE REVIEW

NOTES

USAIR CRM

CRM IS NOT

BEHAVIOR DICTATED BY MANAGEMENT

CAPTAIN'S TRAINING

NOT AN ATTEMPT TO USURP CAPTAIN'S AUTHORITY

NOT SUBSTITUTE FOR FLYING SKILLS

USAIR CRM

CRM IS

BETTER TEAM WORK

NEW SKILLS

ACCIDENT PREVENTION

LEADERSHIP/FOLLOWERSHIP

OPERATING PHILOSOPHY

USAIR CRM

GROUND RULES

NEED TO BE INVOLVED

DISAGREE W/O BEING DISAGREEABLE

WHATEVER IS SAID HERE STAYS HERE

MAKE A POINT TWICE

THEN MOVE ON

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NOTES

USAIR CRM

CAPTAIN'S AUTHORITY

FAR 91.3

THE PILOT IN COMMAND IS DIRECTLY RESPONSIBLE FOR, AND IS THE FINAL AUTHORITY AS TO, THE OPERATION OF THAT AIRCRAFT

USAIR CRM

CAPTAIN'S AUTHORITY

FOM

CO-AUTHORITY WITH FLIGHT DISPATCH

AUTHORITY TO DELAY,CANCEL OR DISCONTINUE FLIGHT

USAIR CRM

CAPTAIN'S AUTHORITY

IT IS ONLY THE CAPTAIN'S NAME/ SIGNATURE THAT GOES INTO THE LOG BOOK

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COURSE REVIEW

USAIR CRM

INTRODUCTIONS

CAPTAIN RESPONSIBLE FOR INTRODUCTIONS

THROUGH SOME FORMAT

ALL CREWMEMBERS SHOULD MEET

USAIR CRM

ESTABLISH GUIDELINES

SAFETY

EFFECTIVE COMMUNICATIONS

COOPERATION

USAIR CRM

ESTABLISH GUIDELINES

SAFETY IS OUR MOST IMPORTANT

CONSIDERATION

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USAIR CRM

AUTHORITY PARADOX

CAPTAIN'S AUTHORITY IS MANDATED

WITH AUTHORITY COMES ACCOUNTABILITY
RESPECT MUST BE EARNED

USAIR CRM

SUMMARY

EYE CONTACT

FIRST NAMES

ASK FOR PARTICIPATION

DON'T BE KEEPER OF ALL KNOWLEDGE

ASK QUESTIONS

LET OTHERS TALK

USAIR CRM

FACTORS EFF COMM

MULTIPLE MEANINGS

TOP 500 WORDS 14,000 MEANINGS

-BODY LANGUAGE

55% BODY LANGUAGE

37% TONALITY

7% VERBAL

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NOTES

USAIR CRM

SYNERGY

THE WHOLE IS GREATER THAN THE

SUM OF THE PARTS

EACH PERSON HAS A RESPONSIBILITY

FOR THE SAFE COMPLETION OF THE

FLIGHT

USAIR CRM

WHAT IS INQUIRY

QUESTIONING/INQUIRY

CURIOSITY

AWARENESS

INVOLVEMENT

USAIR CRM

WHAT IS ASSERTION?

APPROPRIATE PERSISTENCE

TIMELY

CLEAR

FOCUSED

PROPOSE SOLUTION

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NOTES

USAIR CRM

CONFLICT RESOLVED

HIGHER STD OF PERFORMANCE

IMPROVED CREATIVITY

REDUCED FRUSTRATION AND STRESS

ENHANCED TEAMWORK

USAIR CRM

DECISIONS BEHAVIOR

DECISIVE

QUICK DECISIONS

DON'T CHANGE

USAIR CRM

CREW REVIEW MODEL

GATHER THE INFORMATION

WHAT IS THE DECISION

WHAT IS THE CONSEQUENCE

WHAT IS THE ALTERNATIVE

IS THERE A NEW OR BETTER WAY

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COURSE REVIEW

USAIR CRM

THE BIG PICTURE

PREPARATION

PLANNING

VIGILANCE

USAIR CRM

RED FLAGS

FIXATION/AMBIGUITY

COMPLACENCE

DISTRACTION

DISCREPANCIES

OVERLOAD

NO ONE FLYING THE AIRCRAFT

NOTES

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7. NO ONE FLYING THE AIRCRAFT:
   - No one monitoring the current state and progress of a flight.
     - Eastern 401

8. IMPROPER PROCEDURES:
   - Intent to, or departure form prescribed standard operating procedure.

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Date: December 18, 1991

Interoffice Correspondence

To: All Pilots

From: Vice President - Flight Operations

Subject: **CAPTAIN'S AUTHORITY**

I've been asked to address and reaffirm the corporation position on the subject of Captain's authority.

My position is that the Captain is responsible for all associated operational activities with regard to that aircraft including preflight, flight, and post flight. All support functions for a flight or aircraft are to be coordinated through the Captain or a designee. This applies to all boarding, fueling, maintenance, or any other activities associated with the operation of USAir aircraft. This responsibility begins when the Captain is in the vicinity of the aircraft for preflight or planning purposes and continues until control of the aircraft is relinquished to a responsible party.

The Captain has joint authority with the licensed Dispatcher assigned to a particular flight. Before any flight may be originated, both the Captain and Dispatcher must agree that the planned flight can be accomplished safely and in accordance with all applicable company policies and FAA regulations.

The Captain's authority, however, does not include such items as whether or not to hold an aircraft for connecting passengers, or to add a flag stop to protect revenue. These decisions are normally made by System Control in concert with local station management. Ideally, the Captain should be informed of these types of scenarios as early as possible so as to be able to solicit his/her input during the decision making process.

Captain's authority is absolutely necessary for the safe operation of our aircraft. Understand that Captain's authority, bounded by tradition and regulation, must be coupled with common sense, courtesy and cooperation. Without a doubt, the Captain is responsible for the safety of his/her aircraft and its occupants at all times and is in command of the crew that has been assigned for the purpose of flight operations from the time the duty period begins to when it ends.

Captain Gene Sharp
Vice President, Flight Operations

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concerning legalities and various areas of the flight attendant working agreement. Our contract is important to us. Including flight attendants in this process can only enhance the mutual respect within a crew.

"I have been a flight attendant for twenty years; I have a pretty fair idea of what can work. I am also realistic here - there are bound to be problems. Let's keep things in the right perspective and use professional standards committees - they are for all of us.

"I am sure by now you have heard Jim speak about his ONE TEAM theory! I do not think there is any better way to participate, after all, we really are ONE TEAM!"

Thank you very much, Linda, for sharing this with us. I think you bring the points home well. Remember, Captains, your decisions affect the lives and well being of passengers and crew, not to mention job satisfaction. That wraps it up for now. Remember: Liberty, Equality, Fraternity.

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Capt. Tom Lambrick (UAL) won UAL's Safety Award for his Professional Standards Committee work.

right to discipline its employees or FAA's duty to enforce its regulations. The committees do try to resolve issues before they get to that level of involvement. A PSC relies on peer group pressure characterized by caring concern, respect for the person, confidentiality, and the group dynamics of pilot professionalism.

Neither CRM nor a PSC is a substitute for good equipment, strong operating procedures, competent maintenance, or effective standardization. The basics remain firmly in place.

Neither CRM nor a PSC is a "hot tub" situation where crew members necessarily emerge from the experience liking each other. The goal of both is to enable the crew to work effectively together whether they like each other or not.

One side effect to CRM training is becoming increasingly evident — a few pilots react contrary to what the CRM training intended. Apparently, these persons enter the CRM training with minimum interpersonal skills and actually feel threatened by the experience. They become very defensive and come away from the training showing a reinforced negative attitude.

Dr. R. L. Heimreich of the University of Texas has identified this reaction as the "boomerang effect." Whether this condition is temporary or long lasting is not yet known. Some in aviation firmly believe that a proverbial 2 percent of pilots will always be "boomerangs." Hopefully, offsetting this phenomenon is the benefit from CRM training that enables the other crew members to still work with their difficult peer.

Most researchers into CRM agree that further research into the negative side effects is warranted, if only to determine what other possible counseling or training may be needed.

The hiring criteria and initial training of pilot applicants, particularly those involved in ab-initio training programs, need to be explored and brought up to date with the increasing industry trend toward crew-oriented team training in today's advanced-technology cockpits in a very demanding environment.

Ultimately, the challenge remains of what to do with those individuals whose cockpit behavior becomes unacceptable before their conduct becomes a threat to flight safety. Pilots generally agree that peer pressure exerted through ALPA's own Professional Standards Committees can provide an effective, interim method of dealing with the problem of aberrant cockpit behavior. Additionally, Dr. Clay Foushee, Chief Scientific and Technical Advisor for Human Factors at FAA, and Dr. John Lauber, member of the National Transportation Safety Board, have recognized ALPA's work in this area.

Before becoming too concerned about a very small minority of pilots who are having trouble quickly adapting to far-reaching changes in basic behavior patterns and accepting that the day of the solo airline pilot has ended, it might be well to consider:

- Many of those who are "fighting the program" have had perfect safety records over a long period of time and may just be reluctant to immediately change from a known area that has served them well to an unknown and hostile (to them) realm of conduct.
- Only in the last few years, accelerated by CRM, has any serious attempt been made to train aircrews as a team. The traditional method has been for each pilot to be trained and checked as an individual with very little or no help from the other crew members. In fact, most CRM training is currently being authorized by exemption to the federal aviation regulations.
- The majority of pilots entering the airline system today are from general aviation, where flying solo is a way of life. Also, some military pilots may still have the fighter-pilot "right stuff," solo mentality when they join the airlines. On the other hand, both of these pilot groups seem to adapt readily, in the early stages of their airline careers, to CRM team training.

One of the finest examples of PSC and CRM working together involves Capt. Tom Lambrick, who has been the ALPA PSC chairman at United.

The aftermath of the bitter strike at UAL pointed up the need for professionals standards involvement even though the airline has had a well-recognized CRM program. Labor/management relations were badly in need of repair. The airline also faced the challenge of recovering from the prolonged shutdown. In addition, former striking pilots were now flying with those who had crossed the strike picket lines — a volatile situation, to say the least.

The PSC went to both the union leadership and UAL management and said, "We may never speak to each other off the airplane, but we pilots simply

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USAir

PILOT RECURRENT
CRM 1994

Co-Developed by:

Flight Attendant Training
Human Factors CRM / AQP

DECEMBER 21,1993

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PILOT RECURRENT MODULE

Opening- During the next hour you will be reacquainted with several CRM markers by analyzing two different situations. The first, is an Air Ontario accident at Dryden, Ontario which occurred in March 1989, and the second, is a USAir incident which occurred in March 1993. The similarities and differences between these two situation is astounding.

The crew aboard the Air Ontario F-28 had the deck stacked against them They were behind schedule, faced inclement weather, and had an inoperative A.P.U..

Video - Air Ontario / F-28 Accident at Dryden (Excerpts) ***(8:00)***

Class Discussion - What caused this accident? Was this accident preventable? ***(4:00)***

The cause of this accident was determined to be ice on the wings. However, what allowed this accident to occur was a lack of CRM. Why?

The captain was faced with a CATCH 22 situation; shut down the engine with no means to restart it, thus stranding the passengers. Or, to leave the engine running in which case the aircraft could not be de-iced. After all, the gate agent said the aircraft didn't need to be deiced and they were behind schedule. Also, communication broke down between the F/A and the cockpit. The F/A chose not to bother the cockpit with concerns from two different passengers in the cabin.

Without the application of appropriate CRM skills outcomes like the one we have just witnessed will continue to happen. Much of the CRM training in the past focused on identifying human factor behavior from scenarios like this where communication broke down and safety was compromised. Remember only 7% of communication is the spoken word. Take that 7% along with the barriers that we encounter everyday and we have a considerable obstacle to overcome. One of the comments we have heard from you in the past, in regards to accidents and incidents, is, "why can't we talk about USAir?"

Video - Intro sequence "Flight 1576 - The Aftermath" ***(7:00)***

Course Overview - ***(1:00)***

This video and accident footage we have seen in the past affects all of us. It has to do with our livelihood. I has to do with the way we do business And maybe the way we do business can be altered or improved to enable us to become a more effective crew member. This accident didn't happen. Instead of an actual accident this was an accident prevented.Today we are going to look at the reasons why. The pilot group has had formal CRM training since the beginning of 1992. We are reaping the benefits of this training. Today we would like to focus on the positive results that are the direct product of the application of good CRM skills..

We will discuss...

COMPONENTS OF GOOD CRM

Slide 1 - ***(1:00)***

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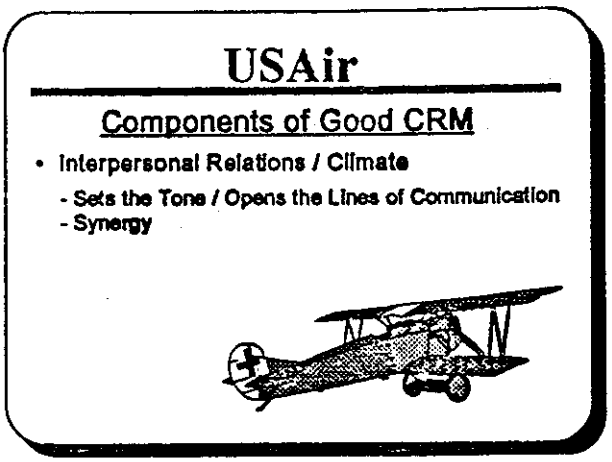
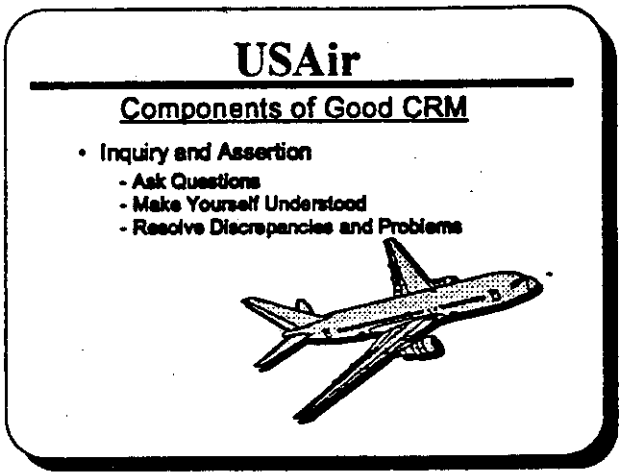
Slide 2-



Slide 3-



Transition: I think we can all agree that the first step in building a cohesive team is the briefing.
Let's look at a recreation of the start of a USAir trip.

Video- Captain Stropes briefing the crew at the beginning of the trip ***(1:00)***

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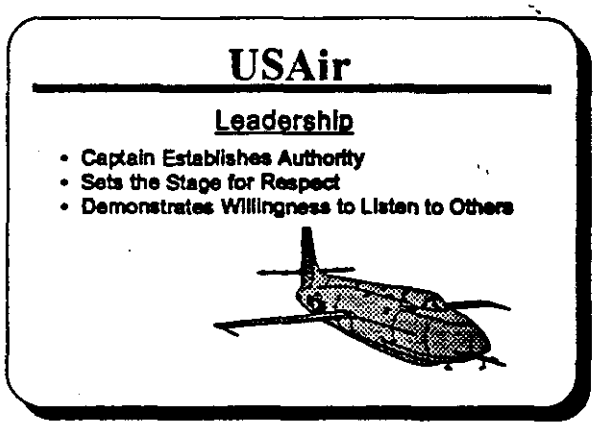
Class ***(3:00)***

Discussion- In you're eyes was this a good crew briefing?
What was gained by this briefing?
If you were a F/A on this trip would you have felt free to interact with this Captain?
Do you have any special procedure that you would like the F/A's to adhere to?; what procedure do you use for the F/A's entering the cockpit?
Did he address the componets of a briefing; **Introductions, Establish *Guidelines, Authority?***
What does a briefing help us develop?

Slides 4 & 5 **LEADERSHIP / FOLLOWERSHIP** ***(1:00)***



The Captain's efforts in conducting the briefing demonstrate good leadership. He has established his authority, earned respect, and demonstrated his willingness to listen to others in the decision making process. Followership is the responsibility of the rest of the crew to *support the decision making process* by keeping the lines of communication open and taking the initiative to offer alternative plans of action.

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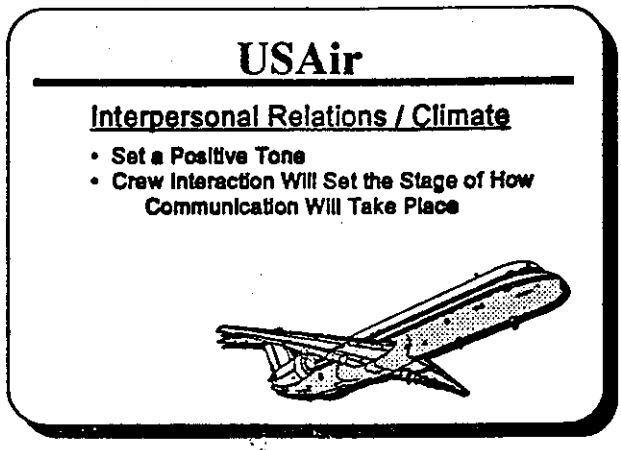
Slide 6 - INTERPERSONAL RELATIONS / CLIMATE ***(1:00)***



The briefing also sets the tone or climate for the rest of the trip. The way the crew interacts also has great bearing on their effectiveness: when information or an opinion is offered by any member of the crew it must be addressed in a positive manner. This interaction - information and response - will set the stage for how communications will take place.

Transition - ***(:30)***

These are some of the desired results of a good briefing.
Can these skills be transferred to the line?
The following commentaries are from an actual USAir crew, on an actual trip.
What did the briefing do for them?

Video - Actual crew commentary on briefing expectations and results. ***(4:00)***

- Capt. Stropes	(What did he expect to gain? What message was he sending?)
- F/A Tim Hogan	(What did the Capt's brief do for him? What message did he receive?)
- "A" F/A Kim Sanchez	(How do you incorporate these skills in the technical brief?)
- F/O John Waschbusch	(What message did he receive from the briefing in the cockpit?)

L47

Transition - ***(1:00)***

This set of professionals has begun the process of building an effective team.
Does the application of these principals really work in every day line operations and when faced with a difficult situation?
In the first video you just witnessed an accident that did not happen.
What really did happen to the crew you just met after the briefing and how did they interact together?
Let's join them on the third day of their trip in CLT...

Video - Flight 1576 Recreation ***(6:00)***

- Walk around, Cockpit Pre-flight and Taxi
- Action in Cabin and Cockpit

Class Discussion - ***(6:00)***

Did the application of the CRM skills that we discussed work?
Was this an effective team solving a problem?
What did each crewmember do to affect the outcome?
Did the Captain establish his authority and earn the respect of the other crewmembers?
The Captain set a positive tone; did this help the Flight Attendant interact with the Captain during this critical phase of flight?
Do the Flight Attendants know what the Spoilers are and how they work?
Do you think they feel inhibited bringing technical information forward?
Would the response have been different if a passenger had rang the call bell?
How about a dead-heading pilot not in uniform?
Would you want the F/A to come forward in this scenario?
Would you want the F/A's to use the interphone or enter the cockpit?
Do you address this in you're briefing?
What would you do if you were cleared for Take Off and you heard the F/A call bell?

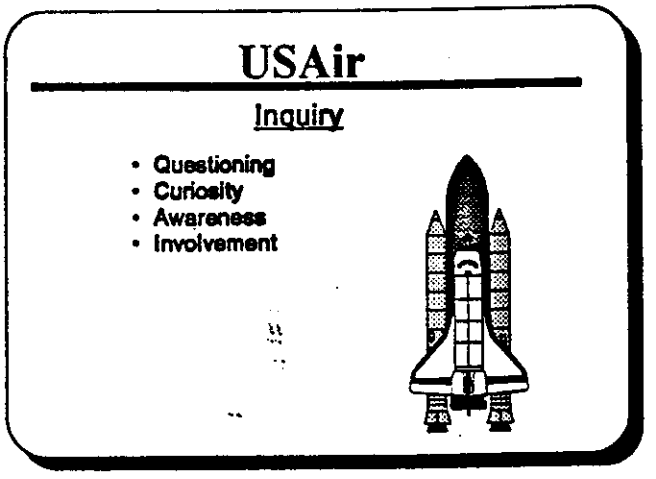
Transition - ***(1:00)***

All accidents have a history or chain of events leading up to it, likewise, an accident prevented also has a history leading up to the safe completion of that flight. This crew overcame many obstacles and prevented an accident because of the free flow of information. If we build this team and solicit this information from the rest of the crew it will give us the ability to solve problems. What process do we use to solve such problems? We call it Inquiry and Assertion.

L-48

The Inquiry and Assertion Models are very simple but they work very well.

Slide 7- INQUIRY ***(2:00)***



Questioning:	Were there questions in the minds of the deadheading Capt. and F/O? What were their concerns?
Curiosity:	Who was curious? Who should have been?
Awareness:	Who was aware of the problem? Were the pilots? The F/A's? Other aircraft? Maintenance? ATC?
Involvement:	Did everyone concerned get involved? When? Why not earlier?

Transition- Through inquiry you now have some important information, what are you going to do with it? Inquiry leads to what? **ASSERTION**

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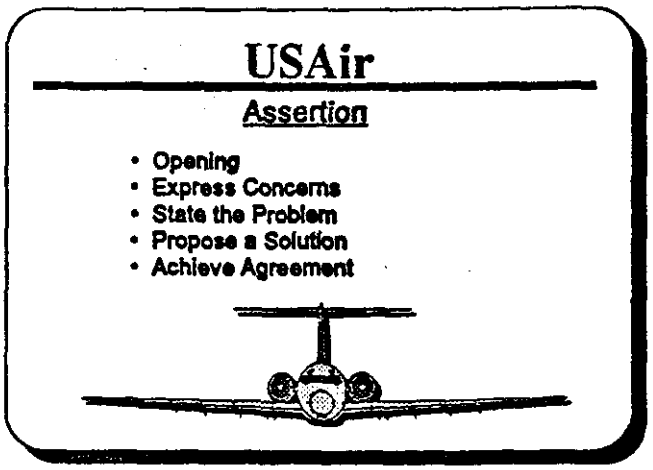
Slide 8- ASSERTION *(2:00)*



Opening: As simple as stating someone's first name

Express Concerns: For a particular problem

State the Problem: Be specific

Propose a Solution: Advocate course of action to solve theproblem.
Resolve discrepancies
Resolve disagreements among crewmembers.
OR re-enter the Inquiry Model to gather more information if a conflict exists between the solutions offered.

Achieve Agreement: By having this team effort, the crew will find the best solution to a particular problem where 1+1=3.
Unlike the Air Ontario accident, where 1+1=1.5

Transition- As we know it is not a democracy on the airplane. *(1:00)*
These CRM skills do not attempt to usurp the Captains authority but enhance the Captains ability to solve problems and discrepancies that arise in everyday line operation.

What difference did the application of these skills make to the members of this crew?
Would the outcome have been different if another climate existed on the aircraft?
Would it have made a difference aboard the Air Ontario F-28?

L-50

Video - Crew Commentary on the recreation of Flight 1576 ***(3:00)***

- F/A Tim Hogan
- Capt.Gene Stropes
- F/O Barry Connell

Closing - ***(1:00)***

Technically we are very proficient at what we do. If we continue to embrace these CRM skills we will make the whole operation better and safer. Keep in mind that 70% of all accidents are caused, not by these technical problems, but by Human Factor problems. This is where CRM can make a real difference.The skills and behavior demonstrated by all of the people on this aircraft made the difference between a simple delay and a tragedy.

Transition -

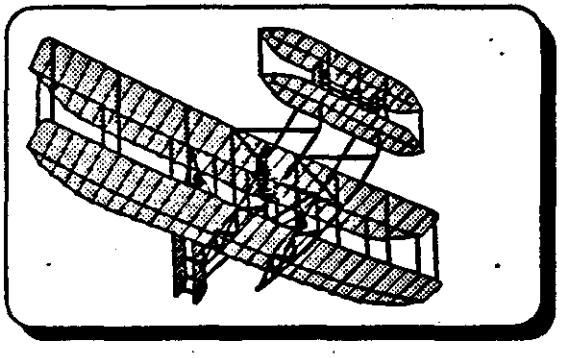
This last video segement is how this incident personally impacted this crew and what they would like to pass on to all of us.

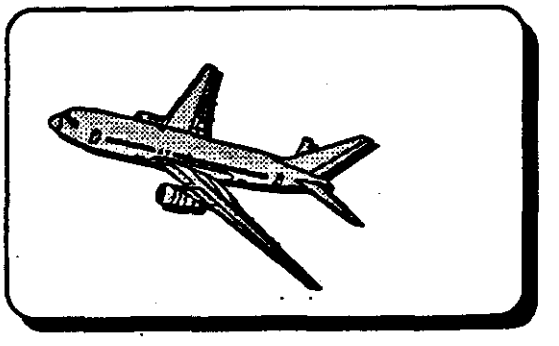
Video- Closing ***(1:30)***

-Capt. Ron Gabor
-Emergency room scene

We are going to pass out 3x5 cards and we would like you to write down one thing that you'd like us to pass along to the Flight Attendants. Thank you for listening and remember... ***(1:00)***

" TRAIN THE WAY YOU FLY AND FLY THE WAY YOU TRAIN "





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