ATTACHMENT Z

Excerpts from. Pilot Interviews on AA 903

(27 pages).

1. ASAP Interview with Captain Mark Eberle

Date: 3 June 1997
Location: AAL Training Center, DFW.

Captain Eberle stated that the flight was routine out of BOS. He stated that the weather was good, paper work was normal, and the departure was normal. He stated that about 1 to 1.5 hours enroute they received messages from dispatch regarding tornadoes in MIA. He stated that they exchanged messages with the dispatcher about weather at MIA and alternates via ACARS. He and the first officer discussed the weather and options.

He stated that there was some light chop along the route and they turned on the seat belt signs and made a passenger announcement. The light chop was approximately the last half of the trip.

As they approached Ormond Beach VOR (OMN) they were cleared into a holding pattern and given an EFC of 30 minutes. They departed the hold at OMN near the EFC, not much before. They made a passenger announcement as they left OMN telling passengers they were leaving the hold and to take their seats and keep their seatbelts on.

The first flight attendant then came up and asked about the delays. The captain told the first flight attendant that they expected no further delays, felt there was weather ahead and the flight attendants should get ready and take their seats.

As they approached HEATT intersection and were sequencing into MIA they were looking at the radar and the captain and first officer discussed route alternatives. They were given a clearance to go direct HEATT and then hold as depicted. On the radar they noticed a cell brushing HEATT with the majority of the return south of HEATT. Because of the location of the radar return, the clearance to hold at HEATT surprised the captain. He stated that another airplane asked for holding 10 miles north of HEATT. The captain discussed this with the first officer and they decided to request the same holding location.

The captain said that during the descent he discussed the EFC with the first officer and decided that the EFC was beyond their fuel capabilities and he looked for an alternate. He said he was concerned about their remaining fuel and the weather at their alternates. He decided to make one turn in the holding pattern.

About 10 miles north of HEATT they were cleared to enter the holding pattern. The captain was considering PBI, RSW, and MCO. The first officer was using heading select and the ATS was coupled. The first officer was flying and setting up for the holding pattern. However, there was not enough time to build the hold so he entered the hold manually using the HDG SEL mode.

They entered the pattern and the first officer said something about speed. The captain said the selected speed was 210 knots. He stated that the airspeed was lower than that when he noticed it, and they entered a right turn as the first officer was coming up with the throttles. The captain stated that the first officer was doing the correct thing.

As the throttles came up the airplane entered light chop or turbulence and shortly after that the airplane took a jolt, increased bank angle to the right, and the autopilot came off.

The first officer was flying the airplane. The first officer righted the airplane and the airplane still seemed to be flying but within three to four seconds it quickly came out of control. This surprised the captain and he got on the controls with the first officer. The captain said the altimeter was unwinding.

The PFD went blank at less than 20 degrees of pitch about half way through the event. The captain said he went from shock to survival mode. He commanded a 20 degree pitch up to what he felt was a microburst. He felt that a microburst recovery was needed. He characterized the microburst event as turbulence, lack of control, and extreme vertical velocity down.

They flew out of it, recovered, and declared an emergency. The number 1 flight attendant came up and reported that one flight attendant was bounced around and could be seriously injured. They requested equipment and paramedics. They landed at MIA and were met by a chief pilot at the gate.

2. ASAP Interview with First Officer Rescigno

Date: 3 June 1997
Location: AAL Training Center, DFW.

The first officer was asked to describe the event. He concurred with what the captain said. Everything was standard in the flight. The first officer made the take off. There were 156 passengers on board and it was a standard flight to OMN. The seat belt signs were on.

They received clearance to hold at OMN with a 30 minute EFC and held about 20 minutes. While they were in the holding pattern the captain looked at alternates. They were cleared direct to HEATT and he set that up. They were vectored for enroute spacing. They saw on the radar a line of weather coming towards them from HEATT from the southwest moving northeast. It showed a cell moving toward HEATT and they figured that they couldn't hold at HEATT.

Another airplane requested a hold 10 miles north of HEATT and they thought it was a good idea and asked for the same hold location. They got cleared to hold and they were too close to build the hold on the FMC so he entered the hold using HDG SEL.

Near the hold point, he said he was monitoring the airspeed and saw the airspeed bleed off below 210 knots and it went lower. He started to push up the throttles. As the airplane started to turn to the right the right wing dropped. The autopilot disconnected by itself. He said it felt like they hit severe turbulence. The skypointer went to the left and he used the rudder to go to the sky pointer. The last airspeed he remembered seeing was 200 knots.

The captain got on the controls. He remembered updrafts and down drafts and the feeling in the seat was pretty severe. At one point they lost the SGU's for 2 to 3 seconds. The first officer had max power on the airplane and the captain was commanding 20 degrees nose up.

He said he felt that that the situation was at its gravest as there were only white slashes on the displays. He said it felt like a microburst. He said he had no doubt in his mind it was a microburst. He did the microburst escape maneuver and the AAMP program. They flew out and recovered. He said the passengers were OK but one of the flight attendants was hurt.

3. Joint ASAP Interview with Captain Eberle and First Officer Rescigno:
Date: 3 June 1997
Location: AAL Training Center, DFW.

The captain stated he has 450 hours in the A300. The first officer said he has 650 hours in the A300. The first officer said they used ATS coming out of BOS. The first officer said the ATS worked normally. The first officer did not remember if ATC gave them a speed restriction after leaving OMN. He stated that 210 came in there somewhere. He said he was handling the vectoring using HDG SEL.

The first officer said he was using V/S (vertical speed) mode during the descent and said he typically uses 1500 FPM. He said somewhere towards HEATT they were asked to maintain 210 knots.

The first officer remembered a speed in the 200 range. He said it was at the top part of the hook. He said this was the last airspeed he could recall and that was when he remembered pushing the throttles forward because the autothrottles were not responding to maintain 210 knots. He said the trend arrow did not go up as t should. He said he did not firewall the throttles but pushed them up near max continuous thrust. He said they got bounced around going into the turn. The first officer said that the captain said to keep it going into the turn. He said that entering the turn he heard rain or something on the exterior of the airplane. He said that it sounded like light rain or very light hail. He described it as a rumble or something.

The first officer said that right wing fell off to the right and the bank angle went 85 or 90 degrees to the right. The sky pointer went to the left and that was the rudder he used to correct. He said that the autopilot kicked off by itself.

The first officer cannot remember airspeed during recovery. He said the skypointer and attitude indicator was everything.

The captain said he does not remember the airspeed. He said he was trying to negate some of the violent pitch and roll. He said the PFD cut out and the altimeter was just winding down. He said it was like an elevator going down. The captain stated that he did not jump on the controls with the first officer. He said that he looked up and saw the speed about 195 knots. He said the speed was right into the hook and the first officer had brought the throttles up. The wing then dropped and they hit jolts, turbulence, and that was when they got nailed. He said the first officer responded with left aileron and left rudder. Then things continued to degrade. He said the first officer was doing all the right things. He said the turbulence was extreme.

The captain told the first officer to keep up the right turn. The captain said that he had an eerie feeling that they were closer to the weather and got nervous. He said that he told the first officer to keep the right turn going.

The captain said that 210 knots was right over green dot. He said green dot was best L/D speed. He said that he was in a gas saving mode rather than a look out for turbulence mode. The captain stated that he had an eerie feeling in the turn – that the weather was closer than what showed up on the radar.

The captain said that he didn't recall the holding speed and he felt that the first officer responded correctly.

The crew said that they had flown together on the B-727 and the A300. The captain said he was a reserve captain and had flown about 5 or 6 trips with the first officer.

The first officer said that he was off on May 9th. He said on the 10th, 11th, and 12th he had three days of flights to BOS.

The first officer was asked what will cause the autopilot to disconnect. He stated that the autopilot will disconnect by itself when the autopilot gets overloaded.

The crew said they did not have the slats extended.

The captain said he had sent some ACARS messages at OMN and was considering ACARS messages for weather approaching HEATT.

The crew said that the turbulence from OMN to HEATT was relatively smooth and then as they approached HEATT they experienced light to moderate turbulence increasing in intensity.

The captain said that he did not remember speeds during the upset saying that he was focused on the ADI. He said that the ailerons were not working and he used the rudder.

The captain said the PFD was off for 2 to 3 seconds.

The captain had gone through AAMP in the fall of 1996.

The captain said that he never heard the stall warning or stick shaker. He said that in the simulator he had never experienced the loss of the PFD.

The captain did not recall what the speed was dialed back to before the upset and neither did the first officer.

The crew said that they practice stalls in the simulator. They said that this event was not like the practice stalls they experience in the simulator. Both crewmembers said that there was no doubt in their mind and no possibility that the airplane stalled going into the turn.

The first officer clarified his statement about the sounds preceding the wing drop. He said that the sounds were not actually from precipitation but sounded like wind load, an external force creating noise, a rumble. He said you could feel it going on.

The first officer said that the ATS was working and in the SPD mode.

The captain said that during simulator training crews are allowed to experiment. He said that he has experienced lots of stalls. The first officer said that he has experienced a stall buffet. The captain remembered that the stick shaker comes before the buffet. The captain said that in training they recover at the stick shaker and they recognize the onset of the stall by the stick shaker.

The captain felt an eerie sensation. He felt that they were closer to the weather than the radar indicated. He said that was why he told the first officer to continue the turn.

4. Interview with First Officer Rescigno

Date: 3 June 1997
Location: AAL Training Center, DFW.

The first officer said that on Saturday May 10, he got up at home in MIA about 0530, had coffee, left for the airport, and signed in about 0645. He performed his preflight duties. The flight to BOS departed about 0745. At BOS he had lunch and returned to MIA. He landed at MIA about 1520 and went home. He ate dinner and went to bed about 2130-2200. The first officer described his activities on the 11th as similar to the 10th and routine. He characterized events in his life around the time of the accident as routine.

He had experienced clean stalls in training.

The first officer said that the captain was excellent to fly with and easy to get along with.

The first officer said that he would not characterize the rumble he felt as a prestall buffet. He said that you would not hear the outside noise; the airspeed would be way down; and the noise would be more of rumbling flutter.

He characterized the radar return at HEATT as well defined, round to oblong with a red center. He thought the radar was on a 30 mile scale or a 15 mile scale.

He said he typically hand flies the airplane to 10,000 feet before connecting the autopilot. He said that during descent he normally disconnects the autopilot and autothrottles and hand flies the airplane.

The first officer said he did not hit the yoke autopilot disconnect switch and he did not know if the captain did.

He said that when he hand flies with the autopilot off he also hand flies with the autothrottles off.

They had not briefed the approach at the time they entered the hold at HEATT. He did not remember the holding speed. He said the computer will calculate the best speed based on max endurance. He said they were assigned 210 knots at HEATT and the green dot comes to mind as the holding speed. He initially uses the green dot and the FMC. He did not use any speed additives.

He said there was a combination of positive and negative g's. Alpha floor was not triggered. He said he never heard the cavalry charge. At one point or another he was banked to both sides. There were a combination of up and down drafts.

He was scheduled to start a vacation on June 3. He was well rested on the day of the accident. He said it was a standard everyday flight before the hold at OMN.

From OMN to the accident they were cleared direct to HEATT and before HEATT they were given radar vectors off course for separation, S-turns, and they made decisions based on the weather and decided to hold north east of HEATT. The first officer said he was flying in HDG SEL mode. He said when they got the holding instructions he had conversation with the captain and the captain said that there was no way they could hold that long.

He said the turbulence penetration speed was 250 knots below 10,000 feet and 270 knots above 10,000 feet. He said in turbulence the autopilot cannot compensate so they normally take the autopilot off. The first thing in turbulence is normally to take the autopilot off.

He said he noticed the airspeed was bleeding off to 210 knots and the bank selector was set to 30 degrees.

He described AAL philosophy of automation usage as fly the airplane first, don't over use it. He said he had a normal in-flight seat position; the seat was not aft. He stated that the captain's seat was in the normal in-flight position. He said he may have experienced the PFD and maybe the MFD going out on him in the simulator.

5. Interview with Captain Eberle

Date: 3 June 1997
Location: AAL Training Center, DFW.

He characterized the first officer as competent and a good guy to fly with. He did not mind flying with him at all and looked forward to flying with him, he felt comfortable with him. They flew together on the B-727.

He flew a turn to BOS on the 9th. On May 12, he woke up at 0510, got to the airport about 10 minutes before sign in time and hooked up with the first officer. He reported the flight to BOS as standard and uneventful. They were on the ground at BOS for about 1 hour and he walked to the restaurant but did not eat. He went back and got the paperwork and departed on schedule about 12 noon.

The flight from BOS to OMN was a typical uneventful flight. As soon as they got the hold they began calculating the fuel. He was concerned about sufficient fuel and he was in alternate mode. He flew the first leg to BOS and he always asks the first officer what he wants to fly.

Before entering the hold the speed was at 210 knots and the speed began dropping as the airplane entered the turn. He doesn't remember what the speed dropped to. He saw the first officer bringing the throttles up and computed in his brain that the first officer was correcting. After the jolt which set the event in motion he was tentative about getting into it because the first officer was doing the right thing.

The captain said he never experienced the stick shaker in the airplane.

The captain said that he did not remember ATC assigning 210 knots.

The captain said the first officer said something about the speed, "sorry about the speed" and correcting.

He told the first officer to keep the turn going because of weather on the radar. He remembers saying that. He felt some reason to turn away from where they were. He said keep the turn going before the jolt because he felt that the first officer may have been shallowing the turn. The weather was about 10 to 12 miles ahead of them.

They lost the PFD's about ½ way through the event. After the SGU's went out and came back he was calling "20 degrees up, 20 degrees up, firewall". He said that the first officer was talking to ATC. The captain ended up flying at the end of the event. He never stated to the first officer during the event that he had control of the airplane however after the event it was clearly stated. The first officer had asked if the captain wanted to land the airplane; and the captain landed the airplane. He thought the first officer disconnected the autopilot.

He flew the airplane into MIA and the airplane took 4 degrees nose up pitch trim and the bulk cargo door warning light illuminated.

The captain did not feel holding speed additives were necessary due to the flight conditions; he said there was only a little very light chop. His seat position was in the normal landing position.

He said there was no windshear or stick shaker warnings. He never experienced a microburst in the airplane, only the simulator. He based his conclusion that they were in a microburst event on his simulator experiences. He said it behaved much like a simulator microburst – it was tough to plant pitch attitude at first but once you get it you keep it. The event had the same control inputs as the simulator but was more violent.

He described visual conditions as "milky IMC."

He described the approach to the event: he said the airplane felt like it was on the fringes of turbulence, that was building. He felt rumbling building and building.

3. Interview - Captain Laura F. Boswell
American Airlines Pilot
Date: 27 June 1997
Location: FAA MIA FSDO

Date of birth: 9/7/54. Date of hire: 6/12/79

She has been on A300 for about 3.5 years. Her total flight time is about 8,000 hours including about 2,000 on the A300 as PIC. She has MD-80 type rating. She was previously a flight engineer check airman.

She flew with Resicgno for the entire month of April 1997 and has not flown with him since then. They flew about 11 to 12 times during the month and she described it as a typical month for a domestic A300. She said there are 11 crews total on the domestic A300 and this was down from 15 crews. She said that even with the small number of crews there are still some people she doesn't fly with.

She described Rescigno as a good pilot, does things by book, reads checklists, expresses opinion well, good copilot and lets you know what's going on and what he feels about something. She said he does not play captain.

She said there were lots of mechanicals during the month they flew together. She said Resicgno attempted a takeoff out of BOS with a left crosswind and during the takeoff roll the airplane veered to the right and he applied full left rudder. He then said the airplane was not responding and they aborted the takeoff and returned to the terminal. She said Resicgno did a good job informing her about the airplane's status during this event.

She said Resicgno will hand fly the airplane as others do. She said most of the A300 pilots hand fly up to cruise and use the autopilot during cruse and hand fly the descent. She said that most people have the autothrottles on when the autopilot is on; and the autothrottles off when the autopilot is off. She does not believe that Resicgno was any different. She said that Resicgno was very comfortable with the automation and did a very nice job with it.

As captain she said she calls for certain checklists but the pilot not flying initiates some checklists like the descent checklist. She briefs the takeoff and approach.

She emphasizes teamwork and communication. She briefs that when they come up to weather saying "you fly airplane and decide where you want to go." She will give input and they make the decision together.

She was asked to describe holding procedures. She said the FMC has holding patterns in the database and the pilots compare those with published data, agreed radials, and turns, and the correct clearance, then once they go in to the hold they contact dispatch. They use speeds from the FMC. She said that perhaps in turbulence they add 10 to 15 knots. She said

the speeds offered by the FMC are typically higher than green dot, at least 10 knots, but not exactly.

She said the autothrottles generally control the airplane fine. She said in gusty winds the speed may drop as much as 10 maybe 15 knots below selected speed. She continued that you look at them and wonder what they are doing and they come in slowly. She said the autothrottles on the A300 are slower to respond than the Super 80.

She was asked under what conditions she would intervene when a F/O was flying. She said she had no tolerance for altitude deviations. She said that airspeed is most critical on final approach and if it is 2 knots slow she is "on them." She said in most cases the F/O is typically correcting at that time. She said in today's ATC environment it is critical to be at speed and so she is always watching F/O's and making sure they are in the loop and they are on top of their airspeed goals.

She has had the ATS disengage or drop off uncommanded in flight. She said there is no warning or cautions when this occurred and she heard only a click. She said it occurred the previous Sunday and the magnetic switch clicked off. She did not write it up.

She said in holding she doesn't want to be too slow and she wants to be 20 miles from cells. She also wants to make sure that the cabin is secure.

She has never experienced Alpha Floor Protection.

She said the flying pilot is flying the airplane and both are responsible for navigation and weather deviations. She said for airspeed, altitude, and heading the pilot flying is responsible and backed up by the pilot not flying. She said it is important to clearly define radio and flying duties when the pilot not flying is working on some other flight activity and this is stressed in training.

She described Resicgno's stick and rudder skills as excellent and added that he performed by the book. She said he had very good systems knowledge and did a good job communicating.

She has never had to takeover flight controls from a F/O who was flying. She has had to make partial control inputs at times but typically it does not happen in the wide body aircraft because the crews are experienced.

Her last recurrent training was in January 1997. She did not receive stall training in this training. She said about 15 to 20 minutes were dedicated to unusual attitudes and she characterized this training as excellent. She said about 15 to 20 minutes were allocated to wind shear. She said possibly in the previous recurrent training session she did stalls in the simulator but added that now with LOFT there is no time for doing those maneuvers.

She will conduct the approach briefing and uses the flight instruments tab on the before landing checklist as a cue to initiate it.

She said she always selects speeds at green dot or above in the clean configuration.

She really liked AAMP training and thought it was an excellent, really good training program. She said that in the simulator unusual attitude training consisted of a high nose attitude situation with decreasing airspeed and a nose low situation. She said there was a lot of emphasis on using the rudder and commented that its importance was emphasized in low speed situations, when the ailerons are less effective. She said the A300 simulator breaks down each time she has done unusual attitude training.

She taught spins as a CFI before employment with AAL.

She described stall training at AAL and said she experienced landing stalls, dirty, clean, takeoff, and banked configurations. She said the first indication of the stall was stick shaker. On the Super 80 after stick shaker you hear "stall" and then recover. She has not experienced a deep stall in AAL training where the control column was held back during and through shaker. However, she was asked to do that during a CFI checkride.

She said that when entering a hold and the pilot flying is using the autopilot the pilot not flying inputs holding information into the FMC. She said the FMC does it pretty quick and she has never not had enough time to enter the hold information into the FMC.

If she sees the trend slowing below the selected airspeed she will say something to the F/O.

She described AAMP as fabulous training. She likened it to civilian spin and aerobatics training. She felt that the unusual attitude training in the simulator produced a faithful response. She does not remember whether limitations in the simulator model were brieted. She believed she was briefed on simulator limitations in reproducing physical forces.

She said Resicgno did not make mention of any concerns about events in his personal life during the month they flew together.

She said the captain uses autopilot 1 and the F/O uses autopilot 2.

She said autothrottles handle speed very well in smooth air.

6. Interview - First Officer Lyman Ricker "Rick" Chisholm, Jr.
American Airlines Pilot
Date: 28 June 1997
Location: FAA MIA FSDO

Date of birth: 3/30/56. Date of hire: 8/12/88.

He resides in Ft. Lauderdale. He has flown with Capt. Eberle frequently. He has seen him in out of work contexts. He would consider him to be a friend more than other pilots he has flown with.

He has about 6,500 hours total time, including all but about 2,400 at AAL. At AAL he has flown S/O on the B-727. He has also flown as F/O on the Super 80, MD-11, and B-757. He is type rated on the B-757/67, MD-11, and A300. He has been on the A300 for 1 year. He estimates he has about 700 hours in type.

He said Capt. Eberle was friendly guy , professional, and easy to work with. He said that with Eberle after a whole month you are not counting the minutes until you get off the airplane.

He said Eberle would offer preference for first leg of the trip to him and this was typical for captains on the A300.

He said that Eberle, as other captains did, would typically hand fly the airplane on takeoff, workload permitting, until cruise or level off. He said he does the same. He said on approaches, typically, workload permitting you let the autopilot fly until you feel comfortable to take the airplane. Generally he has not flown with anyone who has turned the autopilot off say at 20,000 feet and then hand fly the approach -- there is just too much going on.

On takeoff he uses autothrottles and typically hand flies until level off and then uses A/P. On descent he does not turn autothrottles off until base to final. He will then turn off A/P and keep autothrottles on for speed protection. He has on occasion turned everything off, typically not at cruise for any length of time other than checking trim. He has had a couple trips with inoperative autothrottles.

He normally turns off A/P using button on yoke and autothrottles using button on the throttles. He said turning it off using the magnetic switch is not that convenient to do and he has not noticed anybody doing it. Has noticed ATS going off by the click on the overhead and annunciatiation on the FMA. He does not recall a message on the ECAM when this happens. You see that it is in manual throttle (MAN thrust). It has only happened a couple of times. He thinks they wrote it up. Sometime since New Year's eve it has happened once. He said the A/P will occasionally trip off, approximately once every 3 to 4 times a month, but he will hear the aural disconnect alert.

He said Eberle gives a standard briefing. He said the Before Starting checklist is called for by the captain. He said the captain will initiate the before departure briefing, it is a standard

thing and you know what they're going to say. The captain briefs the departure, the SID, and the takeoff. He characterized simulator training as very close to line operations. He said the pilot flying will brief the approach and make certain they both agree on what the plan is. The captain briefs all takeoffs and the pilot flying briefs all approaches.

He went through recurrent training last week. They covered wind shear recovery on the day before the check ride. The instructor was Doug Patrick. Stall training was not done in recurrent training. No steep turns either. He did do an ADF approach. In his transition training he did stalls, wind shear, and unusual attitudes.

He has attended AAMP. In unusual attitudes practice in the simulator they did the wake vortex escape maneuver and the pitch up maneuver. He said in the briefing it was mentioned it would happen but during the sequence of the flight it was not anticipated. You expected it to occur but did not know when. He believes it happened both in training and check.

He does not remember Eberle intervening during his flights with him when he was flying; He does not remember needing to intervene for Eberle. He said all of the cockpits at AAL are very comfortable and you are part of the cockpit and can speak up. If a speed was assigned and he noticed a 5 knot deviation with a trend happening he would probably say "airspeed." If 210 knots was selected and they are not at 210 knots there should be a reason. He would bring it to the captain's attention if speed dropped below green dot.

Typically he likes to carry about 15 knots or so above the hook and he'll configure how ever he needs to configure to get that space. Hook is minimum selectable speed.

Generally hook is lower than green dot and in certain configuration changes he's noticed it coming up closer. He does not like getting below green dot because it puts aircraft at too high deck angle for cabin comfort.

Captain Eberle flew like he did.

He experienced holds when flying with Eberle. Most were charted. He would build holds using FMC for published holds or down track fixes. He has personally entered holds using heading select because of insufficient time. He said it takes about 1 minute to build a hold in the FMC. Pilot flying makes sure airspace is maintained and PNF builds hold.

He said AAL procedures state that if the airplane is on A/P the PF will enter data into the FMC.

He said he has not experienced significant weather during his trips with Eberle.

He said A300 pilots will brief each other about their background when first meeting so that there are no surprises.

He said Bruce Bickhaus spoke with him after the accident about his experiences flying with Eberle, possibly 2 to 3 weeks ago.

He is civilian trained and has been flying since he was 12 years old. He has flown various types of airplanes and flew charter work before employment at AAL.

He said about 10 to 20 minutes was spent on wind shear during recurrent training and during this time the captain and he each got to do one scenario. He said unusual attitude training during recurrent training was about the same in terms of time.

He was asked to clarify what he meant by a "reason" to be below a selected speed – the autothrottles have a soft speed hold and sometimes lag 4 to 5 knots below selected speed. There is nothing written about that and you can only learn it on the line.

He said the A/P will disconnect because of: the yoke button; stick force unless you are below 400 feet, deselect pitch and roll on the overhead, or the A/P cannot keep up with the airplane. He believes the information is in the manual someplace that the A/P will kick off cannot keep up with the airplane. He said the A/P also kicks off at the end of the flight plan. He said there are no specific annunciators to tell why the A/P turned off. If the ATS turns off inadvertently they may not write it up. They may just write an info to maintenance in the E6 maintenance log.

He thinks he may have experienced a SGU failure not done by the instructor during unusual attitudes.

He described captain Eberle as someone he would "trust with his life" and said he was a good captain and had good judgment. He said Eberle knows how to manage people and his crew coordination was good and it would be difficult to find an A300 captain who was better. He said Eberle was knowledgeable about the A300 systems.

He said the PNF handled the radio during his flights with Eberle, consistent with AAL guidance. He said this guidance may be written down in Part 1 or the operating manual

He said Eberle never expressed concerns about personal events in his life when he was flying with him.

He said that most pilots on the A300 are comfortable with automation in this airplane and they don't revert to old B727 skills on the descent. He said the average person will turn A/P off on base to final or in the pattern to get the feel of the airplane.

He likes the speed protection of autothrottles until short final to guard against distraction. He characterized speed protection as setting speed so that you could look for traffic and do other things. He has flown trips a couple times on the A300 when autothrottles placarded inoperative. He said he has flown with all the A300 captains in the group but does not know the F/O's. He said speed control was not a problem during those flights and he found it an

enjoyable challenge. He has not flown with someone who hand flies the entire trip but he hand flew his last trip in the B757.

Has experienced ATS lever disconnecting, 2 times that he remembers. Heard click over head. PFD expect to see in speed and it is in manual mode. He said there are no other warnings when the ATS goes off. When ATS is off you loose Alpha Floor Protection. If the FAC senses too high AOA, engages THRUST LATCH, and go to whatever setting in the thrust panel (e.g., MCT, CLIMB, CRUISE). Uses light in button and PFD FMA to confirm autothrottle engagement.

He doesn't remember holding an airplane beyond the stick shaker in training. He said they are trained to respect the stick shaker but respect the ground more at the stick shaker. Stick shaker is 1.12 vso. He described the escape maneuver as autothrottles off, TOGA, 20 degrees nose up, respect stick shaker but respect ground more.

He would speak up if speed was below assigned speed if he was the non flying pilot. If speed was below the assigned speed and had a trend still going in that direction he would call it to attention. For example, 5 knots below 210 and holding at 205 not concerned but if 200 and set at 210 he would call it to his attention. He said the trend vector represents where speed will be in 10 seconds. By trend in his airspeed awareness he means all factors, including trend vector.

Normally the captain flies number 1 autopilot and the first officer uses number 2. He never saw Eberle fly with the opposite one.

He said that one of the nice things about a small base is you know what to expect about other pilots and they know what to expect of you. You don't need to say a lot during briefings.

He was asked to clarify what he meant by his statement that he did not have to invent new procedures when flying with Eberle. He said that as a first officer you adapt to a captain's way of thinking. He said they all do things pretty much the same and he cannot think of a particular thing that any captain does that would be different -- but certain guys seem to think the way you do and certain guys don't. He said Eberle seemed to think the way he does.

He said the soft speed control of the autothrottles he described previously for the A300 was similar to what he experienced on other autothrottle-equipped airplanes.

He said that typically when the A/P is disconnected the airplane is trimmed up well. He has never had the autopilot disconnect for the reason that it cannot handle a situation. He has had it disconnect when in turbulence. He said

it is recommended at AAL to use A/P in turbulence. He has not been in turbulence where the autothrottles were hunting and seeking.

He uses the speed tape primarily but does reference the analog airspeed indicator to resolve conflicts.

He uses airspeed and VSI to index energy management.

He said that he thought that when 15/0 is selected green dot stays on the ASI.

He did not know how the speeds in the FMC presented for holding are calculated, whether they account for legal speeds for altitudes.

He said the briefing for unusual attitude training during recurrent training was brief because he had attended the AAMP lecture. He said primary roll controls during unusual attitude recovery were a combination of rudder and ailerons. He said the simulator was extremely unstable compared to the airplane. He would guess that the programming is accurate but he said flying it is like a greased ball bearing. He said he would use the rudder in a nose high attitude to bring the nose down. He thinks the SGU failure he has experienced in the simulator occurred during a nose high event – he said he immediately transitioned over to the standby.

Has asked questions about what airplane and systems are doing but it doesn't happen long.

He said that during an escape maneuver if the airspeed is already at 1.12 Vso they may not be able to get the nose up to 20 degrees. He would reference stick shaker and go up as high as he could go with the pitch attitude. He said managing energy is what attitude is for. He said 8.5 degrees was AOA for Alpha Floor Protection.

He has used autothrottles on and A/P off more than autothrottles off and A/P on. He knows of only 2 or 3 times where he has turned off both in the pattern.

He said the ATS switch on the overhead panel has gone off unexpectedly during cruise flight.

He said altitudes used for wind shear events during recurrent training were typical approach and takeoff altitudes – close to the ground – and low altitudes of less than 10,000 feet were used for unusual attitudes.

He did not know the stall speed for the A300 in the clean configuration for level, unaccelerated flight and stated that this information was provided on the PFD speed tape. He did not know any stall speeds for the A300 but would err on the high side if he did not have the speed tape information. He said the CDU will have that information and it could be referred to if it was working.

He has never disconnected the autothrottles using the overhead switch. During shutdown he sometimes has seen a ECAM warning message but he called it spurious.

4. **Interview:** **Paul D. Hinton**
   Location: Lexington Suites
   Time: 0900 CDT 9 July 1997

DOB 10/27/39. DOH 9/11/66. Title: fleet manager of A300 and F-100. He said that 6 years ago there were separate fleet managers for the A300 but then they consolidated the smaller fleets. He flew almost as much as line pilot for the first 4 months of 1997. Has been working with Boeing recently and that is cutting back on his flying. Worked as standards coordinator for 767 before getting this position. The standards coordinator is responsible for making sure that the ground, sim, and checkairmen are doing their jobs consistently and according to AAL procedures. He said the smaller fleets do not have a standards coordinator and the responsibility falls to the ground school supervisor, the fleet supervisor and the fleet manager.

His holds an ATP with several type ratings including the MD-80, B-767, A300. About 16,000 hours total time, including about 700 in the A300. He said there is a guide for the fleet managers but said that "we don't look at it much actually." He added that the training and responsibilities of the fleet manager are communicated more through observation, and they hire people who are close to operation, technical part of operation, who know procedures and can review procedures. He said there are some facets of the job that are more difficult to learn that way such as manning, cost allocation, payment for side benefits, and purchasing training materials. He said that they do not promote someone to fleet manager who have not worked in the training department for some time. He said normally the fleet supervisor, underneath the fleet manager, is considered to be the on the job training position for the next fleet manager. He said fleet managers meet every morning to discuss their duties and responsibilities. The meeting is run by Schumacher and Landry. He said this meeting tells you what your duties are as a fleet manager. He said he regularly exchanges information with the other fleet managers who are located in close proximity to one another at the AAL academy. He said Landry is his immediate supervisor and Schumacher handles flight training.

He said that there are two ways to determine standard operating procedures. One way is AAL operating policy of providing consistency across fleets. He said this is called the all fleets policy. He said as fleet manager he cannot alter those procedures or anything in the operating manual alone. He said there is an all fleets meeting once a month where they discuss proposed changes. He said that other changes come from anywhere, simulator pilots, line pilots, check airmen, etc. He said they have a meeting to discuss those. He said one fear is that they may make a change and there is some piece information that they might ignore. He said any technical issue about the airplane they coordinate those procedural changes with the manufacturer. He said that for fleet-specific changes, he initiates the change, the technical specialist makes the change and they solicit feedback, including from the manufacturer, to make sure they do not miss anything. He is responsible for all procedures on the A300 but he just cannot change all of them. He thinks that AAL's procedures are "incredibly spelled out." He said they are located in the operating manual.

He said that once a quarter he tries to monitor sim pilots and check airman. He does this at random and picks a time to walk in and watch. He said he sees each sim pilot and check airman once each quarter in this way. He looks for whether ground school instructors are teaching mechanical and technical aspects of the airplane, that the simulator pilots are not teaching techniques other than "school house" techniques, and that check airmen are clearly separating company procedure from techniques. He wants to see if they are always teaching same thing. Are they making distinction between procedure and technique. He said that simulator pilots are first class folks. He said that check airmen are experienced in the airplane on the line.

He said they teach stalls and steep turns during transition and requalification. He said that for single visit training they are able to select maneuvers and they elected not to do stalls and steep turns. He said they teach a series of 3 low altitude stalls and a high altitude stall. He said the local APM will look at the maneuvers they have selected and make input. He has not had any disagreements with the APM about the selected maneuvers on the A300. He said they send maneuver lists to the POI for approval. The grade sheets for each type of training list maneuvers.

He said that there is "R1" recurrent training, conducted at 6 month intervals for new captains, any captain who required additional training, first officer who fails his check, and any captain who requests to be brought back. It is a training proficiency ride.

He said that grade sheets come back to fleet manager if there is a problem. Otherwise they get thrown away. They are meant as a working tool. They save them until problem is resolved.

He said that any failure of a mandatory checkride starts the clock ticking. After the second checkride the FAA is notified. He said the RLS - LOFT cycle does not invite attention from the FAA if there is a failure but the LOFT must be satisfactorily completed to progress within AAL.

He said he has a good working relationship with the POI and the APM. He said the tells the APM when guys are having training problems and they are welcome to come in and watch.

He said that when AQP is in place the LOFT will be the jeopardy check and the maneuvers will not invite attention. He said that now with single visit training they are leaving LOFT as a nonjeopardy event, but internally AAL views it as a checkride. He said this policy will facilitate the transition to AQP when the LOFT becomes the jeopardy event.

He notifies the base chief pilot and his supervisors at the first failure. On the second failure he notifies the FAA and sends the pilot back to the base for counseling. They consider 2 failures to be a serious problem. They will ask the pilot if they are having personal troubles but the chief pilot conducts this counseling. On one occasion they identified a serious medical problem and in another they identified a pilot with domestic problems interfering with his ability to respond to training. He said the chief pilot notifies the fleet manager on the results of the

investigation and the course of action. At the third check the FAA is watching and there is the potential for loss of license but he said there is an option to go to four checks.

He said the FDAG spells out tolerances for check airmen to use when evaluating maneuvers. He said that 5 knots slow during approach and 10 knots slow during cruise are the airspeed limits. He said that hard standards are an ineffective way to check. He said they hire people as check airmen who have a lot of experience in the airplane. He said the judgment of the check airmen will not be second guessed. He said they want check airmen to step back after looking at a hard standard violation and look at the magnitude of the deviations from tolerances, whether safety was compromised, and whether there was an effort to work towards correcting deviations when evaluating their course of action.

He said the appropriate level of automation use is an all fleets question. He said the first airplane with full time flight guidance, was 767 at AAL. He said that after the checkride in this airplane early on you felt as if you only pushed buttons and the airplane flew the check ride. He said that this was the up-cycle of the maximal use of automation at AAL. He said it has been going down ever since and they are almost on a daily basis trying to define how much automation is appropriate and when. He said that once you have learned how to use automation it works so well, so much of the time, you expect that it worked well and will work well and therefore can trust it too much. He said the typical expectation is "I ask for it I must have got it." He said they stress that pilots be aware of the airplane location, do not depend on automation, have another method to back up and verify data, and ask the question if it quit right now where would you be? He said that with the F-100 after the AQP program is in place, pilots will be doing a lot of hand flying.

He said that when hand flying airplane the pilot is forced into the reality of world - where he is going. He said they have tried to broaden guidance for the use of automation versus developing specific rules because they do not want to burden the pilot. He said this information is not mandated to line pilots, but they make suggestions in a number of ways including messaging all A300 pilots to suggest they try hand flying the airplane. He said this is also emphasized in the AAMP program. He feels that the industry will come to standardization inside cockpit with automation, database, modes of operation, pathways, at some point in time.

He has gone through classroom and simulator portion of AAMP. He said each fleet designed AAMS. He said it is not a separate simulator session. He said he gives marching orders to the training personnel about "what are we looking for." Specifically, can the pilots take the proper procedural steps to get the airplane back and upright. He said there are limitations to this training including (1) no flight test data beyond normal envelope; (2) pilot has no sense of positive negative G or sideslip. He said the goal of this training is to get pilots to recognize the problem and get it resolved. They provide pilots with maneuvers, look for them to apply correct control inputs to bring the airplane around in the correct direction to return to level flight. They do not have a vehicle to check this and no standards to apply. They primarily evaluate whether the pilot sees the picture accurately so that the first response is to apply correct control direction. He said there have been two cases in the recent past, an

MD-80 and a F-100 where pilots have attributed their recovery to the AAMP program. He said in once case the airplane caught a vortex on departure and rolled 90 degrees.

He said they do not discuss simulator operations with guys who come through school - but discuss limitations with check airmen, instructors, and technicians.

He said there are 3 bases for the A300. He said pilots get line checks on an annual basis. He said Miami-based check airmen may check New York based airmen and all come to DFW once a year. He said the APM rides with them as well. He said feedback comes through the APA, when pilots go to professional standards. He said peer pressure is a very effective method to ensure standardization.

He said the MIA crew base is less standardized than other crew bases but not the A300 fleet at MIA. His view is the A300 as a fleet is very standardized. He said the A300 is not perfect but he is comfortable that you can exchange pilots transparently across bases.

He was present at initial ASAP meeting when Eberle was there. Has spent some time reviewing the DFDR data. He has not met the first officer. He said there is nothing he has seen in the data tells him how they got there.

If airplane had gotten on its back it would have been different outcome. His perspective is the AAMP program should get some credit in this case – because of the high AOA, wing rolled over, and it didn't spin and go upside down. He said that if you're scared you get credit for performing anywhere near normal. He said they are evaluating whether it is possible to provide sideslip information to the instructor in the simulator as a result of this accident to help review outcome of AAMP maneuvering.

No changes since AAL903, but under consideration, looked at handout at AAMS, but don't want to rush to judgment. Would prefer conclusions about this accident, he feels like he doesn't have enough information at this time. He said quick choices in this business tend to be bad ones. Made us go back in and evaluate data on the PFD, what the data was, reflected on the AAMP program, had 2 meetings on AOA and AAMP, what are we doing, is this the best way, is there any risk. 903 was the impetus for this.

He said there are about 600 A300 pilots with more of them based at MIA. He has 4 ground instructors, 4 simulator pilots, 14 X-type check airmen (3 in training), 9 L-type check airmen. He said he looks for check airmen with lots of experience in the airplane and lots of experience as a check airman but favors airplane experience. He said that he has check airmen who have just finished their transition on the airplane. HE said that they obtain 100 hour on the line, get a check into Bogota and the North Atlantic, and then come back to training. They are put into 45 day training cycle, observe other check airmen, transition portion of the training for 5 days, observe orals, portions of ground school, recurrent check cycle, and conduct checks with experienced check airman watching. They are then observed by the APM.

He said he finds that new check airmen do not stress techniques as much as experienced check airmen.

He said there is not a program in place at AAL to allow sim pilots to observe sim check airmen and ground instructors to observe both – he thought this would be a good idea

He said that how much automation to use and when falls under technique. He said anything distracting from the flying pilot flying the airplane belongs to the nonflying pilot.

He said until last year the A300 pilot population was a very stable environment with very little turnover. He said in the last year training starts have increased dramatically. He said there are lots of international starts. He said most of the old guys on the airplane, every X-Type check airman retired from March of last year to now. He said there is a lot of experience gone and these pilots were trained on the airplane at Airbus but the new blood is good. He said there is a reduction in overall experience in the fleet.

Captain Hinton said the failure rates at American are approximately one failure for an oral or a check ride every 2 months. The schoolhouse philosophy is don't put them up for the ride or oral until convinced they can pass it.

Hinton said he was not briefed on the NASA/UT line checks and was not familiar with the study.

Hinton said, ASAP data for the A300 fleet showed the following trends: The single biggest problem was the failure to monitor automatic equipment and the next biggest problem was miscommunications. Hinton said regarding actions taken as a result of the ASAP data was situation summary each day. The situation summaries would compile the data then review procedures to correct the problems of necessary. Poster would be generated which would bring attention to the pilots of the problems. Poster generated concerned miscommunications and use of automatic equipment.

No generalized trends in line checks reports from daily operations on the A300 although use of automated equipment is a recurring problem.

Hinton said the failure of the SGU is not a failure, it is working as designed. He said he has seen the phenomena in the simulator from the beginning but was not aware of an occurrence in the airplane until the testimony of Mark Eberle, flight 903. He said that AAL did not ask Airbus about this until after the AAL903 accident and added that the simulator was a combined A300/310 simulator and some things may be unique to the simulator.

Hinton said the only training which addresses energy management is microburst training.

Regarding S.O.P., Hinton said In the past FOT (flight ops., technical) and training had a wall. When Cecil Ewell became VP of Flight the changes were that FOT could not make manual changes without the fleet manager's approval and vise versa.

The datum for the all fleets standardization seems to be the B-727 regarding fleet standardization, checklists, labels however, doing things on one airplane that is not appropriate for another. American is trying to work these out.

We need to go all the way back for fleet standardization. Need to talk about the capabilities to fly without guidance first. Start with hand flying airplane and add automation. We Need to be situationally aware not just of a map but, of the entire airplane. We're trying to make the old interfaces like the new ones.

Hinton said American keeps FCOM books. He said there is more data in the Airbus Industries books and where there are differences he said they question American's procedures.

Hinton was not aware of the level of pilot turnover on the A300 but said Roy Everett could provide that information.

Whenever contact is made with Airbus regarding a question, Hinton said Airbus always rapidly responds to the message although it depends on the nature of the questions how long it takes the answer to get back.

Turbulence mode in the simulator is used in mostly microburst training. Pilots in the simulator say it is aggravating to have it chugging along all the time.

Regarding standardization, Hinton said, "we expect pilots to make decisions and choices based on circumstances. Hard procedures would be a nightmare. Guys would be trying to fly the airplane exactly according to hard procedures instead of the best way under the circumstances." How to descend is the choice of the pilot. Use equipment and make choices in light of the context. That's the technical part of a pilot's job. A PIC's judgment for how to do it. We don't want to close the door on the PIC's authority for decision making.

Hinton said the system of crew interaction works really well. He said, "A captain may but shouldn't but a co-pilot may not."

He said there is a big problem with use of automation. A guy has to know how it works otherwise he is in trouble."

Hinton said "I've got it " is the standard call for taking over the controls of the airplane. The captain is responsible for all briefings. He can have the first officer do the briefings in the approach environment for training purposes. The captain can also delegate to the first officer to make departure briefing. The goal is to have the departure plan said out loud so it can be criticized if necessary.

Nothing said for mode changes if they are expected which is consistent with the quiet dark cockpit concept. If a mode change is not expected by the other person it should be announced.

Hinton said he generally does not like the use of vertical speed, but, does not want to close the door on it's use. The use of vertical speed could cause problems but it is a good tool.

Awareness of the FMA is essential. An awareness of how the airplane is being flown is essential for the guy flying it. Hinton's personal preference is not to have FMA changes called out loud because it may dilute callouts that are required. A guy who knows how to fly airplane manipulates the FCU but looks at the FMA.

Vertical NAV is the most difficult thing to teach because it is the most obscure thing the airplane does. There is no clear picture of what the airplane is doing as in lateral NAV. Vertical NAV behaves in a fashion that is sometimes bewildering to a pilot. American has virtually abandoned profile Mode in the A300 because you cannot climb using profile because American's climb thrust policy. Descent in Profile is difficult because of ATC. American is not having much luck teaching vertical Nav even though there is an increased level of training in vertical NAV.

American talks to other major carriers and FOT people have regular conferences with others in the industry. Hinton said the problem of defining appropriate use of automation is industry-wide.

Hinton said he recommends the use of the autopilot as a 3rd pilot when conditions dictate or when work load is high. He also recommends the use of the autothrottles to control speed in those same situation to control speed. "The smart guy is the guy that makes the smart decisions."

There are times when you want automation and times when you don't. You need to be sensitive to those conditions, and capable of handling the airplane under both conditions. Training sends out a big message; How do you operate airplane? what are limits of authority? Trust skills.

He is aware of Boeing, Airbus, McDonnell-Douglas concerns about use of rudder at high Alpha and said he shares the concern. He said he doesn't think the skills taught at AAMP are detrimental. Hinton said rudder use was over emphasized in AAMP at first; now they are saying "don't forget the rudder." Don't operate any control surfaces at full deflection in normal flight. He hopes they have communicated that the rudder is an important flight control. Hinton said he is concerned that the rudder is incredibly powerful and has a long arm to work on. He said they don't emphasize to pilots the concerns of overuse of the rudder. Hinton said a pilot who is in an unusual attitude is already at risk and he does not want to add confusing information to a person under stress. He said he feels strongly that the issue of unusual attitude training is necessary.

Regarding the 903 DFDR, Hinton said he sees an airplane that entered a turn in a high bank, and the nose fell through, there were 4 roll cycles, recover. He said rising Alpha, falling speed, and longitudinal acceleration at the same time does not make sense to him.

Does not know if AOA gauge will be useful in the airbus. Said he has attended industry meeting evaluating the AOA gauge, he is following issues related to placement of AOA indicators in airplanes. He said there is no detriment to having AOA indicator in airplanes and there may be some benefit.

Ground school lasts 12 days and the oral is on the 13th day. Simulator training 10 days. Training continues until there is an agreement between the student and the instructor. Recurrent training is different, and the student must progress..

Hinton said American Airlines does about 600 stalls a year in training in the simulator. Stall training occurs during recurrent training on a frequent basis although they are not part of the program. Hinton said stall training does not prove anything and does not improve a pilot's skills.

American has a high altitude stall recognition and recovery training scenario which is done with the autopilot on.

Scheduling department has FAAST computer and a failure triggers R1 check. Failure reasons for a captain would be: didn't finish checkride, not ready for checkride. Reasons for a first officer failure it is failure of the check. An R1 check is a 6 month check.

When a person fails a check he is given a break from training and rescheduled. There is no FAA notification as a rule. Hinton said he may put the APM, Tom Danielle in the loop if he anticipates more problems. The third ride after the 2nd failure must be observed by the FAA. There may be a 609 ride after that.

Hinton said as long as the captain does not violate company rules he can determine how automation can be run. He said he applauds the captain for saying, "I don't operate this way", even though he may be idiosyncratic.

Hinton said he sees very good compliance with who should be pressing and pushing. "I think we make it clear that the guy who is not driving makes inputs to the FMC." His personal preference is that if autopilot is on, it is best to have autothrottles on, except say in turbulence where the throttles are hunting.

Hinton said he sees evidence in training that pilots get to rely on autothrottles. The speeds get too high or too low when the autothrottles are off..

Hinton said American does not make any distinction whether a student has had glass cockpit before. The training is the same. He said most others in airlines and Boeing have divided courses into glass experience and non-glass.

The first step in the Emergency procedures section spell out pilot roles for handing abnormal situations. Generally speaking flying and talking go together during these situations. The man working the problem will be out of loop and working ECAM.

He expects pilots To announce autopilot and autothrottles off when turning them off, but no announcement when turning them on since that is the normal mode. He's seen instances of mistaking knobs on the flight guidance panel, and said that it was not unique to the A300. He said heading and speed were the ones most often mistaken.

He said dialog has already started regarding changes brought about after 903. He said they must be approved ultimately by Ewell.

He said R1 and SVT is better for copilot because they are touching them more frequently and there is an increase in quality and quantity of training. The captains lost a couple hours of simulator each year but remain in the left seat the entire simulator time. He thinks overall SVT is better.

Manual recommends that the CDU is an extension of the FCU when the autopilot is flying the airplane contrary to when hand flying.

Hinton said the A300 vertical speed control is awkward, twisting versus rolling. The technique is to tweak it to see which direction it goes to not inadvertently start it in the wrong direction. He said the Microburst escape maneuver is not appropriate for high altitude stall recovery since it is a low altitude procedure.