

Korean Airlines Safety Audit Findings

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KOREAN AIRLINES (KAL) SAFETY AUDIT FINDINGS 20th SEPTEMBER 1998

FLIGHT.ORG INTRODUCTION:

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The report was allegedly required by the US Federal Aviation Authority (FAA) and insurance companies in the aftermath of the Korean Airlines B747 crash at Guam on 06/08/97 (Flight 801) as a precursor to the setting up of a proposed code sharing arrangement between KAL and Delta Airlines. Prior to any bilateral code share arrangement it is typical to have both organisations conduct mutual audits to satisfy their own internal management, insurance agencies and external legislating authorities.

According to The Wall Street Journal story of 8th April 1999, KAL Executive Vice President Yi-Taek Shim has admitted that "*the leaked audit was an internal report written by an expatriate KAL pilot who no longer works for the airline.*"

The audit reveals an endemic level of complacency, arrogance and incompetence pervading all sections of Korean Airlines flight operations and apparently was reportedly rejected by Korean Airlines management at that time. Since that time, however, the airline has welcomed Western operational influences and is slowly overhauling the dangerous culture of incompetence that plagues the crew.

Between 1970 and 1999 Korean Air wrote off 16 aircraft in serious incidents and accidents, with the loss of over 700 lives. If *safety is no accident*, neither is their high accident record. This report demonstrates why.

In 2000 - *after acknowledging that they were an international disgrace* - Korean Air recruited David Greenberg, a retired Delta Air Lines vice president, to run its operations. He was charged with the impossible task of rescuing the airline from destroying itself. He introduced merit based promotion and cracked down on the corrupt friendship based fast-track promotions for the inner circle of politically aligned pilots, he introduced a new and improved rigorous training program for pilots and made attempts at introducing a western style of cockpit resource management to enhance crew communications. On the surface KAL they seem to have been mildly successful; their last passenger fatal accident was the same one that inspired this report.

Some say Korean are an accident waiting to happen. In the meantime, however, they seem to be an *airline* waiting to happen. Time will tell.

Marty

B747 Classic Delta Audit findings

KOREAN AIRLINES AUDIT FINDINGS

Submitted 20 September 1998

These findings are a detailed description of observations made during the Delta Audit program over a number of flights. This is accumulative and the items mentioned did not necessarily occur on every flight. Possible solutions are offered where available. Although these findings have been submitted early on in the audit process, clear trends have already become evident. It was felt prudent to bring these to the attention on the management as soon as possible. Many of the problems noted are not just with the 747 Classic fleet but are endemic within KAL on all fleets.

Flight planning

1. No crew discussion re weather, notams 1 or fuel decision. FO's 2 and FE's 3 say they do not want to get involved as it is the Captains decision. CRM 4 lacking.
2. Some FE's not even present for briefing. They should have an active interest in fuel decisions and checking weather.
3. Crew must check the weather of all en route suitable, emergency, destination and alternate airfields. Check the notams of all these airfields. Check the Jeppesen 5 plates of all these fields. Relate available runways and weather from these fields to landing minima and crosswind limits to check if these fields are usable. These fields may be needed in an emergency. Jeppesens should be held at dispatch in an easily accessible area for all the crew to use.
4. Dispatchers 6 pay little attention to volcanic activity. The names and locations of all active volcanoes must be published in an Operations bulletin. Notams can then back this up with the activity status of these volcanoes. The proximity of these volcanoes must be noted on the en route weather chart so the flight crew can note proximity to flown track. Re routing must occur when appropriate.
5. Fuel policy should be reviewed to ensure it complies with the appropriate regulations and all dispatchers must be familiar with the updated regulations. There may be areas for fuel savings here as well.
6. There should be a route clearance unit summary of all Korean Air routes. This must NOT be a regurgitation of the Jeppesen manual but rather important pilot and operational information specific to the route.
7. FO does not scrutinize notams thoroughly and brief the Captains on important items.
8. The Captain should NEVER have to argue with dispatcher re extra fuel if needed. If, in the opinion of the dispatcher an unreasonable decision has been made, this information should be reported to the Chief pilot of the fleet who may at a later stage choose in to discuss this with the Captain at a convenient time. As the dispatcher has no 747 command experience, he can not possibly make an informed decision about the fuel requirements. Management should in turn set up an extra fuel tracking system to monitor extra uplifts so they can be controlled.
9. Dispatchers regularly file an alternate 7 for Seoul (e.g. Chongju RJTU) for which Korean Air does not approve 747 operations. This is not legal. On Cheju sectors, waypoints 8 are hand written on a piece of paper. This invites errors and confusion. Seoul is not in the current revision of KAL alternate airports.
10. Performance data is not checked at ops before takeoff. No reference to baro and temperature corrections. Very important with non-ISA conditions and heavy weights, especially on the A model aircraft. Performance manuals should be kept at all out stations

so crew can check take off data taking into account temperature, baro corrections etc.

Before Start Operations

1. AC alternate Jeppesens out of date on the aircraft, at times up to 5 weeks out of date. Jeppesen department and NOT crew should do updates. Also suggest Korean Air can save a huge amount of money by placing manuals on each aircraft instead of a full set for each crew member. The publication section should be responsible for the updates of all manuals. Manuals should be held in each simulator as well as at Flight Operations fleet offices.
2. When deicing is required and requested before take off, the Captains judgement is constantly put in question by the ground and dispatch crew saying that it isn't necessary. De icing is a safety requirement. Cost is not a consideration when flight safety is compromised as a result. The Captains judgement is final and no argument must be entered into.
3. FE's do not do thorough preflight, sometimes sloppy. They do it in record time and would not pick up any problems because of the rush they are in.
4. Customizing All Korean Air plates just for a company frequency and route is costly and ineffective. Korean can save considerable money by discontinuing this service.
5. AC library inventory not checked, no inventory list.
6. When getting on board, the FO must ensure that ALL en route emergency, suitable and alternate Jeppesen plates are in the manuals for the flight. Crews do not check on board manuals to make sure that the alternate plates are there in case of a diversion, en route and destination.
7. There must be a list of what Jeppesen plates are in the alternate manuals and this must be cross-referenced with the Korean Air approved suitable and emergency approved airfields. Crews have no idea of which plates are in these manuals.
8. No Dangerous goods manual on board going to USA. No one knows where it should be kept. The FAA checks this.
9. Crew must use a torch for preflight at night, this is sometimes not done.
10. The Boeing manual stipulates that the Flight Engineer starts the INS's 10 and loads the present position. This is not presently the case.
11. Many oxygen masks have broken adjustment straps. These must be snagged and repaired. Consideration must be given to upgrading system to full face smoke/oxygen mask.
12. Crews are not doing a full oxygen system check. In some instances, a nylon dust cover has been placed over the mouthpiece. This is not even removed, so if the mask is required in an emergency, the chances are that oxygen may be unavailable.
13. FE's seen turning oxygen switch on but no oxygen mask check or check that oxygen valve is open.
14. FE does not check emergency escape slide.
15. During the audit process, a number of observer headsets were found to be unserviceable. Many portable oxygen bottles did not have full face masks, and most were not connected to them. A full inspection of all emergency and fire fighting equipment should be done to bring this up to standard. All crew should have continuity training on all on board emergency and safety equipment.

16. The FE's oxygen emergency switch was left in the ON position after his test. Crew oxygen levels dropped to 1000 psi. before the auditor brought it to his attention to avoid a diversion.
17. Non standard modifications have been made to oxygen panels and pins have been place on some of the emergency diluter levers. This could have disastrous consequences.
18. Crew should brief on aircraft differences, engines etc. max T/O EGT. Suggested glare shield package appropriate on Classic.
19. ALT SEL switch 11 must be set to ON, on the MCP 12 with preflight check. The altitude select switch on the 747 classic is one switch that can KILL if it is mishandled.
20. Crew unaware of pitch bar graduations for the flight director for setting 3-engine target attitude after take off. Pitch bar for rotation attitude must be accurately set with respect to 2 degrees per notch.
21. No hydraulic system should be pressurized without clearance from the ground. This is basic airmanship.
22. It should be a normal crew function to change unserviceable light bulbs on the flight deck. When this is noted the FE will call a ground engineer to perform this function. There is obviously some protocol here that needs to be clarified.
23. Suggest RTO 13 touch drills when briefing.
24. Take off alternate should be discussed and included in the take off briefing when appropriate.
25. Captains says during take off briefing that if there an emergency after take off with the FO flying, he will immediately assume control. This is not Boeing procedure. Assuming that ALL FO's are current, competent and trained to Captains standards with respect to flying ability, there are substantially better methods of handling emergencies to manage risk and correctly use resources.
26. An instrument check should be coordinated by both pilots prior to start to cross check instruments. A crew check should be done of all consumables. Fuel, oil, hydraulics and oxygen.
27. Lost communications procedure must be discussed in briefing.
28. There is NO crosscheck of the take off speeds/performance. This is unacceptable.
29. No review by crew of engine out flight path from performance manual before takeoff.
30. Engine out procedure should be written on the take off card and also placed on the appropriate page in the performance manual. All crew must review engine out procedure and minimum safe height for acceleration with an engine out.
31. Engine out flight path is seldom reviewed for Seoul runway 32 or for any runway for that matter.
32. Loadsheets should be read aloud to whole crew and noted on each flight plan.
33. Captain should put a 3 INS.'s to NAV and triple mix all 3 INS's. This reinforces muscle memory for handling INS problems.
34. Number 3 INS serves no function with 'position' selected for taxi and take off. It would be better used if selected to wind for the take off.
35. Boeing normal checklist has had many changes that result in flow breakdown and ultimately violations. There must be a return to the normal Boeing checklist. This will also resolve the confusion that arises with respect to checklist responses in the cockpit.

36. Finesse flight control checks ‐ must be done with respect to control size and rate of movement. Rough handling of rudder checks prior to take off can put huge stress on the empennage.
37. ALL 3 crew members must copy ATC. FE often not in the loop to copy ATC. 14
38. Standard phraseology for pushback procedure must be developed and taught to Cockpit and ground crew. If not, we can expect broken tow bars and structural damage to be a possibility.
39. Crew must be aware of take off performance. Crew are doing intersection takeoffs at maximum weights to "save time" while the figures are calculated for full length. The aircraft thus would not STOP in time in an RTO and would not clear the required obstacles in the event of a go decision with an engine out. There is NO intersection take off data in any of the performance manuals. This should be looked into as fuel savings can be made here but the data used must be correct.
40. T/O briefing - every one must listen and understand and speak up if there are questions. There are cultural problems here with Korean tradition and respect for their senior that must be overcome through out the operation.
41. There is confusion on PF/PNF 15 duties for start and taxi.
42. Unnecessary to leave nav lights on during daylight flights.
43. Captain talks to ground while FO get push back. Neither pilot copies each other communication and confusion results.

Push Back and start

1. Work towards silent start. Call malfunctions rather indications on the normal start.
2. Engine start must be done on Captains instruction only.
3. After start with many crews Captain speaks to ground, FE does after start checks, FO reads after start checklist by himself. This is uncoordinated and produces inherent dangers. The procedure should be: After engine start engineer must complete his checks and advise the Captain that he is "ready for disconnect." The Captain will then make a standard callout to ground, "remove nose gear steering pin and all ground equipment, clear to disconnect, hand signals on left/right." Only when ground give clear will after start checklist be read. This will ensure no one gets run over.
4. Reading of the checklist must be coordinated with all 3 crew members.
5. FE must have elapsed time clock on his panel. Captain and FO record push back and shut down times. FE records take off and touchdown times. Pilots must start clock on pushback. This will prevent taking off without clearance.
6. After start the when FO reads the checklist he MUST check, aileron and rudder trim are zero.
7. Detail Captain does all starts and taxi - hand over on the runway.
8. While departing Anchorage recently, 4.00 am, OAT 16 9C, rain and wind, the Captain briefed that he required nacelle anti ice after start. The FE said it was not required and that using the nacelle anti ice with the TAT 17 at 12C, would damage the engines.

The FE informed the Captain that he was a professional of many years, and that he was

right as this was his job, and the Captain was wrong to require it.

The Captain tried to explain that on the ground TAT and OAT are the same. TAT takes into account ram effect and as they were stationary, there is no difference. The TAT read 12C due to residual heat from the TAT probe heater after the last flight. With an OAT of 9C and visible moisture present, icing conditions indeed existed and nacelle anti ice was required. The Captain explained that use of anti ice above 10C does not damage engines as far as he was aware and it is always better to err on the side of safety in such matters.

The FE would not buy the reasoning and was insulted as a professional by this decision. The Captain had to demand the anti ice be turned on after start in the interests of safety. Sadly CRM was compromised as a result and there was the minimum of communication and input from the FE on the remainder of the flight. (8hrs.)The FO would never get involved in a situation such as this as the FE is senior and any input would be seen as disrespectful to the FE.

In addition, (this was not seen on this flight but has been observed on the line), anti ice is normally turned off by the FE immediately after landing in icing conditions. This is NOT the correct procedure and anti ice must be left on until just before shutdown to protect the engine. The Boeing manual clearly covers this.

It weatherman is already forecasting the coming winter may indeed be a severe one. The Boeing adverse weather procedures must be known, understood and applied by all crew before the winter season sets in.

This highlights the following problem areas among the crew. This lack of understanding is probably not localized only to the FE's only but may be throughout the airline.

- There is little understanding of the meaning of TAT, SAT, and OAT and Boeing anti ice procedures.
 - The FE's require an urgent audit by an INDEPENDENT, EXTERNAL professional flight engineer. There is a high level of complacency and lack of knowledge/misunderstanding evident in certain areas of the operation. (It may be that the English text Boeing manuals are just not understood because of the language problem.) It appears that "experience" gives the FE the authority to make decisions takes precedence over the published procedure and his decisions are above discussion because of his age and the culture. As the auditors are not and have not been trained as a flight engineer, it is neither fair or professional to undertake an audit of a position that I am not qualified for. Gross deficiencies have been mentioned where observed, but there may be many that have been missed due to the auditors not being FE qualified.
 - CRM and standardization needs urgent attention on the KAL flight deck.
9. Anti ice on immediately after start in icing conditions as per Boeing manual. It MUST stay on after landing while taxiing in icing conditions and can be turned off before engine shutdown.

Taxi and before Take off

1. Max breakaway thrust should be specified e.g. 1.05 to minimize damage from jet blast.
2. ICAO Radio procedures not followed. i.e. Not using full call sign, ready for t/o etc.
3. Flight engineer not using shoulder harness for takeoff and landing.
4. Pilots must NOT have armrests down for takeoff as they may restrict movement in the case of an RTO or engine out.

5. Crew must have feet correctly positioned on rudder pedals for the RTO and must ensure on rudder check that full deflection is possible with current rudder pedal and seat settings to ensure full braking is available.
6. Flight engineer doing checklists from memory and not reading normal checklist. There is a misconception that doing a normal checklist from memory is professional. It is NOT, it is against Boeing procedures and dangerous. True professionals fight off complacency as it there is nothing more dangerous than a complacent crewmember.
7. Flaps – check flap lever position, both gauges and green agreement light.
8. Boeing checklist - Compare checklist with standard Boeing checklist and make appropriate changes to avoid violations, e.g. clock, compass have been inserted to the before take off checklist. This causes distraction and unnecessary cockpit chatter when anticipation take off clearance. The consequence is the aircraft getting airborne without take off clearance. A return to the Boeing checklist and procedures is imperative.
9. The crew picked up on the taxi a door open light on door 1 left on a passenger flight. This could not be rectified by recycling the door. The Captain and his crew made the decision to return to the ramp. Unquestionably the correct decision with 360 passengers on board and with airmanship and safety in mind! Engineering boarded the flight on the return to the ramp and castigated the crew for not having dispatched with the door open light on. This riled the crew to the extent that during the taxi and climb the FE spent most of the time writing up a report in his defence. The action of the ground crew was unacceptable and definitely compromised flight safety for the remainder of the flight.
10. Awareness V1 is brakes on speed NOT decision speed. Crews require RTO training and standardize simulator and line procedure.
11. Altitude awareness procedure should be incorporated into normal procedures.
12. A/P should be engaged in accordance with conditions and risk management principles. This decision should not be affected just because it is a training/checking flight.
13. Gear lever to off at 1500 ft when climb thrust is set, NOT immediately after gear retracts. There is NO rush to put gear lever to off. In rushing this procedure the FO has put the gear lever to DOWN instead of OFF.
14. Clarify procedure with landing/taxi lights on prior to taxi.
15. FE should make crew aware of VMCG speed when operating at low weights.
16. When taking the runway the body gear should be disarmed by the PNF.
17. Aileron into wind for takeoff - caution spoiler float.
18. PNF must make PF aware of drift angle after takeoff – number 2 INS.

Take off

1. Captain and FO should not have armrests down for take off or landing.
2. Crew must become more "wind aware" just prior to take off. They must consider the implications of the effect of wind on the RTO, Pax evacuation, vortices and drift after take off.
3. Captains hands alone must be on throttles for take off at 80 knots so he alone will reject the take off. There is tremendous confusion here. This is because there is no standardization and simulator training is different to the actual procedure. As a result FO's are doing the whole take off and handling the thrust levers to V1 or BOTH pilots AND the

FE have their hands on the thrust levers for the whole take off. This must be addressed urgently as confusion here with an RTO could well result in a runway excursion or overrun. We must stick with the Boeing procedure.

4. Call by PF for setting thrust for takeoff should be "Set MAX thrust" or "Set reduced thrust" Accurate thrust settings as briefed must be set. Reduced thrust is currently set at the FE's discretion somewhere between Max and reduced thrust.
5. Take off thrust must not be adjusted after 80 knots.
6. FE looked back at this panel for approximately 5 seconds on the take off run initiated. The FE's focus on the take off must be totally on the management of the engines. During take off this is done through reference to the front engine instruments.
7. Crew had different bug speeds set for takeoff. When Captain called V1, FO was 10 knots short of his V1 but he did not say anything. Crew MUST speak up as soon as a discrepancy is noted without any fear of retribution. This is a normal crew responsibility.
8. Crew must monitor and the PNF must call the drift out for the PF after takeoff.
9. After TO check list must be read in full and acknowledged by the return of the take off card to the FE.
10. FE must NEVER put on anti ice or ignition without informing Captain. (Or any of the pilot's switches for that matter.)
11. In conditions of poor weather/high workload/problem, the autopilot must be engaged ASAP after take off.
12. In high workload conditions the autopilot should be used till on final approach. An auto land should be considered to manage risk if conditions require.
13. Crews must be aware of altitude restrictions on departure, particularly out of Seoul and Tashkent. At max weights almost all the altitude restrictions are unattainable. ATC must be advised timeously of this problem. Just because you are cleared to a level does not mean that the restriction is cancelled.

Climb and Cruise

1. Caution with shoulder harness release. Rapid release could injure FE or person in observes seat.
2. When retracting flap, crew must call when flap arrives at selected position, i.e. 1/1 green light. This will prompt next retraction.
3. All FMA annunciation's must be called.
4. The FE must walk around the cargo area during the flight to check things are normal.
5. FE must not contact company before 10 000 ft on the climb and must warn he crew he is "off the air" and his intentions.
6. Hand flying the aircraft to cruise altitude in busy airspace is not good risk management as it significantly increases cockpit workload. When hand flying, it is mandatory that the PF calls for all AFCS changes to be done by the PNF so as not to disrupt scan.
7. Crew do not make pilot reports (PIREPS) regarding significant weather and turbulence to ATC.
8. Crew must be trained to do all rapid depressurizations gear up. If a Trans Pacific operation

for example, has an emergency descent with hydraulic complications and the gear is selected down for the descent, it may not be possible to retract it. The extra fuel burn at F100 with the gear down will probably result in a ditching.

9. During the cruise the Captain went to the bathroom. While the Captain was out the flight engineer went to prepare food and beverage. There was one crewmember left in the cockpit. FE must announce to crew before any switch is selected on pilots overhead panel. He must also coordinate with the crew all usage of ignition and anti ice. On the 747 Classic, there must always be a minimum of 2 crew members on flight deck.
10. It should be considered to set 1 white bug at V2 + 100 during the cruise so the crew always have a reference for drift down. Reset this bug every hour.
11. CB's should NEVER be pulled on a normally operating system unless the Captain has given his permission to do so. The crew must discuss and be aware of the implications of such an action. Recently a pressurization 115V auto controller CB was pulled by the FE for demonstration purposes while at F370 without consulting or advising the crew. The cabin ran away and was caught by the rate limit switch. The system could not be reset and the pressurization had to be controlled in manual for the remainder of the flight. Unacceptable procedure. Simulators, not aircraft, are used for training.
12. No Altitude awareness procedures in place. Confirmation obtained on flight level changes selected in the altitude window.
13. All crew, at each waypoint must discuss in detail, the fuel variances and at re dispatch point all crew must be aware of fuel state, destination and en route weather. The re file point is currently not even mentioned and it is a MAJOR event in operational safety on long range operations.
14. Altitude capability performance must be cross-checked before departure and ESPECIALLY before changing altitudes. The current pilot check list altitude capability chart is inadequate and the figures for the A engine should be rechecked. Crews often climb to very near thrust limits and well above the optimum plus 2000 ft. This is inviting a stall. (Coffin corner) Crew try to "out climb" weather and thunderstorms this way. Thunderstorms regularly grow up to 60000ft and above. This is a dangerous and futile exercise. When an altitude change is required, the figures must be checked by two crew members before initiating the climb.
15. Flight safety must not be compromised in the interests of PA announcement. Prioritize.
16. The FE must report to the Captain immediately when something abnormal appears on his panel. This is a normal crew function.
17. All smoking on board an aircraft is a safety hazard. However, crews go downstairs into the freight compartment to smoke. The cargo often contains dangerous goods and lots of flammable material. Paper, plastic etc. This is an unsafe practice.
18. When executing a climb from the cruise, landing lights should be turned on to improve safety.
19. KAL do a terrific amount of freight flying with dangerous goods on board. It would be a good policy if a crew member walked around the freight compartment on a regular basis, (eg. every hour), to ensure there have been no spillage's etc.
20. Double crews on the Classic swap duties exactly half way through the flight. On flights such as SEL ANC LAX this requires the crew operating second to get into the seat at TOD for Anchorage. The crew is far less "in the loop" at that stage than the operating crew and important information may be missed in the rush. With current Korean procedures, this is NOT flexible and should be revised.
21. Crew read newspapers through out the flight, often with the newspapers held up in such a way that if a warning light came on, it would not be noticed.

22. En route emergency, suitable, destination and alternate weather is not obtained regularly. It must be obtained and related to notams and the appropriate Jeppesen plates for that route. If an emergency occurs in the cruise that requires an immediate landing, crew will not have the necessary information at their disposal unless this procedure is followed. Maintain situational awareness at all times. Constantly check en route weather for diversion airfields weather as well as weather at destination and alternate. The crew must develop a situational awareness cocoon around the aircraft at all times.
23. Crew must keep a log of other aircraft on the same and opposing tracks and constantly update them relative to their own position.
24. FE must calculate drift down altitudes / speeds with engine out and place data on pedestal. Crew must always be aware of 1 and 2 engine out performance with respect to optimum altitudes, grid mora's and MEA's. 26 This is not done.
25. Announce every frequencies change VOR/NDB etc and FE to announce changes in fuel management / pack operation/ anti ice etc.
26. Include Grid MORA at all waypoints for next sector. Incorporate into Jet Plan.
27. Tropopause layer also be inserted in the flight plan for assisting in optimum level selections.
28. The crews do not understand RNP 10. The wisdom of automatically updating an INS 2 hours after take off before checking its accuracy needs to be reviewed. The manufacturer should be consulted to establish procedures here. The RNP 10 checklist in the cockpit has some of the update coordinates INCORRECTLY printed. This is inviting problems. For RNP 10, an INS accuracy checklist should be designed to record VOR position, triple mix position and individual position of all 3 INS's and then relate them to each other. There is no point updating an INS that is only 1nm out as it may feed in errors.
29. After updating, crew must remember to re engage triple mix.

Descent and approach area arrival.

1. Update descent briefing to include Grid Mora, MSA and initial approach altitude.
2. Briefing must include Go around procedure.
3. After missed approach & discuss alternate course of action. Diversion fuel requirement, routing and altitude and diversion field and weather.
4. Crew must observe turbulence penetration speeds. Also 250<10000ft and MLW.
5. All altimeter call outs must be referenced to pressure altimeter. Cat 2 to Radio altimeter only. Radio altimeter setting procedures must be reviewed.
6. FO flew entire descent with A auto pilot engaged and B flight director selected. FD gave off course indications. When on the LOC/DME approach the FO then set his FD to A. There appeared to be no understanding of the system. This should be a check item and crew must not accept a flight director giving erroneous information. Select the appropriate autopilot and flight director so the information is correct.
7. When cleared for LOC DME approach, FO used VOR DME plate. Be careful of mindset.
8. During descent FO confused aircraft call signs the crew responded to a radar vector given to another aircraft. FE picked up something was wrong and said nothing. FO was also not happy but said nothing. AC took up new heading. Despite visual conditions crew did not look out and see that the current heading would not take aircraft to the airfield. Radar picked up 70 degree heading error and corrected. Captain hit FO with the back of his hand

for making the error. The incident caused by similar sounding call signs, lack of situational awareness, crew not looking out, crew not speaking up, incorrect radio procedures and implicitly trusting ATC.

9. Radio and navigation instruments on the checklist must NOT be completed until it is actually set for the approach. (What does it mean? &endash; Radio and Nav instruments set)

i.e. ILS freq. set and identified, inbound courses set, flight director computer switches set, ADF's set.
10. Autobrake must be included, discussed and set in landing briefing. Making the Captain select Autobrake minimum after the gear is down and while he is PF can induce vertigo/disorientation and breaks down instrument scan at a critical phase of flight close to the ground. This must be reviewed urgently as it may well have been a contributory factor in 801.
11. Autobrake should be used with airmanship in mind. It is not necessary to use it for every landing and considerable cost savings can be made here with reduced brake and tire wear.
12. Crews are not applying altimeter corrections under very cold conditions.
13. Revise glare shield package and include Cat 2 glare shield package.
14. Use of autopilot must be used with respect to risk management.
15. Crews do not confirm new cleared altitudes when reset in altitude window.
16. Use of monitored approach should be implemented.
17. Approach checklist must be done at the correct time and the checklist must not be continued if an item is not complete.
18. If anti ice is required during the descent it is a satisfactory procedure to ask the FE to set the required minimum thrust for the PF. Delegation is a part of good cockpit management.
19. Approach checklist is currently done at 10000ft. In many cases this is far too early at Radio and Nav instruments will NOT be set for the approach.
20. Crews are reluctant to use the speedbrake. Safety takes priority over passenger comfort. If the speedbrake is needed, it must be used without hesitation.
21. Outer marker height call is to check for glide slope functionality and ensure the correct QNH is set. It is often missed and the consequences can be dire.
22. It is Korean procedure to do a time check at the outer marker. (There is no reason for this that we know of). On inquiry, the crew said it is so that the crew can downgrade to an NDB/VOR if the ILS fails. You then have timing to the missed approach point. This attitude may have had a contributory factor to the Guam accident due to the trained mind set. Crews must be trained, in the event of a malfunction of the primary approach aid on any approach, an IMMEDIATE missed approach is necessary. Reestablish situational awareness, find out the problem, re brief and then re enter the safety window. There is NO other way.
23. Out of date Jeppesen approach charts are being used by the crew. The publication department doing the updates on onboard manuals would eradicate this.
24. Altimeter bugs should be fitted to pressure altimeter.
25. Understand the meaning of the terms: radar contact, under radar control and radar vectors.
26. Crew are unaware of the meaning and implications of the ATC terms "field in sight"

"request visual approach" and "cleared for the visual approach". They must also be taught never to trust ATC implicitly, they also make mistakes. All information must be evaluated from ATC to check it is acceptable. This is called ATC management. The following incident highlights this, but many other incidents were observed that support this finding. The crew were asked if they had the field in sight. SFO had clear conditions. With out checking with the Captain, the FO said "affirmative" and the tower cleared them for a visual approach. The crews were trying to fly an instrument approach off the QUIET BRIDGE visual approach plate for 28R. NOBODY was looking out, the pilots were all head down trying to read the plate and program the AFCS. The flight engineer saw the problem but would NOT make any input to bring this to their attention. (CRM-all crew MUST be involved) Just by looking out of the window a clear deviation away from the field would have been noted. The a/c went through the ILS localiser of 28R and through the ILS localiser of 28 L. (28L was active with traffic, ATC became very concerned at this stage.) After passing through the localiser of 28 L the crew were still head down trying to program the AFCS and flying away from the field. The deviation was sufficiently large to cause the tower to panic and ask the crew if they had the field in sight. They then told them they were going for the wrong runway and were only cleared for 28R. The ensuing communications resulted in an unstable approach due to late configuration of the aircraft. This incident was totally avoidable. The crew must be aware that once a visual approach is accepted by the crew, the most important instruments on the approach on a wide body jet are the WINDOW and the VSI. ALL crew are responsible for CRM and the safety of the operation. It is not only the Captains responsibility. The FE in this case was quick to point out that the Captains let the side down.

27. Aims monitoring program must be implemented and management trained to use it as a positive safety tool and not for retribution.
28. An urgent review of Cat 2 procedures is required.
29. If a diversion is required, the Captain makes the decision to divert, NOT the dispatcher as is currently the case. The Korean crew ask for permission to divert from their dispatcher and will divert where the dispatcher tells them to go. Communications are difficult as often many aircraft are trying to contact the dispatcher at the same time. With a foreign Captain on board, the FO and FE consult with the dispatcher in Korean and the Captain does not know what they are saying. The crew is then divided as the Captain will want to go with his plan having assessed all the options. The rest of the crew will actively oppose the Captain in diverting to his intended airfield of diversion if it is not the same as that of the dispatcher for fear of upsetting the dispatcher. This dispatcher has no idea of aircraft condition or fuel status. The dispatcher may by all means make suggestions to the crew. He may offer alternatives that may assist the company and provide weather, but the decision lies with the Captain and his crew alone. When the decision is made they must support him, implicitly. This is currently a totally unsatisfactory set of circumstances.

Landing

1. Use of autopilot is totally acceptable to manage risk during an approach.
2. The landing card should have the missed approach and grid MORA 35 on it. This ensures the FE is "in the loop" for the approach.
3. The flaps 25/30 consideration must be made with airmanship in mind. On a short runway, stopping has priority.
4. Crew did non-precision LOC DME approach with ALT SEL switch off to minimize switching requirement at ALT capture. Unsatisfactory procedure.
5. Correct crosswind technique (for landing) to be taught. Crews are using rudder, rudder trim or and aileron trim for landing and pitch trim for the flare. Crew must be taught about the effect of yaw on aspect ratio with swept wing aircraft. Large rudder inputs close to the ground cause pod scrapes. Crews are taught to use rudder on final approach for directional

control, rudder and aileron trim for handling cross winds and trimming for the flare. There are unknown techniques for the correct handling of these situations and may be the root cause of the considerable pod damage that occurs.

6. Revise standard callouts. " 1000 foot , no flags, gear and flap call" as it interferes with OM call and landing checklist. On LOC approaches crew call "1000 ft, no flags, gear and flap" with 4 glide slope flags showing. This call therefor is ineffective and disruptive to more important calls. It may also be contributory to the Guam accident. On investigation it was found that the call originated because a B 727 did a wheels up landing some years ago. This accident was as a result of the aural warning CB being pulled. The correct procedure would have been to educated crew into not pulling the aural warning CB and not adding in a highly disruptive call. You have procedures, a checklist and finally the GPWS to warn of a gear up situation. This is sufficient. This call should be dropped.
7. Speed brake to be armed by PNF.
8. Extra crew in the cockpit sometimes make comments offering advice in Korean to the FO when he is flying. This is distracting and unacceptable for safety.
9. Crew must make more use of visual cues in VMC conditions. For the visual approach, the two most important "instruments" are the window and the VSI. Monitoring the VSI is extremely important on wide body jets and is largely ignored by Korean crew. Crews tend to stay head down for the entire visual approach. Look up and look out.
10. Crew must know the difference between the visual approach and request VMC descent.
11. Captain did not disengage auto brake on runway. Aircraft came to a stop and could not taxi off the runway. After spooling up to 1.1 EPR 36, Captain realized error.
12. Define stable approach parameters by 800 ft.
13. Crews are unsure of how to calculate bug speeds on the approach - half the wind plus the gust as additives.
14. Crews are unable to calculate the required sink rate on final approach. Sink rate is very important in wide body jets in ensuring stable approaches.
15. FO landed slightly deep & it was not a problem. Captain however still wanted to make next turn off. He took over tiller and armed body gear at 80 knots and started turning off the runway causing terrific airframe and tire side loads and cause pax. discomfort.
16. Go around by 500 ft mandatory if unstable. Management must be trained in the appropriated management of handling of crews with respect to the go arounds. Missed approach when necessary is good airmanship. There should be no fear of disciplinary action after a go around.
17. At 500 feet Captain put hands and feet on flying controls. FO was flying well in visual conditions. Captain then fought / overrode FO on controls causing control problems. Flying and directional control uncomfortable due to instability with the crew not sure who was flying. Captain also over rode FO on tiller while taxiing. Again neither pilot knew who was in control.
18. All height calls with reference to the pressure altimeter except cat 2 calls.

FE's must make calls on pressure altimeter and altimeter bugs must be placed on pressure altimeters.
19. Minima must NEVER be violated. This is poor airmanship, unsafe and totally unprofessional.
20. Captain over pattered the FO so much on the approach, the FO was having difficulty

concentrating on the flying.

21. Manual flying in poor weather is poor management of resources. A monitored coupled approach policy will stop unsafe maneuvers close to the ground and also help eradicate pod contact.
22. Some crew believe it is "not possible to get windshear if there are no mountains" despite thunderstorms in the vicinity. Windshear training is required.
23. KAL crew that have been questioned about diversion fuel requirements to Cheju from Seoul and all came up with the figure of 30000 lbs. Interestingly, on the average fuel burn to Cheju flight is about 24000 lbs. on the classic. (This is on a normal flight but may be slightly less on a diversion.) Diversion fuel should be made up of diversion burn off (24000 lbs.) + 30 minutes holding (10000 lbs.) at 1500 ft above the diversion airport and then an approach and landing. The landing should be completed with 12000 lbs. This is the Boeing recommended minimum in tanks. Thus the diversion figure equates to about 46000 lbs. Using a figure of 30000 lbs. could well result in a minimum fuel operation (without any holding) and possible engine failures on final.
24. There should be a company policy that mandates that a full emergency must be declared when fuel gets down to e.g. 18000 lbs. A check of landing fuel in the fuel logs on Korean Air aircraft will reveal that many flights land with less than the company minimum fuel. The FAA and JCAB check this periodically. Crew must not be reluctant to advise ATC of their fuel state. If an aircraft is operating on a re file flight plan, it is good airmanship to advise ATC that you are operating on minimum reserves. Likewise if you are below minimum reserves, ATC must be advised so priority can be given for the approach.
25. Jet Plans must be modified to give fuel requirements for 3 separate alternates.
26. Awareness must be taught which is the critical engine on jet aircraft.
27. Crews are NOT supporting each other with wind and drift angle callouts on final approach.
28. Classic has a high failure rate of auto lands. This must be looked into.
29. ILS MODE may only be set when "cleared for the approach"

After Landing

1. Confusion throughout the fleet on who is PF/PNF on landing roll and the handover/changeover of control when FO is flying. Some Captains assume control at 80 knots with all thrust reversers coming out, some at 60 knots etc. This must be standardized.
2. Body gear must not be armed until 20 knots (taxi speed). Currently armed at up to 100 knots! PNF must arm body gear when below 20 knots, then turn off the runway.
3. Seoul does not have a complete high speed turn off on runway 32L. In some cases crews have attempted to turn off at up to 80 knots with heavy braking causing extreme airframe side loading and potential tire damage. You have paid for the runway, use it.
4. While taxiing to parking bay Captain shut down number 1 engine. This supplies inboard brakes and body gear steering. No objection from other crew members when this was done. Unacceptable.
5. High-speed turnoff does not require body gear to be armed. Boeing Operation Manual refers to 65 knots for high-speed turn. Suggested speed for Korean Air - 40 knots.
6. High speed turn offs to be included in taxi briefing.

7. FE turned off # 2 and 3 ADPs on taxi.
8. It is unnecessary to turn flight directors, ADFs and DMEs on quick turnarounds.
9. When captain stows speed brake, clean up automatic.
10. When disembarking the freighter, the correct steps must be used and they must be correctly positioned. Serious injuries can result if crew fall on those stairs. These are maintenance stairs and are not meant for crew embarking and disembarking. They are difficult to manage because of the gradient and the crew bags that are carried.
11. Passenger Aid units must be made available at Cheju and other airfield for incapacitated passengers. It is not satisfactory that they get carried down the stairs as it increases the chance of a fall with all the incumbent liability.

General Standards

1. SOPs and call outs must be designed for each fleet. Note all callouts require responses. This is to ensure that there is no incapacitation. All pilots make mistakes from time to time. SOP's ensure a level of operation that is standard and well inside the operating envelope of the aircraft. They give the crews confidence in what they are doing. In flying "confidence is contagious, complacency kills." A complacent crew member is a dangerous crew member.
2. Crews are largely unaware of checklist philosophy. A thorough understanding of the checklist and how to manage it is the foundation of a safe operation.
3. Korean crews generally only carry an envelope with the required charts and plates for the route flown. There could be considerable problems here if something non-standard occurs and original destination is changed. This is yet another case for on board Jeppesens.
4. Current procedures require that the individual crew members operate totally independently of each other. They do not keep each other informed of what they are doing. This is a major risk to flight safety. The crew is a team and must share ALL information. Improved communication will result in improved safety. Crew must announce all changes in frequencies, headings, altitude, courses and switch positions.
5. All operational communications in the cockpit when operating with a foreign Captain must be in English. This is good airmanship with respect to other foreign carriers operating in Korea as well.
6. No circuit breaker of a normally functioning system should be pulled in flight. Any CB that is pulled must only be done with the permission of the Captain and after all crew have discussed the implications thereof.
7. PNF doing the radio often does not wait long enough for ATC to respond after a request is made. This results in the PNF transmitting the request again, just as ATC is responding and transmitting a response. The result is a blocked transmission and failed communication. This often happens a second time for the same reason. Pressure now builds quickly as other aircraft are trying to get in a transmission. Use correct RT procedures.
8. Crew must learn to treat all clearances with suspicion. Never just accept a clearance unless you are totally happy that the clearance is reasonable.
9. Two (2) crew members must be in the cockpit at all times. Crew to announce whenever leaving the cockpit. On return to cockpit the returning crewmember will be told "no change" or advised of any change in ATC, switch position, or aircraft status. FE on leaving the cockpit must inform the crew of the position of ignition, anti ice, air-conditioning and fuel system. E.g. Ignition and anti ice off, 2 packs, fuel tank to engine.

10. Crews (both cockpit and ground) smoke cigarettes on the ground while refueling and during the taxi. This is not only a flight safety hazard but in contravention of all aviation regulations. When this comes to the attention of the local authority, it will have serious implications for Korean Air.
11. No reading of non-operational material or food preparation in climb or descent.
12. Pilots should take meals at separate times. This in case of an emergency. Between Tashkent and Seoul position REVKI has a grid mora of 26700 ft. This is just about the position that the crew wish to eat, and they always eat at the same time. An emergency here could have serious consequences if all the crew aren't totally prepared.
13. Loosening of collar and tie reduces fatigue and should be encouraged.
14. No checklist must proceed if any crewmember says "standby". The correct procedure is to read the checklist to where the crew member says standby and then say: e.g. Holding at flaps. Crewmember who stopped the checklist must call for the checklist to proceed when ready.
15. All crew must be involved in fuel decision. Currently, it's the Captain only.
16. Crew must understand what reserve fuel is required i.e. Min tanks + diversion + holding. Crews develop fixations on the destination airfields and do not plan for diversions. Diversions do not just occur because of weather. Airfields can close for a multitude of reasons like fire, hijacking, strong winds etc. Crew must always be diversion orientated.
17. KAL flight operations seem to totally dictated to by the commercial department without due consideration being given to flight safety. Tashkent is a prime example of this. NO NEW airport should be operated into unless the standards department of flight operations has done a full and thorough investigation into it and EVALUATED it. The decision of flight operations must be FINAL as they are the flight safety experts. Commercial departments relate only to the bottom line and this is NOT always the cheapest way in the long run. LUFTHANSA run all their freight through ALASKA. KAL should really look into this, as LUFTHANSA will surely have done their homework and had their flight operations evaluate the operation. There must be good reasons why they do not run their freight through Tashkent or as has been recently rumored – Novosibirsk.
18. While the wearing of golf gloves on both hands while flying may have advantages, it does pose some problems. This occurs when changing the fine pages of Jeppesen charts when the runway/arrival are changed at short notice.
19. Many complaints are received from the passengers that the aircraft cabins operated to HOT. Should be 24C to 25C and are often set at 28C plus.
20. Strict observation of power gradient in the cockpit must be observed, CAPT, FO, FE. Under no circumstances should the FE give weather avoidance instructions to the FO in Korean when flying with a Foreign Captain. Check list responses for all crew should also be done in this order.
21. Crew do not know which winds are true and which are magnetic on METARs and TAFS and tower reports.
22. KAL's on time departure and arrival statistics appear to be very good.
23. A monitored/coupled approach procedure should be implemented. Suggested autopilot usage - When flying manually, PF calls for all changes and settings required. Once autopilot engaged PF may make own MCP selections until on intercept headings for a monitored approach or cat 11 approach. AP must be used as soon as possible after take off and until final approach for risk management. AP's usage requires anticipation and skill. Pilots with poor anticipation battle with AP usage. Testing pilot flying skills is done in the simulator and not in the aircraft.

24. Korean Air pays a great deal to ATC systems to provide a service. They must not hesitate to ask ATC to say again and must NOT say roger unless they fully understand the communication. Crew must continue to ask ATC to say again until the clearance is fully understood and read back correctly. Misunderstanding is a major cause of violations.
25. Captains must be trained as aircraft "managers" and must delegate responsibility and manage resources to conduct a safe operation under adverse conditions. This obviously requires that all crew are competent, current and proficient.
26. Headsets must be worn during climb and descent and optional in cruise. The current headsets in use have been proved to be of poor quality and cause ear damage. They also degrade communications because of the poor quality. Sennheiser or equivalent high quality head sets to be used in the cockpit to improve communications.
27. Limited knowledge is evident on aircraft performance, specifically take off and landing performance. Refresher courses should be conducted on contaminated runways and anti skid problems. Boeing should be consulted when operational questions arise.
28. Shoulder harnesses must be worn till top of climb and from top of descent, as well as when required.
29. All crew must be involved in the reading of all checklists. When a crew member says standby – DO NOT continue with the checklist.
30. Take off and landing briefing must be updated and must provide a logical flow without regurgitating too much info so that the important information is lost. They must include strict and vigilant awareness of Grid MORA, Sector safe altitude and initial approach altitudes. Diversion planning must be made timeously and with adequate fuel reserves. Planning must be done for go around and missed approach, diversion fuel requirement, and routing. Ensure INS is loaded for alternate.
31. Medical department must get involved with crew training with respect to Medical emergency training and management of incapacitated crew members. Crew must be aware of the doctors bag contents and trained in the management of in flight medical emergencies. Knowledge of doctor's bag and contents is essential. The mismanagement of these problems can have major liability problems for Korean Air.
32. Korean Air cabin service is of the highest standard as far as presentation and appearance is concerned from a passenger's point of view.
33. English standard needs to be improved to enhance safety with ATC and ground communications. Many of the world best airlines (Swissair, KLM, Saudi, Lufthansa, SAS, Air France, Finnair etc.) have English as a second language, but within the airline it is the primary language. All crew however have a very high standard of cockpit English. Publications are in English to ensure crews maintain English currency and competence. A good standard of English is mandatory for flight safety. It is, after all, the international aviation language.
34. All checklists and callouts must be understood. Large degree of confusion with checklist response and action.
35. All 747 cockpits are different in terms of the equipment and its position in the cockpit. An effort must be made to standardize. I.e. Transponders all in the same position etc.
36. FE must be more supportive and interact with the crew during all phases of flight. He must get involved up front. He is an important and valuable crew member.
37. Non standard cockpit decals should be removed. E.g. Check heading.
38. The Korean FO's often ask the Foreign Captains to complete a report after landing whenever they get a leg. The Foreign Captains are unaware of what the form is for. The completion of any documentation should be requested prior to the flight. If the report is required for an upgrade, this should ONLY be completed by a qualified training Captain/IP

who is aware of the circumstances. It is unfair on the FO's to be assessed by someone who is unqualified and unaware of the reason for the documentation.

39. Crew baggage often left unattended at the gates of overseas airports while crew look at shops.
40. The ground handlers in Anchorage have brought to the attention of the auditors that on occasions on the freighters are departing with more crew and extra crew than there are seats on the aircraft. The FAA would not be happy if this was discovered.
41. Aircraft operating Cheju flights have similar 4 digit call signs. E.g. 1213 or 1219. These call signs can be confused because of their similarity but are especially confusing to crew because they can also be confused with the numbers given in VHF frequency changes. Call signs must be looked at and changed to avoid this confusion.
42. When ATC or PA chime interrupts a checklist being read, hold the check list until the communication is complete and then continue with the checklist. Currently, the crew member reading the checklist ignores the ATC call and continues with the checklist with nobody listening or responding.
43. Some parking bay coordinates on the airport buildings are incorrect.
44. For standardization, the Captain should do all starts and taxi. If the FO is to fly, hand over on the runway.
45. Crew members with poor English skills should be placed on domestic service as they become a major liability on the long-range aircraft. They should under go language training.
46. The current practice of making it mandatory for crew to fly manually below 10000 feet while being trained/checked will compromise flight safety when the cockpit workload is high.
47. CRM should be incorporated into all aspects of Korean Air's operation. This includes management, training, safety and discipline. Sadly, CRM doesn't seem to leave the ground school building.
48. A training method of evaluation should be adopted that has the capability of allowing positive reinforcement into the assessment. Constant negative evaluation only is negative training and is destructive.
49. On long haul flights FE sleeps at will. Controlled rest/cat nap procedure is a possibility. In the interim any fatigued crewmember must report to the Captain he is fatigued and the Captain can keep an eye on the panel while the FE takes a break.
50. The FE's should undergo an audit by an independent professional training engineer.
51. Extra crew talking in the cockpit in terminal areas is unacceptable but occurs all the time.
52. Maintenance on all Korean Air aircraft is generally excellent and aircraft seldom carry inop. Stickers. The classic aircraft however have a problem with the fuel tanks as fuel tends to "disappear" below 80 000 lbs. and some "reappears" after landing. Gauges must be dripped regularly to monitor this, as it must be corrected. The generally good technical status of the aircraft has played a big role in reducing the numbers of incident/accidents.
53. KAL maintenance is often word of mouth. Crew will pass on snags, engineering will repair them and nothing will be written in the tech log. This is dangerous, as the aircraft never develops a "history". This history is vital in aircraft maintenance and safety. All snag MUST be written up and preferably in English so everyone can understand.
54. It has been suggested that KAL may using some Captains over the age of 60 years (western age) to operate flights to Moscow and Tashkent. There maybe other destinations as well. These destinations are not published in KAL OD 19 for operations of pilots over 60.

Apart from the liability issue using Captains over 60 to non published or authorized destinations, the Korean MOT have recently announced that the Company and its management will now be held responsible for non compliance of regulations, not just the pilot as has previously been the case. This matter should be investigated, and should it indeed be taking place, the issue and the policy should be urgently reviewed to protect KAL's interests.

55. The Jeppesen department and the route clearance unit (RCU - route audio visual center) should be open 24 hours a day, 7 days a week. They need not be manned but crew must have access to them if necessary. This is a safety consideration. If the full Jeppesen series is eventually kept on board, the requirement for the Jepp office to stay open falls away.
56. All Flight plans must also include performance degradation to ensure flight planning accuracy. 747 Classic aircraft typically burn 7000 to 10000 lbs. more than flight planned on the sector. This accuracy must be improved to avoid diversions.

Management feedback from the crews.

Korean Air crew were very open about pointing out areas of concern for the good of the company. There is tremendous good will within the company and the staff are very keen to see things improve. Good suggestions were made and crews were grateful to have a mechanism to express themselves without fear of retribution or retaliation.

Their feedback is listed below.

1. There is a great deal of ill feeling from the Korean crew regarding the payment of flying hours. Their counterparts on the 747-400 are doing 130 – 140 hours a month. They get credited with 90% of the extra crew time for pay purposes. Classic pilots on the other hand get 60 – 70 hours a month, in many cases a lot less. Thus, through no fault of their own, they are seriously financially disadvantaged relative to the 747 400 crews. This is the cause of major morale problems on the fleet.
2. There is a low level of self esteem and moral present throughout the flight operations division.
3. The flight operations department appears to have poor communications between management and the staff. There is very little feedback to the crew on any matters, important or otherwise. The Foreign Captains especially, source most of the company information via the rumor network. This is a most unsatisfactory and of little benefit to anybody. It appears that the silent, secret dis-information technique is a current management style. The recent tragedy involving the Swiss Air accident highlights the incredible success Delta and Swiss Air had using rapid, high quality and open communication techniques. THEY WORK and are used in all modern successful businesses!
4. Inter department communications within KAL also seem substandard. There are many examples that the "right hand doesn't know what the left hand is doing". This can only be resolved by clear, honest and open communication throughout the company.
5. All Korean Aircrew spoken to expressed major aggravation regarding conditions of service, flight and duty time and salary.
6. In the words of the Korean pilots:
 - o "They do not trust the company" regarding their salaries. There is no way to check. "They do not trust the salary" Any one who makes an inquiry regarding their salary faces victimization and may forfeit a command or be terminated.
 - o "General staff do not respect pilot positions". It is felt pilots have

very low status in Korean Air. My understanding is that they have a very poor self-image.

- "They have no love of each other". There is no team spirit.
- Korean Crew members are aware of KAL's problems. However, if they go to management to make a suggestion there is fear of termination or suspension of promotion. A suggestion is seen as an insult to the management and dealt with swiftly. It sends a clear signal to others with the same idea.
- "KAL procedures are not standard." Each Captain wants a different procedure.
- For the inexperienced crew (low time which applies to the majority of hires,) there are too many routes. They would like to consolidate on a few routes.
- Non military Korean FO's are frustrated that military FO's with Colonel rank can go from direct entry FO to 747 400 Captain in 3 years as they carry their military rank into Korean Air to assist them in promotion. Not all crew have that advantage.
- Crew members (specifically military crew) feel that they are entitled to a command after 3 years in the company and the Foreign Captains are keeping them out of a job.
- If a crew member has good flying skills it does not mean that he should be made a Captain. Captains in today's cockpits are "Managers" and as such it takes many years as a FO to develop these management skills. There is no substitute for experience. This process typically takes 10 years on various aircraft types, operating in a good training environment, with good Captains as role models, to be achieved.
- Normal command time in most major carriers is 10-15 years. This is deemed by the industry as the required experience level necessary to become a Captain. Career path may be short haul FO to develop flying skills, long range FO, short range Captain and then long range Captain (over the 10 to 15 year period). Korean Air's expansion over the past few years has been extraordinary and has resulted in crew promotion well beyond safe experience levels. Military flying experience holds NO credit in airline operations as they are so totally different. Military and civil aviators bring flying skills to the airline only. The actual airline job experience of both is zero. In airline operations, "There is no substitute for experience." The airline normally pays a big price for any short cuts here.
- Crew wanted a democratic system of seniority that involves date of hire and competence.
- The grading system is "no good". The "Korean Checkers" will pass a substandard performance from an Airforce pilot in KAL and grade him a 10. (Cronyism) Cheju crew with a good performance will be graded as an 8 as they are scorned by the rest of the KAL pilot group for being non-military. Ironically the Foreign Captains generally rate the Cheju First Officers very highly.
- Crews complain of their dislike of the physical and verbal abuse that goes on in the simulator during training. The moment a voice is raised in training, the student is lost, training stops and some form of conditioning takes over. The current methods produce a

conditioned response and lateral thinking is not allowed. This is not conducive to pilot development and is negative training. The environment for training is currently overwhelming fear, especially for the FO's. Quality training takes place in a caring environment, with knowledgeable instructors and where all present have a mutual respect for each other.

- The upgrade system is dishonest and unfair. Military status and NOT competence means everything.
- First Officers can suddenly find their career comes to a halt for no apparent reason. They say there may be a secret reporting system and they are too afraid to ask why their promotion has been stopped.
- Crew members, particularly on the 744, 777 and A330 are expected to socialize with the Captain on layovers. This includes being forced to consume alcohol against their wishes, being expected to purchase and prepare meals for the Captain, and when required purchase "gifts" for the Captain. This has caused enormous resentment from the crew members. The resentment is a substantial cause of communications breakdown on the flight deck and obviously is an obstacle to any form of CRM development. Any protest against conforming with the above requirements will have a detrimental effect on the crew members career.
- Foreign Captains have good CRM and the FO's will speak up if they are unhappy.
- Korean FO's would NEVER speak up if a Korean Captain made a mistake, as it would certainly end his career due to causing loss of face.
- Crew members from the Cheju school have been brought up with "airmanship". This concept is not understood or applied by KAL military pilots as it is seen to consistently conflict with "Korean procedure"
- Employees say we work for "KAL" and do not say "our company". The employees themselves do not see themselves as part of the company. The morale is low and they do not feel proud of it.

7. The Korean pilots believe the Guam accident was caused by:

- Crew being over worked with inadequate rest
- Salary is inadequate
- Payment differentials. This is the source of much ill feeling. E.g. A 10 year domestic Captain gets less than a first year 747 400 FO.

8. There are a number of First Officers on the Fleet that are Captains (wear 4 bars). No one is aware why. This adversely affects the power gradient in the cockpit. The only time it is acceptable to have two Captains in the operating seats is when one is an IP.

9. When the Captain asks the FO to do something, e.g. Weather avoidance, the FO will check with the FE to get his permission as well. The FE, in the FO's eyes is more senior than a Foreign Captain or for that matter a new Korean Captain on the fleet. This is an untenable situation.

10. The quality of the KAL hotels for the crew has constantly been dropping over the past year. This has now reached a stage that adequate rest can no longer be taken before a

scheduled international departure, so flight safety will be an issue here.

11. There is concern as to whether some FO's on the Classic fleet could land the aircraft if the Captain became totally incapacitated with normal/abnormal conditions. This is based on line and simulator experience and flying ability. Pilot incapacitation occurs more frequently than any other emergency and this is little acknowledged.
12. There is far too much content in the simulator training and the emphasis is to get through the syllabus rather than giving quality training. Simulator training is also repetitive and only based at Seoul. Crews should be exposed to as many airports as possible on their route structure. Recent modifications to the simulator program now have the crew being moved to 6 different destinations in the same session, the point has been missed of exposing the crews to different simulator locations.
13. The 747 classic appears to be the fleet where crew members with marginal performance are sent to if they have difficulty with a conversion, upgrade or have transgressed. The 747 Classic is an aging aircraft and is always operating at the limit of the flight envelope with maximum take off and landing weights the norm. It also operates to some very difficult airports often in marginal conditions. It is never safe to "carry" less than competent crew members in any airline environment, but under these demanding operational conditions, it is inviting trouble.
14. This year, the World Airline Training Conference was held in London on the 11th and 12th of May 1998. It was suggested to Korean Air that they send a training delegate to this conference. Korean Air declined as the \$ 100 for the conference was deemed to be too expensive. This approach from management to international training exposure must be urgently reviewed. It is said in flying, "If you think training is expensive, try ignorance". In today's competitive world of aviation, if you don't stay up to date with the world training philosophy, you soon get left behind. Your airline not only loses its competitive edge, but flight safety is quickly compromised.
15. Foreign Captains are very insecure on the Classic as Korean Air have stated the classics are to be sold in the next few years. (Travel Agent magazine April 27 1998 confirmed this.) As Korean Air are the only airline in Asia not to have an upgrade policy for foreign crews, many 747 classic crews have sought alternative employment which provides upgrades and continued, stable employment. This involves Singapore Airlines, China Airlines, Eva JAL, NCA, in fact all Asian Airlines. These companies are now hiring many of the highly experienced Foreign Captains from Korean Air, most of which are highly qualified and experienced instructors as well. These losses will be difficult and expensive to replace as the global pool of B747 Classic Captains from the USA and other parts of the world has dried up. Premiums are now being paid by most carriers for Classic Captains as these crew are in short supply.
16. There is a low level of airline aviation knowledge in certain areas of the company. These areas include check list philosophy, altitude capability (coffin corner), pilot incapacitation, wind shear, instrument approaches, flight planning, Category 2 training, high speed flight, instructional technique and principles of flight to mention just some. To solve this, management must select candidates and send them overseas for training at internationally recognized training establishments. They will be trained correctly to international standards and must return with the correct information to set up courses here. This is the core of the training department. (These courses must be attended every year so the company does not fall behind) This can then be taught to the Korean crews. This information must all be coordinated through the Chief Pilot in charge of training through the respective Fleet Captains in charge of training. The goal being that ALL instructors teach the correct thing the same way. Without international exposure to stimulate lateral thinking on these problems, a good solution is unlikely to be found. The current technique of deciding policy amongst each other inside the company has not produced positive results.
17. Korean Air should consider selling simulator time as an avenue of generating foreign income. A simulator should do 5000 hours a year. If it is doing less than that e.g. B777, there is potential for revenue generation.

18. Foreign Captains do not trust the Korean management with respect to contracts. Foreign pilots who join Korean Air make a major career decision and initial contracts involved long term employment with upgrades. However, Korean management has proved that contracts are not honored. Contracts are changed at will and constantly broken. Recently a group of Indonesians with 8 years service with Korean Air resigned and left for Singapore Airlines. The reason being that they had a 400 conversion written into their contract and Korean had no intention of honoring this commitment despite their lengthy, reliable and professional service.
19. Korean Air has, as one of their criteria when staff reductions are necessary, terminating the staff with the longest service. This sends a clear signal to contract workers & Loyalty and good service are eventually punished with dismissal.
20. Korean Air should negotiate with the Chinese authorities for direct clearances in the Beijing and Shanghai area for its European and South Asia traffic. Enormous potential fuel savings here.
21. Ground training school should under go an audit. Currently the minimum is done to satisfy MOT and it could be better used for quality training. Technical lectures for a good flight engineer/visit by ATC/maintenance/fire section etc. all help coordinate the entire operation and build good lines of communication. Foreign Captains are currently being asked to leave the classroom for the safety/security lecture and have to wait outside. This discrimination is most confusing.
22. Standardization circular 5/98 was circulated to all Korean Crew this year. The Foreign Captains were not included in this standardization document and are now operating to a "different set of rules". The first officers continually point this out. This is discriminatory, unsafe and an unwise management practice. It exposes the KAL management to substantial liability in the event of an incident or accident which shows crew members are trained to different standards. It also reinforces the perception that KAL is attempting to remove the Foreign Captain compliment as quickly as possible as there is clearly no attempt to integrate the foreign crew into the KAL operation. This is one of the reasons that there has been such attrition among the foreign crew. It will accelerate during 1998 and 1999.
23. All 747 classic crew have major complaints with the simulator training. In short, simulator and line procedures are different. What is taught in the simulator is different to what is expected on the line. (This extends to all areas of the simulator training.) This is negative training and results in total confusion about what is required of each crewmember. Consequently, there is no standardization on any aspects of the operation. The FO's have to try and adapt their operation to each Captains requirement. This is a highly unsatisfactory and unsafe situation.
24. The takeoff and landing briefings do not flow and are disjointed. There are many important omissions from these briefings that will affect safety.
25. Instructor pilots selection does not seem to have any bearing in instructional back round, qualification or ability. Instructors must be carefully selected and should be trained to international airline standards. Those that have not instructed before in Airlines before should do a Flying Instructors theory course focusing on high speed flight, an Airline Instructors Methodology course and at least 20 hours of patter training in the simulator. The types if instruction they do after qualification must be limited until they gain experience. They must also fall under a Fleet Captain in charge of training that MUST ensure STANDARDISATION from the instructors on his fleet. (Both flying and simulator.)
26. Any time crew are travelling as extra crew while on duty, they are not revenue producing and are costing the company money. A quick check of the ratio of actual hours flown to extra crew hours flown will prove that this is a highly costly and inefficient method of crew scheduling.
27. IP's do not fly enough. Current system is unsatisfactory. IP's must fly leg for leg to maintain their own currency and also to demonstrate how it is done. Trainees must have an example to follow.

28. Korean Air requires a computerized crew scheduling system to improve cockpit crew productivity. Of course, for such a system to work, a flight and duty agreement has to be in place to input constraints. There is currently no such agreement.
29. Crew with low time should be flying on the domestic to develop handling skills. Crews sent directly to the long range fleet will not gain the flying experience necessary to develop as airline pilots. Command time in most national carriers is typically about 10 years with crew having obtained both long and short haul experience as FO's before obtaining a short haul command.
30. Crew with poor English skills must not be allowed to operate on a long-range aircraft.
31. It is imperative that the Korean Air training staff visit the training departments of other airlines. This will enable them to see how other airlines do their training. The networking established helps keep training standards up to date.
32. Foreign crews get no feedback from Korean Management. Most briefings are conducted in Korean and notices are in written in Korean. This sends a clear message of segregation to the foreign crews. It also exposes the Management to major legal liability as if there is an incident/accident and the crew members were unaware of some important information due to it being written in Korean. The management will be held liable. All communications to all crew should be in English. It is the international language of the air.
33. Foreign crews who live on the Korean Air network would like to operate as often as possible to their home base. This is currently not permissible.
34. Crews under training are forced to sign their training forms before they go on the check ride. This is not only an unacceptable training practice but a highly intimidating tactic. If the trainee disagrees with the instructor's comments, they should have the democratic right to seek clarification on the matter. This ensures a fair and transparent training system. All training forms should require the trainees signature acknowledging that he has read and agrees with the gradings given after the training session is complete.
35. The current training grading and evaluation system is inadequate and needs revision.
36. Not all pilots can make it as airline pilots. Some of the older pilots (generally military) are unable to adapt the CRM requirements of the airline cockpit as their "single pilot skills" are too deeply ingrained to allow them to adapt to the team work required of today's airline cockpit. There may also be problems with flying skills or English. The company should offer remedial training where possible. However, crew that cannot adapt or consistently produce a substandard performance must be relieved of a cockpit position. They may be sent to another department in the airline. In today's modern high tech, high-speed airline cockpit, there is NO PLACE for any substandard performer, regardless of background.
37. Foreign Captains do not know whom they work for. They do not know if they are answerable to their Fleet Captain/ Chief Pilot or the Foreign Captains office. The only English letter of communication to the Foreign Captains this year was a letter of intent to terminate 50 crew in February. As this notice has not been rescinded, over one half of the foreign crew have successfully sought alternative employment and the rest are in the process of doing so.
38. Foreign Captains who are, for whatever reason to be terminated, are rostered for an unscheduled simulator session or medical. Either will result in a failure. This is a career destroying practice and is another reason why foreign crew would rather resign from Korean Air now than face this sort of dismissal. No future employer will employ some one who has just failed a simulator check or medical with Korean Air or any other company. Management must try and build trust and confidence between itself and the employees.
39. There is considerable flying skill among the Korean Crew. The current training system sadly disallows the creating of lateral thinking. This is an essential ingredient in an airline pilots problem solving skills.

40. Currently in some Korean cockpits, there is a volatile cocktail of complacency, arrogance, apathy and a lack of self-discipline. These attitudes must be removed from the flight deck at all costs.
41. Crew who make positive contributions to the company do not have their contributions acknowledged, and are shown no gratitude for it for it.
42. Management are quick to condemn any crew member for any unusual situation/incident and take quick and harsh, sometimes career destroying action before analyzing all the facts. Crews are generally afraid to do a go around or diversion as management may see this as a shame or embarrassment to the company. This is despite the fact that the crew member performed entirely professionally and appropriately. They may face disciplinary action.
43. Management is currently reactive with many situations and problems. A proactive approach will avoid problems by anticipating them and making the appropriate policy decisions to ensure they are correctly managed. It is not appropriate to apportion blame to an individual immediately, as there may be other causes of the problem. All problems must be evaluated. It may indeed have been as a result of a management or training problem that manifests itself in an incident/accident. An "open door policy" by management is the path to take for a free flow of information and it must know that management will not "shoot the messenger".

Summary

None of the aforementioned statements are intended to be disrespectful or antagonistic to the management. They are real facts and perception expressed by the crew in the hope of opening up communications. We trust that they will be seen as open and honest, and taken in the context of trying to make Korean Air a better company.

All Korean Aircrew have the company's best interest at heart and wish to see Korean Air as quality, International player.

Korean Air has decided to adapt to the change. This is a courageous decision, and it is unquestionably the correct one. We hope this document will be of assistance in achieving these goals.

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<http://www.flight.org/blog/2009/10/01/korean-airlines-internal-audit-report-an-airline-waiting-to-happen/>