Japan Transport Safety Board

The response from the MOLIT to the safety recommendation

The Japan Transport Safety Board received the response from the Ministry of Land Infrastructure and Transport (MOLIT) ,Republic of Korea to the safety recommendation issued November 24, 2016 as attached regarding an accident of HL7762 (Airbus A320-200) operated by Asiana Airlines,Inc. at Hiroshima Airport, Japan on April 14, 2015.

JTSB safety recommendation to the MOLIT

It is certain that when landing on runway 28 at Hiroshima airport, the aircraft undershot and the Pilot-in-Command (PIC) commenced executing a go-around; however, it collided with the Aeronautical Radio Navigation Aids located in front of runway 28 threshold, just before turning to climb.

In this accident, the PIC did not comply with the regulations and Standard Operating Procedures (SOP): He continued approaching below the approach height threshold (Decision Altitude: DA) without executing a go-around in a situation while the position of the aircraft could not be identified by visual references which should have been in view and identified continuously at or below DA. Other than that, there were several non-compliance with regulations and SOP in his operations.

The Company, taking into account the lessons learned from the accident, should reemphasize and reinforce the significance of compliance by flight crewmembers, while reviewing company procedures and ensuring comprehensive training.

Moreover, it should surely implement the education and training that flight crew members should refer primarily to visual references, using flight instruments as supplementary tools appropriately, when approaching below DA

In order to contribute to prevention of recurrence of similar accidents based on the results of this accident investigation, Japan Transport Safety Board makes the safety recommendations that Ministry of Land Infrastructure and Transport, Republic of

Korea should supervise Asiana Airlines, Inc. in the following items:

(1) The Company should reemphasize and reinforce the significance of compliance by flight crew members, while reviewing company procedures and ensuring comprehensive training.

(2) The Company should surely implement the education and training that flight crew members should refer primarily to visual references, using flight instruments as supplementary tools appropriately, when approaching below DA.

항공철도사고조사위원회

AVIATION AND RAILWAY ACCIDENT INVESTIGATION BOARD
MINISTRY OF LAND, INFRASTRUCTURE AND TRANSPORT
REPUBLIC OF KOREA

20 February 2017

Mr. Kazuhiro Nakahashi
Chairman
Japan Transport Safety Board
2-1-2, Kasumigaseki, Chiyoda-ku
Tokyo, 100-8918, Japan

Subject: Safety Action Plan on JTSB Safety Recommendations Issued as a Result of the Investigation into the Asiana Airlines flight 162 accident

Dear Chairman Nakahashi,

I wish to appreciate the JTSB's continued cooperation and am pleased to send you, in accordance with the paragraph 6.10 of the Annex 13 to the Convention of International Civil Aviation, a copy of the Safety Action Plan on the safety recommendations the JTSB issued as a result of the investigation of the April 14, 2015, accident in which Asiana Airlines flight 162, an Airbus 320-200, collided with the aeronautical radio navigation aids at Hiroshima Airport.

Regarding the JTSB's safety recommendations, the Aviation and Railway Accident Investigation Board (ARAIB) also issued the same recommendations to Asiana Airlines and requested the Korea Office of Civil Aviation (KOCA) to monitor the progress of the action the company has taken in response to the recommendations.

Attached is the Safety Action Plan which Asiana Airlines has prepared and submitted to the ARAIB, and I inform you that KOCA is consistently supervising Asiana Airlines in this regard.

Once again, I am deeply grateful to the JTSB for investigating the Asiana Airlines flight 162 accident and look forward to continuing our collaborative work.

Sincerely yours.

KWEON Sihong (James)
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ARAIB
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Safety Action Plan in compliance with Safety Recommendations regarding HL7762 Accident at Hiroshima Airport

2017.02.15

Asiana Airlines

SAFETY RECOMMENDATION 1. The company should reemphasize and reinforce the significance of compliance by flight crew members, while reviewing company procedures and ensuring comprehensive training.

➢ Safety Actions taken after the accident & Safety Action Plan

A. Issue of Special Safety Directive 2015.04.15 / 04.28 [Attachment 1]

1) Emphasizing Flight Operation Safety for All flight crew

2) Contents

가) Importance of Compliance with Stabilized approach Criteria (Precision approach, Non-precision approach and Visual approach)

나) Thorough deviation call-out, decisive Go-around call-out, followed by an adequate and timely response from PF

다) During Approach Briefing, detailed contents regarding visual approach to be shared between PF and PM (CRM)

B. Special Safety Education 2015.04.17~04.30 [Attachment 2]

1) Safety Emphasis

가) Monitoring & Crosscheck & STD callout, PM/PF job definition clear

나) Strict adherence to 1,000ft stabilized approach, otherwise go-around

다) Decision(ATC, WX) Emphasis: Leadership, Command ability, Work management

C. Office Day (Special Occasion Ground School) for Flight Crew 2015.05.14/21/28, 06.04/11/18/25 (Total 7 times) [Attachment 3]

1) Subject : An integrated training for flight crew regarding Germanwings accident and HL7762 accident

2) Contents

가) External Instructor Lecture: Emotion Control (Emotional Control Coaching Research Lab)

나) Talks with Executives: DSO (Chief Safety Officer), DDO (Chief FLT OPS), etc.

다) Case study and recurrence prevention training for each aircraft type, etc.

D. FOQA Committee Agreement & Operation 2015.08.31~ [Attachment 4, 4-1]

1) Maximization of FOQA Data application

- Carrying out individual training for pilots who generated high risk events (Without HR disadvantage)

2) Providing a foundation for establishing SMS from positive employee relations
- Agreement with Unions

3) FOQA Committee Operation Statistics

E. Kumho-Asiana Airlines Safety & Security Committee 2016.04.29~ [Attachment 5]

1) Maintain and promote same level of safety & security for all three Airlines

2) Share safety & security information and best practices

3) Discussion on common issues of safety & security

F. ATEQS Modification [Attachment 6]

1) In case there is a RE-TRY item during Simulator training, detail comments section is added to evaluation sheet to accommodate necessary information and keep it as a reference.

2) Electronic Evaluation Sheet is introduced to offer better access to the evaluation data and to help performing data-driven analysis.

3) With this modified ATEQS, MOT, instructor, and trainee can have easier access to the training and evaluation information in the past. This helps improving each

trainee's weaknesses.

G. Monthly Check Analysis Meeting [Attachment 7]

1) 'Monthly check analysis meeting' is established to analyze the results of check rides and seek out 'monitoring required flight crew' who have shown marginal performance.

2) With this meeting, we have been able to achieve closer monitoring of flight crew performance.

H. Integrated Evaluation Grade [Attachment 8]

1) Evaluation sheet now includes 1 to 100 score as well as Four Grading Scale (S:Satisfactory, A1:Acceptable1, A2:Acceptable2, U:Unsatisfactory). It is used to find out 'monitoring required flight crew.'

I. Campaign for Safe Flight Operations [Attachment 9]

1) Three focus items regarding the accident were selected as our safe operation target.
- Stabilized Approach / Standard Call-out / Sterile Cockpit

2) This '3S campaign was distributed and promoted through company intranet.

3) The importance of compliance with regulations was emphasized through campaign.

J. Safety Education Center (Tentative name) Construction Plan [Attachment 10]

1) 'Safety Education Center' (Tentative name) to be open on July 2017

2) This center is to educate all employees regarding the accidents in the past, and to have them learn a lesson from those accidents.

K. Establishment of OM (Operation Manual) [Attachment 11]

1) Manufacturer-developed FCOM and company-developed POM are combined

together as an OM (Operation Manual). It is currently under Authority approval process.

2) OM (Operation Manual) will minimize conflict between the two manuals, and it will help performing unified operations.

L. FOQA Self-study room Open 2015.08.31 [Attachment 12]

1) Upon request, each flight crew has an access to his/her own FOQA data for self-study.

M. (Compliance Plan) 2017 A320 Office Day (Special Occasion Ground School) for Flight Crew [Attachment 13]

1) 2017 A320 Office Day Flight Crew (1st: 18JAN2017)

2) Contents .

가) Prize for well-written report writer : To promote reporting culture
나) Discussion regarding RNAV approaches
다) SAFETY CULTURE
라) Distribution of HIJ Accident Investigation Report in Korean & Review

N. (Compliance Plan) Korean Version of HL7762 HIJ Accident Investigation Report Distribution

1) HL7762 HIJ Accident Investigation Report in Korean will be distributed to offer flight crew a chance to review what really happened.

O. (Compliance Plan) Modification of Flight Crew Training Manual [Attachment 14]

1) Documentation of mandatory training regarding the importance of compliance with rules for the whole flight crew members

2) Documentation of mandatory training regarding the importance of compliance with rules for the flight crew who are under either initial, transition, or upgrade training process

3) Documentation of mandatory training regarding the importance of compliance with rules for the flight crew who are under the training before fleet assignment

P. (Compliance Plan) Slogan for 2017 to emphasize the importance of compliance with regulations [Attachment 15]

1) On January of 2017, it is decided to make a slogan to emphasize the importance of compliance with regulations. It will be deployed within 2017

2) Slogan: "Zero Tolerance for Non-Compliance"

SAFETY RECOMMENDATION 2. The company should surely implement the education and training that flight crew members should refer primarily to visual references, using flight instruments as supplementary tools appropriately, when approaching below DA.

➢ Safety Actions taken after the accident & Compliance Plan

A. Special SIM Training Enforcement 2015.04.16~06.20 [Attachment A]

1) To enhance visual approach skill, situation awareness skill under the low visibility/bad weather condition and situation management skill by strengthening non-precision approach training.

B. A320 SIM Visual System Upgrade 2015.04.02~2016.01.22 [Attachment B]

1) To maximize effectiveness of flight crew training with optimized visual environment created through Visual System upgrade

2) To expect realistic training experiences by utilizing Visual Scene which provides actual environment that is similar to the airports of A320 Regular/Non-regular scheduled flights

C. 2nd half of 2015 SIM training – Patchy fog training 2015.07.01-12.31 [Attachment C]

1) Following the accident, patchy fog training (go-around due to insufficient visual reference) was conducted for all fleets.

D. 2nd half of 2016 General Ground School – Visual illusion 2016.07.01-12.31 [Attachment D]

1) Recurrent ground school including visual illusion was given to all the flight crew members.

E. Visual illusion/Black-hole approach Training Material Distribution 2016.09.29 [Attachment E]

1) Visual illusion/black-hole approach training materials have been distributed through Creworld (Intranet) notices section which all the flight crew checks every time before flight.

F. Unification of Standard Call-out Procedures 2015.07.16 [Attachment F]

1) It is to prevent confusion due to different call-outs between Airbus and Boeing. With this unified call-out, unnecessary delay due to call-out can be prevented, and transition between Airbus and Boeing can be easier.

2) Regarding the accident in Hiroshima, MOLIT has given correction order to Asiana Airlines. With this order, Asiana Airlines has unified the standard call-out procedures applicable to the whole fleet.

G. Standard Call-out Compliance Monitoring Program (Critique) 2015.08.28 [Attachment G]

1) During flight, all flight crew members are to monitor other flight crew's standard call-out, and make a note on the Critique system in Creworld (Intranet).

2) This program is applicable to both captains and first officers during ground school, simulator training, OE (Operations Experience), and normal flight.

H. (Compliance Plan) Establishment of company policy regarding visual flight [Attachment H]

1) Clear company policy in terms of the transition from instrument flight to visual flying will be set up, and the relevant training will be given.

2) Clear evaluation standard in terms of RNAV approaches is set and all the flight crew members are informed.

I. (Compliance Plan) Modification of Scan Policy [Attachment I]

1) Documentation of mandatory training regarding the importance of compliance with rules for the whole flight crew members
2) Documentation of mandatory training regarding the importance of compliance with rules for the flight crew who are under either initial, transition, or upgrade training process
3) Documentation of mandatory training regarding the importance of compliance with rules for the flight crew who are under the training before fleet assignment

J. (Compliance Plan) Company Stabilized Approach Criteria Modification [Attachment J]

1) Discussion on Company Stabilized Approach Criteria is ongoing to make any necessary adjustment if required

K. (Compliance Plan) New Procedure in case of Visual Reference lost below DA under discussion

1) Discussion regarding implementation of a new procedure in term of lost contact with visual references below MDA (FOM 6.10.2.3 Descent below DA(H), MDA(H))
   - Meeting Date: FLT OPS standardization meeting scheduled on Feb. 20th

L. (Compliance Plan) POM update regarding the use of FD during RNAV Approach [Attachment K]

- Directive distributed on Dec. 5th 2016

ADDITIONAL PLAN

A. Special Audit 2015.04.27 [Attachment a]

1) Completed pairing of HIJ Crew assignment on May and only captains and first officers of level A (JCAB requirement) are selected to fly the ICN-HIJ route.

2) Revision for process of changing HIJ Airport level (Level B→C) ('15.06.12)

B. Special In-flight Observation on HIJ route 2015.05.01~05.16 [Attachment b]

1) With the results from this observation, vulnerable airport information was updated, and the results are reflected in training.

C. Company Structure Re-organization 2015.09.22 [Attachment c]

1) Flight Ops – Newly-organized Flight Crew Training & Evaluation Department

2) Flight Ops – Newly-organized Flight Ops. Standards Team

3) Safety & Security Office – Newly-organized Safety Investigation Team

D. HIJ Airport Information Training Material Update [Attachment d]

1) The vulnerable airport information is attached to 'station info' in Creworld (Intranet), so the flight crew can have quicker access to the destination airport information.

E. HIJ Airport A/V Training System Update 2015.03.02~ [Attachment e]

SAFETY RECOMMENDATIONS 1

ATTACHMENTS

[Attachment 1] Issue of Special Safety Directive

1. Background

   Regarding HL7762 accident in Hiroshima Airport, the FOQA events that happened in Japan were further investigated and the flight crew were informed with cautionary information when operating in Japan. Also, the flight crew were alerted to safe flight operation.

2. Summary

   1) Date : '15.04.15 / 04.28

   2) Contents : Safety Directive given to all the flight crew

      ✓ Instructions from Chief of Flight Operations "[Important] Emphasize Flight Operation Safety regarding incident, serious incident and accident"

      ✓ Safety Instructions from Chief Safety Officer "[KSD 15-05] : Publicize "Education precaution regarding FOQA event analysis on Japan regional airports."

      ※ Relevant Airports : Hiroshima (RJOA), Fukuoka (RJFF), Kumamoto (RJFT), Matsuyama (RJOM), Miyazaki (RJFM), Takamatsu (RJOT)

   3) Other : Reinforce education and performance management for all flight crew on relative airport EVENT analysis data

3. Items for emphasis regarding Safety

   1) Comply to conditions for Stabilized approach (Precision approach, Non-precision approach and Visual Approach)

   2) Thorough in Deviation Call-out, and decisive GA call out, coinciding with the adequate response from PF

   3) During Approach Briefing, sharing of detailed contents regarding Visual Approach between PF/PM demanded (CRM)

[Attachment 2] Special Safety Education

1. Date : '15.04.17~04.30
2. Place : Each A/C type Operations Office
3. Lecturer : Chief Pilot/General Manager for each A/C type
4. Method : Flight Crew face-to-face briefing education session before/after Flight
5. Content : Spread HL7762 accident as precedent and emphasize Safety
   1) Probable Causes
      - ✓ Microburst, Undershoot below MDA,
      - ✓ Wrong approach since beginning phase of NPA and Altimeter Setting error
      - ✓ Altitude mistake caused by geographical conditions
   2) Abnormal Cases
      - ✓ Flaps over speed related <App' phase activate>, G/A in NPA ex. Over speed, Altimeter miss set
   3) Safety Emphasis
      - ✓ Monitoring & Crosscheck & STD callout, PM/PF job definition clear
      - ✓ Strict adherence to 1000ft stabilized approach, operate Go around
      - ✓ Emphasize Decision(ATC, WX): Leadership, Command ability, Work management

[Attachment 3] Office Day (Special Occasion Ground School) for Flight Crew

1. Background : Carry out integrated training for Flight Crew regarding Germanwings accident and HL7762 accident
2. Time and Date : '15.05.14/21/28, 06.04/11/18/25 08:30~17:00 (Total 7)
3. Place : Asiana Training Center Lecture Hall
4. Subject : All Flight Crew Members
5. Contents of Education
   1) External Instructor Lecture : Emotional Control (Emotional Control Coaching Research Lab)
   2) Talk with Executives : DSO (Chief Safety Officer), DDO (Chief Flight Operations), etc.
   3) Case analysis and recurrence prevention training, etc. by A/C type
6. Current Enforcement Status

Date	05.14	05.21	05.28	06.04	06.11	Total
# of Attendees	134	116	109	68	93	520

[Attachment 4] FOQA Committee Agreement and Operation

1. Objective
   1) Maximize application of FOQA Data
      - ✓ Carry out individual training for pilots who generated high risk events (Without HR disadvantage)
   2) Provide a foundation for establishing SMS from positive employee relations
      - ✓ Agreement with Unions

2. FOQA Committee MOU Agreement
   1) Date: '15.08.31 (Mon) 16:00
   2) Place: Employee Relations team Meeting Room
   3) Attendees
      - ✓ OZ : CSO, EVP Corporate Support, SVP Human Resources, SVP Flight Operations Planning, SVP Safety Quality Security Management, General Manager Employee Relations, General Manager Proactive Safety, General Manager Flight Crew Quality Assurance, etc.
      - ✓ Unions : APU Chairman and 4 others, AHPU Chairman and 1 other

3. FOQA Committee Operations

No.	Date	Contents
1차	'16.01.05	-Late Land Flap -Side Stick Control
2차	'16.02.02	-GPWS Warning
특별	'16.02.18	-Discussion for 2nd FOQA Committee contents -Training Reinforcement -FOQA MOU Revision
3차	'16.03.08	-GPWS Warning -Deviation Localizer/Glideslope
4차	'16.04.05	-Training results for 2nd, 3rd Committee -Side Stick Control
5차	'16.05.03	-Training results for 4th committee -Late Land Flap -Rate of Descent

[Attachment 4-1] 2015, 2016 FOQA Committee Operation Statistics

2015 FOQA Committee

Year	Date	Event	Descrioption	A/C Type	Vote		result	Who to be trained (Collegue Number)			FOQA Event #	Training conducted by FLT OP Training Team
					agree	oppose						
15-1차	9.2	Pitch attitude low at landing	Low Pitch at Touchdown (Phuket, 0.4 degree) ※ rainy weather, instrument approach.	B767	7	1	Training	Captain			2015_3824241_20C	- Unable to process training, because Trainee pilot is in upgrade training course - Safety Promotion Letter was sent to Pilot.
		Dual side stick	Dual side stick input was recorded for 40 second during the approach. ※ Airbus highly recommend "control input by 1 sidestick".	A321	5	2	Training	Captain			2015_3836531_32C	Simulator (2hr), Ground School (2hr)
15-2차	10.12	Pitch attitude low at landing	Low Pitch at Touchdown (Naha Airport, 0.4 degree)	A321	6	2	Training	Captain			2015_3851227_20C	Simulator (2hr), Ground School (1hr)
		Alpha Floor	Alpah Flooor was trggered, No windshear report, cloudy weather in the vicinity of Gimpo Airport. High Pitch(25 degree) was maitained.	A321	7	1	Training	Captain			2015_3851797_46A	- Captain Report was summitted
15-3차	11.4	Rate of descent	During High speed approach.	B747	0	8	No Traning				2015_3890964_23B	- Inappropriate descent management. 강하율 과다에 대한 적절한 처리 미흡 - No training was necessary. 추련 필요성 없음
15-4차	12.2	1. No FOQA agenda was addressed. 2. Discussed about the attendance of instructor pilot in FOQA Committee to facilitate FOQA training. They need to understand full understanding of FOQA Event.										

2016 FOQA Committee

Year	Date	Event	Description	A/C Type	FOQA Event #	Vote				Result	Who to be trained (Colleage number)			Training
						Agree			Oppose					
						CAP	FO	CAP + FO						
16-1차	1.5	Late land flap	Late landing configuration establishment (881ft)	B767	2015_3903635_48A	4			3	Training	Captain			Ground School (2hr)
		Side Stick Control	During takeoff, captain side stick input for 7sec while F/O was PF and max bank angle was 15.1° (Jeju Airport)	A321	2015_3918152_32C	8			0	Training	Captain			Simulator (2hr), Ground School (2hr)
16-2차	2.2	GPWS Warning	Go-around due to excessive rate of descent right before landing	B767	2015_3940811_44J	6, (void 1)			0	Training	Captain	F/O		Simulator (2hr), Ground School (4hr)
Special	2.18	1. With regard to 16-2차 FOQA committee, the relavant captain level adjustment (No adjustment, flight schedule with senior FO) 2. Additional training required 3. FOQA committee protocol amendment required												
16-3차	3.8	GPWS Warning	GPWS Warning due to the deviation from glideslope, continued approach and landing (Probable cause: High field elevation at Tashkent Airport)	A330	2016_3954015_44C	6		5	1	Training	Captain	F/O		Simulator (1hr), Ground School (2hr)
		Deviation LOC/GS	Deviation from approach course and go-around (Incheon Airport) 1) At 1,229ft, deviation to the right of Localizer (-2.0dot/ 22sec) 2) At 808ft, descent below Glideslope (-1.6dot/6sec) 3) At 773ft, deviation to the left of Localizer (4.2dot/12sec)	A321	2016_3946186_56C	6		4	0	Training	Captain	F/O		Simulator (2hr), Ground School (2hr)
16-4차	4.5	Side Stick Control	Dual Sidestick Input was recorded for 9sec (Max pitch -15.62deg) (Gimpo Airport Runway 32L)	A321	2016_3974183_32C	3		1	4	Training	Captain			Simulator (1hr), Ground School (2hr)
16-5차	5.3	Late land flap	Late landing configuration establishment (773ft) - (Incheon Airport Runway 15L)	A330	2016_3994696_48A	4		3	1	Training	Captain			Ground School (2hr)
		Rate of descent	Excessive rate of descent (-2,032fpm) between 1000 and 500ft (Incheon Airport Runway 16)	A321	2016_3983435_22B		1	7		Training	Captain	F/O		Ground School (2hr)
16-6차	6.7	Late land flap	Late landing configuration establishment (760ft) - (Jeju Airport Runway 07)	A320	2016_3999363_48A			7	1	Training	Captain	F/O		Ground School (2hr)
		Late land flap	Late landing configuration establishment (597ft) - (Jeju Airport Runway 07)	A320	2016_4002791_48A		1	6	1	Training	Captain	F/O		Simulator (2hr), Ground School (2hr)
		Late land flap	Late landing configuration establishment (782ft) - (Jeju Airport Runway 07)	A320	2016_4002797_48A	1		6	1	Training	Captain	F/O		Ground School (2hr)
		Rate of descent	Excessive rate of descent (-1,536fpm) for 5sec beow 1,000ft (Incheon Airport Runway 16)	A330	2016_4000472_22B			8	0	Training	Captain	F/O		Simulator (2hr), Ground School (2hr)
16-7차	7.5	Bank angle	Excessive bank angle of 19.9deg was recorded at RALT 118ft (New York JFK Airport VOR RWY 13L)	B747	2016_4022810_21A			7	1	Training	Captain	F/O		Simulator (2hr), Ground School (2hr)
		Late land flap	Late landing configuration (Flap3) establishment (934ft) - (Jeju Airport Runway 07)	B767	2016_4016047_48A	3		5		Training	Captain	F/O		Simulator (2hr), Ground School (2hr)
16-8/9차	9.12	Late land flap	Late landing configuration establishment (866ft) - (Frankfurt Airport Runway 25L)	B747	2016_4027090_48A			5	2	Training	Captain	F/O		
		Late land flap	Late landing configuration establishment (841ft) - (Anchorage Airport Runway 07R)	B747	2016_4037803_48A			7		Training	Captain	F/O		
		Late land flap	Late landing configuration establishment (885ft) - (Los Angeles Airport Runway 25L)	B747	2016_4038237_48A			5	2	Training	Captain	F/O		
		Rate of descent	Excessive rate of descent (max -1,955fpm) below 1,000ft Exceeded 1,600fpm for 12sec (Incheon Airport Runway 33R)	B747	2016_4038223_22A			7		Training	Captain	F/O		

[Attachment 5] Kumho-Asiana Airlines Safety & Security Committee

1. Objectives

1) Maintain and promote same level of safety and security for all three airlines
2) Share safety and security information and Best Practices
3) Discussion on common issues of safety & security

2. Committee

1) Chairman: Asiana Airlines(OZ) Chief Safety Officer
2) Vice-Chairman: Asiana Airlines(OZ) SVP of Safety & Security, will chair the meeting during absence of Chairman
3) Administrator: Asiana Airlines(OZ) General Manager of Proactive Safety team
4) Attendees
   - ✓ Asiana Airlines(OZ): General Managers of Safety Audit team, Safety Investigation team, Aviation Security team and GMS of team relative to concerning issues
   - ✓ Air Busan(BX): BX CSO, Safety & Security Manager, Team leader of concerning issues
   - ✓ Air Seoul(RS): RS CSO, Safety & Security Manager, Team leader of concerning issues

3. Date

1) Kick-off Meeting : '16.04.29(Fri) 14:00~17:00
2) Regular Meeting : Every 3, 6, 9, 12 months' Friday which includes the week of 19th
3) Special Meeting : When discussion is needed for special cases/events, a

special meeting will be held by decision of the Chairman

4. Categories of Agenda

1) Safety Information & Best Practices of each airline

2) Safety information inquiry from one airline to another, or requests for cooperation

3) Events that all airlines want to discuss together

[Attachment 6] ATEQS Modification

7. Team Climate (Interpersonal Skill) [850]	● S	○ A1	○ A2	○ U	○ X
Z. CORE COMPETENCIES					
1. Application of procedure [920]	○ S	● A1	○ A2	○ P	○ X
2. Communication [800]	○ S	● A1	○ A2	○ P	○ X
3. Aircraft Flight Path Management(Automation) [930]	● S	○ A1	○ A2	○ P	○ X
4. Aircraft Flight Path Management(Manual control) [940]	● S	○ A1	○ A2	○ P	○ X
5. Leadership & Teamwork [950]	● S	○ A1	○ A2	○ P	○ X
6. Problemsolving & Decision making [960]	● S	○ A1	○ A2	○ P	○ X
7. Situational Awareness [700]	● S	○ A1	○ A2	○ P	○ X
8. Workload Management [970]	● S	○ A1	○ A2	○ P	○ X

451. Preflight
1004. Correctly operates aircraft systems and associated equipment

457. HOLDING
2007. Adheres to standard radiotelephone phraseology and procedures

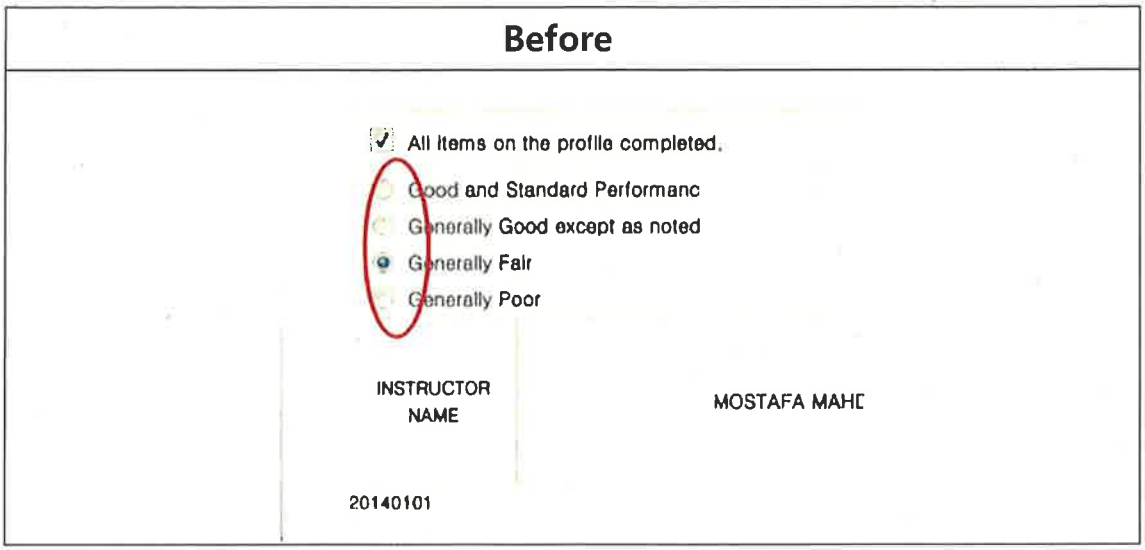
General Comments

☐ RECHECK
☑ RE-TRY
☑ All items on the pilot proficiency check completed.
☐ All items on the pilot proficiency check not completed. (Describe the reasons in '4) Reasons for incompleteness')

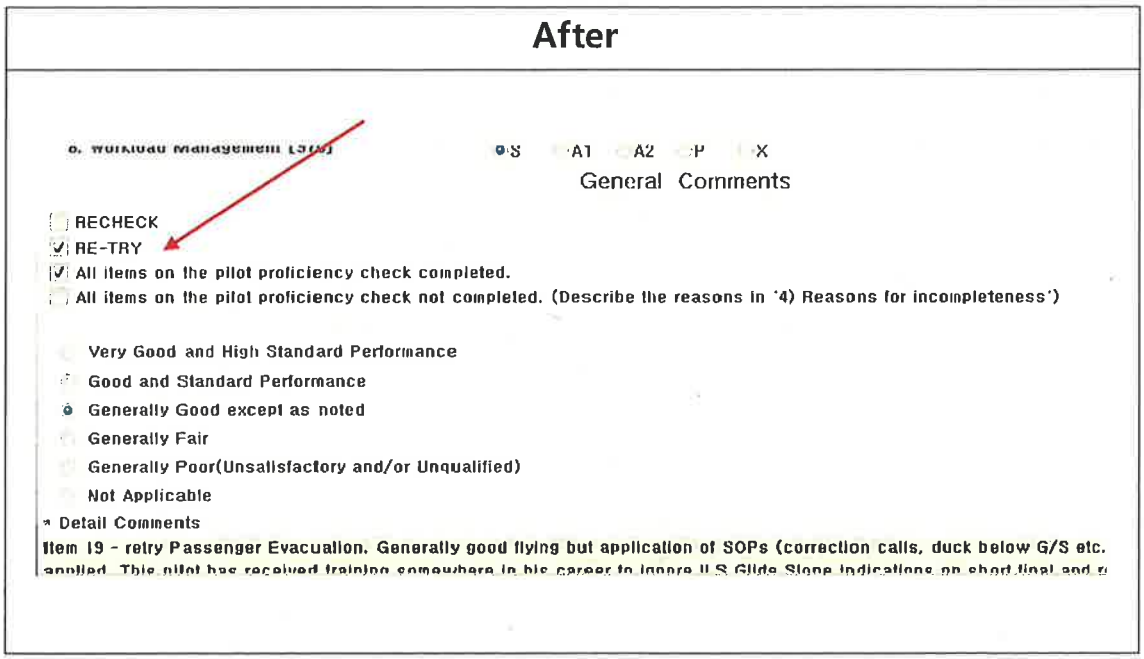
○ Very Good and High Standard Performance
○ Good and Standard Performance
● Generally Good except as noted
○ Generally Fair
○ Generally Poor(Unsatisfactory and/or Unqualified)
○ Not Applicable

* Detail Comments
Item 19 - retry Passenger Evacuation. Generally good flying but application of SOPs (correction calls, duck below G/S etc.) not being consistently

Before



After



[Attachment 7] Monthly Check Analysis Meeting

1. Management of deficiencies found during training (EBT : Evidence Based Training)

- Analysis through SBE, Enhancement through SBT (During recurrent training)

2. Management of deficiencies found during check

- **Phase 1 : Allowing repeated attempts for deficiencies during SIM check**

  At the discretion of the examiner, any failed items of the check (except for critical items such as "Crash") may be repeated by the examinee within the duration of SIM check, in order to correct his/her deficiencies. In case the deficiency is not corrected after the repeated attempt, the examinee will fail on the check.

- **Phase 2 : Remedial Training and re-check for failed check**

  In case of check failure, 'Flight crew evaluation board' will take place generally and provide suitable remedial training and recheck. Only after passing the recheck can the examinee return to his/her flight duty.

- **Phase 3 : Operation report and random check**

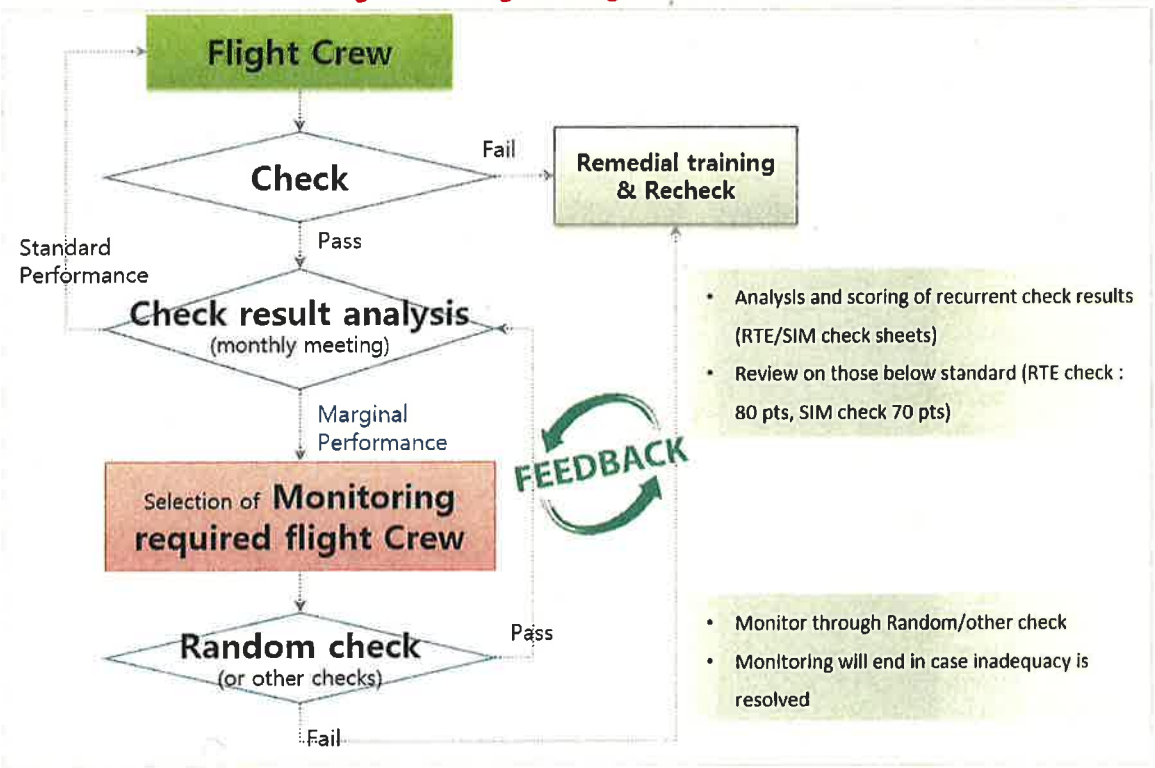
  Asiana practices an 'operation report' system which allows the flight crew members to report on possible deficiencies (such as skills or procedure adherence) of the flight crew member whom he/she has flown with.

  Random checks can be conducted at the request of flight crew operation team on the

flight crew members mentioned above or flight crew members who are suspected to have deficiencies on skills or procedure adherence.

- **Phase 4 : Enhanced Follow up system**

As of 2016, 'monthly check analysis meeting' has been established to analyze the results of recurrent checks (SIM & RTE) of flight crew and seek out 'monitoring required flight crew' who have shown deficiencies on flight skills or procedure adherence and arrange them to go through random or other checks.



[Attachment 8] Integrated Evaluation Grade

정기 SIM 심사지 점수화 (2016년 8월)

Overall Score

N	기	심사일	사번	성명	직책	심사관	종	A1	A2	U	최종결
1	A320	20160803			CAP	그리피스	38	7	12	0	S
2	B744	20160812			CAP	클라킨	38	5	13	0	S
3	A320	20160803			F/O	그리피스	52	8	8	0	S
4	A330	20160824			CAP	팩스턴	52	18	3	0	S
5	A320	20160808			F/O	그리피스	54	7	8	0	S
6	A320	20160809			CAP	그리피스	54	7	8	0	S
7	A320	20160808			CAP	그리피스	58	11	5	0	S
8	A320	20160805			F/O	그리피스	60	6	7	0	S
9	A320	20160831			F/O	잔스마	60	12	4	0	S
10	B744	20160815			F/O	JAMES HEAGNEY	60	4	8	0	S
11	B777	20160805			CAP	BERNHARD VAN EK	60	10	5	0	S
12	A320	20160809			F/O	그리피스	68	4	6	0	S
13	B744	20160808			CAP	클라킨	68	6	5	0	S
14	B744	20160829			CAP	바바칸로우	68	6	5	0	S
15	A320	20160811				CLIVE KEN	70	5	5	0	S
16	B777	20160805				BERNHARD VAN EK	70	5	5	0	S
17	B777	20160814				SHAHAB TARAJI	70	9	3	0	S
18	A320	20160806				그리피스	72	6	4	0	S
19	B744	20160822				JAMES HEAGNEY	72	8	3	0	S
20	B744	20160823				바바칸로우	74	3	5	0	S
21	A320	20160828				잔스마	76	6	3	0	S
22	A320	20160806				그리피스	78	7	2	0	S
23	A320	20160828				잔스마	78	3	4	0	S
24	B744	20160812				클라킨	78	3	4	0	S

[Attachment 9] Campaign for Safe Flight Operations

1. Abstract

Flight Crew Quality Assurance Team, the team in charge of quality assurance tasks of Flight Operations Department, notifies instructions and information through "Flight Directives", "Flight Memo", and "Flight Information" to flight crew since 2013. Also, from year 2015, "3 Focus items of Training/Education/Evaluation flight" were selected each year from previous year's audit results and frequently issued Flight Directions under the name of Director of Flight Operations Department for flight crew to rigidly adhere. Each year, '3X campaign" have been selected and implemented after evaluating 3 key targets of safe operation.

2. Safe Operation Objectives of each year

(Focus items of Training/Education/Evaluation Flight)

A. Safety Objective for year 2015 – "3S"

1) As starting of a new year, Flight Operations Department individually selects areas of improvement required and makes emphasis on major key issues from previous year's Audit/Training/Evaluation tasks and posts on Creworld.

2) Detailed Instruction

- Conduct **S**tandard Call-out thoroughly
  - Sharing of Flight Information/ well-managed CRM
- Maintain **S**tabilized Approach
  - Complete Landing configuration by 1,000 FT
  - Making decision for Go-Around important for safety!
- Perform **S**terile Cockpit
  - All phases of flight operated below 10,000 ft

B. Safe Operation Objective for year 2016 - 3C

1) Detailed Instruction

- Perform CRM actively
  - 2 Pilot Concept
  - Concentrate to perform proper duty as a PF/PM
- Systematic Communication
  - Make confirmations with ATC
  - Use various reporting channel
- Establish desirable cockpit culture
  - Situation Awareness
  - Strengthen the Safety Awareness

※ **3C** of 2016 has been emphasized based from **3S** of 2015!

3. Flight Operation Notifications

A. Flight Directives(OQD)

1) Directions from senior management
2) Directions from Director of Flight Operations Department
3) Immediate corrective action required issue to prevent accident

Flight Directive(OQD 16-11): MOLIT issued direction(cooperation) to emphasize aviation safety

▣ Outline

As the result from Summer season adverse weather analysis by MOLIT and the weather forecasts of heavy rain/strong wind including Jeju island this week (5.26~29), to secure operational safety, and minimize customer inconvenience, request cooperation of individual aviation field for safety as below.

▣ General

1) Perform inspection on A/C, operation, ATC, Navigation, security thoroughly
2) If irregular occurs including adverse weather, take initiative action thoroughly and make a report following the reporting channel
3) Maintain Emergency contact line and report thoroughly when irregular occurs
4) When A/C delays, cancel etc. make sure to provide customer assistance (Infomation announcement, provide replacement transportation, food, drinks etc.)

▣ Operation, ATC area

1) Prohibit impractical operation at adverse weather condition
2) Thoroughly comply with safety regulations, and enhance crew pairing management
3) Maintain close contact among flight crew, authorities, operation control and thoroughly monitor the operation status
4) throughly review the weather forecast and flight informations
5) Thoroughly comply with safety regulations when lighting, strong wind, heavy rain is encountered
6) Thoroughly inspect the aircraft maintenance status before/after flight and perform enhanced self safety inspection

▣ Aviation Security area

1) When A/C parked, enhance the security and thoroghly control access of unauthorized personnel
2) Conduct enhanced security inspection on customers, carry-on bags, check-in bags and cargo
3) Monitor CCTV thoroughly and enhanced the patrol on airport facility
4) Check the identification thoroughly for ticketing, entering immigration, entering gate, and when on-boarding A/C
5) When a person or a vehicle enters airport security area, thoroughly check the personal pass and monitor CCTV etc.

▣ Airport Facility, Nav aid facility area

1) Thoroughly inspect, repair and manage vulnerable area in airport facility
2) Enhance security patrol to prevent safety accident in the airport
3) Thoroughly monitor the repairing areas created by heavy rain and strong wind
4) Thoughly check operability of NAV aid facility
5) Thoroughly prevent safety accident and on-site control for NAV aid facility etc.

Executive Vice President, Flight Operations

(Gen. Manager, Flight Crew Quality Assurance/ Kim, Jin-Ho / T. 5161)

B. Flight Memo(OQM)

1) Safety Culture improvement required issues in Flight Operations
2) Major abnormal operation and directions from MOLIT
3) Other information to prevent accidents

Flight Memo(OQM 16-44): Notification for measure taken against the hazard of entering gate 50 at ICN

▣ Outline

Deeply appreciate for your effort for safe operation in this hot weather.

Notifying the threats, discovered through Line Flight Operation Audit, have eliminated as below. Please refer to the below information for safe operations.

▣ Hazard

For B747 and B777, after they landed on ICN and often assigned for gate 50. The below threats have been confirmed through Audits and interviews

- There is RMAP wall on right side of the gate 50 and entrance is very narrow,
- The threat is highly exposed, when A/C makes turn to enter, the right wingtip may contact the ramp wall and requires extra caution.
- Especially during rainly night operation, it is highly concerned due to reflections from surface.

▣ Corrective measure (Implemented)

Flight Crew Quality Assurance team, through risk assessment(risk mitigation/elimination plan) and cooperation by related teams (OCC ramp control), came up with the measure as below.

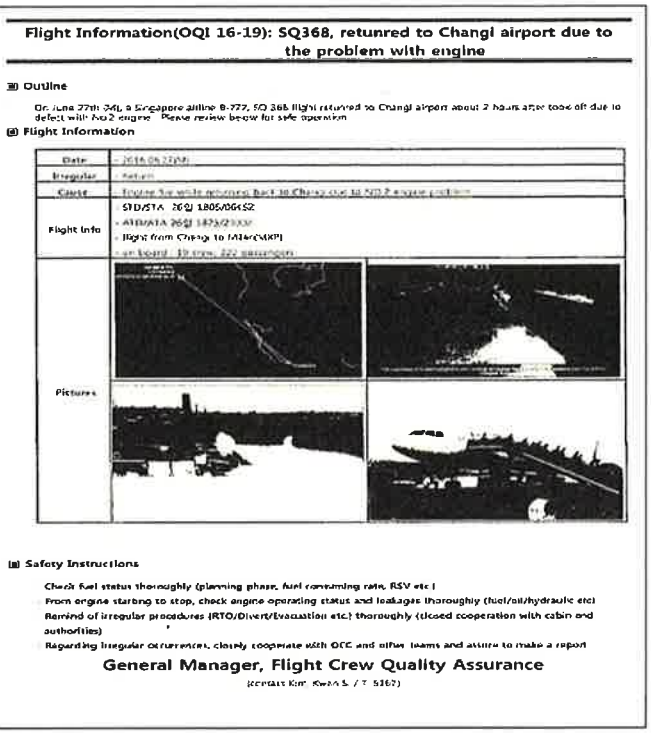
- Agreement has made with Incheon International Airport Corp. for NOT to assign B747 and B777 to GATE 50
- If B747 and B777 are inevitably assigned for gate 50, enter gate by towing

General Manager, Flight Crew Quality Assurance

(Capt. J.H. Kim / T. 5161)

C. Flight Information(OQI)

1) External information which assists safe operation
2) Accident cases of other airlines
3) References : Aviation Herald and internet



Flight Information(OQI 16-19): SQ368, retunred to Changi airport due to the problem with engine

▣ Outline

On June 27th, 16, a Singapore airline B-777, SQ 368 flight returned to Changi airport about 2 hours after took off due to defect with No2 engine. Please review below for safe operation

▣ Flight Information

Date	- 2016.06.27(M)
Irregular	- Return
Cause	- Engine No.2 was returned back to Changi due to NO.2 engine problem
Flight Info	- SIN/STA 26Q 1805/0645Z - ATD/ATA 26Q 1825/2300Z - flight from Changi to Milan(MXP) - on board : 19 crew, 222 passengers
Pictures	

▣ Safety Instructions

- Check fuel status thoroughly (planning phase, fuel consuming rate, RSV etc.)
- From engine starting to stop, check engine operating status and leakages thoroughly (fuel/oil/hydraulic etc)
- Remind of irregular procedures (RTO/Divert/Evacuation etc.) thoroughly (closed cooperation with cabin and authorities)
- Regarding irregular occurrences, closely cooperate with OCC and other teams and assure to make a report

General Manager, Flight Crew Quality Assurance

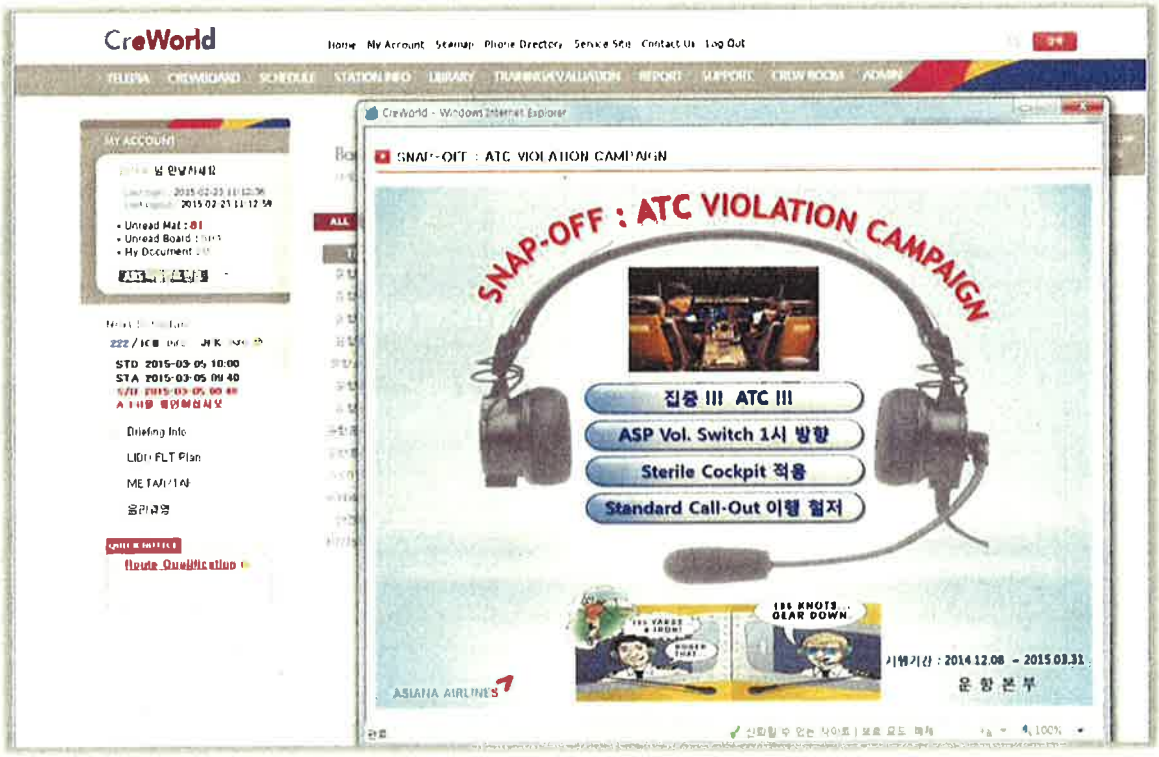
(contact Kim, Kwan S. / T. 5367)

4. Safe Operation Campaign

A. Snap-off: ATC Violation Campaign

1) To cut off connection of safety hazards created by ATC instruction violations, lost communication
2) Period: 2014.12.8~2015.3.31

3) Posted on Creworld as a pop-up window



4) Before flight: Review Campaign materials located in Briefing room

5) A/C inspection: Put ASP volume switch (master switch) at 1 o'clock direction

6) In-flight: check Standard Callout carry out status/ Perform Sterile Cockpit

A. Go Around Campaign

1) To promote flight crew to clearly understand the importance of executing go-around and company policy

2) Period : 2015. 7. 1 ~ 2016.12. 31

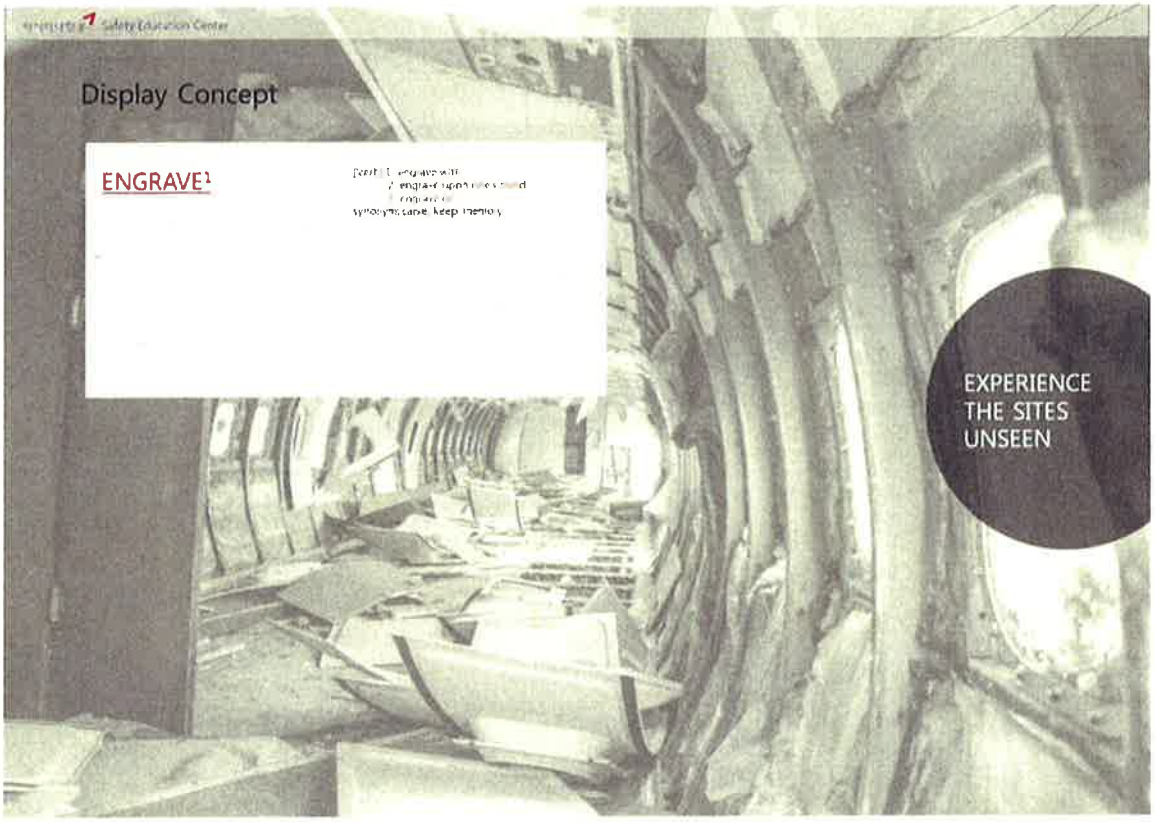
3) Method (Standing Banner, Smart phone background screen)

- Coordinated with advertising team, self-produced
- Expectation: correct understanding and positive attitude on Go-Around policy

[Attachment 10] Safety Education Center Construction Plan

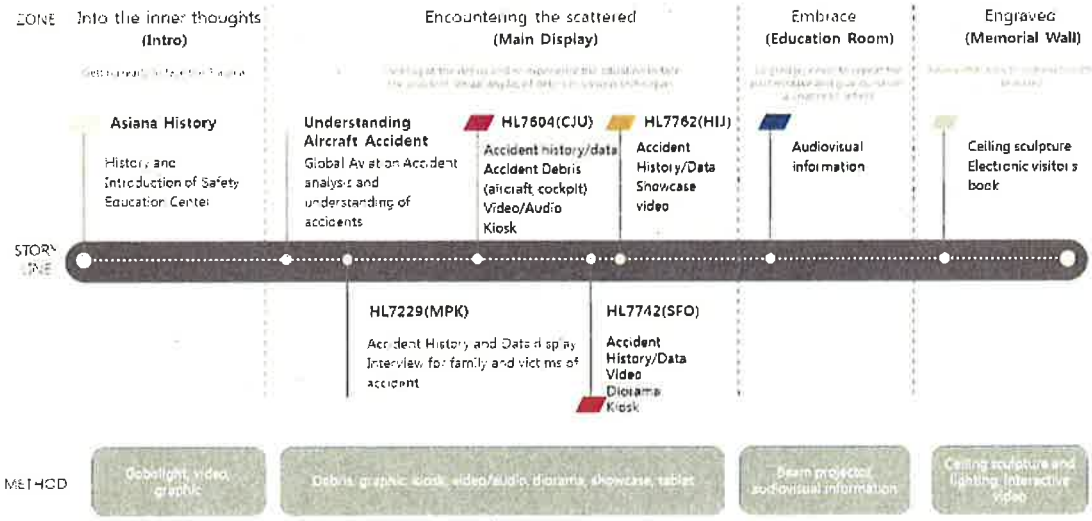
ASIANA AIRLINES

Safety Education Center



Safety Education Center

Story Line



Safety Education Center

Contents List

Zone	Corner	Contents	Applicable Items
01 Into the inner thoughts (Intro)	1_Main Entrance		Gobo light, Graphic
	2_Asiana History		Graphic Panels
	3_Introduction of Center		Graphic Panels + Visual Media
02 Encountering the scattered (Display Room)	1_ Understanding Aircraft Accident	Analysis and understanding of each accident type	Touch Screen, Graphic Panels
		Global aviation accident status	Graphic
	2_ MPK Accident (HL7229)	Historical records and or reports for accident	Graphic Panels (Articles/Photo) Visual Media + Sound
		Stories of injured/death family interviews	Picture Frame, Tablet PC, Headphone
	3_ CJU Freighter Accident (HL7604)	Historical records and or reports for accident	Relics + Graphic Panels, Kiosk
		Accident Debris	Aircraft and cockpit debris(smart screen)+sound/video, graphics
	4_ SFO Accident (HL7742)	Historical records and or reports for accident	Kiosk
		Accident site	Diorama + video
	5_ HIJ Accident (HL7762)	Historical records and or reports for accident	Relic Showcase + graphic panel
03 Embrace (Education Room)		Aviation Safety Training/Edu	Beam projector
04 Engraved (Memorial Room)		Memorial space	Electronic visitor's book, ceiling lights set up

Safety Education Center

Floor Plans

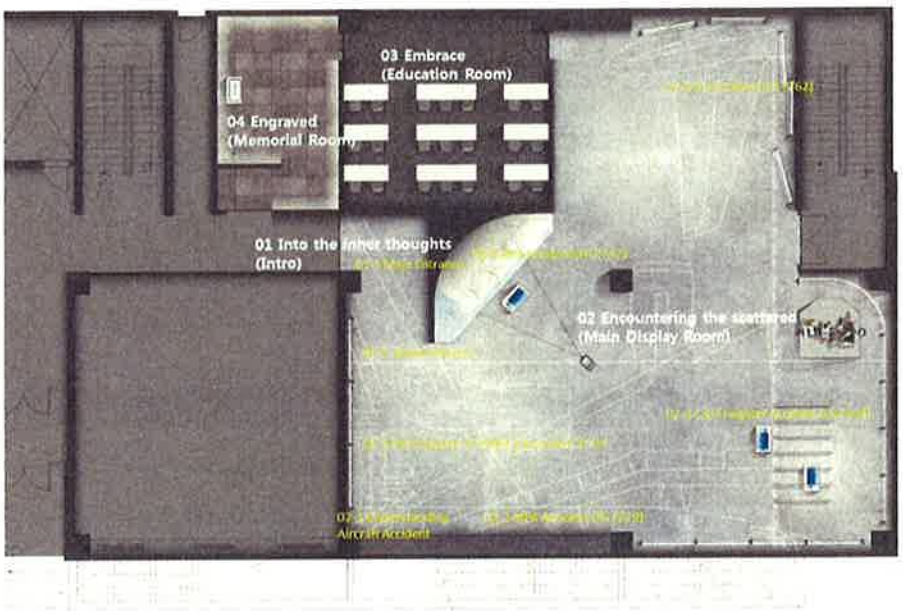
Route

01

02

03

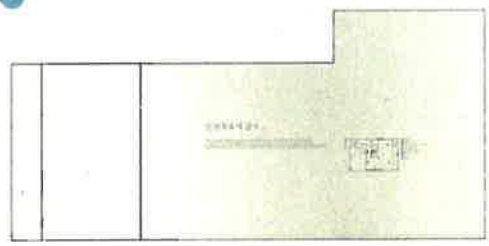
04



Safety Education Center

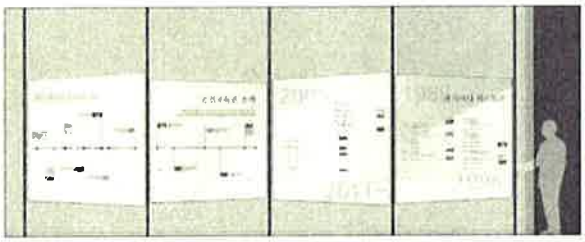
Main Entrance (Intro)

A space to introduce and show the meaning behind the Safety Education Center. Aim for simple and modern display by using Gobo lighting effects, making it a space to engrave the objective and concept of the education center

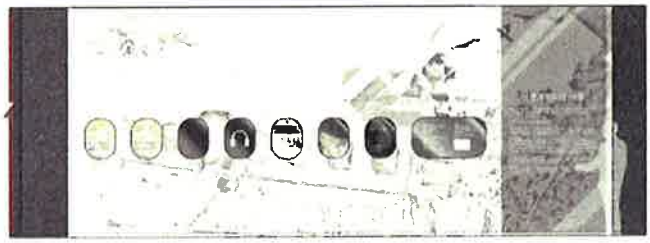


Safety Education Center

Main Display 1

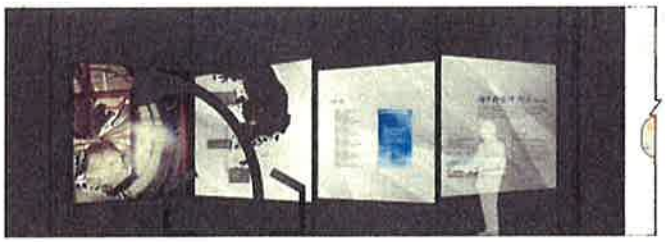


Asiana History
Introduction of Safety Education Center
1. Visual Media

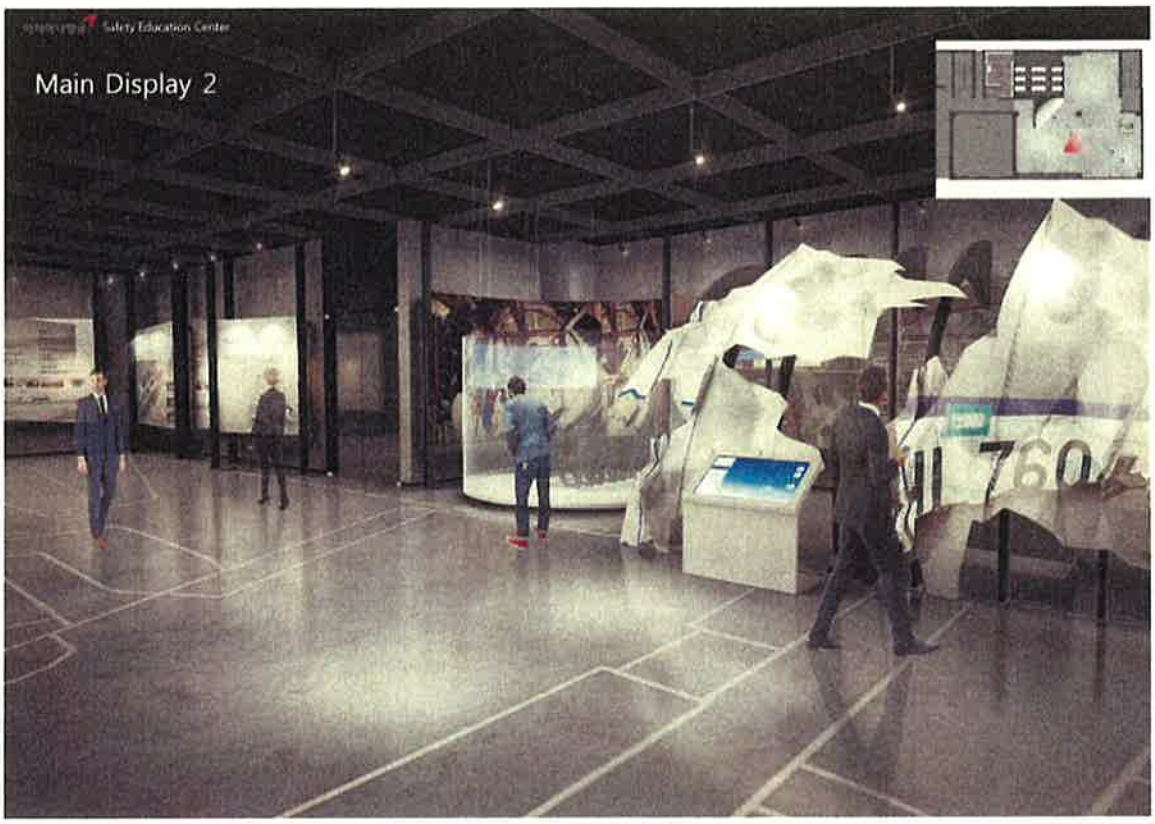


Understanding Aircraft Accident
MPK Accident
1. Basic Flight Principle
2. Video Clip of Accident
3. Cause of Accident (Video)
4. Accident Data (Video, Photo and Drawing)

- Main Display 2



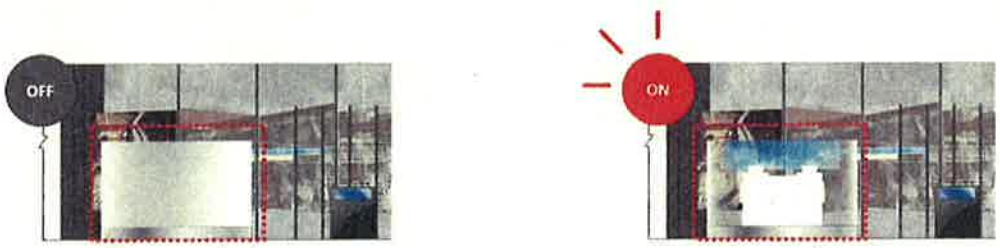
CJU Freighter Accident



Miracle Glass

: Screen that can control the amount of light penetration.
When there is electricity/lighting, it becomes clear

CJU ZONE – Display of Cockpit debris using Miracle Glass



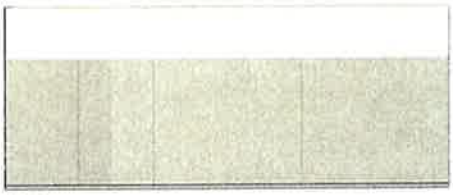
-Using Miracle Glass, select to display CJU cockpit debris or not, private display
-Pop up effect can emphasize the impact of display

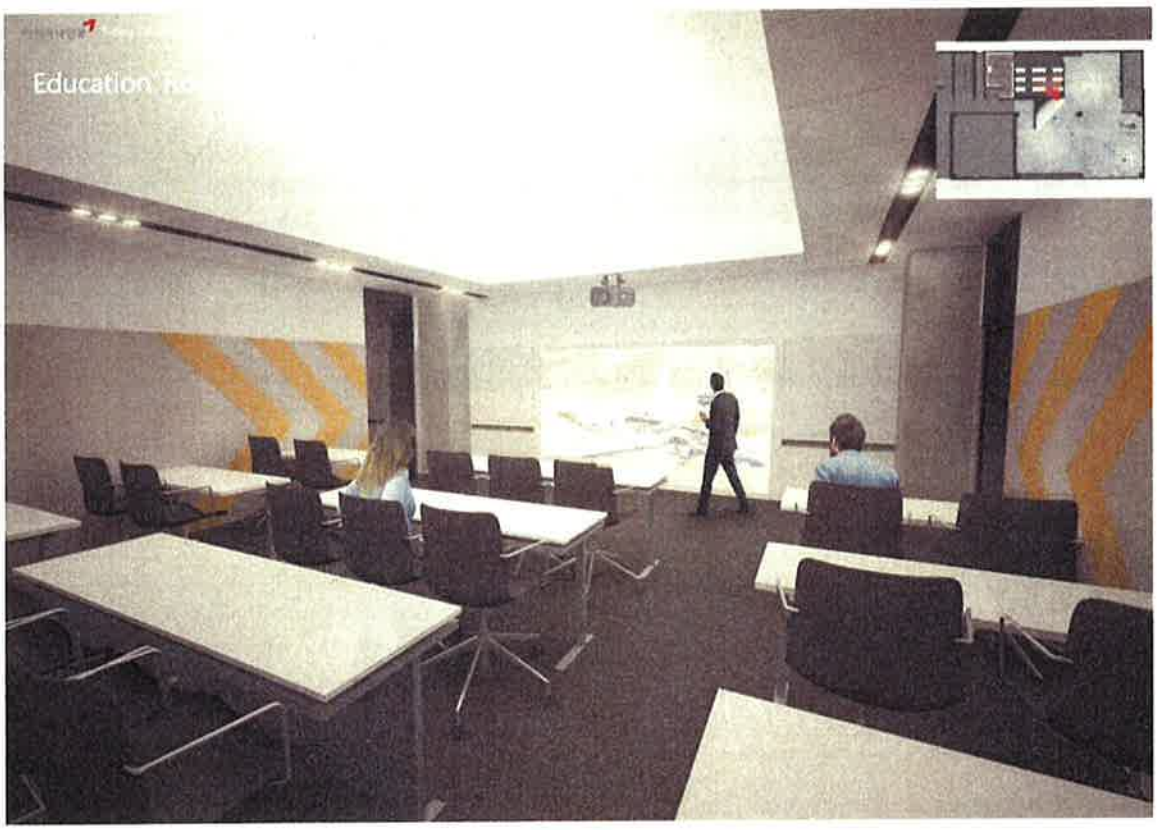
Education Room


Front


Right Side


Left Side


Back



Safety Education Center

Memorial Room

1. Wall of consolation
   - Digital effects and epilogue display
2. Using the concept of glass casket duplex glass color according to the number of victims to give the viewer a lingering feeling

Safety Education Center Plans

- **Goals**
  - Inspire safety consciousness by delivering clear message regarding our company' s terrible accidents
  - State the company' s determination for Safety, and promote safety culture through training of Safety Management System
- **General Plans**
  - Display Rm.
    1) Display Accident Debris
    2) Display relative videos and clips
    3) Introduce company' s future plans for safety
  - Education Rm.
    1) Show necessary safety training videos
    2) Training for Safety Culture and compliance to regulation
    3) Write-up Safety Survey and Comments
- **Plans for execution**
  - Contract : 2016. 5. 24
  - Begin Cons. : Planned 2017 March
  - Completion : Planned 2017 July 7th

[Attachment 11] Establishment of OM (Operation Manual)

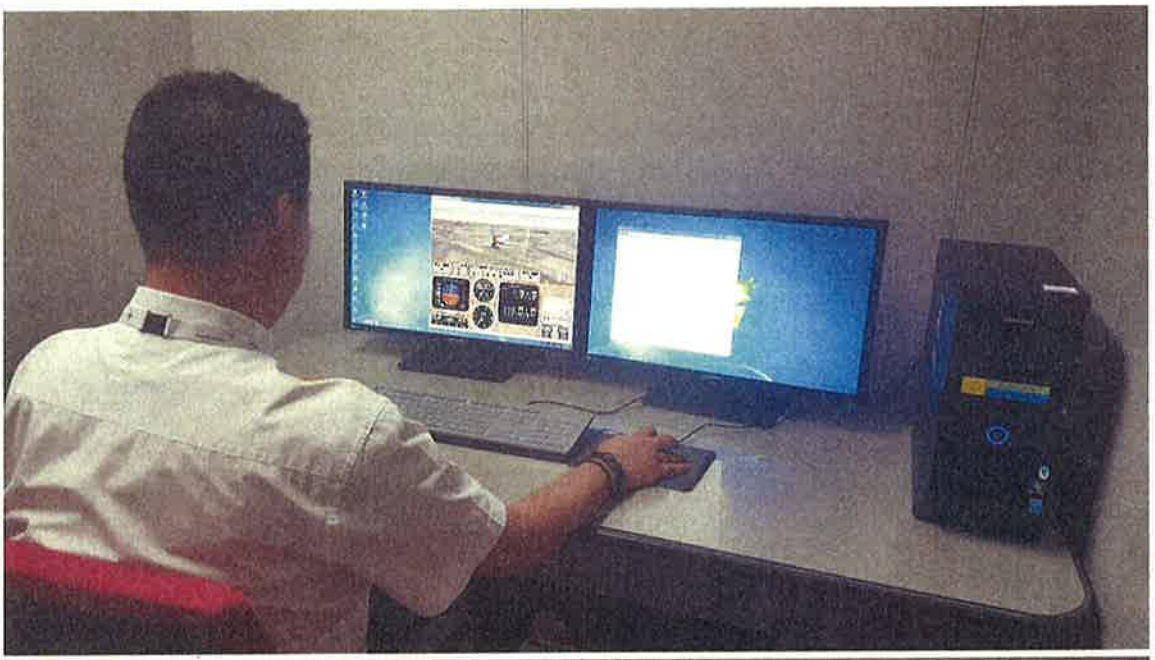
ASIANA AIRLINES 1	USER GUIDE ORGANIZATION
A320 OM	

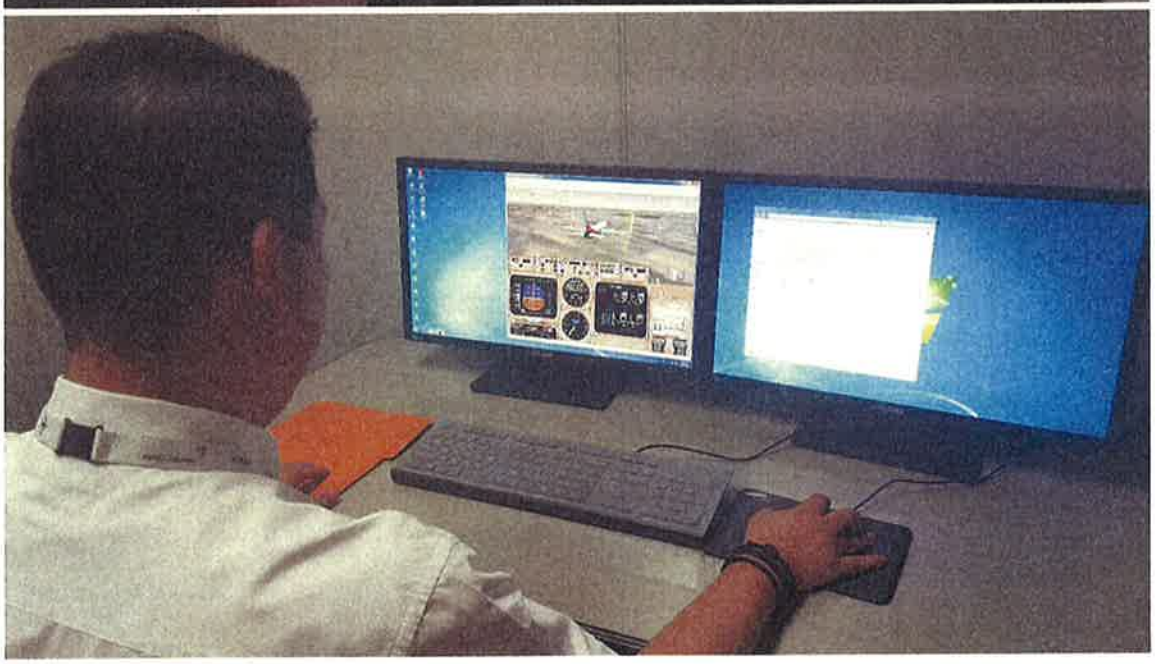
ORGANIZATION

OM consists of 10 chapters and 1 Engineering Information.

- **Chapter 1. Overview**
  The chapter contains introduction of OM. (Objectives, application, effective, amendment etc.)
- **Chapter 2. User Guide**
  The chapter contains a guide to OM (Definition of terms, Page Numbering, Identification, Change Bar, and Organization)
- **Chapter 3. Rules of Operations**
  The chapter contains general Rules of A320 Operation by Asiana Airlines
- **Chapter 4. Normal Procedures**
  The chapter contains a supplement to the Standard Operating procedures (SOP) in the FCOM for safety and standard operations
- **Chapter 5. CAT-II/III Procedures**
  The chapter contains equipment and operation procedures needed for Low Visibility Operations (CAT-II and CAT-III procedure)
- **Chapter 6. Abnormal Procedures**
  The chapter shows Abnormal Procedures. Flight crew must follow these procedures when Abnormal operations occur. For more details, refer to QRH and FCOM

[Attachment 12] FOQA Self-study Room Open





[Attachment 13] 2017 A320 Office Day (Special Occasion Ground School) for Flight Crew

A 320 안전운항팀 2017년 Office Day 계획 2016.12.28 파트장 강승민

1. 일정
가. 2017년 1월부터 6월까지(전반기 6개월간) 매월 2-3회씩 주단위로 실시
(1회 약 30명 X 월2회 X 6개월=360명(총원 376명 대비 96%참가 계획)
나. 스케줄팀과 협의해서 허락되는 범위내 최대한 인원 모집
다. 전반기 6개월간 320팀 전체인원이 참가 불가일경우 하반기에 연장해서 실시(전체인원 참가시 까지)

2. 내용
가. 오전

변경된 그룹제도 설명 팀 현황 설명 우수 운항보고서 및 다수보고자 포상(21명)	1hr	팀장
safety culture 소개 ATC+규정준수 T/O card 변경 소개 Go around 시 운항보고서 작성 의견	2hr	파트장

나. 오후

히로시마 사고조사서 요약본 Review(배포)	1hr	그룹장
RNAV 절차 전파및 토의	3hr	(파트장)

다. 장소
한국공항공사 보안교육센터

라. 진행시간
오전 0900-1200, 오후1300-1700 진행

기타준비사항
점심시간 1200-1300 교육장 인근식당 예약
음료수,과자등 다과준비
실시 1개월전 스케줄팀에 인원 확인후 DAY OFF, STBY 인원 참가 노력
참석예정자 스케줄 Office day 확인(Dayoff절대 금지)
한국공항공사 보안교육센터 A,B,C,D 강의실 예약확인
매월 크루월드 공지-참여독려
★교육자료(USB)+사고조사서 요약본+포인터

1월 참석인원 (1/15 최종작성)

1월 18일(수) 7+11=18명

순번	NAME	C/F	SCH
1	이용섭	CAP	FLT
2	최현복	CAP	OFFD
3	김석균	F/O	OFFD
4	김은수	F/O	OFFD
5	김학준	F/O	OFFD
6	민병성	F/O	OFFD
7	박종한	F/O	OFFD
8	변지환	F/O	OFFD
9	이종환	F/O	OFFD
10	최정훈	F/O	OFFD
11	최남현	F/O	OFFD
12	구형균	수습C	OFFD
13	박재영	수습C	OFFD
14	서광일	수습C	OFFD
15	손창입	수습C	OFFD
16	이석재	수습C	OFFD
17	이원규	수습C	OFFD
18	김주한	F/O	OFFD
19	주교수	F/O	OFFD
1	류영범	CAP	STBY
2	유승준	F/O	FLT
3	박원규	CAP	STBY
4	최성근	F/O	STBY
5	김성화	F/O	FLT

1월 25(수) 6+5=11명

순번	NAME	C/F	SCH
1	신두호	CAP	OFFD
2	김상협	CAP	OFFD
3	노태진	F/O	OFFD
4	신준서	F/O	OFFD
5	조재영	CAP	병가
6	강호준	CAP	OFFD
7	이종하	CAP	OFFD
8	김태일	CAP	OFFD
9	이준형	CAP	OFFD
10	고민욱	F/O	OFFD
11	김광영	F/O	OFFD
12	문지민	F/O	OFFD
1	최이식	CAP	STBY
2	조성준	CAP	STBY
3	이강민	F/O	STBY
4	고정무	F/O	STBY
5	이승철	CAP	STBY
6	장영진	CAP	STBY
7	이진후	CAP	STBY
8	임 호	CAP	STBY
9	김성준	F/O	STBY
10	이기준	F/O	STBY
11	이신권	F/O	STBY

순번	NAME	C/F	SCH
	이성철	CAP	DOFF
X	원광연	CAP	DOFF
	전민호	F/O	DOFF
X	김선섭	F/O	DOFF
	홍준성	F/O	DOFF
X	김효인	F/O	DOFF

실시 결과

22명 참석(출석부 참조)
신 그룹제 교육 pptd 에 그림으로 표시필요
RNAV 에대한 긴 토론 이루어짐-치밀한 전파필요

분홍색은 스케줄 변경자
노란색은 우수보고자 포상자

創業初心

A320 Office day

2017. 1. 18 - 25

A320 안 전 운 항 팀

創業初心

시 간	일 정	담 당
09:00~09:10	일정 안내	A320 안전운항팀
09:10~10:10	그룹제도 변경 설명	A320 팀장
	우수 운항보고서 제출 + 다수 제출자 포상	
10:20~12:00	안전문화 + 규정준수	파트장
12:00~12:50	중식	더존 한우
13:00~14:00	....팀 팀장님 초청 강연	..팀
14:10~17:00	RNAV 절차 전파 및 토의	파트장 + 그룹장

1

創業初心

안전문화(Safety Culture)

- 보고문화(ReportingCulture),
- 정보문화(InformedCulture),
- 학습문화(Learning Culture)
- 융통성 있는 문화(Flexible Culture)
- 공정문화(Just Culture)

2

공정문화(Just Culture)

조직구성원간의 신뢰를 바탕으로

행위자가 일으킨 **실수 및 오류**를

비판하지않는 분위기를 조성하여

안전관련 정보를 공유할 수 있도록

장려하는 문화를 일컫는다.

3

불안전한 행동

-인적오류 (실수)

-위험한(부주의한) 행위

그래도 "안전하게" 행동하고 있다고 믿기 때문에 의도적으로 위험을 무시하는 것이다(다소 제한 속도를 초과하여 운전하는 것, 횡단보도가 아닌 곳에서 길을 건너는 것 등).

-무모한 행위(중과실)

변명의 여지가 없는 실재적인 위험을 의식적으로 무시하는 것이다(예를 들어 음주운전). 타인에게 해를 끼칠 의도가 없다는 점을 이해.

-의도적 위반(범죄 행위)

타인에게 해를 끼칠 것을 알고도 의도적으로 취하는 행동이다.(예를 들어 살인, 강도, 방화 -" 범죄")

4

"실수", "위험한 행위", "무모한/범죄 행위"를 하는 직원의 처리

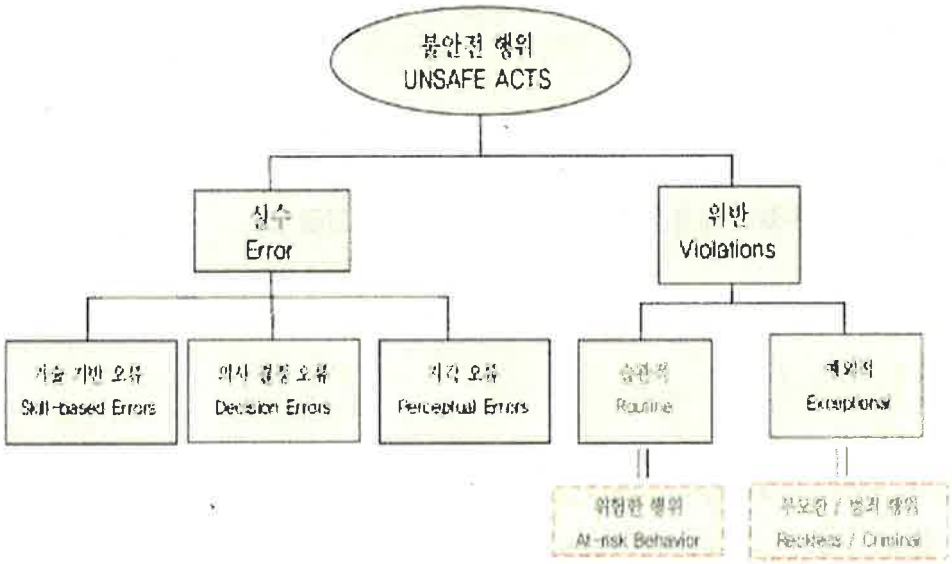
-실수를 한 사람
위로하거나 슬픔/불안을 경감시켜 주어야 합니다". 실수의 재발을 방지하거나 발생 빈도를 줄여야 합니다

-위험한 행위를 한 사람
선도(처벌이 아닌 건설적인 방향으로)해야 합니다. 선도 조치로도 별 효과를 보지 못하는 경우에는 지도 단계로 넘어갑니다.(예를 들어, 해당 직원이 행동 방식을 바꾸지 않는 경우 징계 조치를 취합니다)"

-무모한 행위는 처벌합니다

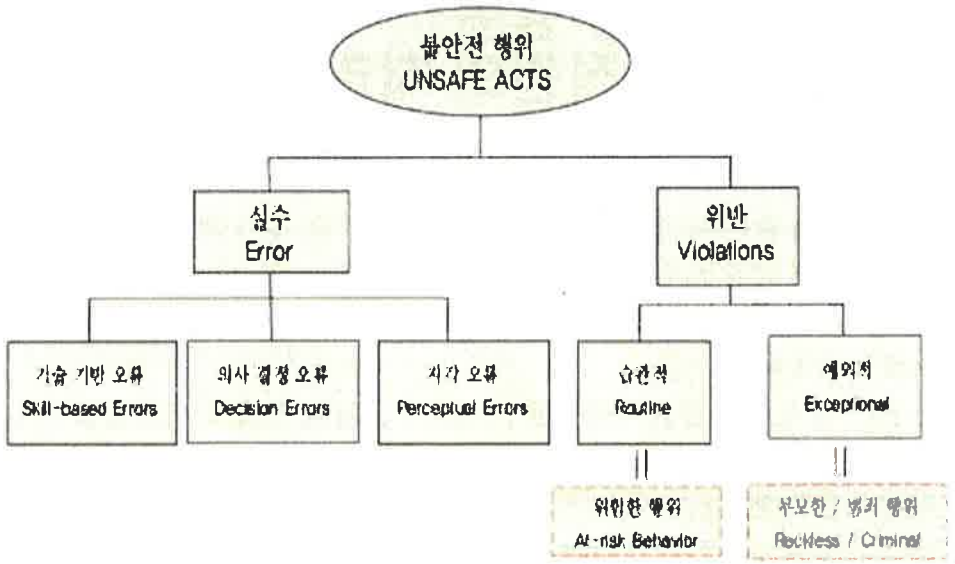
5

創業初心



6

創業初心



6

創業初心

ATC Violation (1)

◆ 배경

- 많은 노력에도 불구하고 가시적인 경감효과가 적어 어려움이 있음
- 유사 호출부호에 의한 ATC Event는 상당히 개선 되었음

8

ATC Violation (2-1)

創業初心

◆ ANALYSIS (2016년 1월~10월 기준)

- CAPTAIN REPORT vs. PENALTY FREE REPORT(unit:case)

CAPTAIN REPORT	PENALTY FREE	TTL
24 (67%)	12 (33%)	36

- FLIGHT CREW: LOCAL vs. FOREIGN(unit:person)

		CAP	F/O	TTL
LOCAL	COMMIT	29 (81%)	35 (97%)	64
	LIST	615 (84%)	665 (97%)	1,280
FOREIGN	COMMIT	7 (19% ▲3%) More frequent than listed captains	1 (3%)	8 (11%)
	LIST	114 (16%)	20 (3%)	134
TTL	COMMIT	36	36	72
	LIST	729	685	1,414

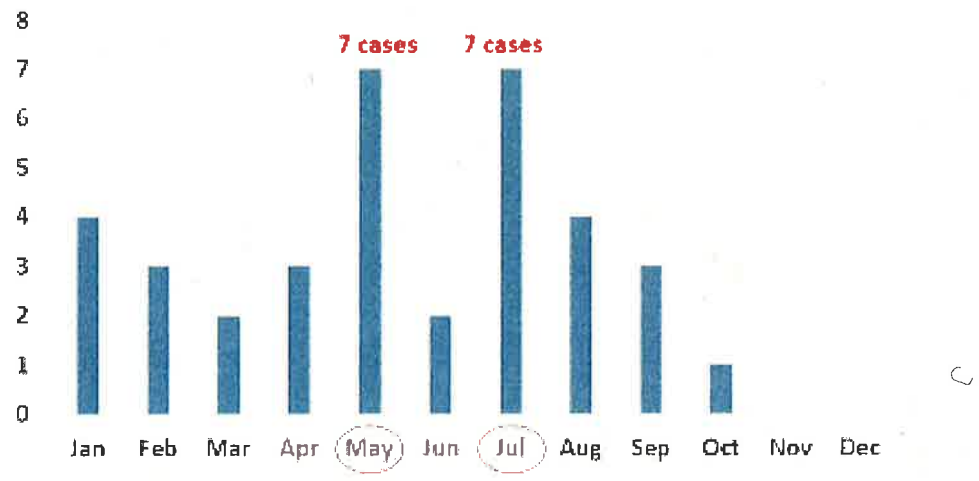
1

ATC Violation (2-2)

創業初心

◆ ANALYSIS

- MONTHLY OCCURRENCE



High occurrence on May and July is reckoned due to seasonal threats.(Busy time)

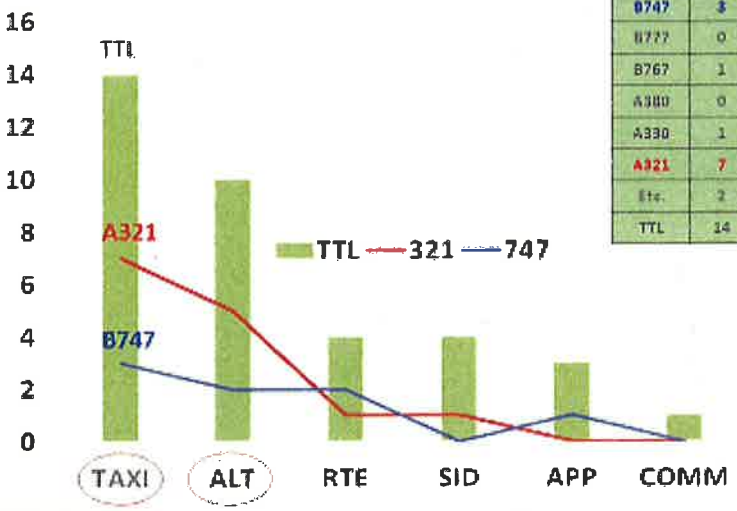
10

ATC Violation (2-3)

創業初心

◆ ANALYSIS

- A/C TYPE & VIOLATION TYPE



	TAXI	ALT	RTE	SID	APP	COMM
B747	3	2	2	0	1	0
B777	0	0	0	2	0	1
B767	1	0	0	0	0	0
A380	0	0	0	0	0	0
A330	1	1	1	1	1	0
A321	7	5	1	1	0	0
Etc.	2	2	0	0	1	0
TTL	14	10	4	4	3	1

Etc.: Not identified of aircraft type

Taxiway incursion and Altitude violation are major, of which counter measures should be planned/do and pursued.

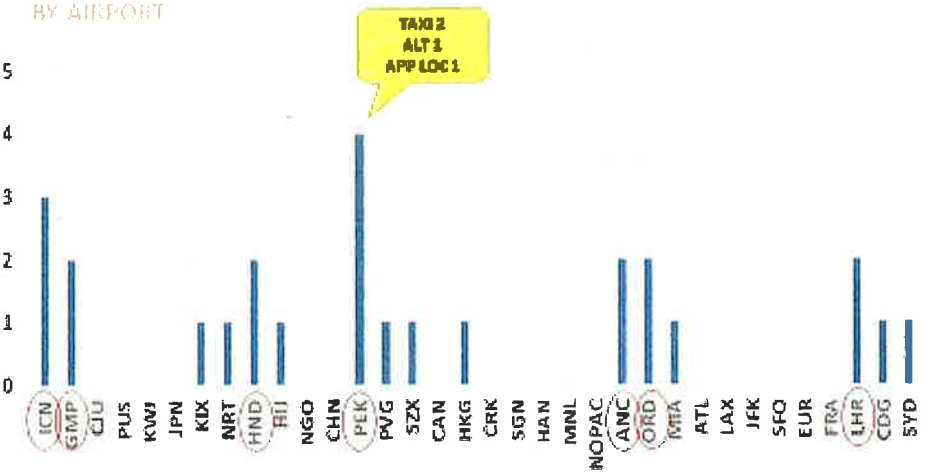
11

ATC Violation (2-4)

創業初心

◆ ANALYSIS

- BY AIRPORT



ATC violation vulnerable airport (Busy Airport)

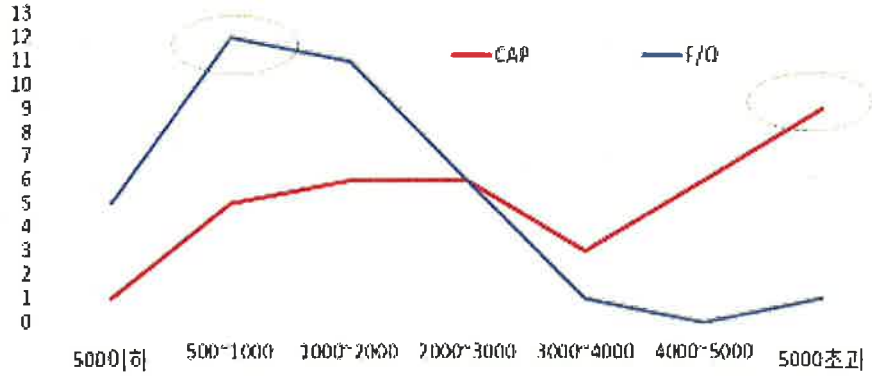
12

ATC Violation (2-5)

創業初心

◆ ANALYSIS

- BY CREW FLYING TIME



CAP: high frequent over 5000 hours
F/O: high frequent between 500~1000 hours

13

ATC Violation (3)

創業初心

◆ ROOT CAUSE

- PF/PM의 명확 치 않은 사항에 대한 "say again" 에 소극적 태도
- "SAY AGAIN"미 실행의 지적보다 ATC 미흡에 대한 비난 분위기
- 부기장의 Jepp' charts 10-9 경로확인 후 "STOP" 조언 미흡

◆ Counter-measures and Conclusion

- ATC 미흡에 대한 평가에서 "SAY AGAIN" 미 실행의 지적으로 전환
- ATC의 정확한 절차-듣고,이해하고,상호확인- 전파

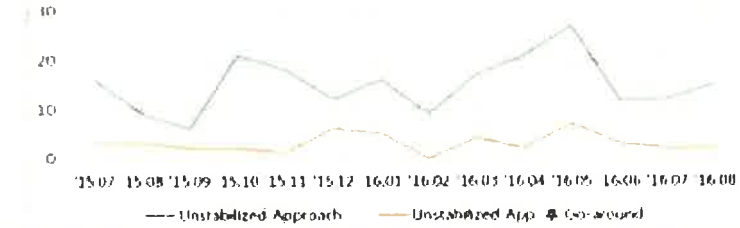
14

創業初心

Unstabilized Approach (1)

◆ 분석 (항공보험 갱신 관련 자료)

1) Go-around & Unstabilized Approach 현황 (보험사 발표자료) * FOQA 감지 기준



구분	'15.07	'15.08	'15.09	'15.10	'15.11	'15.12	'16.01	'16.02	'16.03	'16.04	'16.05	'16.06	'16.07	'16.08	합
Unstabilized Approach	16	9	6	21	18	12	16	9	17	21	27	12	12	15	211
Unstabilized Go-around	3	1	2	2	1	6	5	0	4	2	7	1	2	2	42

2) 보험사에서는 Unstabilized Approach 대비 Go-around 비율(19.9%)이 낮은 것에 대한 우려를 표함

3) FOQA가 감지하는 Unstabilized Approach 종류: 1,000ft에서 아래 조건일 때
- Rate of descent (강하율)
- Late Landing Flap/Late Landing Gear
- GPWS

15

創業初心

히로시마 관련내용 추가예정

2017-01-18 (Wed)

16

인천보안청

創業初心

Unstabilized Approach (2)

◆ 개선 노력

- 부기장으로서 무엇을 할 것인가?
- 팀에서는 무엇을 해야 하나?
- 히로시마사고에 대해 알고 있나? 배울점 은?

17

創業初心

A320 POM — 제 2 장 Supplementary SOP

2.11.6.5 Missed Approach (Go-around) [illegible]

Missed approach (Go-around) [illegible]

가) Situation awareness [illegible]

나) [illegible] FF/PU [illegible]

다) ATC [illegible]

라) Approach path in landing configuration [illegible] 1,000 feet AFE [illegible] stabilized approach [illegible]

마) GPWS, TCAS, Windshear Alert [illegible]

바) MAP(Manual) [illegible] Visual cue [illegible] Contact Lost [illegible]

사) [illegible]

아) [illegible]

자) 1,000 feet AFE [illegible] Tower [illegible] Wind [illegible] Limitations [illegible]

Note)

1. CAT II/III approach [illegible] POM [illegible] CAT II/III operations [illegible]

2. Go around [illegible]

2.11.6.6 DA/DH, MDA/MDH 이하로의 강하

[illegible] DA/DH [illegible] MDA/MDH [illegible]

가) [illegible] TDZ [illegible]

나) [illegible]

1) Approach Light System

2) Threshold Markings/Lights

3) Runway End Identifier Lights

4) Visual Glide Path Indicator (VASI, PAPI 등)

5) TDZ or TDZ Markings/Lights

6) Runway or Runway Markings/Lights

[illegible] 2006. 02. 01 — 2-111 — Rev 12 2014. 11. 01

18

創業初心

ASIANA AIRLINES 1

A320 OM

NORMAL PROCEDURES
STANDARD CALLOUTS

2. *At least one of the following visual references for the intended runway is distinctly visible and identifiable to the pilot:*
   a. *The approach light system, except that the pilot may not descend below 30m(100ft) above the touchdown zone elevation using the approach lights as a reference unless the red terminating bars or the red side row bars are also distinctly visible and identifiable.*
   b. *The threshold.*
   c. *The threshold markings.*
   d. *The threshold lights.*
   e. *The touchdown zone or touchdown zone markings.*
   f. *The touchdown zone lights*

19

創業初心

Just Say " STOP, SAY AGAIN, GO AROUND! "

T/O	MENIMUM T/O FUEL					OZ	
FLAPS		SPD	V1	VR	V2	ATIS CODE	
FLEX TEMP		Chart				RWY	
Δ TEMP		Δ V				WIND	
WT AVAL		T/O				VISIBILITY	
WT T/O		REMARKS :				CEILING	F
							S
							B
							O
						TEMP	
						QNH/QFE	

L/D	Just Say " STOP, SAY AGAIN, GO AROUND! "		OZ
WEIGHT		ATIS CODE	
LAND CONF		RWY	
AUTO BRK/ LD dist'		WIND	
VAPP		VISIBILITY	
MIN FUEL		CEILING	F
			S
SPOT & REMARKS :			B
			O
		TEMP	
		QNH/QFE	

創業初心

Go-Around 운항보고서

2017-01-18 (Wed)

21

안전운항실

創業初心

APPROACH TYPE

-Precision approach (PA)

-Approaches with vertical guidance (APV)

-NON-Precision approaches (NPA)

※ APV≠NPA

오후진행

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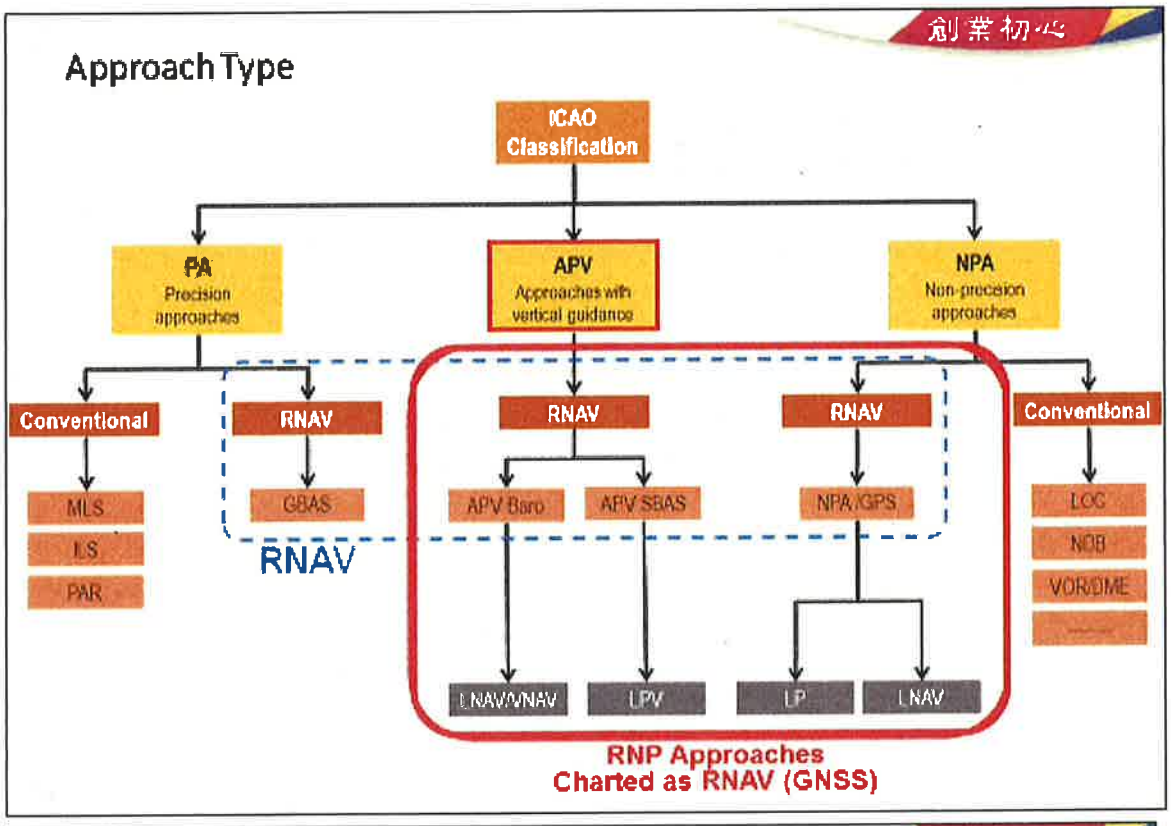
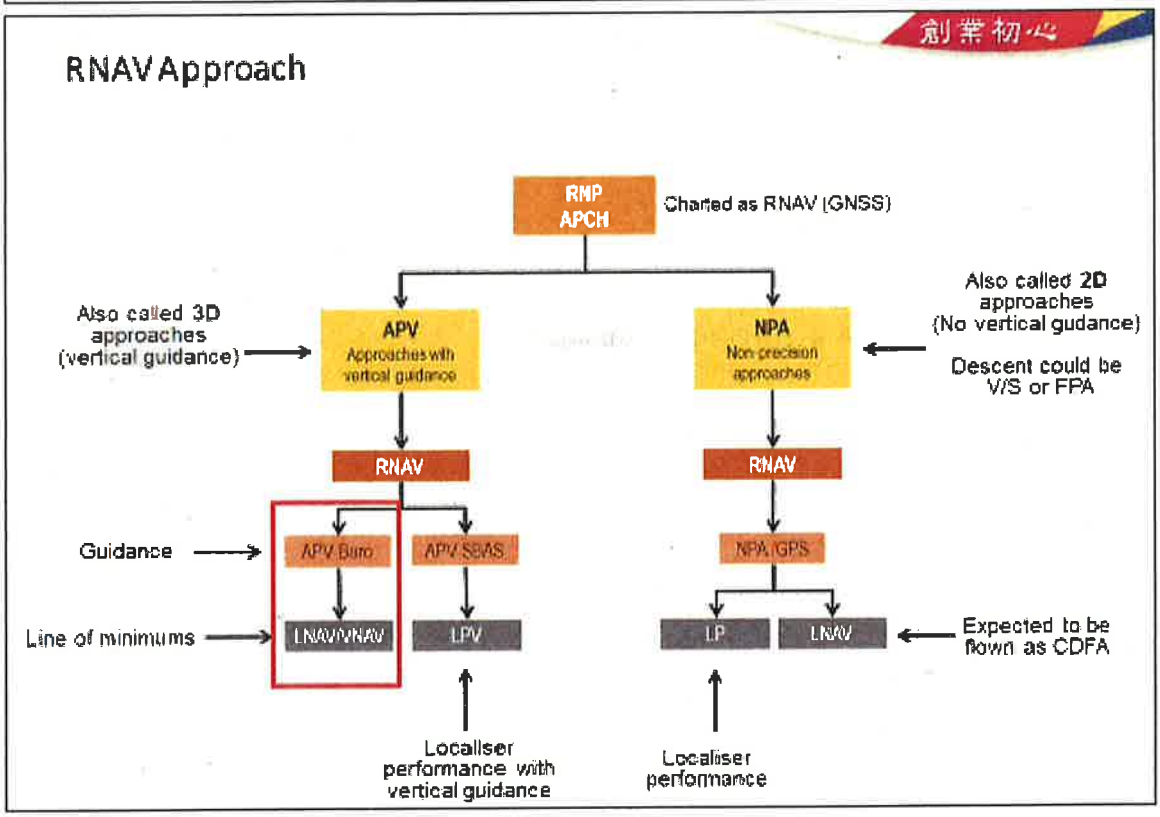

創業初心
Approach Type
ICAO Classification
PA Precision approaches
APV Approaches with vertical guidance
NPA Non-precision approaches
Conventional
RNAV
RNAV
RNAV
Conventional
MLS
ILS
PAR
GBAS
RNAV
APV Baro
APV SBAS
NPA/GPS
LOC
NDB
VOR/DME
LNAV/VNAV
LPV
LP
LNAV
RNP Approaches
Charted as RNAV (GNSS)


創業初心
RNAV Approach
RNP APCH
Charted as RNAV (GNSS)
Also called 3D approaches (vertical guidance)
APV Approaches with vertical guidance
NPA Non-precision approaches
Also called 2D approaches (No vertical gudance)
Descent could be V/S or FPA
RNAV
RNAV
Guidance
APV Baro
APV SBAS
NPA/GPS
Line of minimums
LNAV/VNAV
LPV
LP
LNAV
Expected to be flown as CDFA
Localiser performance with vertical guidance
Localiser performance

Part 2 – Section 1 Chapter 1

Initial approach segment. That segment of an instrument approach procedure between the initial approach fix and the intermediate approach fix or where applicable, the final approach fix or point.

Initial departure fix (IDF). The terminal fix for the initial segment and the point where the commence phase of the RNAV departure begins.

Instrument approach operations. An approach and landing using instruments for navigation guidance based on an instrument approach procedure. There are two methods for executing instrument approach operations:

a) a two-dimensional (2D) instrument approach operation, using lateral navigation guidance only; and

b) a three-dimensional (3D) instrument approach operation, using both lateral and vertical navigation guidance.

Note 1.— Lateral and vertical navigation guidance refers to the guidance provided either:

a) by a ground-based radio navigation aid; or

b) by computer-generated navigation data from ground-based, space-based, aircraft-based sources, or a combination of these.

Instrument approach procedure (IAP). A series of predetermined maneuvers by reference to flight instruments with specified protection from obstacles from the initial approach fix, or where applicable, from the beginning of a defined arrival route to a point from which a landing can be completed and thereafter, if a landing is not completed, to a position at which holding or en-route obstacle clearance criteria apply. Instrument approach procedures are classified as follows:

Non-precision approach (NPA) procedure. An instrument approach procedure designed for 2D instrument approach operations Type A.

Note 1.— Non-precision approach procedures may be flown using a continuous descent final approach (CDFA) technique. CDFAs with solution RNP guidance calculated by on-board equipment (see Part 1, Section 4, Chapter 1, paragraph 1.5.5) are considered 3D instrument approach operations. CDFAs with vertical guidance based on ground-based augmentation are considered 3D instrument approach operations. For more information on CDFA, refer to Part 1, Section 4, Chapter 1, paragraph [illegible].

Approach procedure with vertical guidance (APV). A performance-based navigation (PBN) instrument approach procedure designed for 3D instrument approach operations Type A.

Precision approach (PA) procedure. An instrument approach procedure based on navigation systems (ILS, MLS, GLS and SBAS CAT I) designed for 3D instrument approach operations Type A or B.

Note.— Refer to Annex 6 for instrument approach operations Type[illegible].

Intermediate approach segment. That segment of an instrument approach procedure between either the intermediate

[illegible]

6.8 Instrument Approach

6.8.1 [illegible]

6.8.1.1 Instrument Approach [illegible]

[illegible]

(1) [illegible] (Precision Approach)

[illegible]

(2) [illegible] (Non-Precision Approach)

[illegible]

(3) [illegible] (Approach with Vertical Guidance – APV)

[illegible]

[illegible]

[illegible]

創業初心

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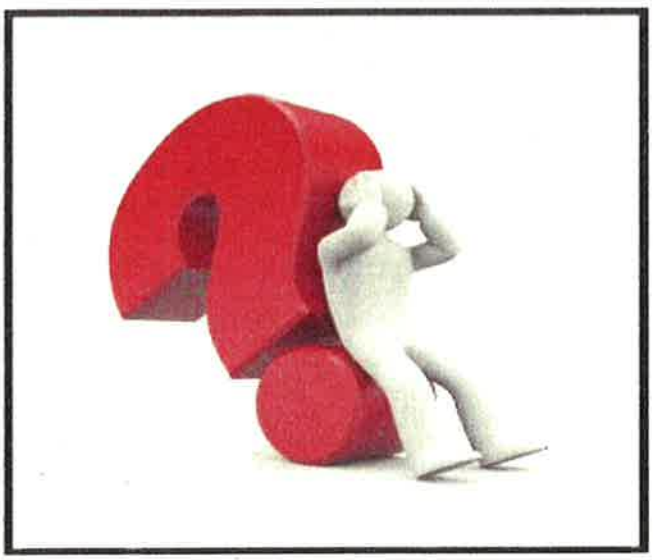
創業初心

A320 RNAV(GNSS) Approach



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FLYING REFERENCE

> PRO-NOR-SOP-18 p2/6

Ident.: PRO-NOR-SOP-18-A-00014488.0001001 / 29 MAY 13
Applicable to: ALL

Use the following recommended flying reference:

- In vertical managed modes: HDG-V/S reference associated with the FD crossbars
- In vertical selected modes: TRK-FPA reference associated with FPD.

APPROACH SPEED TECHNIQUE

> PRO-NOR-SOP-18 p4/6

Ident.: PRO-NOR-SOP-18-A-00014485.0001001 / 29 MAY 13
Applicable to: ALL

DECELERATED APPROACH

The decelerated approach with FD or AP/FD guidance is the standard flying technique for ILS / MLS * / GLS * approaches and approaches using FLS * or FINAL APP guidance.

EARLY STABILIZED APPROACH

Under certain circumstances, the flight crew may decide to reduce the speed down to VAPP in the landing configuration at the Final Descent Point (i.e. approach via selected guidance, high glide path angle, low altitude intermediate approach, etc.). In order to obtain a valuable deceleration pseudo waypoint and to ensure a timely deceleration, the flight crew should enter VAPP as a speed constraint at the Final Descent Point.

APPROACH USING FINAL APP GUIDANCE

> PRO-NOR-SOP-18-C p11/22

Ident.: PRO-NOR-SOP-18-C-C-00014521.0002001 / 29 MAY 13
Applicable to: ALL

GENERAL

The following items are to be performed in addition to previous SOP chapters in the following cases:

- RNAV(GNSS) approaches with LNAV and LNAV/VNAV minima
- Conventional approaches based on VOR or NDB using FINAL APP guidance.

RNP APCH / RNAV(GNSS)

> PRO-SPO-51 p9/10

Applicable to: ALL

Ident.: PRO-SPO-51-G-00015839.0001001 / 23 JUN 15

GENERAL

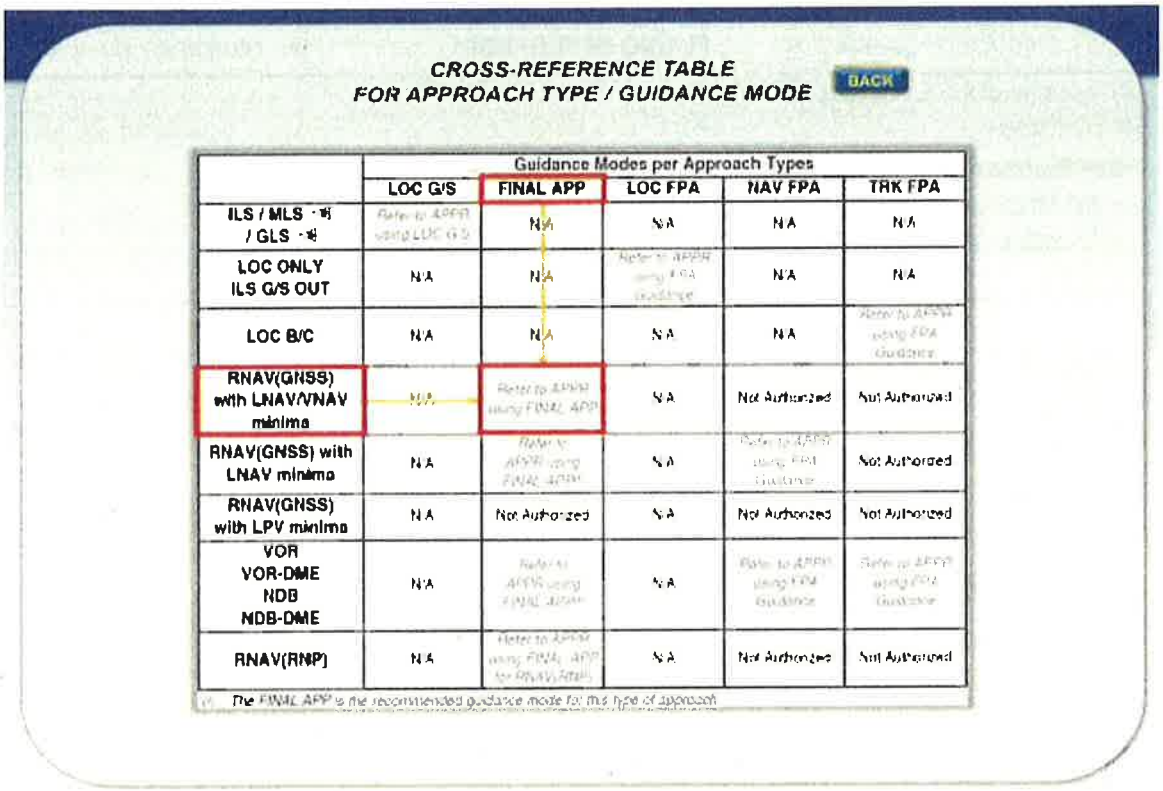
RNP APCH operations correspond to RNAV(GNSS) or RNAV(GPS) operations.
For these operations, the GPS is required to support the RNP value of 0.3 nm.

Ident.: PRO-SPO-51-G-00015840.0001001 / 23 JUN 15

REQUIRED RNP APCH EQUIPMENT

The minimum equipment required to perform RNP APCH operations is:

- One FMS
- One GPS
- One MCDU
- One FD
- One PFD on the PF side
- One ND on the PF side
- Two FCU channels



CROSS-REFERENCE TABLE
FOR APPROACH TYPE / GUIDANCE MODE

BACK

	Guidance Modes per Approach Types				
	LOC G/S	FINAL APP	LOC FPA	NAV FPA	TRK FPA
ILS / MLS * / GLS *	Refer to APPR using LOC G/S	N/A	N/A	N/A	N/A
LOC ONLY ILS G/S OUT	N/A	N/A	Refer to APPR using FPA Guidance	N/A	N/A
LOC B/C	N/A	N/A	N/A	N/A	Refer to APPR using FPA Guidance
RNAV(GNSS) with LNAV/VNAV minima	N/A	Refer to APPR using FINAL APP	N/A	Not Authorized	Not Authorized
RNAV(GNSS) with LNAV minima	N/A	Refer to APPR using FINAL APP	N/A	Refer to APPR using FPA Guidance	Not Authorized
RNAV(GNSS) with LPV minima	N/A	Not Authorized	N/A	Not Authorized	Not Authorized
VOR VOR-DME NDB NDB-DME	N/A	Refer to APPR using FINAL APP	N/A	Refer to APPR using FPA Guidance	Refer to APPR using FPA Guidance
RNAV(RNP)	N/A	Refer to APPR using FINAL APP for RNAV(RNP)	N/A	Not Authorized	Not Authorized

* The FINAL APP is the recommended guidance mode for this type of approach

[Attachment 14] Modification of Flight Crew Training Manual

1. Compliance with Rules and Regulations

A. Regular Ground School : Added a specific course regarding "Regulation Compliance)

*** Contents**

Related information in FOM / Related contents in HL7762 Report

* Flight Crew Training Manual AP 4-1

Cat.	Subject

Regular Ground School (13+00) / Yearly	1 S T H A L F	-.Air Law -.CRM REVIEW -.장거리 운항절차(MNPS, **PBN**, RVSM 등) -.항공보안 -.계기비행 -.비상장비훈련(이론) -.위험물 취급법 -.ATC Procedure -.특별교육 사항(해당교육 필요시)
	2 N D H A L F	-.Accident Prevention (CFIT, In-flight collision, QAR, **Regulation Compliance**, etc) -.DE/ANTI-ICING procedure -.항공기상 -.항공생리 -.CRM REVIEW -.비상장비훈련(실습) -.특별교육 사항(해당교육 필요 시)

B. Initial Training : Added **"Regulation Compliance" during POM training**

ex) B747 AP 5-7 ~ 5-8(added to all the fleet)

6) POM

A) STP OPS Procedure

- General Information
- Pre-Flight
- Before Flight
- Engine Start
- Taxi Out
- Take Off
- Climb
- Cruise
- Descent
- Approach
- Landing
- After Flight
- Standard Callout & Response Procedure
- **Regulation Compliance**

C. Basic Training

1) Regulation Compliance added to JTS Normal Procedure

* AP –10

타. JTS Normal Procedure

- Checklist usage
- Bugs Setting
- Cockpit Preparation
- **Regulation Compliance**

2) Flight Safety Education Subject newly contains Regulation Compliance

* AP 1-3

카. Flight Safety(10+00)

- Safety Management System(SMS)
- **Regulation Compliance, etc.**

2. Safety Action Plan

A. Relevant Manual Revision

1) Flight Crew Training Regulations No.58 will contain the change above.

- Approval expected on APR 2017

B. New Training Material regarding the New Subject

1) Due : Until 2017. 2. 11

2) Subject

A) Regulation Compliance Emphasis

B) SCAN POLICY

- Relevant information in FOM and HL7762 Accident Investigation Report

[Attachment 15] Slogan for 2017 to emphasize the importance of compliance with regulations

대외비

4차 산업사회 선도

Develop & carry out Survey → Compare&Contrast (vs.'16) → Improvement plans → Apply for safety culture promotion

☞ Will make the questionnaire by combining '16 survey results (8 questions) and MoLIT survey (50 questions). Plan to compare and contrast the '17 survey results with '16 survey results

2) Build Safety Promotion Center

Selection of debris and developing exhibit contents	→	Internal Construction	→	Finalize exhibition and construction	→	Open (During 'Accident memorial day')
'17.01~'17.03		'17.04~'17.05		'17.06~'17.06		'17.07.07

C. Work shop for HL7762 HIJ accident follow-up

: Through HIJ accident's root cause, share the foundational problems and create a common understanding/grounds (SQSM, OCC, FLT, CAB)

※ DDP will attend, planned for end of February

D. 2017 Safety & Security Slogan

: Plan to make a slogan in direction of (Zero tolerance for non-compliance)

SAFETY RECOMMENDATIONS 2

ATTACHMENTS

[Attachment A] Special SIM Training Enforcement

1. Outline

   1) Objective : To enhance visual approach skill, situation awareness skill under the low visibility/bad weather condition and situation management skill by strengthening non-precision approach training

   2) Date : '15.04.16~06.20

   3) Place : Company facility or external training institution (GMP CAE)

   4) Time : Training 0+30 / Audit 0+30 (Perform Crew Concept)

2. Training Results (As of '15.06.20)

A/C Type	Subject			Enforcement			Ratio
	CAP	F/O	TTL	CAP	F/O	TTL	
A320	191	158	349	191	158	349	100%

3. Number of Disqualified Flight Crew (As of '15.06.20)

A/C Type	Subject			Enforcement			Ratio
	CAP	F/O	TTL	CAP	F/O	TTL	
A320	191	158	349	8	6	14	4.0%

☞ *All disqualified staff have gone through re-evaluation*

[Attachment B] A320 SIM Visual System Upgrade

1. Investment History
   1) Latest Visual System (CAE TROPOS 6000XR)
   2) LED Projector Set-up
   3) Investment Amount : $580,000
   4) Secured 254 Airport's Real Scene Data including 3 Customized Scene
      ※ Special Airports (PUS, FUK, REP, HKG, DLC, etc.), HIJ
2. Investment Schedule
   1) Completion of Contract/Order : '15.04.02
   2) Upgrade : '16.01.10~01.22 (8 months after order placed)
3. Expected Effects
   1) Maximize effectiveness of flight crew training with optimized visual environment created through Visual System upgrade
   2) Expect realistic training experiences by utilizing Visual Scene which provides actual environment that is similar to the airports of A320 Regular/Non-regular scheduled flights

[Attachment C] 2nd half of 2015 SIM training – Patchy fog training

After HIJ accident, Asiana was trying to improve competency of Asiana pilot to prevent similar incident or accident like HIJ accident.
So All Asiana pilot already had a simulator training under the unexpected partial fog -called "Patchy Fog- in the 2nd half of 2015(Refer to the below)

Asiana Airlines 7

A320-200

POST-LOFT TRAINING PROFILE

CAPTAIN

①MANDATORY 1 (RKPK-PAR APP)
-WX : CAVOK, TAILWIND 15 KTS
-PAR APP RWY36L 12NM on final

② MANDATORY 2 (RKSI -RIGHT SEAT)
-WX ; CAVOK, CROSS WIND 15 KTS
(PROFILES)
-ENGINE FAILURE AFTER V1(RKSI RWY 33L)
-ONE ENGINE MISSED APP' AND LANDING(ILS DME RWY 33R)

③G/A with bouncing during flare (RKSI)
-12NM Final RNAV(GNSS) RWY 33R
-Cross Wind 10G20kts, OAT -10°C, QNH 29.92 inHg,
-GO AROUND AFTER BOUNCE
-FLARE start AT 10FT.

④ Rejected L/D due to Patchy fog (RKSI)
-12NM Final RNAV(GNSS) RWY 33R
-Sudden W/X changes to CAT III B at 100FT with patchy fog

FIRST OFFICER

①MANDATORY (RKPK-PAR APP)
(PROFILES)
-PAR APP RWY36L 12NM on final then CIRCLING RWY18R
(2000FT 5SM, WIND 220/20)

②TAIL STRIKE AVOIDANCE TRAINING(RKPK)
-12NM Final ILS DME RWY 36L
-GO AROUND AFTER BOUNCE (FLARE start AT 10FT)
-If F/O bounces, then Captain takes over controls.

5. Post-Loft Training Profile

A. RIGHT SEAT TRAINING for CAPTAIN (Mandatory)

- RKSI RWY 33L (CAVOK, CROSS WIND 15KTS)
- MISSING INPUT FLEX TEMP ON T/O PERF PAGE
  (PILOT FINDS IT DURING T/O ROLL, EXECUTE TOGA T/O)
- DURING TAKEOFF AFTER V1, ENG STALL WITH THE ENGINE DAMAGED
  DUE TO BIRDS STRIKE (ENGINE SHUTDOWN)
- APPROACH&GO-AROUND WITH ONE ENGINE INOPERATIVE (ILS RW 33R)
- APPROACH&LANDING WITH ONE ENGINE INOPERATIVE (ILS RW 33R)

B. PAR APPROACH for CAPTAIN&FIRST OFFICER (Mandatory)

- ROAH RWY 18 PAR (Precision Approach Radar)
  (CAVOK,TAIL WIND 10KTS)

C. G/A DUE TO BOUNCING DURING FLARE AND/OR PATCHY FOG (LOSS OF VISUAL CUE) for CAPTAIN&FIRST OFFICER

-RJFF RWY16
-NORMAL T/O (RWY H/D) : CIG/RVR (1000FT/500M), X-WIND 20KTS,
WT(400000LBS), RWY COND DRY
- L/D : CIG/RVR (1000FT/2000M),PATCHY FOG,X-WIND 20(CAPT)KTS or 15(F/O)KTS,
WT(380000LBS),RWY COND DRY
- RNAV(GNSS) RWY16 APP&GO AROUND AFTER BOUNCE (FLARE START AT 10FT)
- RNAV(GNSS) RWY16 APP&GO-AROUND AT DA or MDA(LOSS OF VISUAL CUE)
- REPOSITION TO NOKOH & RNAV(GNSS) RWY16 APP&L/D

* APPROACH&GO-AROUND WITH TAIL STRIKE OCCURED

ASIANA AIRLINES

A380

5. POST - LOFT

a. RIGHT SEAT TRAINING for CAPTAIN (Mandatory)
KJFK 22R Takeoff Position—ILS RWY 22L(Manual Approach & Landing)

Cross Wind 30kts, OAT -10°C, QNH 29.92 inHg,
RWY COND Wet(3mm dry snow), Good, ENG A-ice on, TOW 1,100.0 klbs, LW 860.0 klbs
V1 134, VR 144, V2 154 FLAPS 2, TOGA, Stop Margin 2712ft

O During takeoff after V1, ENG STALL with the engine failure due to bird ingestion
O Approach & Go-Around with One Engine Inoperative (ILS RWY 22L)
O Approach & Landing with One Engine Inoperative (ILS RWY 22L)

b. G/A WITH BOUNCING DURING FLARE (Mandatory, CAPT & F/O each, 1 time)
KJFK 22L 3NM Final(ILS RWY 22L) → Go around from 50 ft ~ 20ft(by ATC or No flare)

Cross Wind 10G20kts, OAT -10°C, QNH 29.92 inHg,
RWY COND Slush 1/4"(6mm), Medium(Fair), LW 860 klbs

O PF : CAPT
O PF : F/O→Captain takes over the control from F/O

c. REJECTED LANDING DUE TO PATCHY FOG (Mandatory, PF : CAPT)
KJFK 22R 6NM Final(RNAV(GPS) RWY 22R)
Above Minimum → Lost Visual Contact due to the Degraded WX (around 100ft)

Wind Calm, OAT -10°C, QNH 29.92 inHg, LW 860 klbs, All 22R RWY Lighting 5 Overcast Base AGL 3000ft, Visibility 2SM, Patchy Fog, RVR 2400ft, Fog Top 50ft → Preset WX CAT I (200ft) →Preset WX 0/0 (100ft)

d. POLAR OPERATION TRAINING (Crew Concept, PF : CAPT, PM : F/O)
KJFK 6A Gate Position→Quick Cockpit Preparation & Starting ENG

Cross Wind 10G20kts, OAT -10°C, QNH 29.92 inHg,
RWY COND Slush 1/4"(6mm), Medium(Fair), ENG A-ice on, TOW 1,200 klbs,
Takeoff RWY : Jul ~ Sep 31L(NOTAM, Start 3600ft), Oct ~ Dec 22R
Route : Refer to OFP(Attach #2)
(JFKIP5W1, 65N082W..70N088W..75N100W..80N125W..81N141W..NIKIN.G226.UTS)
31L V1 134, VR 153, V2 160 FLAPS 2, TOGA, Stop Margin 756ft
22R V1 134, VR 153, V2 160 FLAPS 2, TOGA, Stop Margin 784ft

O GND : Discuss One of the MEL items related to "Polar Operations"—Clear Malfunction
O Taxi : JFK A380 Operational Plan
O Takeoff RWY : Jul ~ Sep 31L(NOTAM, "KE" intersection), Oct ~ Dec 22R
O Re-position : Company Polar Route Gate(70N088W)
O North Polar Area : AUTO FLT FMS 1+2 FAULT(All FMCs Fault)
O Continuously, route flight by using the "Backup Navigation Equipment"
→ then Diversion to PANC(for Training purpose)

2015. 08. 01. Rev01 FLIGHT CREW TRAINING TEAM

ASIANA AIRLINES

B747-400

POST LOFT TRAINING CAPT/ Co-pilot(F/O) **THE 2ND HALF OF 2015**

CIG VIS	WIND	G/W CG x 1000	BRAKE ACT	OZ 106 CLEARED TO NRT AIRPORT EGOBA 1L DEP CLIMB MAINTAIN 5000'DEP FREQ 125.15 SQ 4003	RKSI T/O PSN QNH 1013 OAT: -10C
CAVOK	240/20K	600.0 24%	RKSI 33R WET /SNOW BRAKE ACTION GOOD		
CAVOK	240/25G 30K	600.0 24%			
CAVOK	010/25G 30K	600.0 24%	RKSI 33R DRY		
CEILING 1000ft RVR 2000m patchy fog(200m)	240 OR 060/25 G30K				
	240/15K				

ALT : X 1000 FT

2 3 4

0+05 ▲ << Captain R/H Seat Training>> 0+30
Engine Failure after V1 (T/O FLAP 10)
ILS RWY 33R with One ENG INOP
(Not Necessary IN-FLT Start)
-Missed Approach by IP
-Final 6NM Manual L/D with One ENG INOP

0+30 ☞USE: Apply All CAPT for R/H Seat Training

0+45 ▲ << G/A with bouncing during flare >> 0+20
-Final 8NM RNAV(GNSS) APP
(LACK OF FLARE)
-Captain,F/O each one time
(F/O: after bounce, Captain take over the control)

1+00 ▲ <<Rejected Landing due to PATCHY FOG>>0+10
-Final 8NM RNAV(GNSS) 33R APP
- Change to wx CAT III at or below 100ft
- Captain only

1+15 ▲<< MAIN DECK CARGO FIRE TRAINING >>0+30
-Captain:"FIRE CARGO FWD" WRNG MSG, 65NM/FL280 from ICN

1+30

REMARK	☞BRAKING ACTION IS GOOD ▲ TRAINING ITEMS ▲ Reference Data : FCTR/FCTM/POM(E.I)/QAR Data

2015.07.01. REV.00 1 **FLIGHT CREW TRAINING TEAM**

ASIANA AIRLINES

B777-200

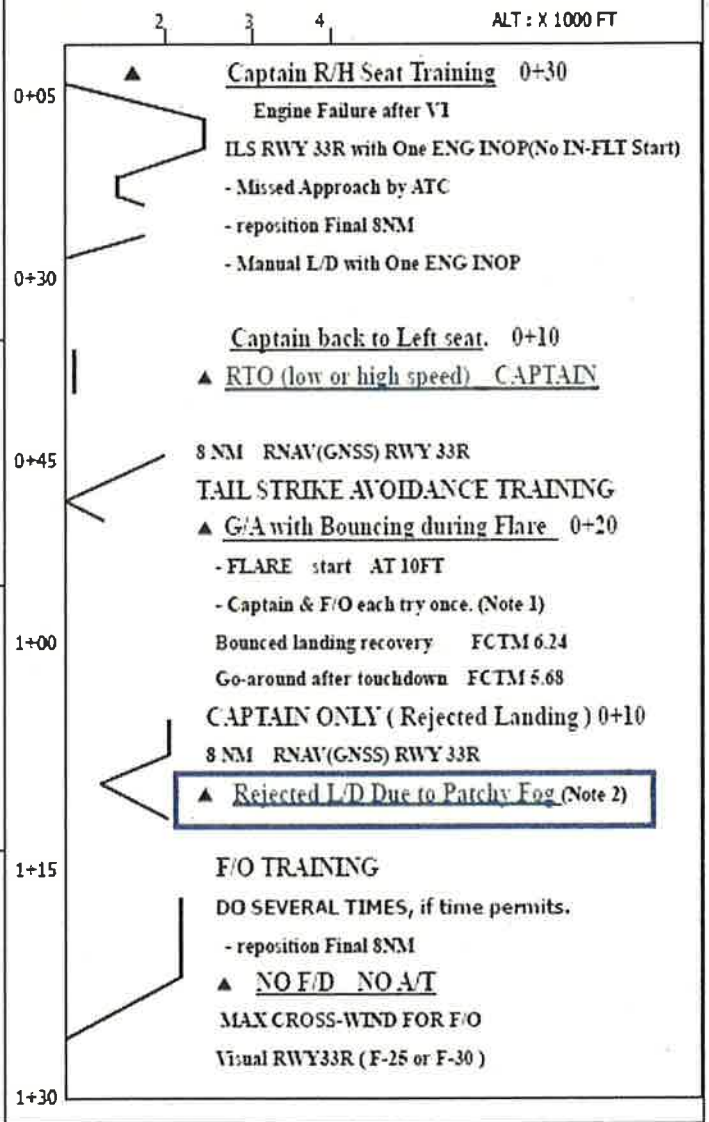
POST LOFT TRAINING CAPT/ Co-pilot(F/O) **THE 2ND HALF OF 2015**

CIG VIS	WIND	G/W CG x 1000	BRAKE ACT
CAVOK	240/10	440.0 24%	RKSI 33L DRY
CAVOK	240/10	440.0 24%	33R
CAVOK	calm	440.0 24 %	RKSI 33R DRY
1000 FT 4800M	240/10	440.0 24 %	RKSI 33R DRY
CAVOK	240/20 or 060/20	440.0 24%	RKSI 33R DRY

OZ 112 CLEARED TO KIX AIRPORT EGOBA 1L DEP CLIMB MAINTAIN 4000'DEP FREQ 125.15 SQ 4001

RKSI T/O PSN

QNH 1013 OAT: -10C



REMARK	☞BRAKING ACTION IS GOOD ▲ TRAINING ITEMS Note1 : If F/O bounces, then Captain takes over controls. Note2 : Sudden W/X changes to CAT III B at 100FT

2015.07.01. REV.00 1 **FLIGHT CREW TRAINING TEAM**

ASIANA AIRLINES

B767-300

POST LOFT TRAINING CAPT and Co-pilot(F/O) **THE 2ND HALF OF 2015**

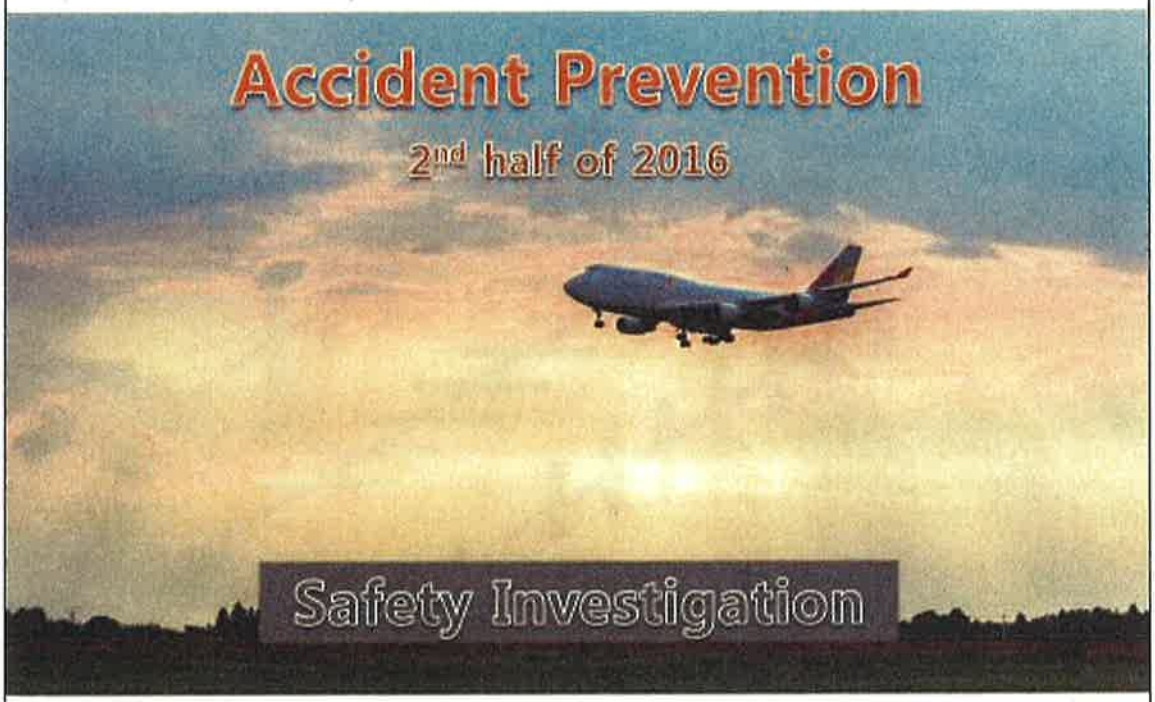
CIG VIS RVR	CROSS WIND	GW CG (ZFW)	RWY COND. B/A	OZ 135 CLIMB RWY HEADING MAINTAIN 3,000FT CLEARED FOR T/O RWY 34	RJFF GATE: RWY QNH 29.92 OAT: -10℃/-20℃
CAT- I	10KTS	280 24%	RJFF 34 WET GOOD	0+05	▲ [CAPTAIN R/H SEAT TRAINING] -ENGINE FALURE AFTER V1
CAVOK	10KTS	280	34 WET GOOD		- 6NM FINAL ILS RWY34 WITH ONE ENG INOP' - MISSED APPROACH BY IP
					- 6NM FINAL ILS RWY34 WITH ONE ENG INOP' L/D
				0+30	- RNAV RWY 34 6NM FINAL APP' (CAPT')(CFIT) ▲ (G/A with Bouncing during Flare)
Patch fog	10KTS	280	DRY		-ILS 6NM FINAL RWY 34(CAPT') ▲Rejected L/D due to patchy fog **(Note 1)**
1000ft 5km	10KTS	280 24%	RKJJ 04R DRY		▲PAR : RKJJ 8NM FINAL/2000ft, H/D SEL, ALT' HOLD
					-PAR APP'(CAPT')
1000ft 5km	10KTS	280	RKJJ 04R DRY		▲PAR APP'(F/O)
				1+00	- RJFF RWY 34 VISUAL PATTERN APP' LANDING (F/O) (D/W 1800FT, F-5)
CAVOK	10KTS	280	RJFF 34 WET GOOD		- RNAV RWY 34 6NM FINAL APP' (F/O) (CFIT)
	10KTS				▲ (G/A with Bouncing during Flare) ◆ CAPT' TAKEOVER CONTROL FOR G/A
				1+20	

ALT . X 1000 FT

REMARK	(1) INSTRUCTOR PILOTS DO ALSO NEED TO HAVE R/H SIDE RECURRENT TRAINING (2) FOR F/O: CROSS WIND LANDING (LEFT OR RIGHT) IF TIME PERMITS (Note 1) : Sudden W/X change to CAT III b at 100ft ▲ : MANDATORY ITEMS

2015.07.01. REV 00 - 1 - **FLIGHT CREW TRAINING TEAM**

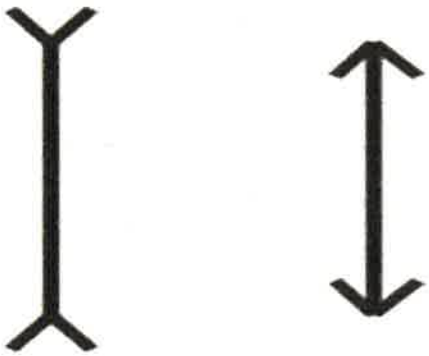
[Attachment D] 2nd half of 2016 General Ground School – Visual Illusion



IV. OTHER FLIGHT SAFETY ISSUES

Visual Illusion Awareness

- What line is longer ?



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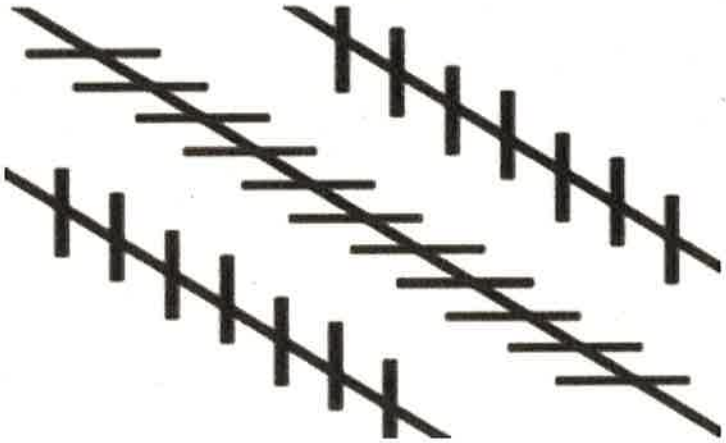
IV. OTHER FLIGHT SAFETY ISSUES

Visual Illusion Awareness

Are lines parallel ?



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IV. OTHER FLIGHT SAFETY ISSUES

Visual Illusion Awareness

Condition	Perception	Unintended Action	Result
Narrow / long runway	Being too high	Push	Land short / Land hard
Wide or short runway	Being too low	Pull	Land long / Overrun
Runway or terrain uphill slope	Being too high	Push	Land short / Land hard
Runway or terrain downhill slope	Being too low	Pull	Land long / Overrun
Bright runway lighting	Being too close (too steep)	Push	Land short / Land hard
Low intensity lighting	Being farther away (too shallow)	Pull	Land long / Overrun

AIRBUS

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IV. OTHER FLIGHT SAFETY ISSUES

Visual Illusion Awareness

Condition	Perception	Unintended Action	Result
Light rain, fog, haze, mist, smoke, dust	Being too high	Push over	Land short / Land hard
Heavy rain	Being too close	Push over	Land short / Land hard
Entering fog (elevated layer)	Increasing pitch	Push over	Steep glide path / CFIT
Flying in haze	Being farther away (too shallow)	Pull up	Land long / Overrun
Drifting rain, snow or sand	Aircraft drifting sideways	Undue drift correction	Off-runway landing
Wet Runway	Being farther away (too high)	Late flare	Hard landing
Crosswind	Being aligned with runway	Cancel drift correction	Drifting off track / off-runway corridor

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IV. OTHER FLIGHT SAFETY ISSUES

Visual Illusion Awareness

- Awareness of weather factors;
- Awareness of surrounding terrain and obstacles;
- Awareness and assessment of approach hazards (i.e., conditions that may result in visual illusions, such as "black hole");
- Adherence to defined PF/PNF task sharing for acquisition of visual references and for flying the visual segment; this includes:
  - Monitoring by PF of outside visual cues while transiently referring to instruments to support and monitor the flight path during the visual segment; and,
  - Monitoring by PNF of head-down cues for effective cross-check and back-up (i.e., for calling any excessive-parameter-deviation).

AIRBUS

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[Attachment E] Visual Illusion / Black Hole Approach Training Material Distribution

Flight Memo(OQM 16-50): Information for "Visual Illusion/Black Hole Approach" training materials

▣ Background

As a part of Safety Improvement Activity since HL7762 accident, notifying training materials regarding Visual Illusion and Black Hole Approach related to Human Factors. Please review them for safe operations.

(detailed training is plan to be conducted on 2017 recurrent training)

▣ Training Contents

Subject	Contents	note
Visual Illusions Awareness	-Introduction -Statistical Data -Visual Illusions-Factors & Conditions -How do Visual Illusions Affect the Pilot's Perception? -Typical Drew Actions & Results -Prevention Strategies to Reduce the Effects of Visual Illusions -Summary of Key Points -Associated Briefing Notes -Regulatory References -Additional Reading Material	Attachment1
Spatial Disorientation Visual Illusions	-Spatial Orientation -Spatial Orientation on the Ground -Spatial Orientation In Flight -Visual and Spatial Orientation -Central Vision -Peripheral Vision -Visual References -Visual Illusions -How to Prevent Spatial Disorientation	Attachment2
Black Hole Approach	-Definition -Case Study (B727-200F) .Abstract .Itinerary .Tallahassee regional Airport Florida .Captain /First Officer/Flight engineer Carrer .weather .Flow .NTSB Report -Optical Illusion	Attachment3

General Manager, Flight Crew Quality Assurance

(Capt. J.H. Kim / T. 5161)

[Attachment F] Unification of Standard Call-out Procedures

표준화 평가 지시 제 15-16호 :
일원화된 표준통화절차(Standard Callout) 적용 지시

일원화된 표준통화절차(Standard Callout)의 적용을 공지하오니, 아래 내용을 숙지하시어 작업을 수행하여 주시기 바랍니다. dwma

1. 배경
히로시마 사고(HL7762) 관련 국토교통부 특별점검 개선명령에 의거, 긴급상황에서 조종사의 판단지연 및 기종 전환시의 혼선 방지를 위해, 항공기 제작사별로 상이한 표준통화절차 일원화

2. 기종별 지침

가. POM 운영기종 (B747/B777/B767/A330/A320)
- 배포된 Bulletin 을 POM 에 편입, 적용

나. POM 미운영기종 (A380)
- 첨부파일("A380 STANDARD CALLOUT REVISION")을 참고하여 적용

3. 적용 일정

단계	시기	비고
1 단계	POM Bulletin 및 "A380 STANDARD CALLOUT REVISION" 배포 ~ 2015년 12월 31일	혼용 적용 dwma
2 단계	2016년 1월 1일 부	전면 적용

4. 참고사항

가. 세부 POM 개정 내용은 E-DOC의 "(기종별) POM Bulletin 신구내용대비표" 참고

나. E-DOC 접속 방법
1) Creworld -> Library -> E-DOC 접속
2) http://edoc.flyasiana.com 접속 (Creworld ID/PW)

5. 관련 문서
[수정공지] STANDARD CALLOUT 일원화 관련 POM BULLETIN 발간 공지 관련

6. 첨부
"A380 STANDARD CALLOUT REVISION" 2부.(페일 수정 첨부). 끝

dwma

운항표준팀장

[Attachment G] Standard Call-out Compliance Monitoring Program (Critique)

CRITIQUE REPORT WRITE

Critique Report

작성되는 보고서는 회사 정보자산의 보호를 위해 회사 외부로의 유출이 금지되어 있습니다.
The Critique Report may contain confidential and privileged information which must be strictly restricted to AAR internal interests only.

Type

Flight Date | Flight NO. | A/C Type | Name

CHK

T E M Countermeasure Skills

SAT: SATISFACTORY, UNS: UNSATISFACTORY

Planning Behavioral Markers	SAT	UNS	Review/Modify Behavioral Markers	SAT	UNS
1. BRIEFING	○	○	8. EVALUATION OF PLANS	○	○
2. PLANS STATED	○	○	9. INQUIRY	○	○
3. CONTINGENCY MANAGEMENT	○	○	10. STANDARD CALLOUT	○	○
Execution Behavioral Markers	**SAT**	**UNS**	**Overall Flight**	**SAT**	**UNS**
4. MONITOR/CROSS-CHECK	○	○	11. COMMUNICATION	○	○
5. WORKLOAD MANAGEMENT	○	○	12. LEADERSHIP	○	○
6. AUTOMATION MANAGEMENT	○	○	13. TEAM WORK (CRM)	○	○
7. TAXIWAY/RUNWAY MANAGEMENT	○	○	14. AIRMANSHIP	○	○
* Was the length of the training appropriate?	○	○	* Did the training proceed effectively?	○	○
* Were you satisfy with the training contents?	○	○	* Did the training proceed as profile?	○	○

General Comments

Upload

[Attachment H] Establishment of Company Policy regarding Visual Flight

1. Flight Crew Evaluation Team will apply and evaluate according to the procedure regarding the transition from instrument flight to visual flying after the relevant company policy is set and the manual is revised accordingly.

2. Currently, the safety actions taken are listed below. The flight crew were informed with the following information and they are applied during check ride.

3. Attachments
   A) Attachment 1 : Flight Crew Evaluation Directive 17-01 (2017.01.12)
   B) Attachment 2 : Flight Crew Evaluation Memo 17-01 (2017.01.12)
   C) Attachment 3 : Flight Crew Evaluation Directive 16-02 (2016.12.19)

※ Attachment 1 : Flight Crew Evaluation Directive 17-01 (2017.01.12)

· [Flight Crew Evaluation Directive 17-01]
Evaluation standards for L/D CONFIGURATION during NPA and RNAV(GNSS) Approach

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Please refer to the below standards and for completion timing of L/D configuration during RNAV(GNSS) App'.

1. Directive

For NPA and RNAV(GNSS),

A. Complete L/D configuration before FAF regardless of A/C type.

B. When FAF is below 1,500feet, complete L/D configuration at least before 1,500feet.

C. However, in case of special speed requirement from ATC and approach chart, complete L/D configuration when speed requirement is no longer effective.

2. Effective : Immediate

※ Attachment 2 : Flight Crew Evaluation Memo 17-01 (2017.01.12)

[Flight Crew Evaluation Memo 17-01] Stabilized approach Compliance Emphasis

Here we emphasis on compliance of stabilized approach during check rides due to continuous report of unstabilized approach cases.

A. Evaluation Highlights

Evaluation will focus on stabilized approach during RTE/SIM check rides. All flight crew must follow stabilized approach condition at 1,000 feet AFE. Unstabilized approach at 1,000 feet AFE during the check will be result in check failure. There will be no tolerance for unstabilized approach.

B. Reference (FOM)

6.8.5 Stabilized Approach

c. Accomplishment of Stabilized Conditions to perform stabilized approach shall be made before 1,000 ft regardless of weather condition (IMC/VMC).

6.8.5.2 Stabilized Conditions

a. Complete Landing Configuration.

b. Complete Landing Checklist.

c. Descent rate is not greater than 1,000 fpm

d. Located on a stabilized vertical/horizontal flight path, and able to maintain the location with minor maneuvering(Pitch/Roll)

e. A/C speed is to be maintained between Target speed +10 knots at most, Target speed – 5 knots at least (Target speed = Vref +Wind Correction)

f. PIC should maintain Thrust setting above idle at 1,000 feet.

g. No excessive flight parameter deviation(applied from FOM 6.8.5.3)Airspeed - 5kt

h. Within range of Slight Low/Slight High In case of visual approach utilizing equipment such as glide path indicator (PAPI, VASI, etc.)

i. Following conditions are to be fulfilled before A/C passes runway threshold

1) maintain within maximum Target Airspeed + 10 knots, minimum Target Airspeed – 5 knots until before Flare

2) located on a stable flight path which can be adjusted with minor maneuver

3) positioned to make a normal landing in the touchdown zone (the first 3,000 ft or first third of the runway, whichever is less)

by the order of Senior Vice President of Flight crew training & evaluation divison.

Flight Crew Evaluation Team

※ Attachment 3 : Flight Crew Evaluation Directive 16-02 (2016.12.19)

[Flight Crew Evaluation Directive 16-02] Evaluation Standards for RNAV(GNSS) Approach

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Please refer to the following Evaluation standards effective in case of RNAV(GNSS) Approach

1. Altitude tolerance for RNAV(GNSS) FAS(Final Approach Segment)
   A. Current issues
      Flight crew members occasionally experiences aircraft descends below FAF altitude during RNAV(GNSS) approach
   B. Documents
      ICAO DOC 9613 PBN MANUAL Part C. Implementing RNP Operations
      Chapter 5. Implementing RNP APCH Section A
      5.3.4.4.7 When Barometric VNAV is used for vertical path guidance during the FAS deviations above and below the Barometric VNAV path must not exceed +22 m/-22 m (+75 ft/-75 ft), respectively
   C. Directives
      Based on above document, flight crew members shall allow **altitude tolerance to ±75 feet** on FAS(including FAF), during RNAV(GNSS) Approach (Baro VNAV applied)

2. Effective as of : 19th DEC, 2016**(All Airport)**

General Manager of Flight Crew Evaluation Team
(Son Geon Woo / T 3574)

[Attachment I] Modification of Scan Policy

1. SCAN POLICY Modification

A. During 1st half Regular Ground School, subject "SCAN POLICY" is added

(2018 1st half Regular E-Learning material will cover scan policy)

* AP 4-3

4.5.6 Instrument Flight

A. Takeoff Minimums review

B. Approach Minimums review

1) Minimum Approach Levels

2) Procedure turns

3) Circle to operations

C. ATC Procedure review

1) ICAO Flight Plan

2) Approach charts

D. Terminal Chart review

1) SID/STARS

2) Airport Chart

3) Approach Chart

E. SCAN POLICY (including the use of visual reference during approach)

B. Initial/Transition Training

1) POM in each aircraft type will contain **SCAN POLICY (including the use of visual reference during approach**

ex) B747 AP 5-7 ~ 5-8(Added to all the fleet)

6) POM

A) STP OPS Procedure

- General Information
- Pre-Flight
- Before Flight
- Engine Start
- Taxi Out
- Take Off
- Climb

- Cruise
- Descent
- Approach
- Landing
- After Flight
- Standard Callout & Response Procedure
- Regulation Compliance
- **SCAN POLICY(including the use of visual reference during APP)**

C. Initial Training

1) JTS Normal Procedure항목에 규정준수 강조(Regulation Compliance) 추가

* AP –10

타. JTS Normal Procedure

- Checklist usage
- Bugs Setting
- Cockpit Preparation
- Regulation Compliance
- **SCAN POLICY(including the use of visual reference during APP)**

2. Safety Action Plan

A. Relevant Manual Revision

1) Flight Crew Training Regulations No.58 will contain the change above.

- Approval expected on APR 2017

B. New Training Material regarding the New Subject

1) Due : Until 2017. 2. 11

2) Subject

A) Regulation Compliance Emphasis

B) SCAN POLICY

- Relevant information in FOM and HL7762 Accident Investigation Report

[Attachment J] Company Stabilized Approach Criteria Modification

1st Conference	2016.12.26
2st Conference	2017.1.23
Standardization meeting	2017.2.20

Company Stabilized Approach Criteria Meeting Result (1st)

1. Outline

- Discussion regarding the Company Stabilized Approach criteria and modification

2. Date & Place

- 2016.12.26 Main conference room in Flight Operation Building

3. Panel

- 송성훈,신주호,최영근(운항평가팀), 이현우,정균우(운항훈련팀), 김동석(A320 안전운항팀), 김대송(운항품질팀), 이성태, 최정규(운항표준팀)

4.Contents

- Drawbacks in current Stabilized Approach criteria
  1) Need to be re-established to reduce FOQA EVENT.
  2) More of a perception problem among flight crew than technical problem.
- 1500FT Stabilized Approach Criteria Review
  1) Compliance rate may be lower with higher altitude application.
  2) Stabilize Approach deviation rate may be increased.
  3) Possibility of conflict with Local ATC and Restriction exists.
  4) Psychological burden may be increased.

5. Suggestion

- Mostly agreed with international stabilized approach criteria of 1000'(IMC)/500'(VMC) standard. 1000' may be set as SOFT GATE and 500' as HARD GATE to set up a correction segment and increase compliance rate below 500'.
- A plan to set 1500' as Configuration and Checklist completion altitude, and altitude down to 1000' or 500' set as a correction segment.

[Attachment K] New Procedure in case of Visual Reference lost below DA under discussion

[ENG]

Standardization Directive 16-14

A320/A330 POM Revision

In A320/A330 POM, Approach / Standard Callout & Response are partly revised. All flight crew shall read out and apply the following revision.

1. Application Date : From 2016. 12. 12(0000 KST)

2. Revision Contents

A. A320 POM : Approach / Standard Callout & Response

Current	Revision
2.11 Approach General(NOTE)	**APPROACH GENERAL**(NOTE)
2.12 ILS Approach **2.13 Non Precision Approach**	**AIRCRAFT CONFIGURATION MANAGEMENT** **AIRCRAFT GUIDANCE MANAGEMENT**
2.23 Standard Callout & Response **2.23.2.8 Flight Parameters** 가. Approach **2.23.5.7 Descent and Approach** **2.23.5.12 ILS Approach** **2.23.5.16 Non-Precision Approach**	**STANDARD CALLOUTS** **- FLIGHT PARAMETERS** · APPROACH **- DESCENT AND APPROACH** **- ILS Approach** **- NON-PRECISION APPROACH**

Note)

- Detailed information : Refer to attachment(A320 APPROACH AND CALLOUT.PDF)
- Current Approach Ban in POM 2.11.3 shall be applied.

B. A330 POM : Approach

Current	Revision
2.11 Approach General(NOTE)	**APPROACH GENERAL**(NOTE)
2.12 ILS Approachs	**AIRCRAFT CONFIGURATION MANAGEMENT**
2.13 Non Precision Approach	**AIRCRAFT GUIDANCE MANAGEMENT**

Note)

- Detailed information : Refer to attachment(A330 APPROACH.PDF)
- Current Approach Ban in POM 2.11.3 shall be applied.

3. Reason for this revision

A. RNAV procedure in current POM and that in FCOM are different, and FCOM RNAV procedure shall be applied.

B. An event occurred during RNAV(GNSS) approach in A330, and the need for application of Airbus procedure has risen.

C. These FCOM RNAV procedure will be contained in the new manual 'OM' which is awaiting MOLIT approval.

ADDITIONAL PLAN

ATTACHMENTS

[Attachment a] Special Audit

1. Date and Time : '15. 04. 27 (13:00~ 18:00)
2. Auditor : Safety Audit Team (Gen. manager Han, Capt. Chang, D. manager Ahn)
3. Audit Scope
   1) Check for A320 Special Simulator Training execution After HIJ Airport Accident
   2) Hazard identification at HIJ Airport
   3) Review crew pairing for crew members in regards to HIJ airport re-operation
4. Confirmation
   1) Special Simulator Training is being executed as planned
   2) Currently up to 27th of April there is a Fail Rate of 9%; Disqualified staff are required to go through re-evaluation
   3) Reviewing the option to raise operation level of HIJ Airport from level B to C
   4) Crew Assign for ICN-HIJ planned for May will be selected from Captain·First Officer of level A (JCAB requirement)
5. Improvement
   1) Revision for process of changing HIJ Airport level (Level B→C) ('15.06.12)
   2) Completed pairing of HIJ Crew assignment for May; some crew members did not complete SIM training

[Attachment b] Special In-flight Observation on HIJ route

1. Date : '15.05.01~05.16
2. Frequency : 3 times a week (Mon, Wed, Fri) ☞ Total 7(Based on round-trip)
3. Auditor : General manager of Flight Crew Quality Assurance, General Manager of A320 Flight Crew Operations, Flight Crew Quality Assurance Team. Etc. Total 7
4. Main Contents
   1) Threat : Airport Rate B (Field elevation, Geography, Weather etc.)
   2) Human factors : Standard Callout, Procedures, CRM etc.
   3) Airport facilities : ILS, PAPI, ATC etc.

   ☞ *Regarding results of Special Audit, update information on vulnerable airports and reflect on training.*

[Attachment c] Company Structure Re-organization

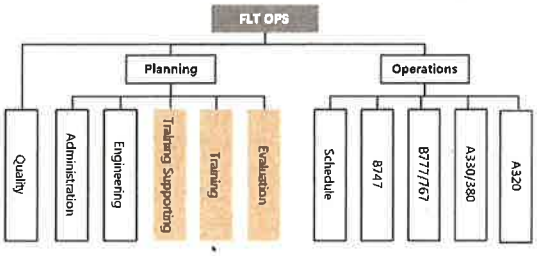
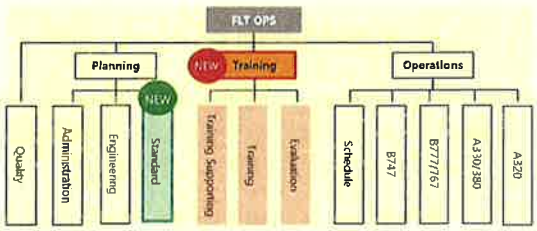
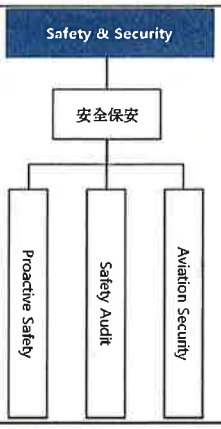
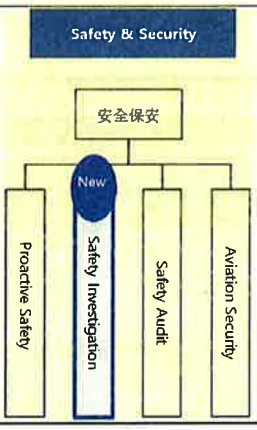
1. Background
   1) Strengthening Flight Crew Training, newly create training/evaluation functions and strengthen Flight Standard Team
   2) Reinforcing the safety and security management office functions to improve company-wide safety

2. Changes in organization structure & Creation of new functions ('15.09.22)

		前	後
	VP	-	Flight Crew Training & Evaluation (Foreign Expatriate, 2016.04.01)

Flight Ops.	Team	(Flight Ops. Planning) Flight Crew Training Support Flight Crew Training Flight Crew Evaluation	Flight Ops. Standards (Flight Ops. Planning) created (Moved from Flight ops. Planning → Flight Crew Training &Evaluation) Flight Crew Training Support Flight Crew Training Flight Crew Evaluation
Safety	Team	-	Safety Investigation team(Safety&Sec.) created

3. New Organization Chart

	前	後
Flight Ops.		
Safety		

[Attachment d] HIJ Airport Information Training Material Update

Vulnerable Airport Information

1. Abstract

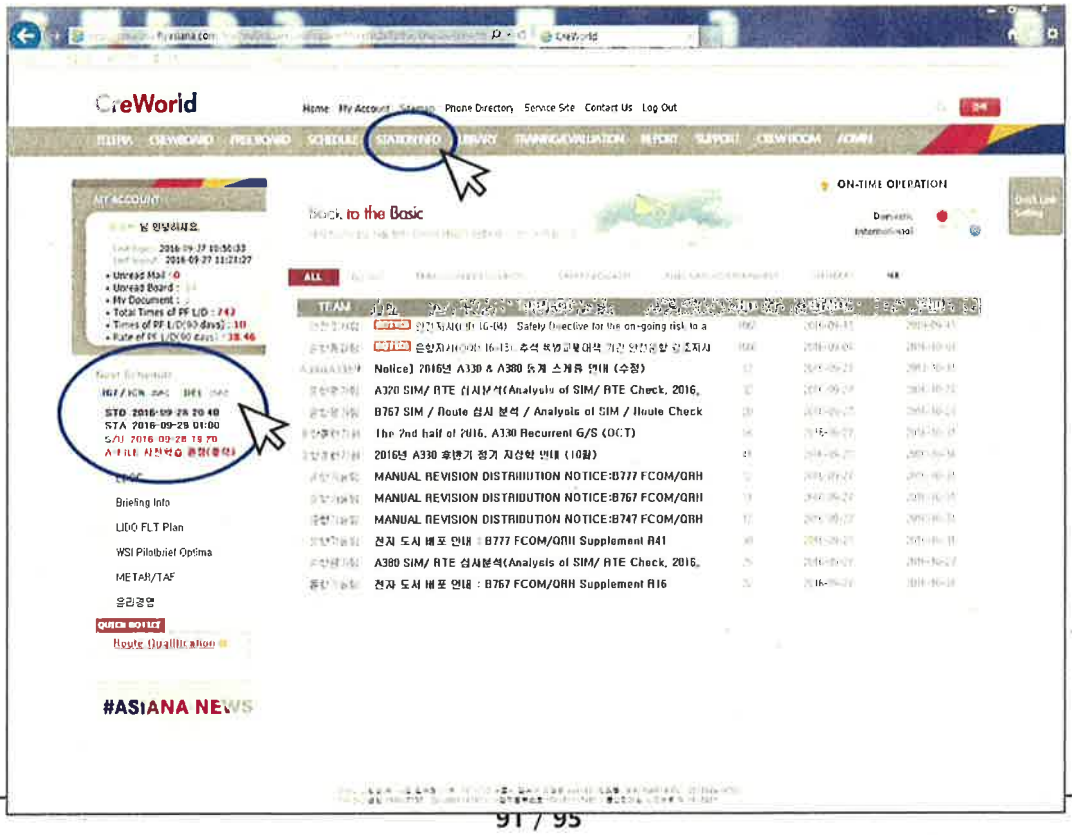
From July to November of 2013, Flight Crew Quality Assurance Team implemented intensive Line Audit for the vulnerable airports which determined as supervision is required and vulnerable domestic/international airports specified in flight safety regulation of MOLIT. Because HIJ is also specified as vulnerable airports in flight safety regulation, the Line Audits for A320 operated by Asiana were also implemented.

The results from intensive Line Audit for vulnerable airports are uploaded on "Library" in "Creworld", the internal web based system used by flight crew and Airport Threat/Hazard Identification are provided in sheet type so when flight crew show-up for duty, they have access to review.

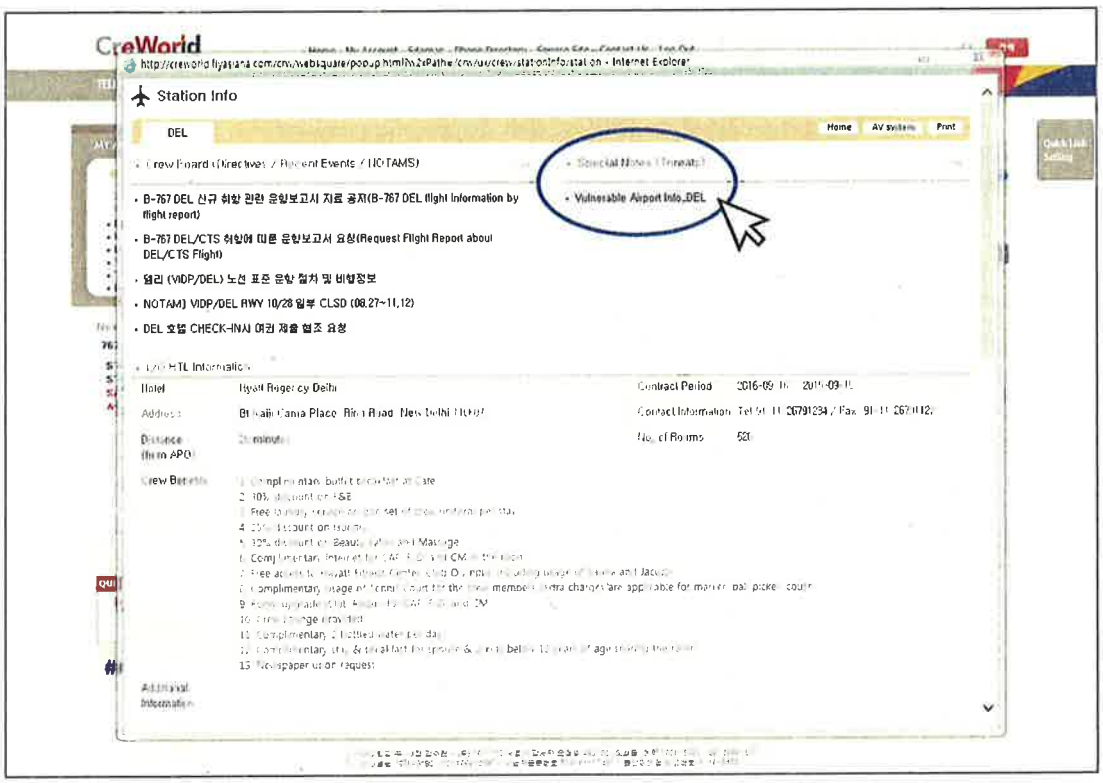
As a result of Line Audit for first half of year 2014, for efficient use of vulnerable airport information and to enhance the safety, the vulnerable airport information is attached at "Station Info" tap, so flight crew have quicker access to destination airport information.

2. Actual Screen Pictures

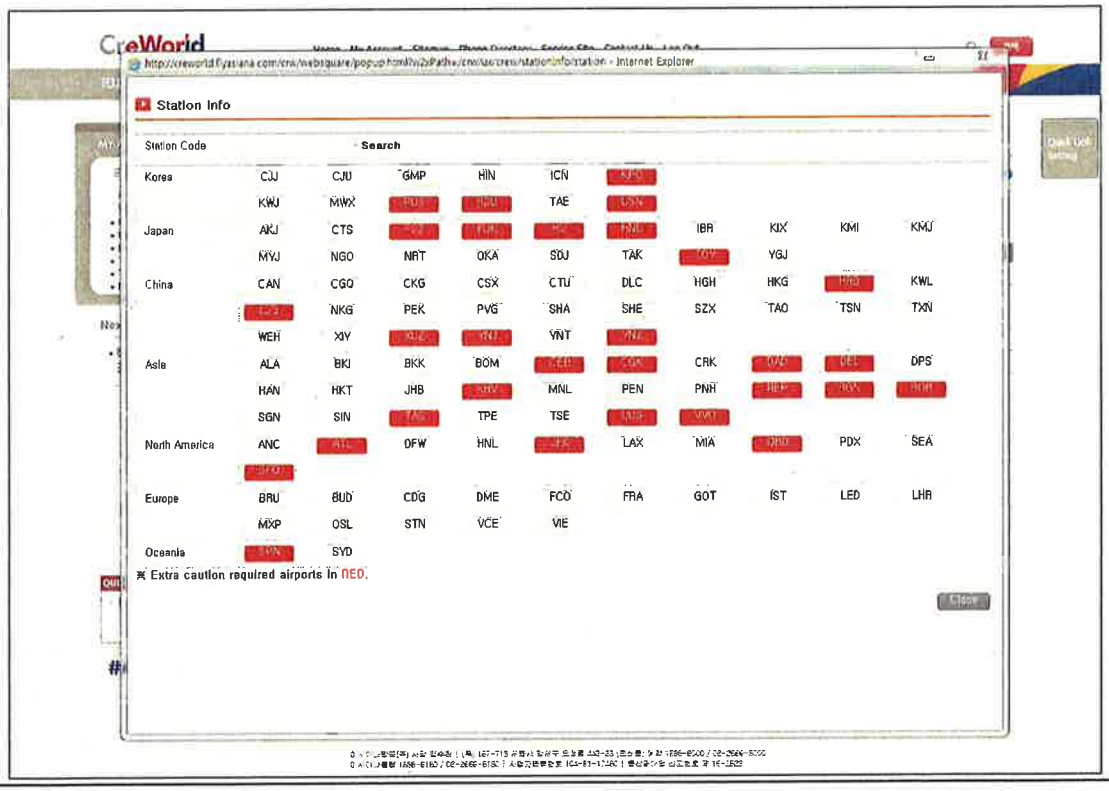
[PIC 1 First page at Creworld (destination airport info / station info module)



[PIC 2] The vulnerable airport information is linked on destination airport information page



[PIC 3] STATION INFO



Airport Threat / Hazard Identification Sheet

	A320	HIJ
Type	**Description**	**Countermeasure Skill**
Weather	1. Airport is located at high elevated field (1,086ft) and visibility could suddenly get worsen due to cloud and fog. 2. Turbulence and windshear may generate at the final. 3. For ILS approach for RWY10, +10kts of tailwind could affect the approach 4. Baro –VNAV not authorized below 10 degree	1. Make thorough briefings to prepare for low visibility and adverse weather 2. execute go around if approach is unstabilized 3. clearly understand Manual NPA especially when the temperature is below 10 degree Celsius 4. consider the flaring technique and L/D distance for tailwind ILS approach
Airport	1. possibility of altitude confusion when referring to RA at the final due to high field elevation 2. non-precision approaches RNAV RWY28 VOR RWY 28 3. possible rough landing due to upslope RWY 10 and 28 (14ft and 19ft) 4. The final course for VOR RWY 10 is 099 and there is 2 degrees differences	1. identify the actual altitude through active instrument monitoring and cross-checking, and comply with STD callout (comply with 1000ft stabilized approach condition) 2. conduct detailed briefing for RNAV approach 3. Maintain landing configuration before FAF 4. Maintain accurate decent angle by final stabilized approach and PAPI 5. Study flare technique to prevent rough landing due to loss of visual reference during night landing at upslope RWY 6. Mention 2 degrees offset of VOR approach at the briefing and promptly intercept final approach course when flying manually.
ATC	1. Instructs altitude limitation of FL250 (OPERA) and FL 150(AKANA) due to traffics during the descent and approach for landing. High energy approach could be considered because of late descent instructions. 2. When HIJ App directs to final of VOR, the descent rate is comparably steeper. (Approach is made from north of the airport and distance to handle altitude is short)	1. If descent instruction is given late, be aware of high energy approach and consider ways to handle altitude effectively. 2. When Approach instructs through radar contact, quickly check the distance to final route and handle altitude promptly by using S/B. For unclear instruction, confirm and cross-check with PF/PM then start handling

Terrain, Traffic & Other Envir'	1. Terrain located near to approach course of RWY 28 2. There is special engine out procedure when takeoff is made from RWY28, due to the terrain at NW(2,472ft) and NE(2,294ft) 3. be prepare for illusion created by night flight	1. when approach is made at night, even if the condition "APP light Insight" meets to descend standard below MDA as on POM, without indication of RWY lights (RWY CL, RWY edge LT, RWY end LT, PAPI), undershoot could be made and resulting risk of ground collision. 2. Emphasis to make prompt confess-callout between PF/PM, if there is any error.
Ground / Ramp	1. Because of the short distance from gate to Line-up, the takeoff could be made before completion of cabin DEMO	1. PA monitoring by PM/PF, sharing information and coordination in advance with cabin are needed
Other	1. Risk of connecting flight at early in the morning	1. maintain personal health by taking adequate rest

[Attachment e] HIJ Airport Audio/Visual Training System Update

ASIANA AIRLINES

RJOA(HIJ)
HIROSHIMA

HIROSHIMA, JAPAN

RECORD OF REVISION

R.No.	Rev. Date	Revised by	Details
1	02 MAR 2015	Cho, Hyun Yong	Overall – Format Changed 20p – Enhanced Accuracy 21p – Chart Update
2	10 SEP 2015	Song, Bo Kyung	AIRPORT – Trans level / alt ADD Jeppesen Chart DEL
3	22 FEB 2016	Song, Bo Kyung	Bulletin-HIJ/RJOA RWY 10 CAT-II not Applicable AIRPORT SPECIAL OPERATION - Safety recommendations related to Accident
4	29 SEP 2016	Song, Bo Kyung	AIRPORT- Weather(Fog) ADD ARRIVAL- Chart CHG DEPARTURE - NADP, SID CHART CHG
5			
6			
7			
8			
9			
10			