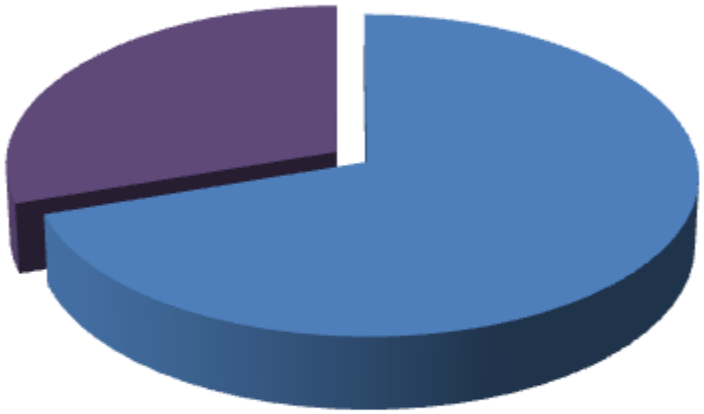
Стандартные эксплуатационные процедуры (SOP), особенности их разработки и влияние на инциденты, связанные с выкатыванием за пределы ВПП.

Заместитель начальника инспекции
Пилот-инструктор Boeing-757/767 **Пономаренко Д.В.**

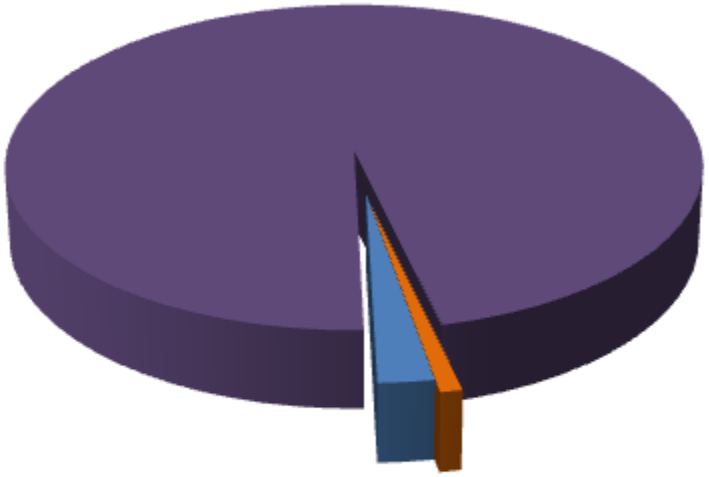


АП С ГРАЖДАНСКИМИ ВС 1995-2008Г.



- Авиа происшествия
- Runway safety

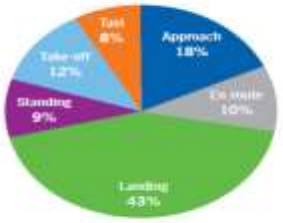
АП С ГРАЖДАНСКИМИ ВС НА ВПП 1995-2008Г.



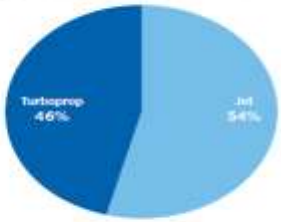
- Происшествия на ВПП
- Отклонение ВС при движении на ВПП
- Неправильное использование ВПП

Статистика авиапроисшствий «на ВПП» мировая

Phase of Flight



Aircraft Propulsion



Type of Service

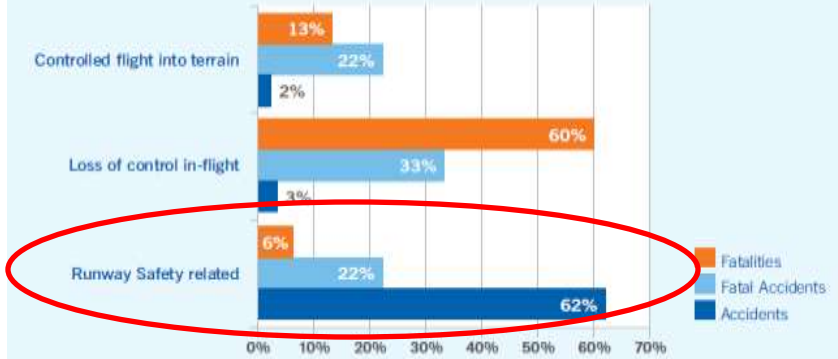
Future Development

Both ICAO and IATA continue to work closely together and, through their respective expert groups, provide greater alignment in their analysis methods and metrics for the future. This ongoing work will be shared with GSIE participants, States, international organizations and safety stakeholders in the interest of promoting common, harmonized safety reporting at the global level.

The figure below provides a comparison of the distribution of accidents, fatal accidents and fatalities related to the three high-risk occurrence categories in 2013. Runway safety related accidents accounted for the majority of all accidents during 2013 (62%), but only 6% of all fatalities.

Notable observations from 2013 accidents include:

- Runway safety related accidents have a resulted in a relatively low number of fatalities, despite having the highest percentage of accidents.
- While the loss of control in-flight occurrence category represented only 3% of all accidents, this category is of significant concern as it accounts for 33% of all fatal accidents and 60% of all fatalities.
- CFIT accidents were responsible for 13% of fatalities recorded in 2013.



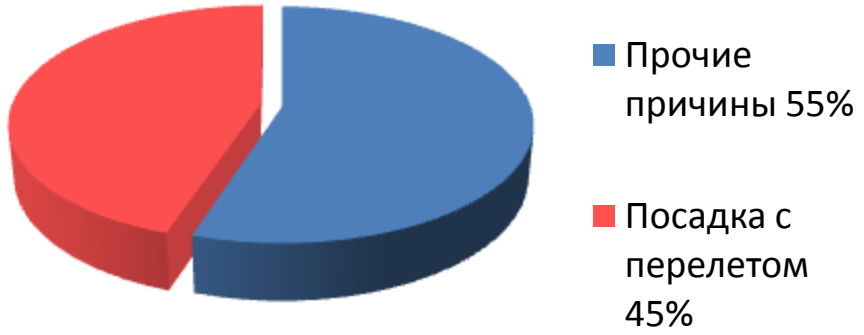
Category	CICTT Occurrence Catogies	IATA Classification End States
Controlled Flight into Terrain (CFIT)	CFIT, CTOL	CFIT
Loss of Control in-Flight (LOC-I)	LOC-I	Loss of Control In-flight
Runway Safety (RS)	RE, RI, ARC, USOS	Runway Excursion, Runway Collision, Tailstrike, Hard Landing, Undershoot
Ground Safety (GS)	G-COL, RAMP, LOC-G	Ground Damage
Operational Damage (OD)	SCF-NP, SCF-PP	In-flight Damage
Injuries to and/or Incapacitation of Persons (MED)	CABIN, MED, TURB	None (excluded in IATA Safety Report)
Other (OTH)	All other CICTT Occurrence Categories	All other IATA end-states
Unknown (UNK)	UNK	Insufficient Information

Table of Scheduled Commercial Accidents for Jan-Sep 2013

Date	Aircraft Type	State of Occurrence	RASG Region	Fatalities	Accident Category
02/01/2013	Saab 340	Argentina	PA		RS
17/01/2013	BAe ATP	Germany	EUR		RS
17/01/2013	Boeing 777	United States of America	PA		RS
25/01/2013	McDonnell Douglas MD-11	United States of America	PA		RS
29/01/2013	Bombardier CRJ-200	Kazakhstan	EUR	21	CFIT
02/02/2013	ATR 72	Italy	EUR		RS
06/02/2013	Airbus A320	Tunisia	EUR		RS
09/02/2013	Beechcraft 1900	Canada	PA		RS
11/02/2013	Boeing 737	Oman	MID		SCF
13/02/2013	Airbus A330	China	APAC		TURB
19/02/2013	Boeing 747	United States of America	PA		TURB
19/02/2013	Embraer ERJ-145	United States of America	PA		OTH
05/03/2013	ATR 72	France	EUR		RS
07/03/2013	Boeing 757	United States of America	PA		RS
20/03/2013	Boeing 777	Zambia	AFI		RS
05/04/2013	Airbus A321	United States of America	PA		RS
07/04/2013	Boeing 737	Indonesia	APAC		RS
13/04/2013	Boeing 737	Indonesia	APAC		RS
16/04/2013	Boeing 767	Spain	EUR		RS
28/04/2013	Bombardier Dash 8	Canada	PA		RS
28/04/2013	Boeing 777	Saudi Arabia	MID		RS
01/05/2013	Embraer ERJ-145	United States of America	PA		RS
09/05/2013	Airbus A320	United States of America	PA		OTH
11/05/2013	Bombardier CRJ-200	United States of America	PA		RS
11/05/2013	Embraer EMB-170	United States of America	PA		OTH
16/05/2013	Xian MA-60	Myanmar	APAC		RS
18/05/2013	Bombardier Dash 8	United States of America	PA		SCF
26/05/2013	Bombardier Dash 8	Canada	PA		RS
01/06/2013	Dornier 228	Nepal	APAC		RS
02/06/2013	Airbus A320	Philippines	APAC		RS
07/06/2013	Embraer ERJ-145	China	APAC		RS
08/06/2013	Airbus A320	Italy	EUR		RS
10/06/2013	Xian MA-60	Indonesia	APAC		RS
10/06/2013	Xian Y7	Myanmar	APAC		RS
13/06/2013	Saab 340	Bahamas	PA		RS
13/06/2013	McDonnel Douglas MD-88	United States of America	PA		RS
14/06/2013	Airbus A320	Germany	EUR		RS
14/06/2013	Boeing 727	Canada	PA		RS
26/06/2013	Bombardier CRJ-200	South Africa	AFI		SCF
02/07/2013	Airbus A340	Sri Lanka	APAC		RS
06/07/2013	Boeing 777	United States of America	PA	3	RS
12/07/2013	Boeing 777	United States of America	PA		TURB
18/07/2013	Boeing 737	Ireland	EUR		TURB
22/07/2013	Boeing 737	United States of America	PA		RS
28/07/2013	Boeing 777	France	EUR		F-NI
28/07/2013	Bombardier Dash 8	India	APAC		RS
29/07/2013	Saab 340	Congo, the Democratic Republic of	AFI		RS
31/07/2013	Boeing 737	Mexico	PA		TURB
31/07/2013	Boeing 737	Thailand	APAC		RS
04/08/2013	ATR 72	Spain	EUR		TURB
06/08/2013	Fokker F27	Sudan	AFI		RS
06/08/2013	Airbus A320	Czech Republic	EUR		RS
12/08/2013	Airbus A320	United States of America	PA		TURB
14/08/2013	Airbus A300	United States of America	PA	2	CFIT
19/08/2013	Douglas DC-3	Canada	PA		RS
20/08/2013	Swearingen Metro	Bolivia	PA		RS
30/08/2013	Airbus A380	China	APAC		TURB
01/09/2013	Beechcraft 1900	United States of America	PA		SCF
01/09/2013	Airbus A330	Brazil	PA		TURB
08/09/2013	Airbus A330	Thailand	APAC		RS
21/09/2013	Bombardier CRJ-200	Uganda	AFI		RS

Анализ причин выкатывания

РАСПРЕДЕЛЕНИЕ ПРИЧИН ВЫКАТЫВАИЯ ВС 2007-2011 Россия



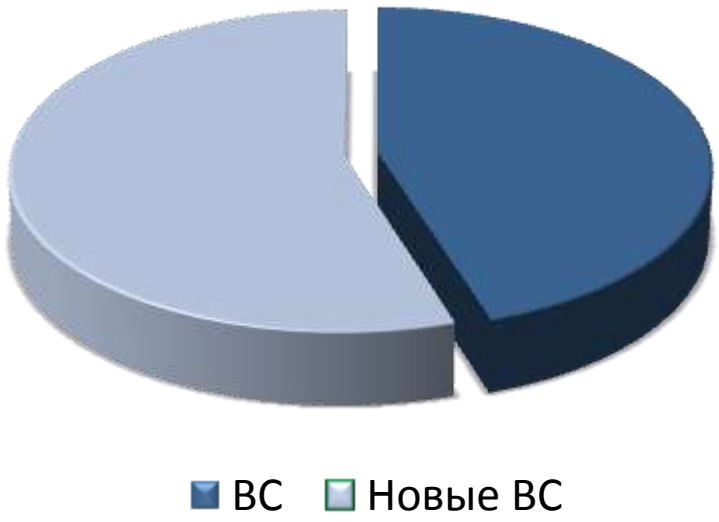
выкатывание	n_y	v_{APP}	H_{THR}	ПЕРЕЛЕТ	$K_{СЦ}$	$\Delta U_б$
n_y	x					
v_{APP}		x				
H_{THR}			x			
ПЕРЕЛЕТ				x		
$K_{СЦ}$					x	
$\Delta U_б$						x


ПОСАДКА С ПЕРЕЛЕТОМ
НЕ ИСПОЛЬЗОВАНИЕ РЕВЕРСА ДО ПОЛНОЙ ОСТАНОВКИ ВС
НЕ ВЫПОЛНЕНИЕ SOP (НЕ ВЕРНОЕ ТРАКТОВАНИЕ SOP)
НЕ УХОД НА ВТОРОЙ КРУГ
ЗАТЯНУТОЕ ВЫРАВНИВАНИЕ
ПРЕВЫШЕНИЕ Vapp

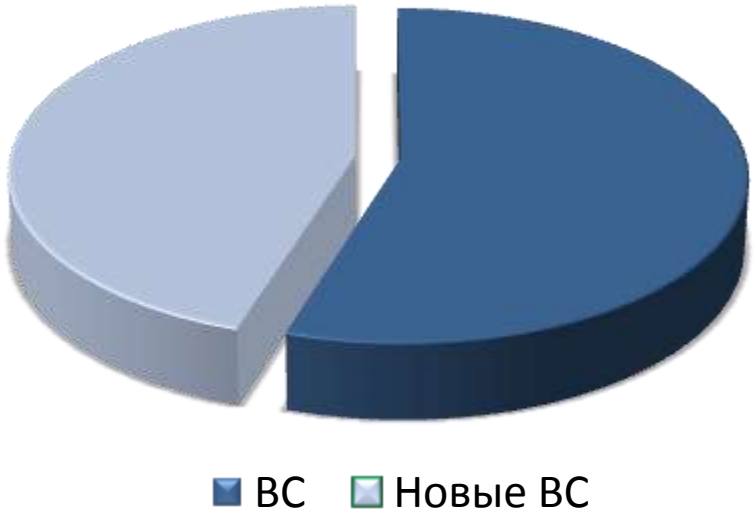
Доля новых для освоения ВС в парке авиакомпании

Новые ВС-опыт эксплуатации ВС в парке АК менее 0,5млн летных часов(для отечественных и иностранных ВС)

2000 год



2014 год



Анализ факторов-причин (iE-REST 4)

- Нестабилизированный заход на посадку;
- Неправильный расчет посадочной дистанции;
- Неэффективное торможение (состояние ВПП);
- Неправильное выполнение Стандартных Процедуры (SOPs);
- Перелет;
- Ветровая обстановка;
- Неисправности самолета.
- Низкая культура CRM
- Крутая глиссада

НАПРАВЛЕНИЕ РАБОТ (iE-REST 4)

- Формирование единого подхода к разработке ОМ(РПП В) на основе SOP (разные подходы к формированию);
- соблюдения стандартных эксплуатационных правил (SOP) и анализ причин, по которым пилот намеренно или ненамеренно отклоняется от SOP;
- анализ ситуаций, когда “опыт авиакомпании” превалирует над положениями ОМ (РПП В), SOP;
- Разработка и внедрения Вопросника по SOP - верхний уровень (для всех) или более подробный (с учетом типов);
- Формирование единого подхода в к разработке MEL АК в части влияние на выкатывания действующих одновременно нескольких пунктов .
- Выявление узких мест комплексирования ОМ(РПП В) и рекомендаций (DOC9870, AC120, рекомендуемых практик и т.д.) выдача пояснения и внедрение данных документов, в повседневную практику.
- Разработка “short check list” после выкатывания;
- Уделение повышенного внимания на вопросы RS при подготовке инструкторов в АК.

НАПРАВЛЕНИЕ РАБОТ (iE-REST 4)

- Формирование группы экспертов из ведущих пилотов АК, с постоянным участием одних и тех же лиц, с приданием данной группе официального статуса при ICAO/IATA/Росавиации;
- Акцентирование производителя ВС на вопросе внедрения непрерывной системы поддержки принятия решения для предотвращения выкатывания (непрерывная выдача экипажу актуальной визуальной и звуковой информации о достаточности оставшейся части ВПП, корректирующих воздействий и т.д.);
- Акцентирование производителя ВС на вопросе внедрения непрерывной системы поддержки принятия решения и информирования(визуальном и звуковом) о нестабилизированном заходе;
- Четкое определение понятий “отклонение”, ”серьезное отклонение” для внедрения в программу СУБП АК;

BOEING

737-8AS

Flight Crew
Operations Manu

Ryanair Ltd.

Document Number D6-27370-8AS-RYR
August 27, 1999

Revision Number: 18
Revision Date: September 24, 2007

海南航空
Hainan Airlines

Standard Flight Operati

SOP 737-800

Hainan Airlines Company Li

Continental

737
FLIGHT MANUAL

CONTENTS

	INTRODUCTION
1	LIMITATIONS
2	NON NORMALS
3	NORMALS
3-1	LRN ETOPS
4	MEL
5	PERFORMANCE
6.1	AIRPLANE GENERAL
6.2	AIR SYSTEMS
6.3	ANTI-ICE & RAIN
6.4	AUTOFLIGHT
6.5	COMMUNICATIONS
6.6	ELECTRICAL
6.7	ENGINES & APU
6.8	FIRE PROTECTION
6.9	FLIGHT CONTROLS
6.10	FLIGHT INSTRUMENT DISPLAYS
6.11	FLIGHT MANAGEMENT, NAVIGATION
6.12	FUEL
6.13	HYDRAULICS
6.14	LANDING GEAR
6.15	WARNING SYSTEMS

UTair

РУКОВОДСТВО ПО ПРОИЗВОДСТВУ ПОЛЕТОВ

ЧАСТЬ В

ИНФОРМАЦИЯ ПО ЭКСПЛУАТАЦИИ ВОЗДУШНОГО СУДНА BOEING-767

Ханты-Мансийск - 2012

ФАП 128 требования к стандартным эксплуатационным процедурам

4.10. РПП должно содержать следующие элементы:

оглавление;

страницу учета поправок;

служебные обязанности, функции и субординацию руководящего и эксплуатационного персонала;

систему управления безопасностью полетов эксплуатанта;

систему руководства полетами;

правила в отношении минимального перечня исправного оборудования в случаях применения MEL;

производство полетов в нормальных условиях;

стандартные эксплуатационные процедуры;

метеорологические ограничения;

ограничения полетного и рабочего времени;

чрезвычайные ситуации в полете;

процедуры анализа авиационных происшествий и инцидентов;

квалификацию и подготовку персонала;

ведение учетной документации;

описание системы управления техническим обслуживанием;

процедуры обеспечения авиационной безопасности (где применимо);

эксплуатационные ограничения летно-технических характеристик;

использование и защита записей полетных данных бортового и речевого самописцев, в случаях, когда применяются самописцы;

обработку опасных грузов, в случаях, когда перевозятся опасные грузы.

требования к стандартным эксплуатационным процедурам

U.S. Department of Transportation
Federal Aviation Administration

Advisory Circular

Subject: STANDARD OPERATING PROCEDURES FOR FLIGHT DECK CREWMEMBERS

Date: 8/10/00 Initiated By: AFS-210

AC No: 120-71

1. PURPOSE. Standard operating procedures (SOPs) are universally recognized as basic to safe aviation operations. Effective crew coordination and crew performance, two central concepts of crew resource management (CRM), depend upon the crew's having a shared mental model of each task. That mental model, in turn, is founded on SOPs. This advisory circular (AC) presents background, basic concepts, and philosophy in respect to SOPs. It emphasizes that SOPs should be clear, comprehensive, and readily available in the manuals used by flight deck crewmembers. This AC is designed to provide advice and recommendations about development, implementation, and updating of SOPs. Many important topics that should be addressed in SOPs are provided in Appendix 1, Standard Operating Procedures Template. Stabilized Approach, characterized by a constant-angle, constant-rate of descent ending near the touchdown point, where the landing maneuver begins, is among the SOPs specifically identified in this AC, and is described in Appendix 2, Stabilized Approach: Concepts and Terms. These and the other Appendices following them represent a baseline and a starting point. Start-up certificate holders and existing certificate holders should refer to the Template in Appendix 1, to Stabilized Approach in Appendix 2, and to the other Appendices to this AC in developing comprehensive SOPs for use in training programs and in manuals used by their flight deck crewmembers.

2. SCOPE. Appendix 1 consolidates many topics viewed by operators and by the FAA as important, to be addressed as SOPs in air carrier training programs and in the manuals used by air carrier flight deck crewmembers. **This AC does not list every important SOP topic or dictate exactly how each topic should be addressed by a certificate holder.** Instead, this AC offers a baseline of topics, to be used as a reference. In practice, each certificate holder's manuals and training programs are unique. Each certificate holder could omit certain topics shown in the template when they do not apply, and, on the other hand, could add other topics not shown in the template when they do apply. This AC contains guidance intended for use primarily by Title 14 of the Code of Federal Regulations (14 CFR) part 119 certificate holders authorized to conduct operations under part 121. But operators of aircraft under 14 CFR parts 135, 125, 91, and others should also find this guidance useful.

3. RELATED REGULATIONS. 14 CFR part 121, sections 121.133, 121.141, 121.401; 14 CFR part 125, section 125.287; 14 CFR part 135, section 135.293.

Doc 9870
AN/463

ICAO • OACI • ИКАО

Manual on the Prevention of Runway Incursions

Approved by the Secretary General and published under his authority

First Edition — 2007

International Civil Aviation Organization

Advisory Circular

TCREW Date: 6/18/01 Initiated by: AFS-200 AC No: 120-74 Change:

AC) provides guidelines for the development and ocedures for conducting safe aircraft operations during operating aircraft under parts 121, 125, and 135 (those ore pilots are in the cockpit) of Title 14 of the Code of eral Aviation Administration (FAA) recommends that of all standard operating procedures, flight operations training programs. The use of flightcrew procedures ng all phases of a flight crewmember's aircraft ground

ting aircraft under 14 CFR part 91 general les and for part 135 flight operations where ockpit, refer to AC 91-73, Part 91 Pilot and During Taxi Operations and Part 135 Single-

e activities occurring within the cockpit (e.g., planning, d to the actual control of the aircraft (e.g., steering, distinct challenges and requirements not found in other ct challenges are elaborated, when necessary, throughout ovided concerning operations at airports without on is included on the use of exterior aircraft lights aircraft more conspicuous to other flightcrews.

(AIM)

ices at Airports Without Operating Control Towers

d Traffic Patterns and Practices for Aeronautical g Control Towers

Guidance and Control System

Структура документов

МИНИСТЕРСТВО ТРАНСПОРТА РОССИЙСКОЙ ФЕДЕРАЦИИ

ПРИКАЗ
от 31 июля 2009 г. N 128

ОБ УТВЕРЖДЕНИИ ФЕДЕРАЛЬНЫХ АВИАЦИОННЫХ ПРАВИЛ "ПОДГОТОВКА И ВЫПОЛНЕНИЕ ПОЛЕТОВ В ГРАЖДАНСКОЙ АВИАЦИИ РОССИЙСКОЙ ФЕДЕРАЦИИ"

(в ред. Приказов Минтранса России от 21.12.2009 N 242,
от 22.11.2010 N 263, от 16.11.2011 N 284,
от 27.12.2012 N 453, от 25.11.2013 N 362,
от 10.02.2014 N 32)

???

ОТКРЫТОЕ АКЦИОНЕРНОЕ ОБЩЕСТВО «Авиакомпания «ЮТэйр»

Утверждено
приказом генерального директора
ОАО «Авиакомпания «ЮТэйр»
от 26 . 02 . 2007 г. № 420

руководство по производству полетов

ОВОДСТВО ПО ПРОИЗВОДСТВУ ПОЛЁТОВ
ОАО «АВИАКОМПАНИЯ «СИБИРЬ»
7 AIRLINES FLIGHT OPERATIONS MANUAL

Нижний новгород Boeing-737-800

1. Не уход на 2й круг
2. V=87 выкл реверса
3. Неустнов callout
4. Использ autobrake

УФА Boeing-737-800

1. CRM PF-2п см на землю 500’ fog
2. Позднее вкл реверса
3. V=95 выкл реверса после callout
4. Неустнов callout
5. Использ autobrake?

Ростов Boeing-737-800

1. CRM передача упр на 80’
2. V=135 выкл autobrake
3. Неустнов callout
4. Использ autobrake?

Домодедово Boeing-737-800

1. CRM передача упр одновременно с выключением реверса и autobrake на V=75

Отсутствует оценка необходимого остатка длинны ВПП (критерии –огни, знаки с обратным стартом.)

BOEING COMMERCIAL AIRPLANE GROUP

FLIGHT OPERATIONS TECHNICAL BULLETIN

NUMBER:

707	727	
07-1	07-1	
747-400	757	
57	77	

DATE: August 23, 2007

These bulletins provide information which may prove u
information will remain in effect depending on producti
Service Bulletin incorporation. Information in these bul
not be approved or endorsed by the FAA at the time of
revised, as necessary to reflect the information contain
contact Boeing Commercial Airplane Group, Chief Pilot
Mail Stop 14-HA, Seattle, WA, USA 98124-2207, Phon
SEABO7X Station 627.

SUBJECT: Landing on Slippery Runways

ATA NO:

APPLIES TO: All 707, 727, 737, 747, 75

Background Information

The FAA is recommending operators of turboj
flight crews to assess landing performance base
conditions existing at time of arrival rather tha
dispatch.

The words "contaminated" and "slippery" are
describe the precipitation on a runway. Althou
contaminated and a slippery runway (as describ
the word "slippery" will be used to mean either

Each year there are a number of landing overru
procedural deviations are contributing factors.
combination of issues such as weather, runway
systems to be used, improper flight crew techn
friction.

2100 to 2500 feet from the threshold depending on the model. High threshold height will likely result in longer touchdowns. Heads-Up-Display (HUD) landing flare guidance (AIII) may reduce the average touch of landings may still result in a touc point assumed in the Boeing QRH p to monitor their touchdown statistic are appropriate.

Speed Brake Operation

It is important for flight crews to re extremely important to the effective armed to extend automatically. Bot touchdown. In the event automatic extended immediately. Boeing QR automatic speed brakes. If manual 2 seconds after touchdown and the

Braking During Landing Roll

Use an appropriate autobrake settin steadily increasing pedal pressure a available. Maintain brake pressure

Boeing recommends the autobrake limited, and when landing on a slipp application of the wheel brakes follo

Autobrake

For normal operation of the autobra include:

- MAX - Used when minimum st than that produced by full manu
- 3 or 4 - Should be used for wet is limited
- 1 or 2 - These settings provide a (i.e., not slippery or contaminate

On a slippery runway the autobrake although selectable, may not be ach runway friction available

Note: Available autobrake settings airplane should be consulted

After touchdown, crewmembers sho annunciations. The pilot monitorin autobrakes disengage.

If stopping distance is not assured with autobrakes engaged, the PF apply manual braking sufficient to ensure the maximum deceleratio remaining runway.

Manual Braking

Immediately after main gear touchdown, smoothly apply a constan for the desired braking. For short or slippery runways, use full brak

- Do not attempt to modulate, pump or improve the braking by a techniques.
- Do not release the brake pedal pressure until the airplane speed safe taxi speed.
- The antiskid system stops the airplane for all runway conditions than is possible with either antiskid off or brake pedal modulat

The antiskid system adapts pilot applied brake pressure to runway an impending skid condition and adjusting the brake pressure to ea for maximum braking effort. When brakes are applied on a slipper cycles occur before the antiskid system establishes the right amoun the most effective braking.

If the pilot modulates the brake pedals, the antiskid system is force pressure to establish optimum braking. During this readjustment ti is lost.

Pilots may misinterpret the low available friction on extremely slip speeds as an antiskid system failure. Pumping the brakes or turnin system degrades braking effectiveness. Maintain steadily increasin allowing the antiskid system to function at its optimum.

Note: Although immediate braking is demonstrated in flight test a performance data, experience has shown manual braking te seen in line operations involve a four to five second delay b touchdown and brake pedal application. This delay may re 800 to 1,000 feet of stopping distance. For this reason, auto recommended.

To achieve the QRH landing distances, the wheel brakes must be a after touchdown.

Reverse Thrust Operation

Awareness of the position of the forward and reverse thrust levers during the landing phase. Improper seat position as well as the wea shirt sleeves may cause inadvertent advancement of the forward thr movement of the reverse thrust levers.

The position of the hand should be comfortable, permit easy access disconnect switch, and allow control of all thrust levers, forward an range of motion.

A table in the PI chapter of the QRH shows the stopping capabilities of the available autobrake selections.

Transition to Manual Braking

The speed at which the transition from autobrakes to manual braking is made depends on airplane deceleration rate, runway conditions and stopping requirements. Normally the speedbrakes remain deployed until taxi speed, but may be stowed earlier if stopping distance within the remaining runway is assured. When transitioning to manual braking, use reverse thrust as required until taxi speed. The use of speedbrakes and reverse thrust is especially important when nearing the end of the runway where rubber deposits affect stopping ability.

When transitioning from the autobrake system to manual braking, the PF should notify the PM. Techniques for release of autobrakes can affect passenger comfort and stopping distance. These techniques are:

- stow the speedbrake handle. When stopping distance within the remaining runway is assured, this method provides a smooth transition to manual braking, is effective before or after thrust reversers are stowed, and is less dependent on manual braking technique
- smoothly apply brake pedal force as in a normal stop, until the autobrake system disarms. Following disarming of the autobrakes, smoothly release brake pedal pressure. Disarming the autobrakes before coming out of reverse thrust provides a smooth transition to manual braking
- manually position the autobrake selector off (normally done by the PM at the direction of the PF).

Manual Braking

The following technique for manual braking provides optimum braking for all runway conditions:

The pilot's seat and rudder pedals should be adjusted so that it is possible to apply maximum braking with full rudder deflection.

Immediately after main gear touchdown, smoothly apply a constant brake pedal pressure for the desired braking. For short or slippery runways, use full brake pedal pressure.

- do not attempt to modulate, pump or improve the braking by any other special techniques
- do not release the brake pedal pressure until the airplane speed has been reduced to a safe taxi speed
- the antiskid system stops the airplane for all runway conditions in a shorter distance than is possible with either antiskid off or brake pedal modulation.

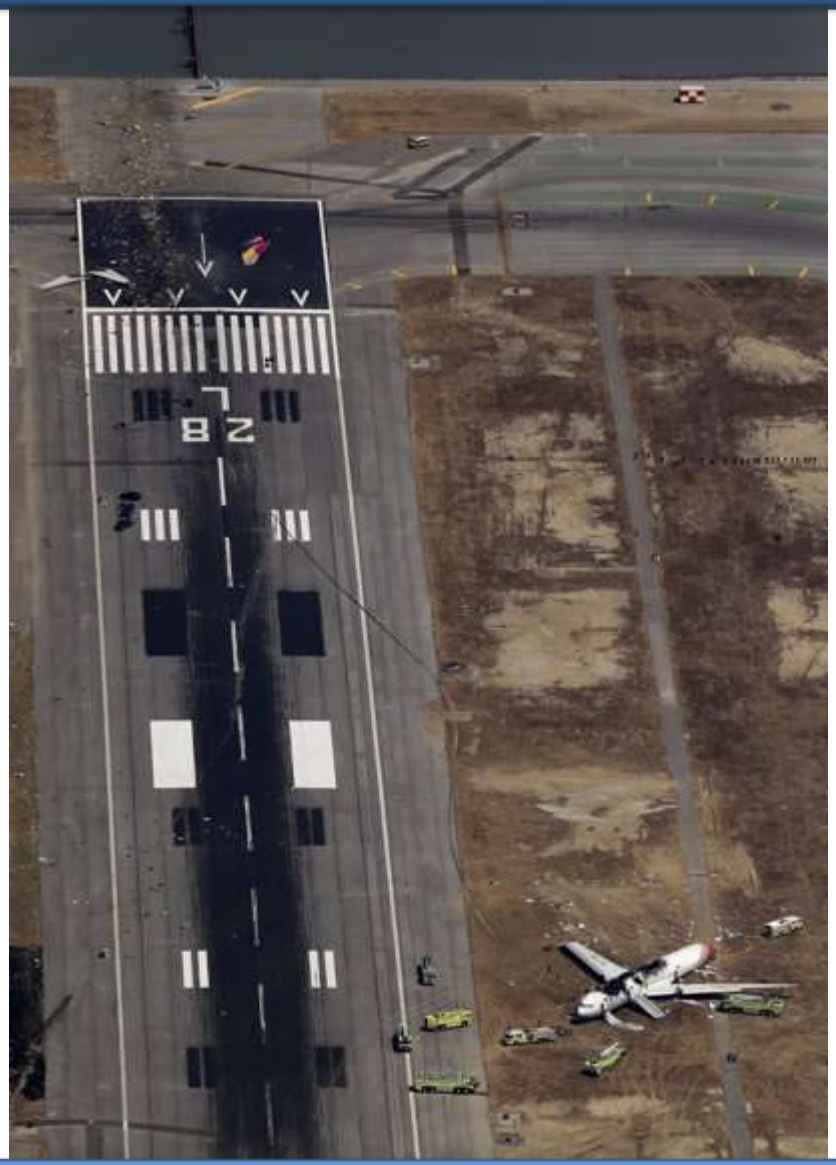
АЭРОПОРТЫ НЕ ОБЕСПЕЧИВАЮЩИЕ БЕЗОПАСНОЕ ВЫКАТЫВАНИЕ

VTSP *RW27 Stopway 60m ILS GS 3.20°*

WADD *RW27 End Dam Wall 4.6m*

LGIR *RW09 2237m No Stopway*

VRMM *RW36 Stopway 60m*



Crash of Asiana Airlines Flight 214
San Francisco, California
July 6, 2013

Crash of Asiana Flight 214 Accident Report Summary

NATIONAL TRANSPORTATION SAFETY BOARD
Public Meeting of June 24, 2014
(Information subject to editing)
Descent Below Visual Glidepath and Impact With Seawall
Asiana Airlines Flight 214
San Francisco, California
July 6, 2013

EXECUTIVE SUMMARY

On July 6, 2013, about 1128 Pacific daylight time, a Boeing 777-200ER, Korean registration HL7742, operating as Asiana Airlines flight 214, was on approach to runway 28L when it struck a seawall at San Francisco International Airport (SFO), San Francisco, California. Three of the 291 passengers were fatally injured; 40 passengers, 8 of the 12 flight attendants, and 1 of the 4 flight crewmembers received serious injuries. The other 248 passengers, 4 flight attendants, and 3 flight crewmembers received minor injuries or were not injured. The airplane was destroyed by impact forces and a postcrash fire. Flight 214 was a regularly scheduled international passenger flight from Incheon International Airport, Seoul, Korea, operating under the provisions of 14 Code of Federal Regulations Part 129. Visual meteorological conditions prevailed, and an instrument flight rules flight plan was filed.

Crash of Asiana Flight 214 Accident Report Summary

The flight was vectored for a visual approach to runway 28L and intercepted the final approach course about 14 nautical miles (nm) from the threshold at an altitude slightly above the desired 3° glidepath. to maintain 180 knots to 5 nm from the RW by ATC, the flight crew mismanaged the airplane's descent, which resulted in the airplane being well above the desired 3° glidepath when it reached the 5 nm point.

PF selected an autopilot (A/P) mode (flight level change speed [FLCH SPD]) that instead resulted in the autoflight system initiating a climb because the airplane was below the selected altitude.

As the airplane reached 500 ft above airport elevation, the point at which Asiana's procedures dictated that the approach must be stabilized, the precision approach path indicator (PAPI) would have shown the flight crew that the airplane was slightly above the desired glidepath. Also, the airspeed, which had been decreasing rapidly, had just reached the proper approach speed of 137 knots. However, the thrust levers were still at idle, and the descent rate was about 1,200 ft per minute, well above the descent rate of about 700 fpm needed to maintain the desired glidepath; ***these were two indications that the approach was not stabilized.*** Based on these two indications, the flight crew should have determined that the approach was unstabilized and initiated a go-around, but they did not do so. As the approach continued, it became increasingly unstabilized as the airplane descended below the desired

Crash of Asiana Flight 214 Accident Report Summary

• **Adherence of Asiana pilots to standard operating procedures (SOP) regarding callouts.** The flight crew did not consistently adhere to Asiana's SOPs involving selections and callouts pertaining to the autoflight system's mode control panel. This lack of adherence is likely the reason that the *PF did not call out "flight level change"* when he selected FLCH SPD. As a result, and because the PM's attention was likely on changing the flap setting at that time, the PM did not notice that FLCH SPD was engaged.

• **Reduced design complexity and enhanced training on the airplane's autoflight system.**

• **Opportunity at Asiana for new instructors to supervise trainee pilots in operational service during instructor training.**

• **Guidance for Asiana pilots on use of flight directors during a visual approach.** During the accident flight, after the A/P was disconnected, the PM loosely followed Asiana's informal practice, which was to turn both flight directors (F/Ds) off and then turn the PM's F/D back on when conducting a visual approach. However, the two F/D switches were not both in the off position at the same time. If they had been, the A/T mode would have changed to speed mode and maintained the approach speed of 137 knots. In addition, during a visual approach, F/D pitch and roll guidance is not needed and can be a distraction.

• **More manual flight for Asiana pilots.** Asiana's automation policy emphasized the full use of all automation and did not encourage manual flight during line operations

Структура документов

МИНИСТЕРСТВО ТРАНСПОРТА РОССИЙСКОЙ ФЕДЕРАЦИИ

ПРИКАЗ
от 31 июля 2009 г. N 128

ОБ УТВЕРЖДЕНИИ ФЕДЕРАЛЬНЫХ АВИАЦИОННЫХ ПРАВИЛ "ПОДГОТОВКА И ВЫПОЛНЕНИЕ ПОЛЕТОВ В ГРАЖДАНСКОЙ АВИАЦИИ РОССИЙСКОЙ ФЕДЕРАЦИИ"

(в ред. Приказов Минтранса России от 21.12.2009 N 242,
от 22.11.2010 N 263, от 16.11.2011 N 284,
от 27.12.2012 N 453, от 25.11.2013 N 362,
от 10.02.2014 N 32)

???

ОТКРЫТОЕ АКЦИОНЕРНОЕ ОБЩЕСТВО «Авиакомпания «ЮТэйр»

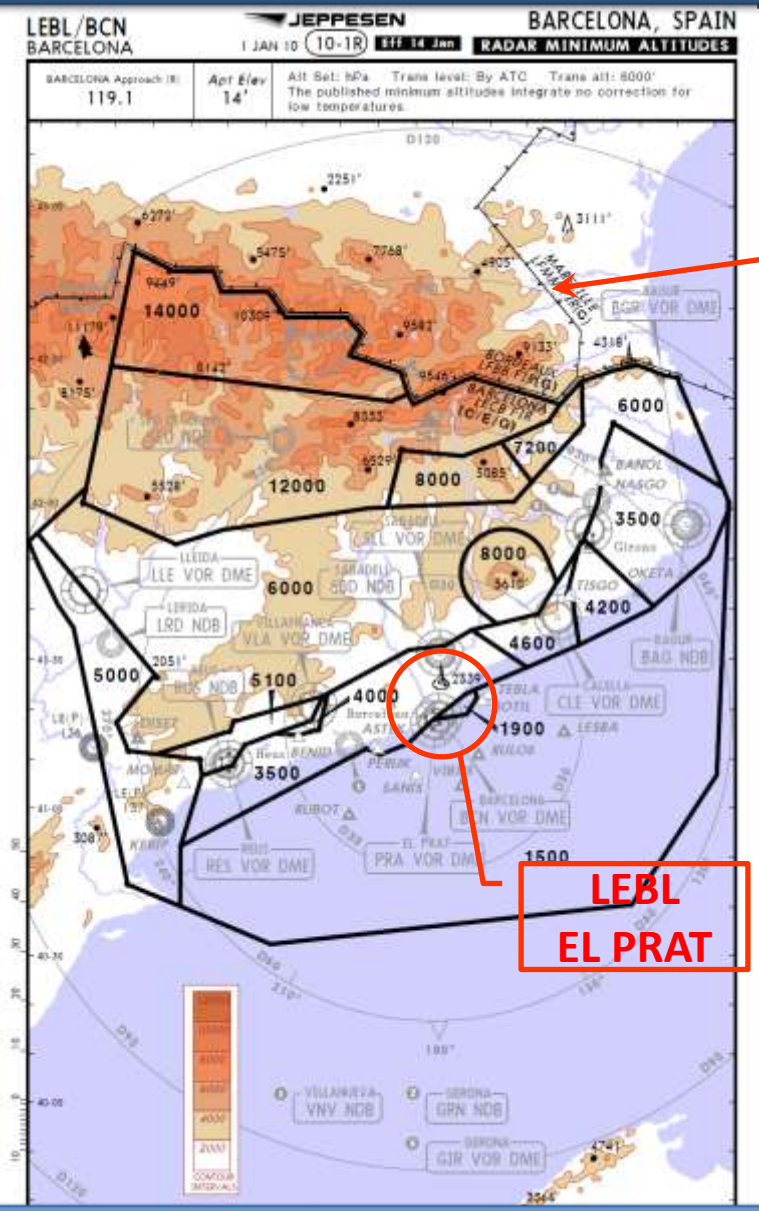
Утверждено
приказом генерального директора
ОАО «Авиакомпания «ЮТэйр»
от 26 . 02 . 2007 г. № 420

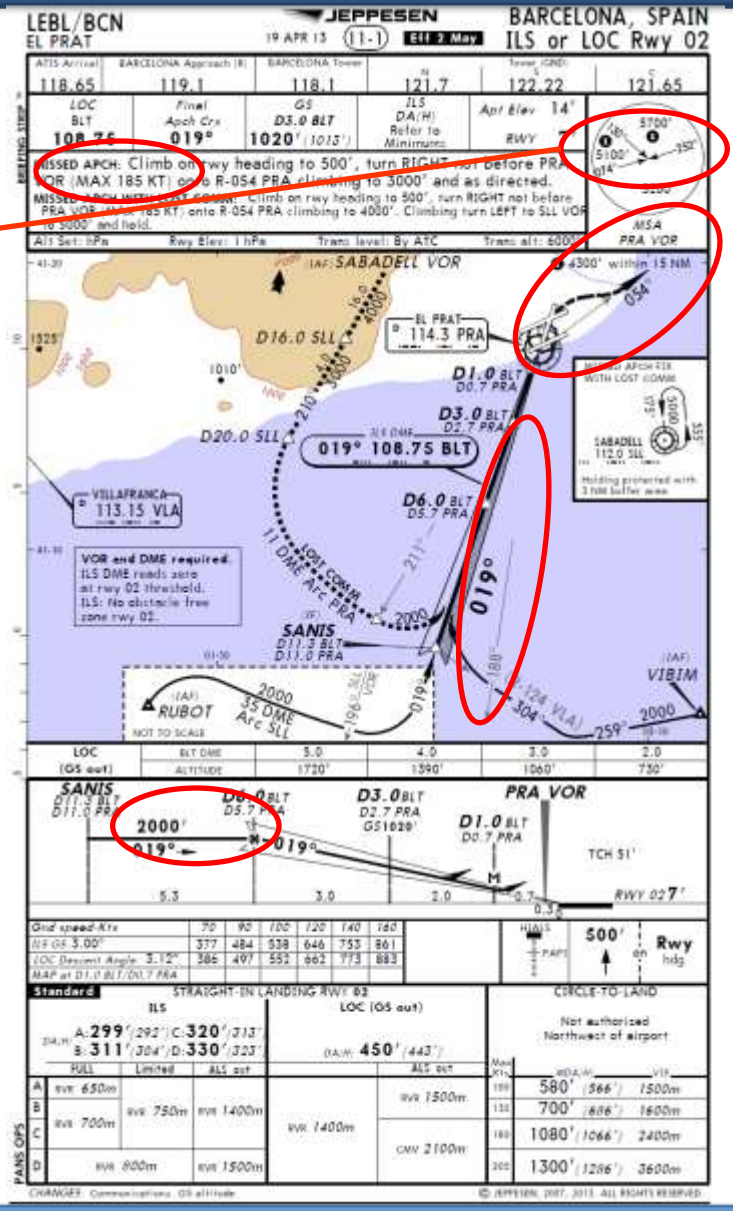
руководство по производству полетов

ОВОДСТВО ПО ПРОИЗВОДСТВУ ПОЛЁТОВ
ОАО «АВИАКОМПАНИЯ «СИБИРЬ»
7 AIRLINES FLIGHT OPERATIONS MANUAL

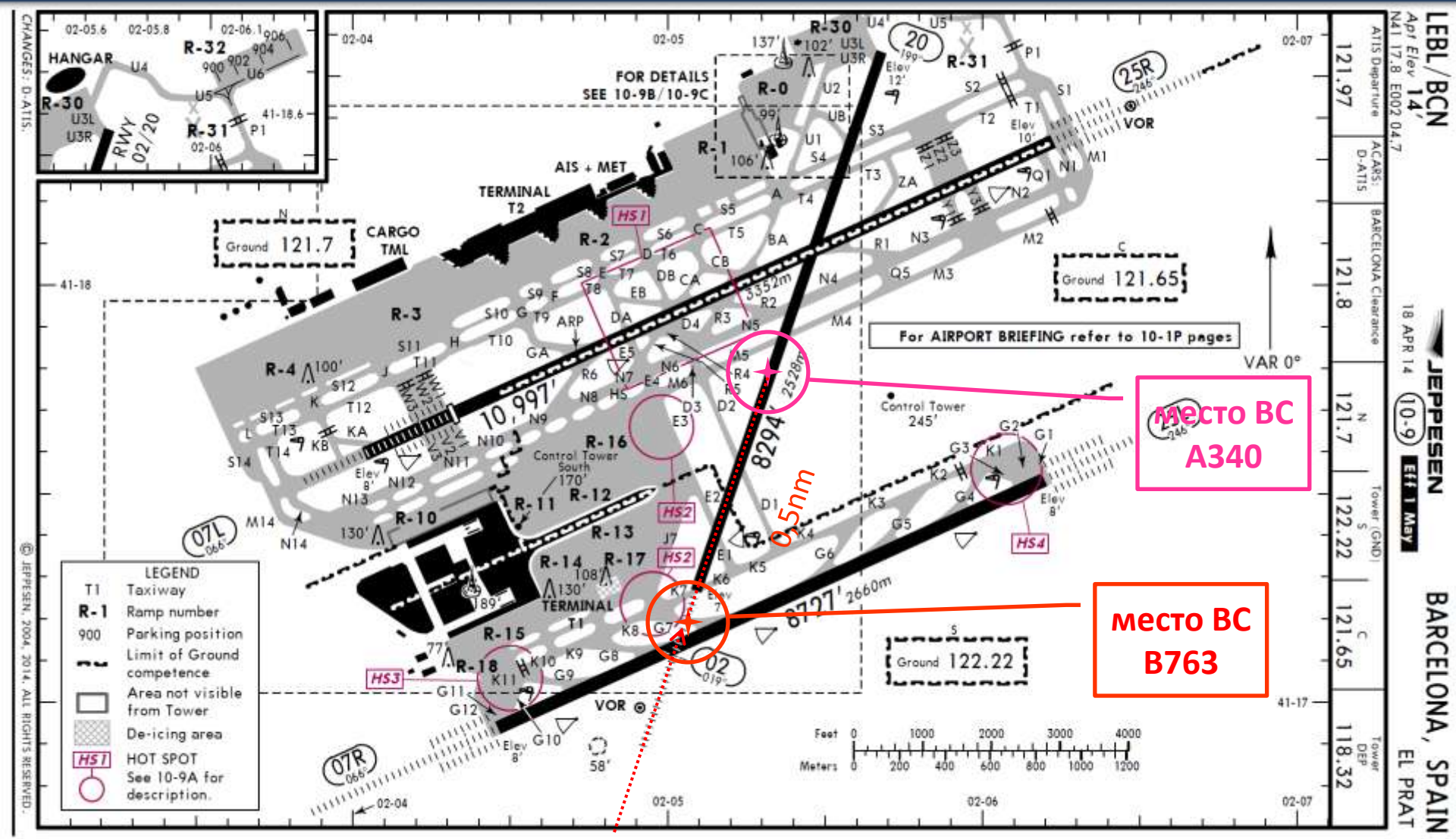
- Принципы формирования SOP в а/к лидерах.
- Особенности и риски рассматриваемые связанные с операциями на ИВПП включаемые в SOP.
- Образцы SOP передовых кампаний лидеров.
- Методические разработки и рекомендации SOP передовых кампаний лидеров связанные с операциями на ИВПП рассматриваемые как передовой опыт для рекомендации другим а/к евро-азиатского региона.

Аэропорт БАРСЕЛОНА EL PRAT LEBL





Аэропорт БАРСЕЛОНА EL PRAT LEBL

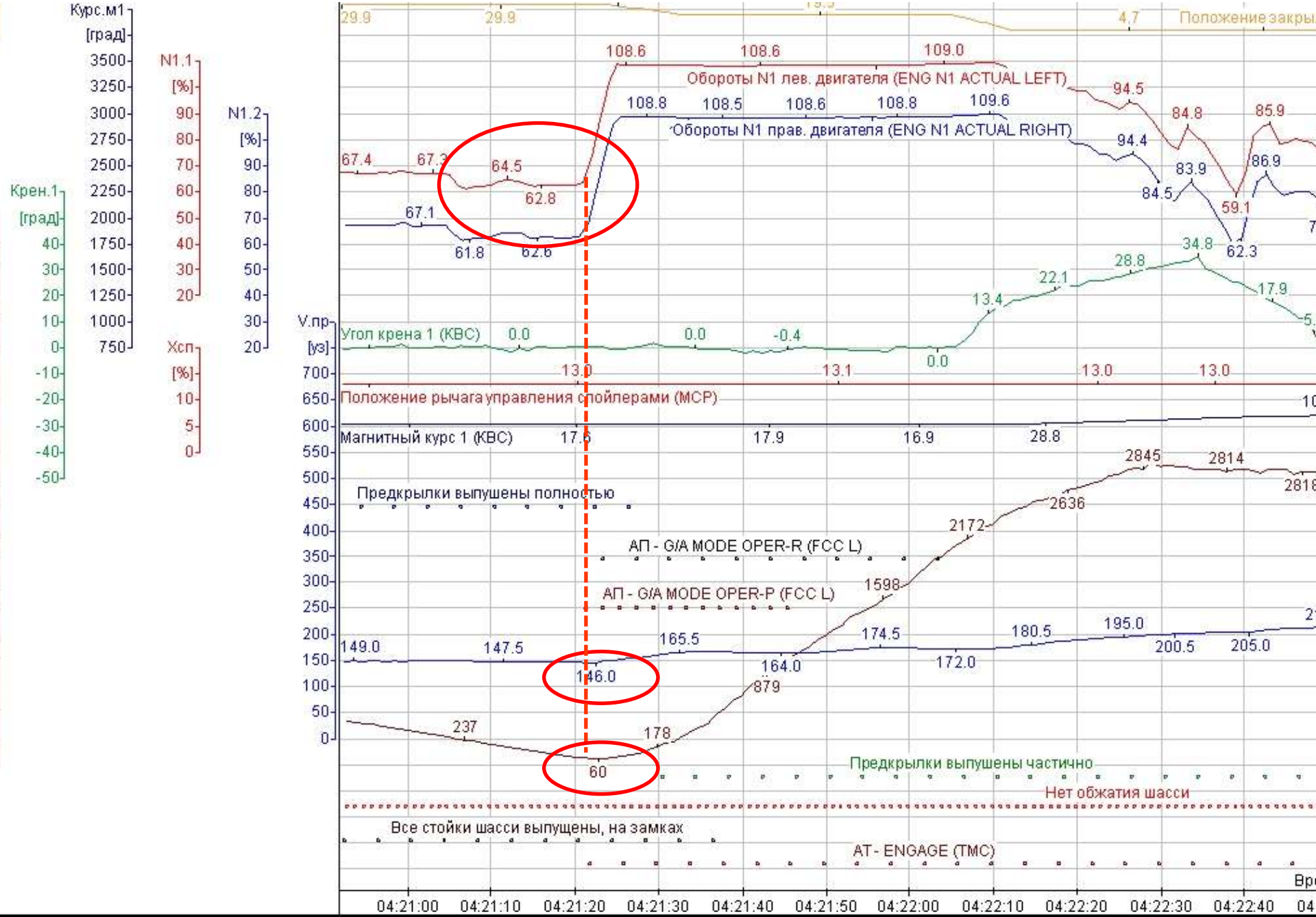


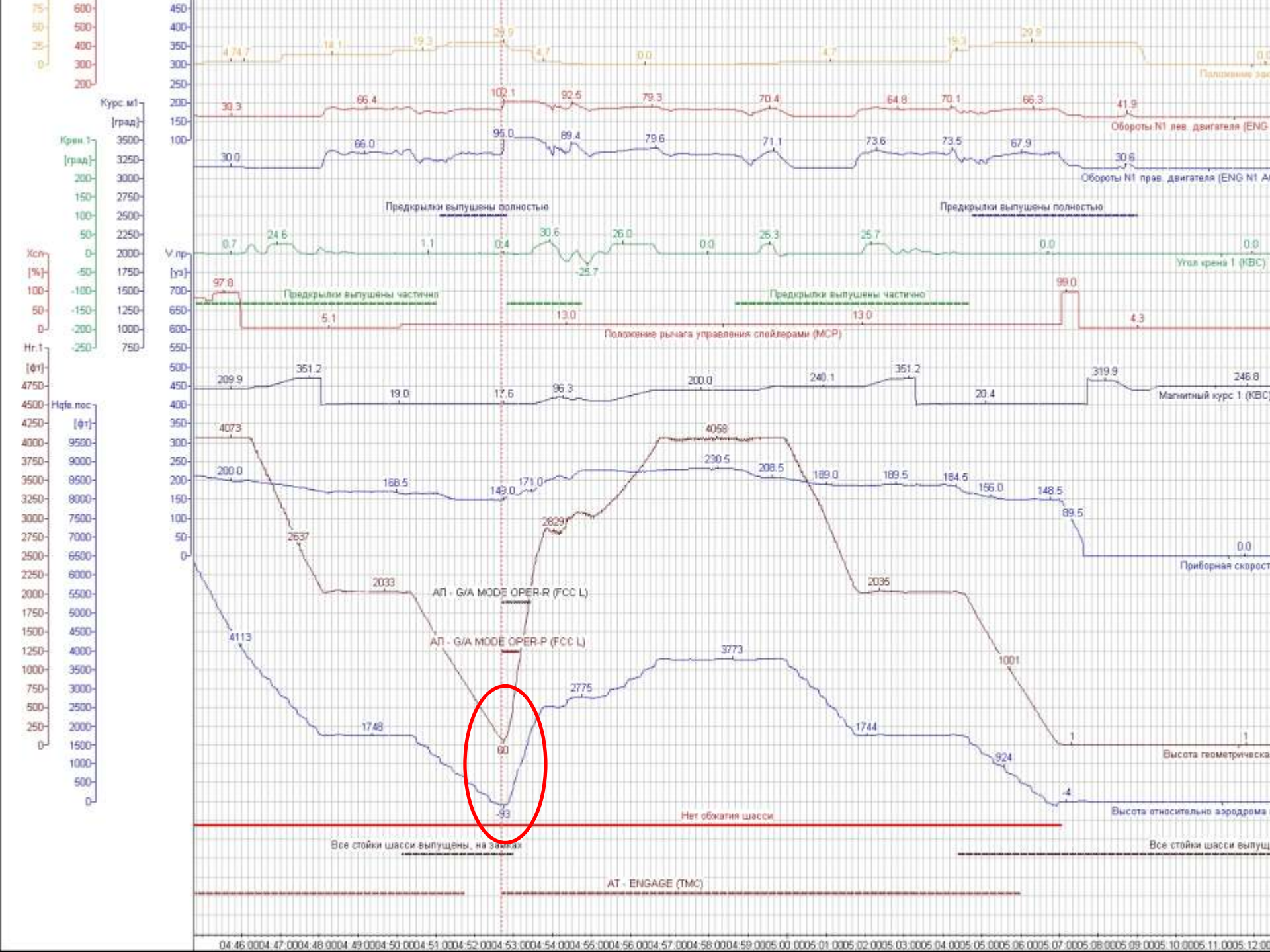
Аэропорт БАРСЕЛОНА EL PRAT LEBL

Рейс UTA5187 Boeing-767 VQ-BSX 05.07.2014
АК “ЮТэйр”

1. Уход с малой высоты перед торцом на второй круг из-за появления препятствия на полосе ВС А340 (недопонимание при ведении радиосвязи пилот-диспетчер)
2. Отсутствие команды диспетчера/ информации о занятости ВПП
3. Минимальная дистанция между ВС-0,5nm
4. Четкое распределение обязанностей в экипаже – CRM
5. Точное выполнение SOP Boeing-767

UTA5187 Boeing-767 VQ-BSX 05.07.2014




Курс м1
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Крен 1
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Xcm
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Hqfe пос
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V пр
[уз]
Предкрылки выпущены полностью
Предкрылки выпущены частично
Положение рычага управления спойлерами (MCP)
Обороты N1 лев. двигателя (ENG
Обороты N1 прав. двигателя (ENG N1 A
Угол крена 1 (KBC)
Магнитный курс 1 (KBC)
Приборная скорост
Высота геометрическа
Высота относительно аэродрома
АП - G/A MODE OPER-R (FCC L)
АП - G/A MODE OPER-P (FCC L)
Нет обжатия шасси
Все стойки шасси выпущены, на замках
Все стойки шасси выпущ
AT - ENGAGE (TMC)

РАЗРАБОТКА ВОПРОСНИКА ПО СОДЕРЖАНИЮ СТАНДАРТНЫХ ЭКСПЛУАТАЦИОННЫХ ПРАВИЛ (SOP)

(Представлено Российской Федерацией)

SUMMARY

В документе рассматривается инициатива относительно разработки вопросника по содержанию стандартных эксплуатационных процедур (SOP) с позиции снижения риска выкатываний за пределы взлетно-посадочной полосы при посадке. При разработке вопросника предлагается придерживаться рекомендаций Руководства по сокращению количества авиационых происшествий при заходе на посадку и посадке (ALAR TOOL KIT).

Introduction

За период с 2002 по 2013 годы с самолетами эксплуатантов Российской Федерации произошло 203 инцидента, связанных с выкатываниями за пределы взлетно-посадочной полосы (далее – ВПП) при взлете или посадке. На этапе посадки произошло 169 инцидентов, в том числе 72 продольных выкатывания (Overrun) и 97 боковых выкатываний (Veer-off).

- Производится корректировка программы подготовки инсрукторов с акцентированием на проблеме RS;
- Проводится анализ использованияния в АК, тестируемого вопросника SOP ;
- Проводится тестирование новых сценариев на FFS с акцентом на проблематику RS;
- Выявлены узкие моменты в процедуре предоставления и анализа полетных данных;
- Проводится анализ “индивидуального подчерка” выполнения полетов по типам ВС;

Где искать?

- *Почему выкатываются ВС с двумя колесами на тележке?*
- *Как влияет тип захода(ILS, non-ILS, Vis) на выкатывание?*
- *Как летчику оценить соответствие длины пробега остатку полосы, на ВПР, на торцом, на пробеге?*
- *Можно ли уходить на 2-й круг с пробега с "посадочным" положением закрылков, а где расчеты?*
- *Как уйти от завышенной скорости захода?*
- *Как уйти от долгих объяснений причин ухода на 2-й круг?*
- *Как уйти от стереотипа–у кого больше налет, тот и прав.*
- *…….*