

EDITORIAL

In this issue of the TACARE Newsletter, there are 6 cases included. The subjects are as follows:

- GPWS Abnormal Warnings
- Inquires Regarding Flight Crew's Consumptions of Alcoholic Beverages during Flight
- Flight Time Limitations for a Standard Flight Crew Composition
- Cabin Emergency Oxygen Supply Level
- Issues Regarding Crew Rest Facilities Installations for Long Haul Flights
- CAA Airline Transport Pilot License Written Examination Requirements

In an attempt to increase safety awareness for aviation personnel, this issue of the TACARE Newsletter includes the "National Aviation Safety Information". This section will introduce procedures and information regarding aviation occurrence investigation, and an update on the progress of on-going investigations. Furthermore, summaries of completed investigations will also be provided to share our findings on these events. We have also included a section entitled "International Aviation Safety Information" which incorporated international aviation safety events for the year 2007 for your references.

It has always been the objective of TACARE to uphold the spirit of "voluntary, confidential, and non-punitive" so as to provide an open forum where information can be freely exchanged. Through the collection, analysis, and sharing of information, we aim to enhance Taiwan's aviation safety by gradually eliminating possible risk factors that may impede flight safety. It is our sincere hope that our readers will

continue to provide us with support and recognition, as well as enthusiastically offer us suggestions so that together, we may improve Taiwan's aviation safety.



NATIONAL AVIATION SAFETY INFORMATION

Progress on Current Investigations

Recently Completed Investigations

The complete report is available at ASC's website (<http://www.asc.gov.tw>).

Boeing B-234 Helicopter blade damper/shock absorber fractured after landing

ASC published a flight occurrence investigation report involving a Boeing 234 helicopter on July 12, 2007. The event occurred when one of the rotorcraft's rear blade damper/shock absorbers fractured after the helicopter had shut down its engines and completed its after landing checklist. The event resulted in one of the rotor blades collapsed and striking the rotorcraft, which caused structure damage to the portside fuselage and fractured the rotor blade. However, none of the occupants were injured.



Figure 1 The rear blades' fractured blade damper/shock absorber resulted in the blade's collapse and striking the fuselage

The investigation revealed fatigue crack found on the blade damper/shock absorber as a result of air corrosion. Since the operator of the rotorcraft did not comply with the published airworthiness directives to conduct scheduled maintenance checks. The fatigue crack was not discovered, and as the crack progressed, the blade damper/shock absorber was weakened and eventually failed to absorb the stress resulted in the fracture of the component.

The ASC recommended the rotorcraft's operator to review and strengthen its management and maintenance practices with compliance to the proper Airworthiness Directives to avoid similar event.

ATR72 Aircraft striking airport flood light pole during taxi at Sung Shan Airport

The ASC has released an occurrence investigation report involving a National registered ATR72 passenger aircraft on August 10th, 2007. After landing at Sung Shan Airport, the aircraft was instructed by the control tower to taxi via taxiways E CC N1 EH to assigned parking gate. (See figure 3)

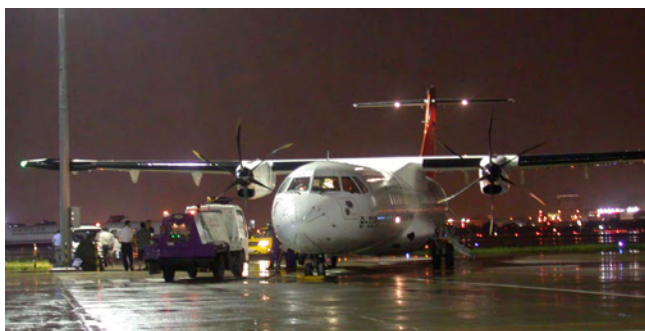


Figure 2 The right wing of the aircraft struck flood light pole during taxi

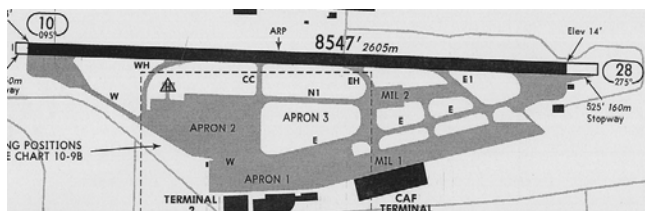


Figure 3 Jeppesen's aircraft diagram for Sung Shan Airport (RCSS)

The weather condition for the occurrence was night time with light rain. It was the flight crew's first time

using taxiway N1 after its construction work. While the aircraft made a right turn from Taxiway E into Taxiway CC, the flight crew saw sign 1 on figure 4. The sign led the flight crew to believe after the aircraft turned into Taxiway CC, the first Taxiway intersection of the right would be N1. However, there was a ground service road paralleled to Taxiway N1 behind the direction sign. The service road was not shown on Jeppesen's airport diagram (figure 3)

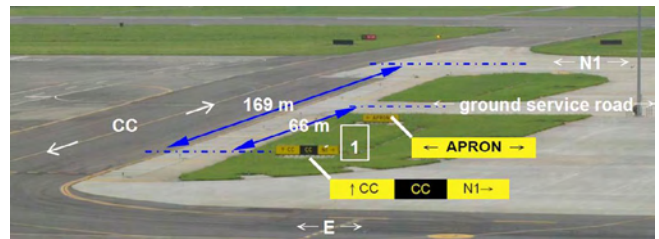


Figure 4 Locations of the information signs along side of Taxiway

According to the flight crew, due to the weather condition, and light reflections from standing water accumulated on the ramp, both crew were unable to observe Taxiway centerline and edge line when the aircraft arrived the

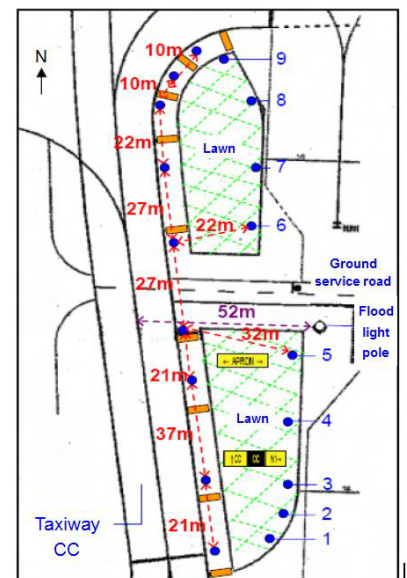


Figure 5 Lights and lines nearby taxiway CC

intersection of Taxiway CC and ground service road. However, the crew did observe the taxiway edge lights, and they had mistaken the taxiway edge lights for gate number 3 (see item 5 and 6 on figure 5) as the edge light extensions into Taxiway N1. The flight crew advised the control tower that they were making a right turn. The control tower responded the phrase "roger" which led the flight crew to mistakenly believe that the control tower had identified their position and confirmed their taxi routings.

After turning into the ground service road, the crew

have realized the disappearance of the taxiway edge lights, the white marking lines on the road, and the unusual bright surroundings. However, the crew continued their discussion regarding taxing routings and failed to realize the right side of the aircraft was approaching the flood light pole. The aircraft continued taxing and eventually struck the light pole.

The ASC has issued the following recommendations to the aircraft operator: 1. Ensure that flight crew adhere to standard operating procedures and all regulations during taxing. 2. Enhance flight crew's training for situational awareness during taxing. 3. Ensure flight crew clearly stating their intentions to air traffic controller when requesting assistance.

The ASC also issued the following recommendations to the CAA: 1. Re-examine reflective material used for runway and taxiway markings to maintain consistent reflection rate. 2. Re-examine sign locations, sequence, symbols used, types, and substitution markings at Sung Shan Airport to ensure flight crew could clearly perceive their taxi routings. 3. Re-examine the conditions of the taxiway edge lights in Sung Shan Airport.

Airbus A300 Aircraft Loss of Cabin Pressure within Republic of China's FIR

The ASC has released its occurrence investigation reports involving a Korean registered Airbus A300 aircraft. The aircraft involved was a scheduled passenger flight from Incheon to Taoyuan Airport. While cruising at 32,000 feet, on airway B-576 within Taipei FIR, both number 1 and number 2 cabin pressure regulators have malfunctioned, resulting in an increase of cabin altitude above 10,000 feet. The flight crew executed an emergency descent maneuver according to the QRH. Passengers' oxygen masks were deployed during the descent. After leveling off at 10,000 feet, the crew reset the cabin pressurization system, and landed without further incident.

According to the investigation, the aircraft's FWD

outflow valve's deceleration gear box component was fractured, causing the two motors under automatically mode to seize operations, resulting in the failure of maintaining constant cabin pressurization. However, if the flight crew had selected manual mode, the cabin pressure could be restored prior to aircraft leveling off at 10,000 feet.

Furthermore, the investigation also revealed that the flight crew did not follow certain procedures while executing the emergency descent maneuver; i.e. donning the oxygen masks, establishing communication with air traffic control, and turning the aircraft away from the airway.

The ASC had issued the following recommendations to the aircraft operator: ensure the flight crew are well rehearsed and follow the proper emergency procedures. The operator should also examine and integrate procedures regarding loss of cabin pressurization. The ASC also recommend the manufacturer to conduct further testing on the failed components to identify the cause of such failure.

MD-83 Right Main Landing Gear Exiting Runway during Landing Roll at Taipei Sun Shan Airport

The ASC has released its occurrence investigation report involving a national registered MD-83 aircraft. The occurrence took place at night, where the aircraft was executing an ILS approach into runway 10 at Sun Shan Airport (RCSS). The weather condition was raining with reported visibility of 2 km, the winds were steady. The weather condition met the airline's criteria for stabilized approach. However, the visibility was suddenly reduced due to an encounter of shower rain. The crew could not maintain visual contact with the runway centerline. (Note: Runway 10 at RCSS was not equipped with touchdown zone lighting, or runway center lights.) The crew continued the approach with sole visual references of runway edge lights.

Four seconds prior to touchdown, the aircraft was right of the extended centerline in excess of 30 feet.

Although the crew have used left rudder in an attempt to correct the aircraft's position, but it was not enough to stop the aircraft veering towards the right. Upon touchdown, the right main landing gear veered off the runway approximately 1950 feet from the end of the runway. The aircraft then return to the taxiway 10 seconds after. All occupants were uninjured, but 5 runway edge lights were destroyed as the result of the runway excursion.

The investigation indicated that had the crew realized the sudden encounter of shower rain could affect the landing, and executed a missed approach, this occurrence could have been avoided.

The ASC has issued the following recommendations to the operator of the aircraft: 1. Request flight crew to execute a missed approach immediately if the crew determined a sudden reduction of visibility could adversely affect the approach and landing. 2. Re-examine the phraseologies used in the flight operation manual regarding execution of a missed approach. The ASC also recommended the CAA to install runway center lights to provide additional visual reference to flight crew during low visibility operations.

On Going Investigations

There were 4 civil and public flight occurrences during the latter half of 2007. Five flight occurrences (not including ultralight occurrences) are under investigation as of the date this article was written. Details of these events are available at ASC's website.

The five occurrences are as follows:

	Information	Brief Description	Status
1	2006/11/16 B757 Tao-Yuan International Airport to Jeju International Airport	Aircraft experienced a near air missed, crew performed traffic avoidance maneuvers following TCAS advisory and landed in Incheon Airport. 21 persons were injured.	Factual data report published and analysis in progress
2	2007/08/20 B737-800 Tao-Yuan International	Fire after engine shutdown. All occupants were uninjured.	Factual Data gathering and Confirmation

	Airport To Naha International Airport		
3	2007/08/20 MD-82 Magong to Taipei	Aircraft temporarily veered off the runway destroying 3 runway edge lights.	Factual data report published and analysis in progress
4	2007/09/20 B737-800 Tao-Yuan International Airport To Saga Japan	A 77 cm fracture was discovered near the aft cargo door during after landing inspections.	Factual Data gathering and Confirmation
5	2007/12/31 UH-1H Search & Rescue mission near I-Lan	While performing hoisting rescue operations, the hoisting cable failed causing serious injuries to one rescuer and one evacuee.	Factual Data gathering and Confirmation



INTERNATIONAL AVIATION SAFETY INFORMATION

Overview of Global Aviation Safety of 2007

According to Aviation Safety Network's (ASN) database accessed on Jan 11, 2008, there were 149 aviation occurrences in the year 2007. These included 47 fatal accidents resulting in 878 fatalities, which including 58 from the ground. Twenty-six of these fatal accidents involved multi engine passenger or cargo aircrafts. A total of 750 passenger fatalities and 41 ground fatalities were the result of these 26 accidents. According to global statistic data, there was an average of 34 fatal accidents, 914 fatalities annually between the years 1997-2006. Thus, it is clear that there was a certain improvement of global aviation safety.

There were 3 major fatal accidents in 2007, each resulting in fatalities in excess of 100 lives. All of these accidents are currently under investigations. These accidents are as follows:

1. Jan 1st, a Boeing 737-4Q8 operated by Adam Air of Indonesia crashed into ocean resulting in 102

fatalities.

2. May 5th, a Boeing 737-8AL operated by Kenya Airways crashed into the swamp, causing 114 fatalities.
3. July 17th an Airbus 320-233 operated by TAM Linhas Aereas of Brazil ran off the runway and exploded during a rainy evening. The accident resulted in 199 fatalities.

Although there were several aviation occurrences in the year 2007, causing lost of many lives and damaging many properties, it is still evident that international aviation safety has been improving gradually. With the introduction of Safety Management System (SMS), and other safety improvement practices, a safer sky could be expected in the near future.



REPORTS

GPWS Abnormal Warnings

According to the contributor, the aircraft was executing a ILS DME RWY 23 approach into Tao Yuan airport on a night VMC condition, at approximately 15 NM from the airport, altitude of 3,000 feet and heading of 200, the Ground Proximity Warning System (GPWS) suddenly issued a terrain warning (Verbal warning consisting of phrase "PULL UP, PULL UP). The terrain warning was cleared after the crew disconnected the autopilot and climbed to 4,000-4,500 feet.

The contributor decided to abandon the approach, and requested radar vectors from the air traffic controller. The contributor then executed an identical approach and landed without any further incidents. The crew had contacted ATC after landing inquiring the conditions of the first approach. The contributor was told by ATC that all parameters including aircraft heading altitude indicated normal during the first approach.

The contributor has the following inquiries:

1. Although both approaches were similar in terms of heading, position, airspeed, and altitude, why was GPWS Terrain Warning issued during the first approach?
2. During the first approach, the terrain display on the Navigation Display (ND) suddenly changed from Solid Green and Low Density Green to Solid Red (Terrain Warning). Was this a normal system response?

The contributor suggested further investigation is needed to identify the cause of this event.

TACARE Office

After contacting with the airline, the airline has initiated an investigation. After analyzing FOQA data and comparing it with Google Map, the airline was able to identify the incident occurred off shore of Hsin Chu. Thus, the GPWS Terrain Warning was probably a false warning. After close examination of the data from the Radar Altimeter, the airline discovered that a potential fault existed on the right Radar Altimeter Sensor. The problem seized to exist after the sensor was replaced.

TACARE office would like to thank the contributor for sharing his concern which assisted the airline to solve the problem in a timely manner.



Inquires Regarding Flight Crew's Consumptions of Alcoholic Beverages during Flight

According to the contributor, while traveling from destination B returning to Tao Yuan International Airport on Airline A, the contributor was seated behind the cockpit. The contributor observed cabin crew delivered Brand C beer and a Tetra Pack of red wine into the cockpit. Although the contributor was not certain the cockpit crew have consumed alcoholic beverages during the flight, the contributor decided to reveal this observation in order to enhance flight safety.

TACARE Office

Airline A began an investigation immediately after being notified by TACARE office. The investigation reveals that the cabin crew delivered a can of Brand C lemonade, and a Tetra Pack of juice into the cockpit. Since the lemonade of Brand C is similar to a can of beer, while the Tetra Pack juice could appear similar to the red wine served onboard. Airline A provided photographs of the drinks to further identify the drinks served could easily be misidentified by the contributor.

According to the result of Airline A's investigation, the TACARE office believes there were no alcoholic beverages consumptions by the cockpit crew during the said flight. However, the TACARE office would like to thank the contributor for the effort to enhance flight safety, and Airline A for a timely investigation.



Flight Time Limitations for a Standard Flight Crew Composition

The contributor stated the civil aviation regulation of the Republic of China, the flight time limitation for standard flight crew composition is as follows "standard flight crew should not exceed 10 hours of international flight in 24 consecutive hours". The contributor believes such regulation exceeds human performance and it is also higher than the 8 hour duty limits for most other nations.

According to the contributor, one of Airline C's flights is originated from out station A to out station B then returning to out station A. This flight consisted of 8-9 hours of flight time, and parts of the flight are conducted at night. Due to the per long flight time and flight crew often are assigned to perform this sector repeatedly, thus Airline C has assigned multiple flight crew to perform this sector. However, due to recent shortage of manpower, the said sector has been assigned to operate by standard flight crew. While operating on this sector, the contributor has discovered his/her first officer had fallen asleep several time, and

missed several ATC instructions. The contributor was also fatigued while performing his/her duties. Furthermore, the contributor stated that other flight crew are also experiencing similar fatigue related issues while performing their duties on the said sector.

The contributor believes that the flight crew are not to be blamed. Although legal, the contributor believes the current 10-hour regulation is excessive and does not consider the effects of fatigue upon crew members. The contributor questions the possibilities of adopting 8-hour as the maximum flight time limitation for standard crew composition.

TACARE Office

According to TACARE office's understanding, the followings are flight time limitations for a standard flight crew composition adopted in United States of America, Australia, and the United Kingdom:

USA—*A certificate holder conducting supplemental operations may schedule a pilot to fly in an airplane for eight hours or less during any 24 consecutive hours without a rest period during those eight hours*¹.

*If a certificate holder conducting supplemental operations schedules a pilot to fly more than eight hours during any 24 consecutive hours, it shall give him an intervening rest period at or before the end of eight scheduled hours of flight duty. This rest period must be at least twice the number of hours flown since the preceding rest period, but not less than eight hours. The certificate holder conducting supplemental operations shall relieve that pilot of all duty with it during that rest period*².

Australia—*Paragraph 1.4: An operator shall not roster a pilot to fly in excess of 8 hours flight time in any 1 tour of duty*³.

¹ Federal Aviation Regulations-Part 121.503

² Federal Aviation Regulations-Part 121.505

³ Civil Aviation Orders-Part 48, section 48.1, Issue 9, 1.4

Paragraph 1.6: The flight time in a tour of duty already commenced in accordance with paragraph 1.4 of this subsection may be extended to 9 hours⁴.

UK—The United Kingdom does not have a flight time limitation, but it does regulate Flying Duty Period (FDP). FDP begins when the flight crew reported for duty at the company. The current UK regulation does not differentiate between standard crew, multiple crew, and double crew compositions⁵. However, the United Kingdom adopted more comprehensive approach regarding crew operating limitation. The limitation varies with the time of departure, numbers of sectors, rest time prior to flight duty, time zone differences, sector time, etc. Although the actual FDP has to be verified by a examining the related charts, but the following conclusion could be drawn: night departures, flying into various time zones, multiple sectors, limited rest time prior to flight duty and long sectors will result in the reduction of the FDP. Additionally, FDP will be further reduced if the flight crew will operate sectors in excess of 7 hours.

For example: If a standard flight crew composition is to operate on a sector in excess of 7 hours, while they are not acclimatized, and had a rest time of 18 to 30 hours prior to reporting for duty, the FDP would be 9 hours and 45 minutes. If the same standard flight crew pairings are acclimatized and to be assigned for a sector that is between 7 to 9 hours and departs between 2200-0559 the FDP would be 10 hours and 15 minutes. If the same acclimatized flight crew are assigned to operate a sector that is between 9 to 11 hours and departs between 2200-0559, their FDP would be 9 hours and 15 minutes.

The evolvement of the Republic of China's regulations regarding standard flight crew composition duty limitations are as follows:

Regulation	Date	Article	Content	Remark
Aircraft Flight Operation Procedures	Promulgated in 1976	Article 10.8.3	1. Pilots are allowed to operate 8 consecutive hours in any 24 hour period. 2. Pilots are allowed to operate between 8 to 12 consecutive hours in any 24 hour period but must received 24 hours of continuous rest after duty.	Abolished
Aircraft Flight Operation Procedures	Amended in 1996	Article 11.14.3	1. Pilots are allowed to operate no more than 10 hours in any 24 consecutive hour period provided that pilots are scheduled at least a 10 consecutive hours of rest period after duty	Abolished
Aircraft Flight Operation Regulations	Promulgated in 2000	Article 33.1	1. An operator may schedule a pilot to fly no more than 8 hours for domestic flights during any consecutive 24 hours. The pilot shall be given a rest period of no less than 10 consecutive hours at the end of 8 scheduled hours of flight duty. On international flights, a pilot may not fly more than 10 hours during any consecutive 24 hours. If a pilot has flown on international flights not exceeding 8 hours during any 24 consecutive hours, the pilot shall be given a rest period of no less than 10 hours. If a pilot has flown on international flight exceeding 8 hours during any 24 consecutive hours, the pilot shall be given a rest period no less than 18 hours. An operator may schedule a pilot to fly no more than 8 hours for domestic and international composite flights then a rest period of no less than 10 consecutive hours must be provided.	In Effect

According to the preceding charts, the Aircraft Flight Operation Procedures (the predecessor of the current Aircraft Flight Operation Regulations) published in

⁴ Civil Aviation Orders-Part 48, section 48.1, Issue 9, 1.6

⁵ Civil Aviation Orders-Part 48, section 48.1, Issue 9, 1.6

1976 only regulated that flight crew could operate 8 consecutive hours in any 24 hour period. There were no regulations regarding rest time requirement after flight duty. If the operation time is between 8 to 12 hours, the operation should be in multiple sectors, and the flight crew should receive 24 consecutive hours of rest after operation. The 1996 amendment has combined the 8 consecutive hour operation and 8 to 12 hours multiple sector limitation into 10 hours. There were no longer limitations regarding numbers of sectors. The revision also entitled flight crew to received 10 consecutive hours of rest time after duty.

The current Aircraft Flight Operation Regulations, published in the year 2000 has further categorized standard flight crew composition duty limitation into domestic sectors, international sectors, and domestic /international joint dispatch. The current regulations stated that for domestic flights and domestic /international joint dispatches, the flight time should not exceed 8 hours in any 24 hour period. The crew are entitled for a minimum of 10 consecutive hours of rest period after flight duties. For international operations: the flight time should not exceed 10 hours in any 24 hour period, if the flight time is less than 8 hours, the flight crew will be scheduled for 10 hours of consecutive rest period, if the flight time exceeds 8 hours, the crew should be scheduled for an 18 consecutive hours of rest period after flight operations.

Every regulation was adopted based on careful studies and analysis; the regulations are amended as results of operational needs and changing working environments. The TACARE office could not thoroughly examine the reason for each regulation amendment. The TACARE office believes the flight crew are the best persons to answer questions such as "Should the duty limitation be 8 hours or 10 hours?" or "Which nation has the best duty limitation regulations?" since they are directly affected by these regulations. If the flight crew believe fatigue has an adversely effect on flight safety in certain sectors, he/she should directly notify the airlines since such

action could a timely and direct response. If flight crew's concerns were not addressed by the preceding actions, the TACARE office would suggest flight crew to express their concerns to the pilot union, or pilot associations. These associations could gather and analyze opinions from flight crew and present their findings to the airline industry and aviation agencies to suggest further investigations.

The TACARE office welcomes all airline industry personnel to participate with your ideas and thought regarding these issues.



Cabin Emergency Oxygen Supply Level

According to the contributor, one hour after flight took off, the flight crew discovered that cabin emergency oxygen supply level has decreased gradually to below the 10 minute minimum legal requirement. After consulting with the airline dispatch, flight crew requested lower altitude from ATC and diverted to a nearby airport. The contributor has the following questions:

1. While the aircraft was cruising at 33,000 feet, and the cabin altitude was kept below 10,000 feet. Could the flight maintain its cruising altitude and continue to its destination even if the cabin emergency oxygen supply fell below the 10 minute minimum legal requirement?
2. The following wording: According to CAA's Aircraft Flight Operation Regulations, Article 115: 「*When aircraft intend to operate at the flight level higher than 10,000 ft its cabin pressure device shall be able to maintain at 10,000 ft value in compliance with Article 70 oxygen supply regulation*」, seems to differ from ICAO Annex 6 (part 1) 6.7.2.

TACARE Office

Aircraft Flight Operation Regulations, Article 70:

A flight to be operated at altitudes of above 10,000ft,

shall not be commenced unless sufficient stored breathing oxygen is carried to supply:

- 1. All crew members and 10 percent of the passengers for any period in excess of 30 minutes that the pressure in compartments occupied by them will be between 700hpa(10,000ft) and 620hpa (13,000ft), and*
- 2. The crew and passengers for any period that the atmospheric pressure in compartments occupied by them will be less than 620hpa.*

A flight to be operated with a pressurized cabin shall not be commenced unless:

- 1. Sufficient quantity of stored breathing oxygen is carried to supply all crew members and passengers when the atmospheric pressure in any compartment occupied by them is less than 700hpa.*
- 2. Sufficient quantity of stored breathing oxygen is carried to supply all the crewmembers and passengers in the event of loss of pressurization for at least a 10 minute supply for the occupants of the passenger compartment when the atmospheric pressure is less than 376hpa or*
- 3. More than 376hpa and cannot descent safely within four minutes to a flight altitude at which the atmospheres pressure is equal to 620hap.*

ICAO Annex 6 (part 1) 6.7.2:

An aero-plane intended to be operated at flight altitude at which the atmospheric pressure is less than 700 hPa but which is provided with means of maintaining pressures greater than 700 hPa in personnel compartment shall be provided oxygen storage and dispensing apparatus capable of storing and dispensing the oxygen supplies required in 4.3.8.2.

After consulting with CAA, the TACARE office has received the following responses:

Question 1: The CAA agreed with flight crew's decision to divert due to safety concerns. Unless the crew could ensure that the indication of cabin oxygen storage has malfunctioned, otherwise CAA does not encourage flight crew to continue towards destination if cabin emergency oxygen supply is below legal requirement. Furthermore, such action could be viewed as a violation to the Republic of China's Aircraft Flight Operation Regulations.

Question 2: Aircraft Flight Operation Regulations, Article 115.1: 「 When aircraft intend to operate at the flight level higher than 10,000 ft its cabin pressure device shall be able to maintain at 10,000 ft value in compliance with Article 70 oxygen supply regulation 」 .

The preceding wording implies that there are two means for aircraft to cruise above 10,000 feet. One is to be equipped with devices to maintain constant cabin altitude. The other method is by following Article 70 Part 1: to provide sufficient oxygen supply for all personnel throughout the duration of the flight which it would be cruise above 10,000 feet.

If the aircraft is equipped with devices to maintain cabin altitude below 10,000 feet, (pressurized aircraft according to Article 70 part 2). The aircraft has to comply with the minimum oxygen supply requirement in case of loss of cabin pressurization published on Article 70 part 2. Notice the requirement on Article 70 part 2 is identical to that of ICAO Annex 6 Part 6.7.2, which stated: aircraft capable of maintaining cabin pressure greater than 700 hPa should be equipped with oxygen storage and delivery system. The storage level should comply with part 4.3.8.2.

Notice the oxygen storage requirement on Article 70 was adopted to maintain passenger and crew safety incase of loss of cabin pressurization or malfunction of cabin pressure keeping device. Furthermore, the requirements published on Article 70 are in effect during cruise and prior to departure. Thus, if the contributor's flight was to continue to destination without sufficient emergency oxygen supply would

create a safety hazard, and endanger crew and passenger if the cabin was to lose pressurization prior to arriving at destination airport.

In conclusion, TACARE office suggests readers while interpreting CAA regulations should consider its original intent and safety considerations. The CAA regulations were designed in accordance with ICAO Annexes and other technical documents. Readers should also consult to these documents to enhance understanding of the regulations. If in doubt, readers are encouraged to discuss such issues with the regulatory agencies to reach an understanding. The regulatory agencies should also amend regulations and wording or issue bulletins to properly explain and enforce aviation regulations.



Issues regarding Crew Rest Facilities Installations for Long Haul Flights

According to the contributor, Airline A has not installed proper crew bunks on aircrafts operating long haul flights (8 hours or more). The contributor believes the lack of crew bunks could induce fatigue and adversely affect flight safety.

TACARE Office

According to Aircraft Flight Operation Regulations, crew rest facilities are not mandatory equipment onboard an aircraft. However, an aircraft equipped with such facilities are permitted to operate longer flight hours. In the case of multiple flight crew composition, an aircraft equipped with crew bunks could operate on flights no longer than 18 hours, while an aircraft without crew bunks is limited to 12 hours of operation.

The followings are regulations related to crew rest facilities from Aircraft Flight Operation Regulations:

Article 33: Flight crew flight time limitations

2. *Flight time limitations of reinforced flight crew composition:*

a) *An operator may assign a pilot to a flight duty not exceeding 16 hours during any 24 consecutive hours on board an aircraft of which is provided with sleeping berths. If the aircraft is not equipped with sleeping berths but is provided with resting seats in the passenger cabin, the pilot may not exceed 12 hours flight duty. If the pilot has flown more than 10 hours but less than 12 hour, the pilot shall be given a rest period of no less than 18 consecutive hours. If the pilot has flown more than 12 hours, then a rest period of no less than 24 consecutive hours must be provided.*

3. *Flight time limitations of double crew composition:*

- a) *No operator may assign a pilot to flight duty not exceeding 18 hours during any 24 consecutive hours on board an aircraft of which is provided with sleeping berths. At the end of this flight if the pilot has flown in excess of 16 hours, the pilot shall be given a rest period of no less than 24 consecutive hours.*
- b) *If the aircraft is not equipped with sleeping berths, the aircraft shall have rest seats in the passenger cabin for the pilots. The pilot may fly no more than 12 hours on board such aircraft and at the end of this flight the pilot shall be given a rest period of no less than 18 consecutive hours.*

In addition, from the safety perspective, an ill equipped resting facility on board an aircraft will adversely affect crew rest and increase the chances of crew fatigue during operations. TACARE office has contacted Airline A and expressed the contributor's concerns. Airline A has indicated that it is considering several solutions including enlarging business class seat pitches, installing curtains or installing crew bunks onboard aircraft.

TACARE office suggests the operators should consider flight crew's requirements for certain facilities during leasing or purchasing aircraft (i.e. crew bunks).

These foresights could reduce safety hazards and also reduce cost for additional retrofits on the aircraft.

CAA Airline Transport Pilot License Written Examination Requirements

According to the contributor, when applying for the Air Transport Pilot License (ATPL) National flight crew have to complete a written exam consisting of 7 subjects, while expatriate flight crew are only required to complete exam on a single subject. The contributor believes such practice would adversely affect knowledge level of expatriate flight crew.

TACARE Office

The employment of expatriate flight crew are in accordance with regulations published by the Department of Labor Affairs. These regulations includes: 「 Employment Services Act 」 and 「 Qualifications and Criteria Standards for foreigners undertaking the jobs specified under Article 46.1.1 to 46.1.6 of the Employment Service Act」(details could be retrieves from Law Source Retrieving System of Labor Laws and Regulations, <http://laws.cla.gov.tw/Eng/>). In other words, each operator should first submit a request to the Department of Labor Affairs for recruiting expatriate pilots. The followings are the eligibilities for expatriate flight crew:

1. Obtain ATPL.
2. Obtain Aircraft Type Certificate operated by the employer.
3. Obtain valid CAA flight crew medical certificate.

Upon approval by the Department of Labor Affairs the expatriate flight crew is still required to obtain ROC ATPL issued by CAA. The regulation regarding ATPL exam requirement could be found in Aircrew Examination and Document Issuance Regulation. In case of dual nationalities flight crew, if the flight crew is employed by the operator as national flight crew, then

the flight crew would be tested according to the ROC National flight crew regulations.

There are no differences between expatriate and national flight crew on the practical portion of the exam. According to CAA, “Due to the cultural differences between national carriers and foreign carriers and differences in aircraft handling and operations, identical standards are enforced between expatriate and national flight crew during practical exams.”

Currently, National flight crew are required to take the written exam that consisted of 7 subjects, including: Civil Aviation Regulations, Air Traffic Control Procedures, Weight and Balances, Aviation Meteorology, Fundamental of Navigation, Air to Ground Communication, Basic Aircraft Maintenance. The expatriate flight crew are only required to take Civil Aviation Regulations as part of the written exam requirement. According to CAA, “Expatriate flight crew have obtained foreign ATPL, therefore are experienced and knowledgeable, therefore there is no need to administer additional subjects on the written exam with the exception of Civil Aviation Regulations. In addition, English versions of the written exam for all subjects are available for dual-nationalities, or national flight crew who could not fully understand Chinese.” Such practices are also adopted by Korea and Singapore.

The controversy for the current system is that those national flight crew who have obtained a foreign ATPL identical to that of the expatriate flight crew should not be required to take all 7 subjects on the CAA ATPL written exam.

The TACARE Team suggests the following 3 possible solutions:

1. Maintain the status quo.
2. Unify the written examination requirement between expatriate and National flight crew.
3. Those National flight crew who have obtained foreign ATPL should be required to take 1 subject on the written exam identical to their expatriate

counterpart.

It is clear that more feedbacks are needed to further examine this issue. Therefore, TACARE office has published this report, in anticipation of gathering additional opinions and perspectives on this subject. Flight crew could also contact Pilot Association or Union to gather further information and cooperate with CAA in search of a satisfying solution.



Previous Issues

Articles from previous issues could be obtained via our website www.tacare.org.tw or a paper copy could be obtained by calling 0800-075-085 or 0800-TACARE (822-273).



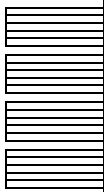
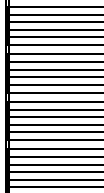

請選填下列資料。在收到您的初報後，我們會儘快依照您選擇之聯絡方式與您聯繫。

Please fill out the blanks. TACARE office will contact you via the method chosen.

報告人資料 Information about Reporter

姓名 Name		聯絡電話 Contact Phone ()			職稱 Job Title	
服務單位 Firm	<input type="checkbox"/> 航管 ATC	<input type="checkbox"/> 飛航組員 Ft. Crew	<input type="checkbox"/> 空服員 Ft. Attendant	<input type="checkbox"/> 機務 Maintenance	<input type="checkbox"/> 航務 Ft. Ops.	<input type="checkbox"/> 其他 Others _____
聯絡方式 Preferred Way of Contact						
<input type="checkbox"/> 打電話給我 call me, 號碼 Number: () _____						
<input type="checkbox"/> 我來找你們 come to your office, 日期及時間 date & time: _____月 M _____日 D, _____點 H _____分 M (安排面談確認電話號碼 phone number for appointment confirmation: () _____)						
<input type="checkbox"/> 已敘述如下，不必再聯絡 Describe as following, no further contact is necessary						

摺疊線

<p style="text-align: center;">行政院飛航安全委員會</p> <p style="text-align: center;">飛安自願報告系統工作室 收</p> <p style="text-align: center;">23143 台北縣新店市北新路 3 段 200 號 11 樓</p>		廣 告 回 函	
		台灣北區郵政管理局登記證	
		北台字 第 13518 號	
		郵資已付免貼郵票	
			

摺疊線



此面朝外 Outward page
