Occurrence Report B7642

State reporting	Taiwan Island	**Date entered**	2012/10/16
Reporting org.	Taiwan (ASC)	**Report last modified**	2014/7/9 PM 04:33:59
State file number	ASC-AOR-12-07-001	**Report status**	Data

Headline Landing on wrong runway in Tainan Airport, UNI Air B7642, B-15231, Dash-8-300

Occurrence class	Serious incident	**Occurrence category**	RI-VAP:Runway incursion - vehicle, a/c or person
Local date	2011/6/28 AM 09:22:00	**UTC date**	2011/6/28 AM 01:22:00
State/area of occurrence	Taiwan Island	**Latitude of occ**	22:57 North
Location of occ	RCNN Airport	**Longitude of occ**	120:13 East

Aircraft Involved

Manufacturer/model	DE HAVILLAND - DHC8-300	**Aircraft registration**	B-15231
Call sign	GLORY	**Operator**	Taiwan - Uni Air - (to be coded)
Flight phase	Landing		

TAIWAN ISLAND, ASC-AOR-12-07-001

Filing information

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Classification

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Severity

Damage aircraft	None	**Damage aerodrome**	None
Third party damage	No	**Injury level**	None

Injury totals

	Fatal	Serious	Minor	None	Unknown	Total
Total on ground	0	0	0	0	0	0
Total on aircraft	0	0	0	47	0	47
Grand total	0	0	0	47	0	47

ATM relation

ATM contribution	None	**Effect on ATM service**	No effect

NARRATIVE

On June 28, 2011, UNI Air flight B7 642,a Dash-8-300 (national registration number B-15231),the aircraft was on a scheduled passenger flight from Makong Airport to Tainan Airport. There were 2 pilots, 2 cabin crewmembers and 43 passengers on board. The aircraft was scheduled to land at the runway 18L at Tainan Airport, however it landed at the non-designated Runway 18R upon arrival. The aircraft had no damage and all people on board were safe. Finding related to probable causes： when the captain had the runway in sight, the aircraft has passed over the visual descent point and was
approaching the miss approach point. At that time the captain had to maneuver considerably to land at the landing area due to the aircraft at a higher altitude, and then because of the impact from heavy rain, failing to wear glasses and not turning on wipers, the captain's focus was limited to the landing
operation and he did not receive the information about aiming to the wrong runway provided by the controller and the F/O. When realizing that they

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were aiming the wrong runway, the F/O reminded the captain the aircraft was off course to the right side . When the captain did not respond to the reminder, the F/O did not remind the captain again and did not determine to call out for go-around, which led to the captain not being alerted the runway

he was trying to land was wrong and the aircraft as a result landed at the unassigned runway 18R. The captain and the F/O knew there were 2 parallel runways 18L and 18R at Tainan Airport, however on the day of the occurrence they were not sufficiently alerted to the situation. When visualizing one runway, pilots identified it right away as the runway 18L assigned by the controller without a proper verification. During approach there was medium rainfall near the airport area and there existed different levels of clouds scattered at the altitude below 1,000 ft. and cumulonimbus at the south east side

of the airport near the runway 18L, which influenced the pilots to locate the runway 18L assigned by the controller during the visual approach phase. When the pilot had the visual contact with the runway, the aircraft had approached or entered into the blind zone of the approach lights of runway 18L, which might make the approach lights difficult to be located by the pilots. When the weather permits the pilots should have had an opportunity to locate the runway 18L with the approach lights on if they have had sufficient situation awareness. The VOR/DME approach is non-precision approach, which is

less accurate. After the pilot disengaged auto-pilot at the final approach phase, the aircraft remained positioning at the west side of the extended runway

18R centerline; which led to the aircraft to aim at the runway 18R which was closer to the aircraft instead of the runway 18L assigned by the ATC when the pilot had the visual contact with the runway. Findings related to risks： When the pilot saw the runway, the aircraft was at a slightly higher altitude. In order to have the aircraft landing at the runway landing area, the throttles were set to idle and the aircraft head downwards, so that a bigger glide path

angle could be achieved. This maneuver caused the air speed temporarily to be lower than the approach speed, the maximum descending rate to be over

1,000 ft/min and the average descending rate to be 775 ft/min, which was more than the normal descending rate of 500 ft/min. The average glide path angle of the aircraft was 6.02° which was also bigger than the normal glide slope angle of 3°. Uni Air's existing procedures related to the non-precision approach define that when the aircraft approaches to the visual descent point without pilot's visual contact with the runway, the aircraft may remain above the minimum descent altitude to proceed approach to the miss approach point. However when the miss approach point is located far behind the visual descent point together with the delay of the pilot's visual contact with the runway, it might cause the pilot to maneuver considerably to land and to have the parameters of the descending rate and the approach speed exceeding the company's stable approach standard, which exists a contradiction

between the training manual and the FOM. When the aircraft was approaching Si-Cang VOR radio station, Pilot Flying (PF) was performed by the F/O. The captain as Pilot Monitoring (PM) without asking PF's approval, decided himself to assist the PF to adjust the course from 125 to 120 degree. As the FOM did not define the take-over timing, the two pilots did not determine the time to transfer duties though both pilots had decided to have the captain

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as PF during landing. The captain took over when the aircraft was at 1.5 nautical miles from the runway 18R threshold. When the captain disengaged the auto-pilot, he was on duty as PM before using the standard call-out or any other ways to take over and did not call out 'auto-pilot disengage' to disengage the auto-pilot by himself. The F/O as PM during the final approach phase did not perform the standard call-out procedure per manual. When the ATC controller reminded that '642, the runway you are aiming is wrong', the captain, then already as PF, took the initiative to respond with the microphone 'runway in sight'. However according to the procedures the radio communication shall be the responsibility of PM performed by the F/O. There existed a condition of hierarchy between the two pilots. It may not be excluded that this factor affected the performance during the occurrence. Encountering the pressure that the captain did not follow the procedures to disengage the auto-pilot and took over the command and that the aircraft had
an approach during heavy rain, the F/O could not keep calm and had the symptoms of having pressure, such as nervousness and failing to handle the sudden events, which made him unable to fulfill effectively the duty as a PM during visual descent at the approach phase. For the captain, he should have worn glasses to rectify his far sighted vision for both eyes and the near sighted vision for the left eye but failed to follow the requirement to wear glasses according to the limitation stated in his medical certificate. Safety Recommendations: To Uni Air： Reinforce to request Dash-8 pilots to follow FOM's standard operation procedures, for example, the transfer of the command and the regulations to the approach visual reference. Reinforce crew resources management trainings in flight crew communication, attention and response to stress. Review and consider to revise relevant contents of the Dash-8 flight crew training manual to meet the FOM's requirement of the stable approach, to add timing of the command transfer when the F/O encounters landing limitation in the FOM and the operation skill of the VOR approach at the runway 18L at Tainan Airport, to have a training plan of the Dash-8 simulator training to identify the runway during the non-precision approach at parallel runways and to emphasize reminders related to identifying
landing runways. Request pilots to perform flight duties following the requirement from the limitation defined in the medical certificate accordingly; with the compulsory reporting of flight safety related events defined in the 'Regulations for Aircraft Flight Safety-related Events', supervise flight crew to follow the 'Aircraft Flight Operation Regulations' Article 111 and the FOM regulations that flight crew shall deactivate the CVR immediately after suspecting any occurrence of the flight safety related events. Revise the operating skill related to the non-precision approach in the FOM to request each
aircraft type to employ the operating skill of without descend final approach when non-precision approach is performed, and reinforce to request flight crew to follow the procedures of the stable approach to improve flight safety and to have daily self-inspections concerning flight operation. To CAA: Evaluate cautiously the possibilities to set up navigation facilities such as additional instrument landing systems or Localizer stations to assist aiming to runways with better accuracy and promulgate appropriate instrument approach procedures. Issue additional warning notifications for NDB and VOR

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instrument approach chart at Tainan Airport to raise the alert of identifying runways to remind pilots to pay attention. Supervise Uni Air to request Dash-8 pilots to follow FOM standard operation procedures, for example, the transfer of the command and the regulations to the approach visual reference. Reinforce crew resources management training of the flight crew communication, the attention and the stress management. Review and consider to revise the FOM's content related to the stable approach to meet the actual requirement of the Dash-8 aircraft type, to add timing of the command transfer when the F/O encounters landing limitation. Review and consider to add the operation skill related to the non-precision approach procedures, the simulator training to identify the landing runway at parallel runways and verifying reminders of the landing runways. Implement the CVR deactivation procedures after the occurrence of flight safety related events. Refer to ICAO to promote continuous descend final approach, to reinforce trainings of the flight operation inspectors and relevant staff and to revise relevant manuals, procedures and the approach chart. To Air Force Command

Headquarters: Supervise Air Force Meteorological Wing to establish reporting operation procedures concerning any significant alternations to the installation, the cancelation and the booking of the weather equipment and the revision of the weather information to ensure that all relevant units and departments promptly receive the notifications.

EVENTS

Wrong runway selected , during Final approach. {Occurrence}

VOR : Lack of precision

Cumulonimbus : Low level; Adversely affected

Rain : Heavy; Adversely affected

Windshield wiper system (ATA Code:3043) : Not used

Aerodrome/heliport approach lighting : Not observed

Flight crew's decision about an approach : Improper

Flight crew., Human knowledge acquisition factors situational awareness : Insufficient

Runway incursion by an aircraft , during Landing. {Occurrence}

Flight crew's decision to land : Improper

Pilot., Workload task demands : High

Pilot., Psychological-fascination/fixation/channelized attention

Co-pilot., Human interface-Standard Operating Procedures : Not followed

Flight crew., The interface between humans in relation to team skills crew/team resource management training : Improper

WEATHER

General weather conditions

Weather conditions	VMC	**Light conditions**	Daylight
Weather relevant	Yes	**Wind speed**	13 kt
Speed measured at	Surface	**Visibility**	2400 m

Clouds

Cloud amount	Few clouds (1/8-2/8)	**Height of cloud base**	300 ft

Temperature

Air temperature	24 C	**Dew point**	24 C

Precipitation and other weather phenomena

	Precipitation intensity	Precipitation type	Characteristics
	Moderate	Rain	

Weather reports

	Report validity	Content wx report
METAR	Valid	

DE HAVILLAND - DHC8-300, B-15231

Aircraft identification

Manufacturer/model	DE HAVILLAND - DHC8-300	**State of registry**	Taiwan Island
		Aircraft registration	B-15231
Year built	1995	**Call sign**	GLORY
Aircraft serial number	414	**Flight number**	B7642

Aircraft Operation

Operator	Taiwan - Uni Air - (to be coded)	**Operation type**	Commercial Air Transport - Scheduled revenue ops - Domestic - Passenger
Operator type		**ICAO information**	

Aircraft description

Aircraft category	Fixed wing	**Wake turb. category**	Medium
Propulsion type	Turboprop	**Mass group**	5 701 to 27 000 Kg
Number of engines	2	**Maximum take-off mass**	19504.473 kg
Landing gear type	Tricycle, retractable	**GNSS installed**	
EFIS	Yes, partial		

Aircraft status

Total cycles a/c	54509	**Maintenance docs.**	Current
Aircraft total time	28979.25 Hour(s)	**Airworthiness cert.**	Valid

Fuel

Fuel type used	Turbine engine fuel - Jet A-1 (F35 NATO)	**Recommended fuel type**	
Fuel quantity on board			

HISTORY OF FLIGHT

Itinerary

Last departure point	Taiwan - RCQC (MZG): Magong Airport - (to be coded)	**Flight phase**	Landing
		Duration of flight	19 Minute(s)
Planned destination	Taiwan - RCNN (TNN): Tainan Airport - (to be coded)	**Occ. on ground**	Yes

Landing

Type of landing	Regular landing	**Automatic landing**	No
Electronic landing aids	VOR DME	**Landing location.**	On land/on aerodrome

Approach

Visual approach type		**A/c app for prec app**	
VASI used	None	**Precision app. cat.**	
Approach RVR status	Above minima	**Instr. approach type**	VOR/DME
Approach stabilized		**Approach errors**	Other
Instr. landing proc.			

Person at controls

Person at controls	Pilot-in-command

INJURIES

Injuries

	Fatal	Serious	Minor	None	Unknown	Total
Pilot	0	0	0	1	0	1
Co-pilot	0	0	0	1	0	1
Cabin crew	0	0	0	2	0	2
Other flight crew	0	0	0	0	0	0
Crew Total	0	0	0	4	0	4
Passengers	0	0	0	43	0	43
Other on Aircraft	0	0	0	0	0	0
Unknown	0	0	0	0	0	0
Total	0	0	0	47	0	47

Injury types

	Fatal injuries	Non-fatal injuries	Unknown
Burns	0	0	0
Drowning	0		0
Fumes/gases	0	0	0
Impact	0	0	0
Shock exposure	0	0	0
Other reasons	0	0	0
Unknown	0	0	0

Autopsy

Persons autopsied	None

AIRCRAFT RECORDINGS

Cockpit voice recorder

CVR location	Rear fuselage	**CVR recovery**	Recovered
CVR Recording medium	Solid state	**Underwater locator (CVR)**	
Number of channels	4	**CVR Reason for data loss**	Other
CVR Recording duration	30 Minute(s)	**CVR Recording quality**	Good
Hot microphone	yes		

Flight data recorder

FDR location	Rear fuselage	**FDR recovery**	Recovered
FDR Recording medium	Solid state	**Underwater locator (FDR)**	
Number of parameters	107	**Reason for data loss**	
FDR Recorder type	Digital FDR	**FDR data recovery**	Completely recovered
		FDR Data usefulness	Useful

AIR TRAFFIC SERVICES

Flight plan

Filed flight rules		**Current flight rules**	VFR
Filed traffic type		**Current traffic type**	
Flight plan type		**SSR code**	
		SSR mode	

Flight level, altitude

	Height	Altimeter (QFE)	Altitude	Altimeter (QNH)	Flight level
Actual				1030 hPa	
Cleared					
Requested					
Co-ordinated entry					
Co-ordinated exit					

FLIGHT CREW

PILOT-IN-COMMAND

Flight crew member

Age	62 Year(s)	**Category**	Pilot-in-command
Gender - Crew Member	Male		

Flight crew rest/duty

Duty last 24 hours	0.92 Hour(s)	**Rest before duty**	10 Hour(s)

Flight crew experience

	Last 24 hours	Last 90 days	Total
This Aircraft type	0.92 Hour(s)	203 Hour(s)	14022 Hour(s)
All types	0.92 Hour(s)	203 Hour(s)	17873 Hour(s)

Flight crew licences

License type	Ratings	Validity	Registry State issued	Instructor rating	Instrument rating
Aeroplane pilot - Airline transport pilot	Held required rating	Valid, medical waivers	Yes	No	Yes

CO-PILOT

Flight crew member

Age	37 Year(s)	**Category**	Co-pilot
Gender - Crew Member	Male		

Flight crew rest/duty

Duty last 24 hours	0.92 Hour(s)	**Rest before duty**	10 Hour(s)

Flight crew experience

	Last 24 hours	Last 90 days	Total
This Aircraft type	0.92 Hour(s)	183 Hour(s)	2302 Hour(s)
All types	0.92 Hour(s)	183 Hour(s)	693 Hour(s)

Flight crew licences

License type	Ratings	Validity	Registry State issued	Instructor rating	Instrument rating
Aeroplane pilot - Airline transport pilot	Held required rating	Valid, no waivers	Yes	No	Yes

AERODROME

Aerodrome identification

Aerodrome type	Land	**Aerodrome latitude**	22:57 North
Location indicator	Taiwan - RCNN (TNN): Tainan Airport - (to be coded)	**Aerodrome longitude**	120:13 East
Aerodrome status	Public aerodrome	**Elevation above MSL**	64 ft

RECOMMENDATIONS

Recommendations

Recommendations	Personnel - Training Procedures - Study/review Personnel - Proficiency check Personnel - Other Other - Aerodrome facilities Procedures - Compliance

MANAGEMENT

Occurrence report

Report identification	B7642	**Report last modified**	2014/7/9 PM 04:33:59
Report moderator		**Report status**	Data
Report source	Accident/Incident investigation	**Reporting form type**	ICAO - Final Report
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