



ROYAL AERONAUTICAL SOCIETY

Human Factors Cabin Crew Standing Group

Introduction

The Group was formed at the request of the RAeS Human Factors Group and has been running for over 3 years. It has hosted two major CRM Conferences aimed at cabin crew CRM instructors and assisted in writing material for the RAeS following the Helios accident. Its members come from a wide range of backgrounds and represent a cross section of the cabin crew industry.

Members

Sarah Skelton	Plane Training	Chairman
Liz Albone	EasyJet	Secretary
Danny Barrowclough	Thomas Cook	
Carey Edwards	LMQ	
Janice Fisher	CAA	
Jo Green	JG Aviation	
Donna Malone	British Airways	
Paolo Patitucci	Cyprus Airways	
Helen Reynolds	Independent Member	
Sharon Skinner	Independent Member	
Debbie Elliott	TAG Aviation	
Malcolm Rusby	TAG Aviation (corresponding Member)	

Meet the Team

Every issue we will introduce team members. This month the spotlight is on Sarah – our Chair and Liz -- our Secretary.

Sarah has been Chair of the CCSG since April 2008. She is an accredited CRM I and CRMIE (Ground.) She is extremely fortunate to work with many different operators in countries within the EU and further afield. Sarah also delivers CRM and Facilitator training to the rail and medical industries. Sarah started off her flying career as cabin crew and worked for several operators as both crew and instructor before becoming an independent training provider.

Liz joined easyJet in 1997, initially as Cabin Crew. She worked for several years as an Instructor, which included joint recurrent ground school and then became a Training Team Manager with specific responsibility for cabin crew CRM training and has always had a passion for non – technical skills. She now holds the position of easyJet CRM Manager.

Proposal

The Group has noted that whilst there is plenty of information and guidance following accidents, incidents and trends, including AAIB reports and bulletins, CAA guidance and CHIRP, etc., these concentrate on the safety aspects of the incident and less so on the human factors and behavioural issues.

The Group has decided to compose a regular bulletin, focussing on these areas. It was considered that this may be of use to operators and training organisations and indeed anyone with a responsibility for, or an involvement in, cabin crew CRM and safety training. This is the first of such bulletins which we hope will be of interest and useful in compiling future training programmes.

If you have had an event involving human factors, which you would be willing to share with readers, we would be delighted to receive submissions for publication in future bulletins. Please send an email to cabincomment@raes-hfg.com

RAeS Human Factors Cabin Crew Standing Group

Human Factors in Aviation - Bulletin No. 1 - April 2011

This first issue will concentrate on human behaviour in an emergency and actions required by cabin crew to control and manage such behaviour.

The Air Accident Investigation Branch publishes monthly bulletins and the June 2010 issue contained two incidents where passenger behaviour had an influence on the situation and could have affected safety.

Evacuation of Embraer 195 at Ronaldsway, Isle of Man – 19th January 2009

Crew	2 flight crew and 3 cabin crew (1 forward and 2 rear)
Passengers	90

Summary

The aircraft was on route from Manchester to Belfast when it experienced smoke/haze in the cabin accompanied by a strong burning smell. The aircraft diverted into the Isle of Man. The cabin crew were not aware that they were diverting nor that an evacuation was being considered. After landing, the captain called the crew to stand by, followed a few seconds later by an order to evacuate

The SCCM at the front of the aircraft opened the forward left hand door and held passengers back until the slide inflated. He then moved, with difficulty, to the right hand door and opened that, checking slide inflation. He returned to the left hand door and controlled the evacuation from there.

The two cabin crew at the rear opened their respective doors, the slides inflated, and they commenced the evacuation. When their exits had dried up, they saw the overwing exits still had a number of passengers waiting to evacuate, so they called to the passengers to come down to use the rear exits.

The right hand overwing exit jammed so passengers only used the left hand overwing exit.

Issues

Despite having a fully functional exit at the forward right hand door, no passenger used this exit. Whilst these exits are offset and the right hand door is further forward than the left, it is possible to see the right hand door from the aisle adjacent to the left hand door. This left hand door would have been the door that most passengers had boarded through. The SCCM felt had he opened the right hand door first, he would not have been able to get back to the left hand door.

At both forward and rear exits, the crew saw that the passengers found the slides to be very steep and injuries were caused by passengers trying to slow themselves down, and by sliding off the slide straight onto the ground. Cabin crew

independently took the decision to make passengers 'sit and slide', controlled the flow rates and paid attention to older and more infirm passengers. Those passengers who used the overwing exit were confused in how to get off the wing despite the fact the safety card depicts passengers climbing off the trailing edge of the wing. Passengers had been instructed to read this before departure.

Human Factors

- Cabin crew in a stressful situation – smoke/haze in the cabin
- Limited information available
- Unexpected command to evacuate
- Unpredictability of passenger behaviour in stressful situations
- Passengers ignoring a fully functional exit with deployed slide
- Passengers returning to their door of entry
- Passenger focus on the exit in front of them
- Passengers receiving injuries from steep slides
- Cabin crew decision to change evacuation commands
- Passenger confusion on the wing

CRM Training

This incident could be used to highlight a number of human factors and behaviours and is likely to be of particular benefit during Aeroplane Type Specific CRM and Recurrent CRM training. In particular, it could be of benefit to illustrate the following training elements –

- Shared situation awareness – different mental models – cabin v flight crew
- Stress and stress management – reactions to an unexpected command
- Specifics related to aircraft type – position of exits
- Identification and management of passenger human factors including crowd control and redirection to serviceable exits
- Decision making – adapting procedures to fit the situation
- Assertiveness – controlling passenger actions and behaviours

Fumes and smoke in the cabin – B747 – Phoenix, Arizona – 11th July 2009

Crew 3 flight crew and 15 cabin crew
Passengers 300

Summary

During pushback, smoke and fumes were noticed in the cabin. The tug was reconnected and the aircraft returned to stand. This took 10 minutes and during this time, the cabin crew were advised to disarm the doors and the captain requested steps to be brought to the aircraft. By the time the aircraft got onto stand, the situation had deteriorated, particularly at the rear and some passengers left their seats and moved forward wanting to leave the aircraft and one passenger called out that there was a fire.

The two cabin crew members at doors 3L and 4L left their exits to look for the source. They saw whitish smoke and discharged a fire extinguisher in the sidewall area. More passengers had now left their seats and one passenger opened the unattended door 3L.

The captain realised the situation and decided to evacuate the aircraft and made an announcement for the doors to be armed and instructed that the evacuation should be from the right hand side due to the proximity of the airbridge.

Issues

The cabin crew members at doors 3L and 4L were unable to return to their doors due to the number of passengers in the vicinity therefore could not stop the passenger opening 3L.

One Cabin Crew member did not hear the instruction to evacuate on the right.

Once the fire extinguisher had been fired, the discharged gas may have been confused with smoke by some of the passengers.

Although the cabin crew were trained in assertiveness, they found it difficult to control the situation and keep the captain informed, particularly as the passengers became distressed.

Human Factors

- Cabin crew in a stressful situation – smoke and fumes in the cabin
- Time taken for the aircraft to return to stand but perception may be different
- Only one area of the aircraft affected by smoke
- Passengers left seats and moved forward
- Passengers panicking and calling out incorrect information – fire
- Passengers blocking cabin crew access to exits
- Panicked passenger opening unmanned exit

- Difficulty in understanding commands from flight crew
- Use of fire extinguisher may have exacerbated the situation
- Difficulty in controlling passengers

CRM Training

This incident could be used to highlight a number of human factors and behaviours and is likely to be of particular benefit during Operator CRM, Aeroplane Type Specific CRM and Recurrent CRM training. In particular, it could be of benefit to illustrate the following training elements –

- Shared situation awareness – different mental models – front or upper deck cabin v rear cabin
- Information acquisition and processing and decision making – prioritising actions
- Stress and stress management – unpredictability of passenger behaviour
- Workload management – assigning or delegating responsibility
- Communication and coordination between all crew members
- Identification and management of passenger human factors, crowd control, stress and conflict management
- Assertiveness – managing panic in the cabin

Further Reading

http://www.aair.gov.uk/cms_resources.cfm?file=/Bull%206-2010.pdf

CAA FODCOM 24/2010 – Cabin Crew Members Responsible for a Pair of Exits
<http://www.caa.co.uk/application.aspx?catid=33&pagetype=65&appid=11&mode=detail&id=4233>

Australian ATSB Report - Passenger safety Briefings
<http://www.atsb.gov.au/media/32927/b200402>