Australian Government
Civil Aviation Safety Authority

Safety behaviours: human factors for pilots 4th edition
Facilitators guide

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Note: References are contained in brackets and can be found at the end of the document.

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Contents

The International Civil Aviation Organization (ICAO) states human error as the single most serious threat to aviation safety. This means knowledge and understanding of human factors can contribute to significant improvements in aviation safety.

While we cannot eliminate human error, understanding human factors principles can help you to mitigate its adverse impact on aviation safety. Recognising when you 'got it right' will also enable you to build on these positive examples of human factors for a safer operation.

This workbook is designed for aviation professionals delivering human factors and non-technical skills (HFNTS) training to pilots or for individuals who prefer self-paced learning.

CASA has developed a suite of modules for HFNTS training. These modules are detailed in a workbook and videos available on Safety Behaviours: Human Factors for Pilots from CASA's website.

It supports facilitators in running structured, interactive sessions that connect HFNTS principles with everyday flight operations.

This material aligns with CASA's safety promotion strategy and the principles of Crew Resource Management (CRM) and Threat and Error Management (TEM). It encourages proactive, practical learning and the development of a strong safety culture.

Overview

The aim of this Facilitator guide is to provide *Safety behaviours: Human factors for pilots resource (SBHF4P) kit*, for either facilitated instruction in a group setting, or self-paced learning for the individual.

This guide will give you a better understanding of how to use these resources to gain the most value from them.

To progress through this training, follow the booklet sequences in the SBHF4P kit. This includes:

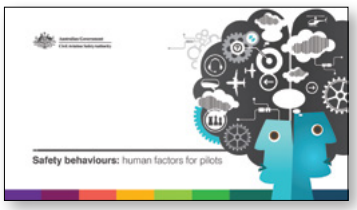
- Introduction
- Safety culture
- Human performance
- Communication
- Teamwork
- Situational awareness
- Decision making
- Threat and error management
- Human information processing
- Design and automation
- Videos:
  - » To support understanding of each booklet (except booklet 8)
  - » Additional videos to test your human factors skills.

Understanding key aspects of human factors, such as knowing your limits, communicating effectively, and working as a team, provides a logical framework for maintaining strong situational awareness. This foundation supports consistently sound decision making, which ultimately underpins true professionalism.

What's in your training resource?

In addition to this Facilitator guide, the resource kit contains:

- **Resource booklets** featuring 10 chapters of underpinning theory and case studies that provide a deeper understanding of various human factors issues applicable to Australian pilots.
- **Online videos** for each booklet to support your learning (with the exception of booklet 8).
- **Workbook** for Pilots that provides case studies and practical exercises to reinforce understanding of the information in the 10 resource booklets.
- **Additional learning:**
  - » **videos** that are short but test your human factors skills
  - » **exercises** to support resource booklets
  - » **quiz** to test your knowledge.



Group facilitation: tips for facilitators

This training kit has been designed with either the facilitator of a small group (no more than 8–10 students), or the self-paced individual learner in mind.

If you're a facilitator and your group has more than 8–10 students, you may wish to recommend to them that they find a mentor or tutor in the company (for example, a safety manager), or a peer doing the same training, so they can discuss the outcomes of the exercises in the *Workbook for Pilots* outside the classroom. By doing this, students can gain a different perspective, and bounce ideas around with someone new.

Generally, there are no definitive 'right' or 'model' solutions to the scenarios and exercises in the W*orkbook for Pilots.* We recommend that in a group setting, however, you reach a consensus between you, the facilitator, and your students.

CASA's Aviation Safety Advisors in your region are also good points of contact and are more than willing to discuss the exercises and scenarios with your students. Their contact details can be found on the CASA website at: **casa.gov.au/avsafety.**

Recommended group-facilitated learning strategy

1. Ensure you have printed sufficient copies of the 10 Resource kit booklets including the Workbook for Pilots.

2. Instruct your students to read **Booklet 1: Introduction**.
    - This chapter gives a good overview of the industry need for human factors knowledge and training, and the relevance of human factors to the Australian aviation environment. This introductory chapter sets the scene, giving students an understanding of the big picture of aviation human factors in Australia.

3. Watch the **Introduction video: Airtime: drama in the air**.
    - This video illustrates how human factors influence aviation safety. Through dialogue and situations, the video highlights how breakdowns in communication, poor decision making, loss of situational awareness, and ineffective teamwork can escalate into serious safety risks.
    - Get your students to watch *the video* from start to finish. They will need a copy of the *Workbook for Pilots*, and a pen and pad handy to jot down some of the factors they identified.
    - Please note: While Airtime: *drama in the air* has been checked for technical accuracy, it is designed to draw out human factors issues, and should not be relied upon in an operational context.

4. Continue with the rest of the booklets and videos as well as completing the workbook exercises
    - Now that your students have a good overview of the human factors issues, you can begin to delve more deeply with them into the areas you have encountered via the video drama.

Overview of topics

Booklet	Activities	Completion
Introduction – human factors for pilots	• Read Booklet 1 'Introduction' • Read the Workbook overview and Module 1 (pages 6–18) • Turn to Exercise 1: Drama in the air (page 10) • Watch the video • Complete Workbook exercises 1–4 • Discuss with peer, mentor or facilitator	Topic complete ☐
Safety culture	• Read Booklet 2 'Safety culture' • Read the Workbook overview and Module 2 (pages 19–24) • Turn to Exercise 5: Your organisation's system for managing safety (page 20) • Watch the video: Safety culture • Complete Workbook exercises 6–9 (pages 21–24) • Discuss with peer, mentor or facilitator	Topic complete ☐
Human performance	• Read Booklet 3 'Human performance' • Read the Workbook overview and Module 3 (pages 25–42) • Watch the video: Human performance • Review the Airtime video • Turn to Exercise 10: Pre-flight fitness (page 26) • Complete Workbook exercises 10–18 (pages 26–42) • Discuss with peer, mentor or facilitator	Topic complete ☐
Communications	• Read Booklet 4 'Communications' • Read the Workbook overview and Module 4 (pages 43–48) • Watch the video: Communication • Review the Airtime video • Turn to Exercise 19: Are you a good listener? (page 44) • Complete Workbook exercises 19–23 (pages 44–48) • Discuss with peer, mentor or facilitator	Topic complete ☐

Booklet	Activities	Completion
Teamwork	• Read Booklet 5 'Teamwork' • Read the Workbook overview and Module 5 (pages 49–56) • Watch the video: Teamwork • Review the Airtime video • Turn to Exercise 24: Westwind accident: what went wrong? (page 50) • Complete Workbook exercises 24–28 (pages 50–56) • Discuss with peer, mentor or facilitator	Topic complete ☐
Situational awareness	• Read Booklet 6 'Situational awareness' • Read the Workbook overview and Module 6 (pages 57–62) • Watch the video: Situational awareness • Review the Airtime video • Turn to Exercise 29: SA – contributing factors (page 58) • Complete Workbook exercises 29–31 (pages 58–62) • Discuss with peer, mentor or facilitator	Topic complete ☐
Decision making	• Read Booklet 7 'Decision making' • Read the Workbook overview and Module 7 (pages 63–76) • Watch the video: Decision making • Review the Airtime video • Turn to Exercise 32: Robert's decisions (page 64) • Complete Workbook exercises 32–36 (pages 64–76) • Discuss with peer, mentor or facilitator	Topic complete ☐

Booklet	Activities	Completion
Threat and error management	• Read Booklet 8 'Threat and error management' • Read the Workbook overview and Module 8 (pages 77–84) • Review the Airtime video • Turn to Exercise 37: TEM quizzes (page 79) • Complete Workbook exercises 37–40 (pages 79–84) • Discuss with peer, mentor or facilitator	Topic complete ☐
Human information processing	• Read Booklet 9 'Human information processing' • Read the Workbook overview and Module 9 (pages 85–90) • Watch the video: Human information processing • Turn to Exercise 41: Unfamiliar territory (page 86) • Complete Workbook exercise 41–42 (page 86–90) • Discuss with peer, mentor or facilitator	Topic complete ☐
Design and automation	• Read Booklet 10 'Design and automation' • Read the Workbook overview and Module 10 (pages 91–96) • Watch the video: Design and automation • Turn to Exercise 43: How automation makes a difference (page 92) • Complete Workbook exercises 43–46 (pages 92–96) • Discuss with peer, mentor or facilitator	Topic complete ☐

Answers

(Where appropriate) can be found on pages 97–102 of the Workbook for Pilots.

Additional videos

To test your human factors skills you can view the following videos:

- **Balls up in the hanger**
  - » In the balls up in the hangar video do your best to focus on the task at hand. Have you observed all that is happening?
- **How many different components can you identify?**
  - » Is this just a conversation between a pilot and an engineer – or can you see anything else? Watch how many different components can you identify?
- **Delayed flight**
  - » The delayed flight video shows more than a conversation of a delayed flight – but what else is going on?

Quiz: Human factors and safety behaviours

Facilitator preface

Before we dive into today's session, we're going to start with a short Yes or No quiz focused on human factors and safety behaviours in aviation. This isn't a test of memory – it's a chance to reflect on how well we understand the human side of flying.

Human factors are at the core of aviation safety. They influence how we make decisions, communicate, manage workload, and respond to stress. This quiz will help highlight some common assumptions and challenge us to think critically about how we operate in the cockpit.

Please answer each question as Yes or No. Don't worry if you're unsure – after the quiz, we'll review the answers together and discuss the reasoning behind each one. The goal is to learn, not to be perfect.

Let's begin!

Question	Correct answer	Explanation
Is human error the leading cause of aviation accidents?	✔ Yes	Most aviation incidents stem from human factors rather than mechanical failure.
Does situational awareness only refer to knowing your aircraft's position?	✖ No	It also includes understanding environmental factors, system status, and anticipating future states.
Does a strong safety culture encourage reporting mistakes without fear of punishment?	✔ Yes	Just culture promotes learning from errors rather than assigning blame.
Does fatigue only affects long-haul pilots?	✖ No	Fatigue can affect any pilot, including those flying short sectors or irregular schedules.
Does threat and error management (TEM) involves anticipating risks and managing mistakes?	✔ Yes	TEM is a proactive approach to maintaining safety margins.
Does automation always reduce pilot workload and improve safety?	✖ No	Automation can introduce new risks, such as complacency or mode confusion.
Does effective communication include both verbal and non-verbal cues?	✔ Yes	Non-verbal cues such as body language, tone and eye contact contribute to effective communication.
Is decision making under stress is usually more accurate due to heightened awareness?	✖ No	Stress can impair judgment, narrow focus, and lead to rushed decisions.
Are human factors training only relevant for multi-crew operations?	✖ No	Solo pilots also benefit from understanding human limitations and behaviours.
Should pilots avoid discussing errors with peers to maintain professionalism?	✖ No	Sharing experiences fosters learning and strengthens safety culture.

Individual self-paced learning

Before commencing your training with this kit, we recommend you establish contact with either a mentor or tutor from within your company (for example, a safety manager or senior pilot), or a peer undertaking the same training so that you have someone with whom you can discuss the outcomes of the exercises in the *Workbook for Pilots.*

There are no 'model' or right answers to many of the scenarios and exercises in the *Workbook for Pilots;* during group learning, a consensus will be reached between facilitator and students. So that you can derive the greatest benefit from the exercises, therefore, we recommend you find someone with whom you can discuss the scenarios.

CASA's Aviation Safety Advisors are also good points of contact, and are happy to discuss the scenarios with you. Go to the CASA website **casa.gov.au/avsafety** for more details.

Recommended self-paced learning strategy

1. Go to the Resource kit and read **Booklet 1: Introduction**
   - This chapter gives you a good overview of the industry need for human factors knowledge and training, and the relevance of human factors to the Australian aviation environment. This introductory chapter sets the scene and provides the big picture of aviation human factors in Australia.

2. Watch the **Introduction video: Airtime: drama in the air**
   - This video illustrates how human factors influence aviation safety. Through dialogue and situations, the video highlights how breakdowns in communication, poor decision making, loss of situational awareness, and ineffective teamwork can escalate into serious safety risks.
   - Ensure you watch *the video* from start to finish. You will also need a copy of the *Workbook for Pilots*, and a pen and pad handy to jot down some of the factors that you have identified.
   - Please note: While Airtime: d*rama in the air* has been checked for technical accuracy, it is designed to draw out human factors issues, and should not be relied upon in an operational context.

3. Continue with the rest of the booklets and videos as well as completing the workbook exercises
   - Now that you have a good overview of the human factors issues, you can begin to delve more deeply into the areas you have encountered via the video drama.

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