

### Example of a high capacity airline's non-technical skills assessment

#### Overview

This appendix outlines an approach to the assessment of non-technical skills as developed by Jetstar. Over a six month period, Jetstar integrated technical and non-technical skills assessment of flight crew within both the simulator and aircraft line checks. This appendix provides a broad overview of some of the processes and steps undertaken by Jetstar to integrate non-technical skills assessment into their existing training system. It provides other operators with copies of the assessment templates and the assessment methodology to show how one airline assessed flight crew non-technical skills given its specific circumstances.

For some operators the attached material may be too large a step within their own organisation at the present time, and other sources of guidance material to support development of assessment tools may be more appropriate e.g. competency standards within the Day Visual Flight Rules (VFR), which is attached as a separate appendix to CAAP 3.0.

As Jetstar has designed this material to meet the needs of their operation, there is no guarantee or representation the attached material is suitable for other airlines. Any of the attached material, used by an airline in part or whole, would require that airline to conduct its own complete validation and assurance to demonstrate it supports the organisation's training needs.

The following Jetstar templates and documents are attached for further review:

- *Check Captain Assessment Guide*
- *Simulator Check Form*
- *Line Check Form*
- *Check Captain's Non-Technical Skills Guide*
- *Training and Checking Order: Assessing Non-Technical Skills*

#### The Benefits of Assessing Flight Crew Non-Technical Skills

Jetstar has identified many benefits to both the airline and individual flight crew through the assessment of non-technical skills including:

- Greater transparency in assessment of a pilot's performance;
- Improved capability to identify areas of excellence and deficiency within individual pilots and across the organisation to allow Jetstar to adapt training needs to better support those needs. This has the capacity to make the training system more efficient;
- Clear assessment guidelines to provide pilots with an understanding of the skills areas that are being assessed. When compared with the use of more generic terms such as "airmanship" or "captaincy" this provides greater transparency of the non-technical skills that underpin competent performance and further supports formal development of pilot's as they progress through the training system, including appropriate development for command upgrades;
- Improved standardisation and consistency (inter-rater reliability) across check captains resulting in a more transparent and fairer training system for all involved.

## General Considerations to Maximise Successful Integration

There were a number of learning experiences as Jetstar developed its training methodology. Some areas that other operators can learn from the Jetstar experience include:

- Senior management commitment at the beginning and throughout the program assisted in check captain 'buy in' to the new assessment program;
- Where possible, senior management pilots should be involved as students rather than instructors during initial training and standardisation of check captains;
- Use of a variety of expertise areas, such as educational specialists, during development of training programs;
- A well developed and timely training program for check captain's is essential to promote improved consistency and standardisation (inter-rater reliability) of the assessment system. This is particularly relevant for Jetstar in which pilot's can be assessed as not competent for a non-technical skills failure alone, regardless of technical competence.
- Wide dissemination of the new training system to make it transparent to pilots (see the attached *Training & Checking Order: Assessing Non-Technical Skills*).

## General approach to assessment

The airline, through senior management commitment, selected a small team of check captains, and educational specialists, to refine their current assessment process. The final method developed is now described.

By referring to the "*Check Captain Assessment Guide*", it can be seen that the airline divided skills into technical and non-technical skills (as summarised in Table 1). Technical skills consist of:

- manipulative skills (M),
- knowledge of systems and procedures (K),
- automated system usage (A), and
- execution of procedures (P).

Non-technical skills consist of the four main areas (as adapted from NOTECHS), being:

- communication and teamwork (C),
- leadership and management (L),
- situational awareness (S), and
- decision making (D).

Technical Skills		Non-Technical Skills	
M	Manipulative Skills	C	Communication and Teamwork
K	Knowledge of Systems and Procedures	L	Leadership and Management
A	Automated System Usage	S	Situational Awareness
E	Execution of Procedures	D	Decision Making

Table 1: Skill areas for assessment

During assessment, the check captain is required to make judgments about an individual pilot's performance using a 5 point scale. The following is a single word description of the performance standard, and the associated numerical comparison, that the airline uses to describe pilot performance.

1. Unsatisfactory
2. Minimum Standard or repeats required
3. Satisfactory
4. Very Good
5. Excellent

The following is a detailed explanation of the company's description for each of the performance areas:

1. Unsatisfactory

Observed performance is significantly below expectations. This includes instances where necessary knowledge, application and decision making was not present. Flight safety was or may have been compromised. A reason code(s) and or comment is required on the applicable form. The candidate must repeat the exercise to a satisfactory grading after a debrief or training before they may continue their training or line operations.

2. Minimum Standard

Observed performance meets minimum CASA requirements of knowledge, application and decision making. There is ample room for improvement. Flight safety not compromised. This grading requires a reason code(s). A thorough debrief is required or, if necessary, a repeat of the exercise may be approved by the Check Pilot. However, only a maximum grade of a 2 can be awarded for any repeated event.

3. Satisfactory

Demonstrated performance meets the company requirements with an acceptable margin including flight safety. There is some room for improvement, but this would normally be achieved by a debrief. Normally, any item requiring debrief for correction would result in a maximum grade of 3. A reason code is optional. This is the required standard before a First Officer may progress to command training.

4. Very Good

Observed performance meets the company requirements with a comfortable margin including enhancement to flight safety. The candidate demonstrated an advanced level of knowledge, application and decision making that would require little or no debrief. A reason code is optional.

5. Excellent

Observed performance represents exceptional skill in their knowledge, application and decision making. Flight safety optimally enhanced. It is a very high standard, but not necessarily perfect. A reason code is required for this level of competency.

By using this framework, the airline is then able to conduct an assessment of a pilot's performance. The next section will describe how this process works.

## Main assessment process

The following describes how the airline conducts assessment. It is generally broken into two phases; the general assessment and overall assessment of non-technical skills.

### Phase 1: General assessment

By reviewing the “*Simulator Check Form*”, it can be seen that there are 19 specific areas that can be assessed (Note: assessment forms for line assessments in aircraft are the same). During assessment, the check captain would assess a pilot’s performance for each area (if applicable), and make judgments to where the pilot performance should be placed.

Generally, grades of 3 and 4 are marked without explanation, whereas areas of deficiency (1 & 2) and areas of excellence (5) are required to be allocated a reason code. A reason code is a code that is related back to the technical or non-technical skills area described in Table 1 (e.g., manipulation, automated system usage or decision making). To assist the check captain, each skill area (manipulative skills, knowledge of systems and procedures, automated system usage, execution of procedures, communication and teamwork, leadership and management, situational awareness and decision making) are given detailed word pictures to assist in these judgments. These can be viewed in the “*Check Captain Assessment Guide*”. For example, manipulation has the following word picture used to describe the performance areas.

Performance	Word picture
1	Poor manipulative skills with frequent or sustained deviations outside allowable tolerances. Lack of positive aircraft control.
2	Manipulative deviations to the limits of allowable tolerances, slowly corrected, or occasionally exceeded tolerance, immediately corrected.
3	Aircraft manipulated with some deviation away from target parameters, quickly recovered. Clear evidence of understanding correct manipulative technique.
4	Manipulative accurate, with only occasional variation from target parameters, quickly corrected.
5	Manipulation so accurate there are no deviations from target parameters. Clear mastery of correct techniques at all times.

Table 2: Performance level and associated word picture for Manipulative Skills

The reason code should be used to indicate the factor contributing to the assessment grading. For example, a pilot may have conducted an engine failure after take-off, to a standard that the check captain would describe as “so accurate there are no deviations from target parameters”. In this scenario, the “*Simulator Check Form*”, under section 4, Engine failure after  $V_1$ , would be marked as a 5, with a reason code of “M” for manipulation. In this scenario, if other skills areas have also contributed to the 5, then other codes may be added.

It is expected that for each pilot, all areas that have been assessed, will be graded by the check captain. It is expected that “reason codes” only be assigned for those grades of 1, 2 and 5.

## Phase 2: Overall assessment of non-technical skills

On completion of the assessment, the check captain is then required to make an overall judgment about the pilot’s non-technical skills. To assist the check captain, another form, the “*Check Captains Non-Technical Skills Guide*” is used. As can be seen by reviewing this document, it has been influenced by the European NOTECHS outlined within this CAAP. However, the word pictures have been refined for Jetstar’s operational requirements. Additionally, the airline has considered that threat and error management (TEM) remains an integral skills set required by its pilots. Accordingly, TEM, and the associated word pictures have been integrated into “situational awareness”. Each of the non-technical skills areas used to make the “overall” judgment can be seen below, along with the abbreviations that would be used as reason codes.

**COMMUNICATION AND TEAMWORK**

- CM    Communication
- TW    Teamwork
- SO    Support of others
- CS    Conflict solving

**LEADERSHIP AND MANAGEMENT**

- AA    Authority and assertiveness
- MS    Maintaining standards
- WM    Workload management

**SITUATIONAL AWARENESS**

- AE    Awareness of aircraft systems, external environment and time
- TE    Threats and Errors

**DECISION MAKING**

- PD    Problem definition and option generation
- RA    Risk assessment and option selection
- OR    Outcome review

On completion of the assessment, the check captain would mark the performance of the four non-technical skills, at the bottom of the assessment form. To explain how this assessment is conducted, refer to Table 3 below. In this example, a check captain has made judgments about a pilot’s overall performance, and awarded a 3 for all non-technical s skills except “leadership and management”, which was awarded a 2. To assist the check captain make these judgments, the check captain would have referred to the “*Check Captains Non-Technical Skills Guide*”.

	1	2	3	4	5	Element
1. Communication and teamwork			x			
2. Leadership and Management		x				WM
3. Situational awareness			x			
4. Decision making			x			

Table 3: An example of an overall assessment of non-technical skills

As per the policy in phase 1 assessment, there is also a requirement for performance levels for 1, 2 & 5 to be accompanied by a reason code. For example, if in the above example, the check captain determines the main cause of the performance grade 2 in “leadership and management” was due to the pilot not anticipating workload, and as a result, only high priority items were completed. They would refer to the word picture in the “check captain non-technical skills guide” and identify the appropriate statement for the performance observed (see Table 4 below). The check captain would identify that a grade of 2 would be applicable for leadership and management, under the sub-element of workload management. In this case, the check captain would see that this would be written down as (WM) in the reason code box.

Performance	“Workload Management” (WM)
1	Unable to plan and prioritise tasks. Available resources not utilised.
2	<b>Does not anticipate workload resulting in time only to complete high priority items</b>
3	Plans and prioritises sufficiently to complete high priority tasks.
4	Plans and prioritises, uses resources effectively in order to efficiently complete primary and secondary tasks
5	Primary and secondary tasks so well organised that challenging aspects of flight management appear easy.

Table 4: Word pictures for the non-technical skill of “workload management”

It must be noted that non-technical skills is a complex area. In some cases, the performance of a pilot is not able to be defined in the exact ways that have been explained by the word pictures. In these cases, the check captain must make a best fit judgment. Additionally, those new to assessing using these measures, would first refer the “check captain non-technical skills guide” to make more accurate performance judgments. As check captains become familiar with the assessment process, grades may be awarded, with confirmation of word pictures occurring after. Following this process allows for greater consistency in the assessment of non-technical skills within an airline.

## Failure to meet a minimum standard

There are two main issues that an airline must consider in relation to pilots assessed as not proficient. The first is in relation to a non-technical skill being able to be considered as a stand alone failure. This decision is up to the airline, though this airline has made it policy to accept that a pilot may fail due to a non-technical skills failure alone. The second issue that must be considered is whether a pilot meets a “minimum standard” or requires “repeats” in a number of assessment areas and how many are acceptable? The following describes how both issues can be resolved during assessment.

On completion of the assessment, any area that has been assigned a score of 1, or an area that was unable to be repeated, will require the pilot to be awarded and overall “not proficient” standard. In this case, the pilot will now be subject to operational clearance (SOC), and require a re-assessment or re-training and re-assessment. In this case, a 1 for a non-technical skill would be sufficient to be considered SOC.

If however a pilot has been awarded four or more grades that are a 2 (including phases 1 and 2 assessments), the pilot, though at a “Minimum Standard” will also be required to be considered “not proficient”, and SOC. This approach to assessment takes into account the two issues that have been outlined above.

## **Conclusion**

Jetstar endorses the integration of non-technical skills assessment within its existing training system as it offers many cost-effective benefits and improvements for both individuals (pilots and check captains) and the broader system itself. It provides improved training practices, greater transparency of the non-technical skills that underpin successful pilot performance and allows the system itself to be modified and tailored to target specific training needs as related to non-technical skills.

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# Check Captain Assessment Guide

## Reason Codes

Codes for low scores reflect area of deficiency, for high scores the area of excellence.

Technical Skills		Non-Technical Skills	
M	Manipulative Skills	C	Communication and Teamwork
K	Knowledge of Systems and Procedures	L	Leadership and Management
A	Automated System Usage	S	Situational Awareness
E	Execution of Procedures	D	Decision Making

Reason codes should be allocated for all scores other than 3 and 4. A reason code for a score of 3 is optional.

## Scoring Guidance

### Single Word

1. Unsatisfactory
2. Minimum Standard or repeats required
3. Satisfactory
4. Very Good
5. Excellent

### Single Sentence

1. Unsatisfactory. Observed performance is significantly below expectations.
2. Any event at minimum standard and not repeated or any event initially graded 1, and subsequently performed during repeat to a standard 2 or better.
3. Demonstrated performance meets a satisfactory standard. There is some room for improvement which would normally be achieved by a debrief.
4. Overall performance to a very good standard that would not normally require a debrief.
5. Overall performance of an excellent standard, but is not necessarily perfect or unattainable.

If score is still uncertain, using the appropriate Reason Codes, refer to the detailed word pictures below.

### Manipulative Skills:

1. Poor manipulative skills with frequent or sustained deviations outside allowable tolerances. Lack of positive aircraft control.
2. Manipulative deviations to the limits of allowable tolerances, slowly corrected, or occasionally exceeded tolerance, immediately corrected.
3. Aircraft manipulated with some deviation away from target parameters, quickly recovered. Clear evidence of understanding correct manipulative technique.
4. Manipulative accurate, with only occasional variation from target parameters, quickly corrected.
5. Manipulation so accurate there are no deviations from target parameters. Clear mastery of correct techniques at all times.

**Knowledge of Systems and Procedures:**

1. Made fundamental errors regarding aircraft limits, systems, or any standard procedures.
2. Can recall or use aircraft limits, systems or standard procedures with difficulty or sometimes in error.
3. Made use of aircraft limits, systems or procedures with only isolated errors.
4. Easily recalls and uses aircraft limits, systems and procedures. Displays a high level of knowledge.
5. Error free understanding of limits, systems and procedures AND deep level of background knowledge.

**Automated System Usage:**

1. Frequent mistakes made in selection of basic modes of automated systems
2. Basic selection of automated systems carried out correctly, but errors occur due to lack of understanding of advanced modes, or interaction with other systems.
3. Mostly appropriate use of automated systems.
4. Carries out almost all tasks using the automated systems correctly. Understands underlying principles and limitations.
5. Complete understanding and totally appropriate use of automated systems at all times.

**Execution of Procedures:**

1. Correct procedures not identified or major deficiencies in application of procedures or exceeded a reasonable time to carry out procedures.
2. All procedural steps performed slowly and displays an obvious lack of familiarity when identifying correct procedure.
3. All procedural steps correctly performed with some hesitation evident.
4. Correct procedures identified and performed with certainty.
5. Timing and execution of all procedures results in best possible outcome.

**Communications and Teamwork:**

1. Vital information not relayed to other crew members. Interaction is minimal or disrupts team effectiveness.
2. Isolated attempts are made to relay information to other crew members but are not tested for correct reception or interpretation. Some interaction with other crew in regard to critical items. Offers occasional assistance to other crew.
3. Normal level of communication with other crew members. Interacts with and considers other crew to assist team performance.
4. Clear and concise communication with other crew members. Interacts with and considers other crew to improve team performance.
5. Communication with other crew members stands out, for clarity and ease of information transfer. Interaction with and consideration of other crew optimizes team performance.

**Leadership and Management:**

1. Unable to co-ordinate crew actions and workload resulting in clear errors of flight management. Unsatisfactory task completion and standards compliance.
2. Difficulty in coordinating crew actions and compliance with standards. Leadership and task management results in essential items being barely completed in the time available.
3. Task management adequately deals with high priority items. Able to co-ordinate crew actions and comply with mandatory standards.
4. Tasks and workload organized to achieve efficient flight management. Effective crew leadership resolves all situations to a good outcome.
5. In-flight tasks so well organised that challenging aspects of flight management appear easy. All situations are resolved to the best outcome. Maximizes use of other crew.

**Situational Awareness:**

1. Lack of awareness of a clearly evident and developing situation that will cause the aircraft to breach clearances, violate procedures or place it in danger. Unable to respond to threats and errors which may result in undesirable aircraft states.
2. Level of awareness such that situations are only reacted to with difficulty and not anticipated. Able to identify significant threats and may attempt countermeasures.
3. Situationally aware of essential items, may be unaware of less obvious factors. Able to identify significant threats and errors and apply appropriate countermeasures.
4. Situationally aware of all significant factors affecting the flight, regularly updated by checking against instruments, ATC and other crew members. Threat and error countermeasures incorporated into Flight Management.
5. Situational awareness of such a high standard that there is perception of even subtle factors affecting the aircraft, with threat and error countermeasures, well integrated into flight management.

**Decision Making:**

1. Complete lack of methodology in decision making, likely to cause the aircraft to breach clearance, violate procedures, or place it in danger.
2. Difficulty in defining the problem and generating suitable options. Risks and outcomes not always properly considered or evaluated.
3. Systematic decision making process, emphasising safety but may not always have considered less obvious factors.
4. Clearly defines the problem taking into account all essential factors, suitable option selected. Allows for contingencies and evaluates outcome.
5. Decision making process consistently chooses best possible option, evaluates and reviews outcomes.



# Simulator Check Form

Captain/First Officer Name: \_\_\_\_\_ Staff Number: \_\_\_\_\_

Check Pilot: \_\_\_\_\_ A/C Type: \_\_\_\_\_

Other Crew: \_\_\_\_\_ Date: \_\_\_\_\_

Cyclic Number: \_\_\_\_\_ RHS  Interim  Revalidation

Progress Command Upgrade  Other: \_\_\_\_\_

- |   |                                    |
|---|------------------------------------|
| <b>M.</b> Manipulative Skills               | <b>C.</b> Communication & Teamwork |
| <b>K.</b> Knowledge of Systems & Procedures | <b>L.</b> Leadership & Management  |
| <b>A.</b> Automated System Usage            | <b>S.</b> Situational Awareness    |
| <b>E.</b> Execution of Procedures           | <b>D.</b> Decision Making          |

	N/A	Grading					Reason Code
		1	2	3	4	5	
1. Pre-Flight Planning (Weather/Fuel/NOTAM/MEL)							
2. Takeoff – Reduced VIS less than 300 m <input type="checkbox"/> 400 m <input type="checkbox"/> 500 m <input type="checkbox"/>							
3. Rejected Takeoff							
4. Engine Failure after V <sub>1</sub>							
5. Climb (OCP)							
6. Descent Planning/Descent/STAR							
7. Visual Approaches (Straight In/Circuit/No Slope)							
8. Instrument Apps (ILS LLZ VOR NDB DME RNAV/GNSS RNP)							
9. Instrument Apps (ILS LLZ VOR NDB DME RNAV/GNSS RNP)							
10. Go-Around Two engine <input type="checkbox"/> OEI <input type="checkbox"/>							
11. Approach and Landing Two engine <input type="checkbox"/> OEI <input type="checkbox"/>							
12. Low Visibility Operations (Cat II Cat III)							
13. Support Duties							
14. Systems Knowledge							
15. Procedures/SOP Knowledge and Application							
16. MELs							
17. Abnormal/Emergency							
18. Command of Flight (Captain)							
19. Command Potential (First Officer)							

	Grading					Reason Code
	1	2	3	4	5	
1. Communication and Teamwork						
2. Leadership and Management						
3. Situation Awareness						
4. Decision Making						





# Line Check Form

Captain/First Officer Name: \_\_\_\_\_ Staff Number: \_\_\_\_\_

Check Pilot: \_\_\_\_\_ A/C Type: \_\_\_\_\_ Night sector:

Other Crew: \_\_\_\_\_ Date: \_\_\_\_\_

Annual Line Check:  Clearance to Line:  Other: \_\_\_\_\_

- |   |                                   |
|---|-----------------------------------|
| <b>M.</b> Manipulative Skills               | <b>C.</b> Communication           |
| <b>K.</b> Knowledge of Systems & Procedures | <b>L.</b> Leadership & Management |
| <b>A.</b> Automated System Usage            | <b>S.</b> Situational Awareness   |
| <b>E.</b> Execution of Procedures           | <b>D.</b> Decision Making         |

Weather conditions: _____ Sectors: _____	N/A	Grading					Reason Code
		1	2	3	4	5	
1. Pre-Flight Planning (Weather/Fuel/NOTAM/MEL)							
2. Ground Handling (Pre/Post-Flight/Taxying)							
3. Takeoff (Rotation Rate/Crosswind)							
4. Initial climb (SID/SRD/Radial Intercept/MSA/Speed)							
5. Cruise (In-Flight Contingency Planning)							
6. Descent Planning (Star/Profile Control)							
7. Visual Approaches (Straight In/Circuit/No Slope)							
8. Circling Approach							
9. Instrument Apps (ILS LLZ VOR NDB DME RNAV/GNSS RNP)							
10. Instrument Apps (ILS LLZ VOR NDB DME RNAV/GNSS RNP)							
11. Landings (Flare Height/Touchdown Point/Crosswind)							
12. Support Duties							
13. Systems Knowledge							
14. Procedures (SOP Knowledge and Application)							
15. MELs (if applicable)							
16. Abnormal/Emergency (if applicable)							
17. Command of Flight (Captain)							
18. Command Potential (First Officer)							
							<b>Element</b>
19. Communication and Teamwork							
20. Leadership and Management							
21. Situation Awareness							
22. Decision Making							





## Check Captains Non-Technical Skills Guide

The four essential skills grading will be further amplified by the use of observed essential skill elements. They will be used for an assessment grading of 1,2 or 5 and optional for 3 and 4. Each essential skill has a defined group of elements.

### COMMUNICATION AND TEAMWORK

CM.	Communication
TW.	Teamwork
SO.	Support of others
CS.	Conflict solving

### LEADERSHIP AND MANAGEMENT

AA.	Authority and assertiveness
MS.	Maintaining standards
WM.	Workload management

### SITUATIONAL AWARENESS

AE.	Awareness of aircraft systems, external environment and time
TE.	Threats and Errors

### DECISION MAKING

PD.	Problem definition and option generation
RA.	Risk assessment and option selection
OR.	Outcome review

## COMMUNICATION AND TEAMWORK

### Communication

1. Vital information not relayed to other crew/team members or consultation with those crew members non-existent.
2. Isolated attempts are made to relay information to other crew/team members, but are not tested for correct reception or interpretation.
3. Normal level of communication with other crew members though on occasions not always understood or verified.
4. Clear and concise communication with other crew/team members. Uses resources in a manner that improves overall performance.
5. Communication with other crew/team members stands out, for clarity and ease of information transfer.

### Teamwork

1. Unable to work as a team member, creates barriers between crew thereby not using input or feedback from others.
2. Atmosphere allows limited participation from other crew which often only concerns critical issues.
3. Establishes team and creates atmosphere for input and feedback from other crew.
4. Builds and maintains team. Establishes atmosphere for input and feedback from other crew which enhances overall performance.
5. Actively builds and maintains team. Establishes atmosphere that maximises participation and feedback from other crew.

### Support of Others

1. Rarely considers other crew members, provides little or no assistance.
2. Occasionally considers other crew members and infrequently provides support.
3. Takes condition of other crew members into account and helps other crew but not always during more demanding situations.
4. Takes condition of other crew members into account, gives feedback and support when required.
5. Takes condition of other crew members into account, provides continual support enabling them to maximise their performance.

### Conflict solving

1. Concerned with who is right, no attempt to resolve conflicts and may accuse other crew of making errors.
2. Most of the time concentrates on what is right rather than who is right. May overreact to interpersonal conflicts.
3. Concentrates on what is right rather than who is right. Normally able to suggest conflict solutions.
4. Always concentrates on what is right and quickly resolves any conflicts in a calm manner.
5. Anticipates possible conflicts which are optimally resolved whilst concentrating on what is right.



## LEADERSHIP AND MANAGEMENT

### Authority and assertiveness

1. Is not able to take initiative and unable to complete tasks. Hinders or withholds crew involvement.
2. Attempts crew involvement in order to assist in completing essential tasks.
3. Takes initiative to involve crew and enable timely task completion.
4. Takes initiative to ensure crew involvement and task completion to a good outcome.
5. Takes initiative, motivates and ensures involvement of all appropriate crew and ensures task completion to the best outcome.

### Maintaining standards

1. Unable to apply standards to task completion. Sustained deviations are not challenged or corrected.
2. Mandatory standards are met with difficulty. Minimal intervention in case of deviations.
3. Complies with standards and intervenes in case of significant deviations.
4. Efficiently complies with standards intervenes in case of deviations.
5. Incorporates appropriate standards into all aspects of flight management. Able to anticipate deviations.

### Workload management

1. Unable to plan and prioritise tasks. Available resources not utilised.
2. Does not anticipate workload resulting in time only to complete high priority items
3. Plans and prioritises sufficiently to complete high priority tasks.
4. Plans and prioritises, uses resources effectively in order to efficiently complete primary and secondary tasks
5. Primary and secondary tasks so well organised that challenging aspects of flight management appear easy.

## SITUATION AWARENESS

### Awareness of aircraft systems, external environment and time

1. Lack of awareness of a clearly evident and developing situation that will cause the aircraft to breach clearances, violate procedures or place it in danger.
2. Level of awareness such that situations are only reacted to with difficulty, and not anticipated. Limited attempts to update overall awareness.
3. Situationally aware of essential items, may be unaware of less obvious factors. Some attempts at updating awareness.
4. Situationally aware of all significant factors affecting the flight, regularly updated by checking against instruments, ATC, and other crew members.
5. Situational awareness of such a high standard that even subtle factors. affecting the aircraft are integrated into flight management.

### Threats and Errors

1. Unable to detect and respond to threats and errors which may result in undesirable aircraft states
2. Identifies significant threats and may attempt countermeasures.
3. Able to identify significant threats and errors and apply appropriate countermeasures.
4. Threat and errors managed with appropriate countermeasures.
5. Threat and Error Management integrated into Flight Management.

## DECISION MAKING

### Problem definition and option generation

1. Complete lack of methodology in problem solving, likely to cause the aircraft to breach clearance, violate procedures or place it in danger.
2. Difficulty in defining the problem and generating suitable options, essential factors only considered.
3. Problem solving sound, generates suitable options but may have not considered less obvious factors.
4. Problem solving takes into account most factors, generates appropriate options and allows for contingencies.
5. Correct definition, reviews all factors, considers contingencies and generates best options, and incorporates into flight management.

### Risk assessment and option selection

1. No process for assessing risk or selecting options.
2. Some attempt to assess risks of available options. Option selected is therefore not properly assessed for risk.
3. Assess risks considering major factors, selected option satisfactory and provides a safe outcome.
4. Considers and shares risks of alternatives, confirms selected course of action with other crew. Selected option consistently results in a good outcome.
5. Considers and shares risks of alternatives, consistently chooses best option and confirms selected course of action with other crew.

### Outcome review

1. Fails to check outcome against plan.
2. Attempts to check outcome against plan. Does not attempt to modify options if required.
3. Checks outcome against plan. Modifies options.
4. Checks outcome against plan. Modifies options to achieve a good outcome.
5. Integrates outcome review and option modification to achieve optimum outcome into flight management.



# TRAINING & CHECKING ORDER TCO 01/10

Author: Standards and Assurance Manager

Applicability

Date: 31 Mar 10

Training and Check Pilots

Authorised in accordance with Jetstar Airways Operations Manual Vol 3(OM3) Sect 0.1.2

## ASSESSING NON-TECHNICAL SKILLS

### INTRODUCTION

Jetstar is introducing the assessment of non-technical skills during simulator and route checks. This will commence with simulator session 3A and 3B during April 2010 and route checks from the 1<sup>st</sup> April 2010.

The various sections of OM3 have been amended as follows.

### PROCEDURE

#### 3.5.4 Assessing Non-Technical Skills (NTS)

Check Pilots will be required to assess Non-Technical Skills. The Non-Technical Skills will consist of the 4 Essential Skills and their corresponding Elements.

#### Essential Skills, Elements and Definitions

Essential Skill	Elements
<p><b>1. COMMUNICATION AND TEAMWORK</b></p> <p>Building and maintaining an effective crew through transfer of information and using positive interpersonal skills.</p>	<ul style="list-style-type: none"> <li>• <b>Communication</b></li> <p>The process of transferring and receiving clear and accurate information, instructions, or commands and verifying the receipt.</p> <li>• <b>Teamwork</b></li> <p>Ability to establish positive interpersonal relations between crew members and their active participation in fulfilling required tasks.</p> <li>• <b>Support of Others</b></li> <p>The acceptance of others and understanding their personal state and providing assistance when required.</p> <li>• <b>Conflict solving</b></li> <p>The expression of different viewpoints and constructively seeking resolution.</p> </ul>

<p><b>2. LEADERSHIP AND MANAGEMENT</b></p> <p>Effective leadership and managerial skills help to achieve task completion to defined standards by coordinating crew actions and workload.</p>	<ul style="list-style-type: none"> <li>• <b>Authority and assertiveness</b></li> </ul> <p>The ability to create a proper challenge and response atmosphere. The authority of the Captain should be balanced by appropriate crew member assertiveness and participation.</p> <ul style="list-style-type: none"> <li>• <b>Maintaining standards</b></li> </ul> <p>Compliance with mandatory standards such as SOP's for task completion. Monitors and intervenes in case of deviations from standards by other crew.</p> <ul style="list-style-type: none"> <li>• <b>Workload management</b></li> </ul> <p>Plans, prioritises, sequences and delegates tasks appropriately. Uses resources effectively and anticipates workload.</p>
<p><b>3. SITUATION AWARENESS</b></p> <p>The ability to develop and maintain an overall dynamic awareness of the situation based on monitoring the environment, comprehending the importance of information and projecting the potential impact.</p>	<ul style="list-style-type: none"> <li>• <b>Awareness of aircraft systems, external environment and time</b></li> </ul> <p>The need to be constantly aware of the state of the aircraft systems and environment and to consequently anticipate future aircraft states and relevant events.</p> <ul style="list-style-type: none"> <li>• <b>Threats and Errors</b></li> </ul> <p>The process of detecting and responding to threats and minimising the probability of errors or undesired aircraft states.</p>
<p><b>4. DECISION MAKING</b></p> <p>The systematic process to be used to consistently determine the best course of action in response to a given set of circumstances.</p>	<ul style="list-style-type: none"> <li>• <b>Problem definition and option generation</b></li> </ul> <p>The ability to collect the information needed to define a problem and its causal factors and to generate multiple responses.</p> <ul style="list-style-type: none"> <li>• <b>Risk assessment and option selection</b></li> </ul> <p>The ability of a crew member to successfully assess risks and benefits of different responses to a problem and to select the best response.</p> <ul style="list-style-type: none"> <li>• <b>Outcome review</b></li> </ul> <p>Evaluation of the outcome of chosen options and appropriate modifications.</p>

The Assessment process will be as follows:

1. For any technical event one or more of the 4 essential skills can be a reason code.
2. The 4 essential skills will then be assessed independently with the observed elements as reason codes.

Guidelines and word pictures for assessing NTS are in Section 3.23 – *Word Pictures for Gradings* and 3.24 – *Reason Codes*.

### **3.23 Word Pictures for Gradings**

#### **1. Unsatisfactory**

Observed performance is significantly below expectations. This includes instances where necessary knowledge, application and decision making was not present. Flight safety was or may have been compromised. A reason code(s) and or comment is required on the applicable form. The candidate must repeat the exercise to a satisfactory grading after a debrief or training before they may continue their training or line operations.

#### **2. Minimum Standard**

Observed performance meets minimum CASA requirements of knowledge, application and decision making. There is ample room for improvement. Flight safety not compromised. This grading requires a reason code(s). A thorough debrief is required or, if necessary, a repeat of the exercise may be approved by the Check Pilot. However, only a maximum grade of a 2 can be awarded for any repeated event.

#### **3. Satisfactory**

Demonstrated performance meets the company requirements with an acceptable margin including flight safety. There is some room for improvement, but this would normally be achieved by a debrief. Normally, any item requiring debrief for correction would result in a maximum grade of 3. A reason code is optional. This is the required standard before a First Officer may progress to command training.

#### **4. Very Good**

Observed performance meets the company requirements with a comfortable margin including enhancement to flight safety. The candidate demonstrated an advanced level of knowledge, application and decision making that would require little or no debrief. A reason code is optional.

#### **5. Excellent**

Observed performance represents exceptional skill in their knowledge, application and decision making. Flight safety optimally enhanced. It is a very high standard, but not necessarily perfect. A reason code is required for this level of competency.

### **3.24 Reason Codes**

Reason Codes are used to amplify a Grading. A reason code is required for an assessment grading of 1, 2 and 5. They are optional for a grading of 3 and 4.

In all cases, the reason code(s) is to indicate the factor contributing to the assessment grading. Reason codes are divided into two areas, Technical Skills and Non-Technical Skills. More than one reason code is permitted to indicate the reason(s) for the grading achieved.

Technical Skills		Non-Technical Skills	
M	Manipulative Skills	C	Communication and Teamwork
K	Knowledge of Systems and Procedures	L	Leadership and Management
A	Automated System Usage	S	Situational Awareness
E	Execution of Procedures	D	Decision Making

### 3.24.1 Word Pictures for Reason Codes

#### 1. Unsatisfactory

<b>M</b>	Poor manipulative skills with frequent or sustained deviations outside allowable tolerances. Lack of positive aircraft control.
<b>K</b>	Made fundamental errors regarding aircraft limits, systems, or any standard procedures.
<b>A</b>	Frequent mistakes made in selection of basic modes of automated systems
<b>E</b>	Correct procedures not identified or major deficiencies in application of procedures or exceeded a reasonable time to carry out procedures.
<b>C</b>	Vital information not relayed to other crew members. Interaction is minimal or disrupts team effectiveness.
<b>L</b>	Unable to co-ordinate crew actions and workload resulting in clear errors of flight management. Unsatisfactory task completion and standards compliance.
<b>S</b>	Lack of awareness of a clearly evident and developing situation that will cause the aircraft to breach clearances, violate procedures or place it in danger. Unable to respond to threats and errors which may result in undesirable aircraft states.
<b>D</b>	Complete lack of methodology in decision making, likely to cause the aircraft to breach clearance, violate procedures, or place it in danger.

## 2. Minimum Standard

<b>M</b>	Manipulative deviations to the limits of allowable tolerances, slowly corrected, or occasionally exceeded tolerance, immediately corrected.
<b>K</b>	Can recall or use aircraft limits, systems or standard procedures with difficulty or sometimes in error.
<b>A</b>	Basic selection of automated systems carried out correctly, but errors occur due to lack of understanding of advanced modes, or interaction with other systems.
<b>E</b>	All procedural steps performed slowly and displays an obvious lack of familiarity when identifying correct procedure.
<b>C</b>	Isolated attempts are made to relay information to other crew members but are not tested for correct reception or interpretation. Some interaction with other crew in regard to critical items. Offers occasional assistance to other crew.
<b>L</b>	Difficulty in coordinating crew actions and compliance with standards. Leadership and task management results in essential items being barely completed in the time available.
<b>S</b>	Level of awareness such that situations are only reacted to with difficulty and not anticipated. Able to identify significant threats and may attempt countermeasures.
<b>D</b>	Difficulty in defining the problem and generating suitable options. Risks and outcomes not always properly considered or evaluated.

## 3. Satisfactory

<b>M</b>	Aircraft manipulated with some deviation away from target parameters, quickly recovered. Clear evidence of understanding correct manipulative technique.
<b>K</b>	Made use of aircraft limits, systems or procedures with only isolated errors.
<b>A</b>	Mostly appropriate use of automated systems.
<b>E</b>	All procedural steps correctly performed with some hesitation evident.
<b>C</b>	Normal level of communication with other crew members. Interacts with and considers other crew to assist team performance.
<b>L</b>	Task management adequately deals with high priority items. Able to co-ordinate crew actions and comply with mandatory standards.
<b>S</b>	Situationally aware of essential items, may be unaware of less obvious factors. Able to identify significant threats and errors and apply appropriate countermeasures.
<b>D</b>	Systematic decision making process, emphasising safety but may not always have considered less obvious factors.

#### 4. Very Good

<b>M</b>	Manipulative accurate, with only occasional variation from target parameters, quickly corrected.
<b>K</b>	Easily recalls and uses aircraft limits, systems and procedures. Displays a high level of knowledge.
<b>A</b>	Carries out almost all tasks using the automated systems correctly. Understands underlying principles and limitations.
<b>E</b>	Correct procedures identified and performed with certainty.
<b>C</b>	Clear and concise communication with other crew members. Interacts with and considers other crew to improve team performance
<b>L</b>	Tasks and workload organized to achieve efficient flight management. Effective crew leadership resolves all situations to a good outcome.
<b>S</b>	Situationally aware of all significant factors affecting the flight, regularly updated by checking against instruments, ATC and other crew members. Threat and error countermeasures incorporated into Flight Management.
<b>D</b>	Clearly defines the problem taking into account all essential factors, suitable option selected. Allows for contingencies and evaluates outcome.

#### 5. Excellent

<b>M</b>	Manipulation so accurate there are no deviations from target parameters. Clear mastery of correct techniques at all times.
<b>K</b>	Error free understanding of limits, systems and procedures AND deep level of background knowledge.
<b>A</b>	Complete understanding and totally appropriate use of automated systems at all times.
<b>E</b>	Timing and execution of all procedures results in best possible outcome.
<b>C</b>	Communication with other crew members stands out, for clarity and ease of information transfer. Interaction with and consideration of other crew optimizes team performance.
<b>L</b>	In-flight tasks so well organised that challenging aspects of flight management appear easy. All situations are resolved to the best outcome. Maximizes use of other crew.
<b>S</b>	Situational awareness of such a high standard that there is perception of even subtle factors affecting the aircraft, with threat and error countermeasures, well integrated into flight management.
<b>D</b>	Decision making process consistently chooses best possible option, evaluates and reviews outcomes.

### 3.24.2 Non-Technical Skills

The 4 essential skills will be graded using the word pictures as per 3.24.1. The essential skills grading will be further amplified by the use of observed essential skill elements will be used as reason codes for an assessment grading of 1,2 or 5 and optional for 3,4.

#### COMMUNICATION AND TEAMWORK

- **Communication**

1	Vital information not relayed to other crew/team members or consultation with those crew members non-existent.
2	Isolated attempts are made to relay information to other crew/team members, but are not tested for correct reception or interpretation.
3	Normal level of communication with other crew members though on occasions not always understood or verified.
4	Clear and concise communication with other crew/team members. Uses resources in a manner that improves overall performance.
5	Communication with other crew/team members stands out, for clarity and ease of information transfer.

- **Teamwork**

1	Unable to work as a team member, creates barriers between crew thereby not using input or feedback from others.
2	Atmosphere allows limited participation from other crew which often only concerns critical issues.
3	Establishes team and creates atmosphere for input and feedback from other crew.
4	Builds and maintains team. Establishes atmosphere for input and feedback from other crew which enhances overall performance.
5	Actively builds and maintains team. Establishes atmosphere that maximises participation and feedback from other crew.

- **Support of Others**

1	Rarely considers other crew members, provides little or no assistance.
2	Occasionally considers other crew members and infrequently provides support.
3	Takes condition of other crew members into account and helps other crew but not always during more demanding situations.
4	Takes condition of other crew members into account, gives feedback and support when required.
5	Takes condition of other crew members into account, provides continual support enabling them to maximise their performance.

- **Conflict solving**

1	Concerned with who is right, no attempt to resolve conflicts and may accuse other crew of making errors.
2	Most of the time concentrates on what is right rather than who is right. May overreact to interpersonal conflicts.
3	Concentrates on what is right rather than who is right. Normally able to suggest conflict solutions.
4	Always concentrates on what is right and quickly resolves any conflicts in a calm manner.
5	Anticipates possible conflicts which are optimally resolved whilst concentrating on what is right.

## **LEADERSHIP AND MANAGEMENT**

- **Authority and assertiveness**

1	Is not able to take initiative and unable to complete tasks. Hinders or withholds crew involvement.
2	Attempts crew involvement in order to assist in completing essential tasks.
3	Takes initiative to involve crew and enable timely task completion.
4	Takes initiative to ensure crew involvement and task completion to a good outcome.
5	Takes initiative, motivates and ensures involvement of all appropriate crew and ensures task completion to the best outcome.

- **Maintaining standards**

1	Unable to apply standards to task completion. Sustained deviations are not challenged or corrected.
2	Mandatory standards are met with difficulty. Minimal intervention in case of deviations.
3	Complies with standards and intervenes in case of significant deviations.
4	Efficiently complies with standards intervenes in case of deviations.
5	Incorporates appropriate standards into all aspects of flight management. Able to anticipate deviations.

- **Workload management**

1	Unable to plan and prioritise tasks. Available resources not utilised.
2	Does not anticipate workload resulting in time only to complete high priority items.
3	Plans and prioritises sufficiently to complete high priority tasks.
4	Plans and prioritises, uses resources effectively in order to efficiently complete primary and secondary tasks.
5	Primary and secondary tasks so well organised that challenging aspects of flight management appear easy.

## SITUATION AWARENESS

- **Awareness of aircraft systems, external environment and time**

1	Lack of awareness of a clearly evident and developing situation that will cause the aircraft to breach clearances, violate procedures or place it in danger.
2	Level of awareness such that situations are only reacted to with difficulty, and not anticipated. Limited attempts to update overall awareness.
3	Situationally aware of essential items, may be unaware of less obvious factors. Some attempts at updating awareness.
4	Situationally aware of all significant factors affecting the flight, regularly updated by checking against instruments, ATC, and other crew members.
5	Situational awareness of such a high standard that even subtle factors affecting the aircraft are integrated into flight management.

- **Threats and Errors**

1	Unable to detect and respond to threats and errors which may result in undesirable aircraft states.
2	Identifies significant threats and may attempt countermeasures.
3	Able to identify significant threats and errors and apply appropriate countermeasures.
4	Threat and errors managed with appropriate countermeasures.
5	Threat and Error Management integrated into Flight Management.

## DECISION MAKING

- **Problem definition and option generation**

1	Complete lack of methodology in problem solving, likely to cause the aircraft to breach clearance, violate procedures or place it in danger.
2	Difficulty in defining the problem and generating suitable options, essential factors only considered.
3	Problem solving sound, generates suitable options but may have not considered less obvious factors.
4	Problem solving takes into account most factors, generates appropriate options and allows for contingencies.
5	Correct definition, reviews all factors, considers contingencies and generates best options, and incorporates into flight management.

- **Risk assessment and option selection**

1	No process for assessing risk or selecting options.
2	Some attempt to assess risks of available options. Option selected is therefore not properly assessed for risk.
3	Assess risks considering major factors, selected option satisfactory and provides a safe outcome.
4	Considers and shares risks of alternatives, confirms selected course of action with other crew. Selected option consistently results in a good outcome.
5	Considers and shares risks of alternatives, consistently chooses best option and confirms selected course of action with other crew.

- **Outcome review**

1	Fails to check outcome against plan.
2	Attempts to check outcome against plan. Does not attempt to modify options if required.
3	Checks outcome against plan. Modifies options.
4	Checks outcome against plan. Modifies options to achieve a good outcome.
5	Integrates outcome review and option modification to achieve optimum outcome into flight management.

## **CANCELLATION**

Effective until included in OM3.



Approved by  
**Captain Angus Sillar**  
Standards & Assurance Manager