1. Introduction

1.1. Standard phraseology is essential to ensure effective crew communication, particularly in today's operating environment, which increasingly features:

(a) Two-person crew operation; and,

(b) Crewmembers from different cultures and with different native languages.

1.2. Standard calls – commands and responses – are designed to enhance overall situational awareness (including awareness of the status and the operation of aircraft systems).

1.3. Standard calls may vary among aircraft models, based upon flight deck design and system designs, and among company standard operating procedures.

2. Use of Standard Calls

2.1. Standard calls should be *alerting*, so that they are clearly identified by the pilot flying (PF) or pilot not flying (PNF) (pilot monitoring) and should be distinguished from communication within the flight deck or between pilots and controllers.

2.2. Standard calls reduce the risk of tactical (short-term) decision making errors (in selecting modes, or entering targets [e.g. airspeed, heading, altitude] or in setting configurations).

2.3. The importance of using standard calls increases with increased workload.

2.4. Standard calls should be practical, concise, clear and consistent with the aircraft design and operating philosophy.

2.5. Standard calls should be included in the flow sequence of manufacturer's SOPs or the company's SOPs and with the flight-pattern illustrations in the aircraft's operating manual (AOM).

2.6. Standard calls should be performed in accordance with the defined PF/PNF task sharing (i.e., task sharing for hand flying versus autopilot operation, or task sharing for normal condition versus abnormal/ emergency condition).

2.7. Nevertheless, if a call is omitted by one pilot, the other pilot should suggest the call, as per good crew resource management (CRM) practice.

2.8. The absence of a standard call at the appropriate time or the absence of acknowledgement may be the result of a system malfunction, or equipment malfunction, or possible incapacitation of the other pilot.

2.9. Standard calls should be used to:

(a) Give a command (delegate a task) or transfer a piece of information;

(b) Acknowledge a command or confirm receipt of information;

(c) Give a response or ask a question (feedback);

(d) Call a change of indication (e.g. a flight mode annunciator [FMA] mode change); or,

(e) Identify a specific event (e.g. crossing an altitude or flight level).

3. General Standard Calls

3.1. The following are standard calls:

(a) "Check" (or "verify"): a command for the other pilot to check or verify an item;

(b) "Checked": a confirmation that an item has been checked;

(c) "Cross-check(ed)": a confirmation that information has been checked at both pilot stations;

(d) "Set": a command for the other pilot to enter a target value or a configuration;

(e) "Arm": a command for the other pilot to arm a system (or a mode);

(f) "Engage": a command for the other pilot to engage a system or select a mode; and,

(g) "On" (or "Off") following the name of a system: a command for the other pilot to select (or deselect) the system; or a response confirming the status of the system.

(h) Where a target value is set or checked, a statement of the value should precede the 'set/checked' call (e.g. "Altimeter 29.92 set". Or "Autopilot engaged, alt sel 9000ft set").

4. Specific Standard Calls

4.1. Specific standard calls should be defined for the following events:

(a) Flight crew-ground mechanics communications;

(b) Engine start sequence;

(c) Landing gear and slats/flaps selection (retraction or extension);

(d) Initiation, interruption, resumption and completion of normal checklists;

(e) Initiation, sequencing, interruption, resumption and completion of abnormal checklists and emergency checklists;

(f) FMA mode changes;

(g) Changing the altimeter setting;

(h) Approaching the cleared altitude or flight level;

(i) Airborne Collision Avoidance System (ACAS) traffic advisory (TA) or resolution advisory (RA);

(j) PF/PNF transfer of controls;

(k) Excessive deviation from a flight parameter;

(l) Specific points along the instrument approach procedure;

(m) Approaching minima and reaching minima;

(n) Acquisition of visual references; and,

(o) Decision to land or to go-around.

4.2. *The use of standard calls is of paramount importance for optimum use of automation* (autopilot, flight director and autothrottle mode arming or mode selection, target entries, FMA annunciations, flight management system [FMS] mode selections):

(a) Standard calls should immediately trigger the question "What do I want to fly now?", and thus clearly indicate which:

– mode the pilot intends to arm or select; or,

– target the pilot intends to enter; and,.

(b) When the intention of the PF is clearly transmitted to the PNF, the standard call will also:

– Facilitate the cross-check of the FMA (and primary flight display or navigation display as applicable); and,

– Facilitate crew co-ordination, cross-checking and backup.

4.3. Standard calls should also be defined for flight crew/cabin crew communication in both:

(a) Normal conditions; and,

(b) Abnormal or emergency conditions (e.g. cabin depressurisation, on-ground emergency/ evacuation, crew incapacitation, forced landing or ditching, etc.).

5. Harmonisation of Standard Calls

5.1. The harmonisation of standard calls across various aircraft fleets (from the same or from different aircraft manufacturers) is desirable but should not be an overriding demand.

5.2. Standard calls across fleets are only essential for crewmembers operating different fleets (i.e. for communications between flight deck and cabin or between flight deck and ground).

5.3. Within the flight deck, pilots must use standard calls appropriate for the flight deck and systems.

5.4. With the exception of aircraft models with flight deck commonality, flight deck layouts and systems are not the same and, thus, differences as well as similarities should be recognised.

5.5. When defining standard calls, standardisation and operational efficiency should be balanced carefully.

6. Summary

6.1. Standard Calls ensure effective crew interaction and communication.

6.2. The command and the response are of equal importance to ensure timely action or correction.

7. Resources

Other Level Bust Briefing Notes

7.1. The following Level Bust Toolkit Briefing Notes contain information to supplement this discussion:

GEN 2 – Pilot-Controller Communications;

OPS 1 – Standard Operating Procedures.

Access to Resources

7.2. Most of the resources listed may be accessed free of charge from the Internet. Exceptions are:

ICAO documents, which may be purchased direct from *ICAO*;

Certain Flight Safety Foundation (FSF) Documents, which may be purchased direct from *FSF*;

Certain documents produced by the Joint Aviation Authorities, which may be purchased from *JAA*.

Regulatory References

7.3. Documents produced by regulatory authorities such as ICAO, JAA and national aviation authorities are subject to amendment. Reference should be made to the current version of the document to establish the effect of any subsequent amendment.

ICAO – Annex 6 – Operation of Aircraft, Part I – International Commercial Air transport – Aeroplanes, Appendix 2, 5.13;

ICAO Doc 9376 – Preparation of an Operations Manual;

JAR-OPS 1.1045 and associated Appendix 1 – Operations Manuals – structure and contents.

Training Material

FSF Approach & Landing Accident Reduction (ALAR) Toolkit Briefing Note 1.4 – Standard Calls.

Other Resources

FSF Digest 3/99 – Enhancing Flight Crew Monitoring Skills Can Increase Flight Safety;

U.S. National Transportation Safety Board (NTSB) – Special Report NTSB-AAS-76-5 – Special Study: Flightcrew Coordination Procedures in Air Carrier Instrument Landing System Approach Accidents.