



SAFETY ALERT 09/2016

Issued: 10th October 2016

SUBJECT:

REPORTING OF WIND SHEAR BY AIR TRAFFIC SERVICES UNITS.

REFERENCE PUBLICATION:

CAR Part VIII, Subpart 4 ATS Organisations
ICAO Annex 11 Air Traffic Services
ICAO Annex 3 Chapter 7, 7.4
ICAO PANS-ATM Doc 4444
ICAO Doc 9817 Manual on Low-level Wind Shear
CAAP 69 UAE Radiotelephony Standards

CATEGORY:

Recommendation

REASON:

The purpose of this Safety Alert is to:

- ensure civil aviation regulations are adhered to; and
- provide recommendations to ATCUs for maintaining pilot's awareness and alertness of possible wind shear and ensure that information about the operational effect of the wind shear (speed loss or gain) in an area is effectively relayed to assist other pilots flying in the same area; and
- ensure training of air traffic services personnel includes a wind shear programme.

APPLICABILITY:

- Air Traffic Services Units (ATSU)
- Air Traffic Controllers (ATCOs)

BACKGROUND:

ATSUs are the critical communications interface between aircraft (pilot to pilot), and between aircraft and MET units.

A component of the air traffic services objective is to provide advice and information (e.g. wind shear) useful for the safe conduct of flights.

Flight information services form part of an air traffic control service and shall be provided to all aircraft which are likely to be affected by the information, such as weather conditions reported or forecast at



departure, destination and alternate aerodromes and of any other information likely to affect safety, e.g. wind shear.

Wind shear may be hazardous to aircraft during final approach, landing, take-off and initial climb after becoming airborne. Information about the operational effect of the wind shear (speed loss or gain) is most effective to assist other pilots to ensure safe flight operation.

Wind shear is a change in the wind speed or direction in the vertical or horizontal along the aircraft flight path. Wind shear can occur at any level, but it is low-level wind shear which can cause problems of sufficient magnitude to affect the control of aircraft during final approach, landing, take-off and initial climb.

Most modern aircraft carry on-board wind shear detection systems, which will visually and/or audibly warn the flight crew of the presence of wind shear. Such alerts can be either predictive, occurring before the aircraft encounters the wind shear, or reactive after entering of the wind shear.

Pilots will continue to fly the wind shear recovery manoeuvre until the on-board system ceases to annunciate the wind shear alert, and may therefore require deviation from their clearance.

The priority of the crew during wind shear recovery manoeuvres is to keep the aircraft under control whilst ensuring terrain clearance. Despite the use of maximum thrust, the aircraft might not be able to climb initially. Climb rates thereafter may significantly exceed those during missed approaches executed for reasons such as an occupied runway, or lack of visual contact in poor visibility. These high rates of climb, especially when associated with a missed approach which has a relatively low level-off altitude, and the high flight deck workload involved can result in pilots exceeding their cleared level and eroding separation from other aircraft.

If the aircraft is in a turn when a wind shear alert is generated, the crew may level the wings to maximize the climb gradient, unless a turn is required for obstacle clearance.

Furthermore, due to high flight deck workload the reply 'Standby' (or no reply at all) in response to ATC instructions is not unusual during such events.

RECOMMENDATIONS:

Recommendation 1:

- a) On receipt of an air-report of wind shear or other weather hazards, the ATSU should:
1. immediately relay the report to other aircraft concerned by hazardous weather phenomena;
 2. pass the full report to the associated MET unit; and
 3. pass the information to other ATSUs that may be affected by hazardous weather phenomena.
- Note: A warning may be broadcast on ATIS (if available).*



- b) Wind shear reports should be relayed using the following standard sequence, the contents depending upon the details of the original report:
1. wind shear — identifier;
 2. aircraft type — added if not included in the original report;
 3. description of event — no change to the report as received from the pilot. See also h) below;
 4. height wind shear encountered — no change to the report as received from the pilot;
 5. phase of flight — no change to the report as received from the pilot;
 6. runway — added if not included in the original report;
 7. time of encounter — no change to the report as received from the pilot; and
 8. MET/operational information (speed loss or speed gain) — no change to the report as received from the pilot.

Examples of such a report is:

"CAUTION WIND SHEAR. AT 0937 B747 REPORTED STRONG WIND AT 300 FT ON APPROACH RWY 27. MAX THRUST REQUIRED".

"CAUTION WIND SHEAR. AT 0745 A320 REPORTED AFTER DEPARTING RUNWAY 30R AT 800 FEET AIRSPEED LOSS OF 20 KNOTS, STRONG RIGHT DRIFT".

- c) ATSU should continue to transmit information on wind shear conditions until it is confirmed, either by subsequent aircraft reports or by advice from the associated MET unit, that conditions are no longer a hazard to ensure safe operations at the aerodrome.

Reminder 1:

Regardless of the information being broadcast on ATIS and subsequently acknowledged by flight crew, at the commencement of and during final approach, and prior to take-off, ATSU should transmit by voice to aircraft without delay the following information:

1. Remind pilots and update them with the latest information, if any, on wind shear and/or turbulence in the approach, final approach, take-off and climb-out area; and
2. Significant variations in the current surface wind, expressed in terms of minimum and maximum values.

Recommendation 2:

- a) ATSUs should develop a wind shear training programme for ATCOs as they are normally the vital communications link between meteorologist and pilots. Emphasis should mainly be directed to those ATCOs employed in aerodrome and approach control, since take-off, approach and landing are the most critical phases of flight for an encounter with low-level wind shear.
- b) The learning objectives of such wind shear training programme should be:
1. to provide an understanding of wind shear and its probable effects on aircraft performance;



2. to assist in identifying the conditions in which wind shear can occur; and
 3. to develop a knowledge of the procedures for reporting wind shear and to practise these procedures.
- c) The wind shear training programme may be developed using Training Manual, Part F-1 — Meteorology for Air Traffic Controllers and Pilots (Doc 7192) and Appendix 9 of the Manual on Low-level Wins Shear (Doc 9817) and may include, when possible, participation, as an observer, to flight simulator training sessions for pilots when wind shear procedures are being reviewed.

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