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Tel.: +1 514-954-8219 ext. 6710

Ref.: AN 13/2.1-16/54 23 June 2016

Subject: Approval of Amendment 7 to the PANS-ATM

Action Required: a) Implementation of the amendment on 10 November 2016[1]; b) Publication of any differences as of 10 November 2016

Sir/Madam,

1. I have the honour to inform you that the Air Navigation Commission, acting under delegated authority, on 1 March 2016, approved Amendment 7 (i.e. Amendments 7-A and 7-B) to the fifteenth edition of the *Procedures for Air Navigation Services — Air Traffic Management* (PANS-ATM, Doc 4444), for applicability on 10 November 2016[2]. The amendments were approved on 6 June 2016 by the President of the Council on behalf of the Council in accordance with established procedure. Copies of the amendment are available as attachments to the electronic version of this State letter on the ICAO-NET (http://portal.icao.int) where you can access all other relevant documentation.

2. Amendment 7 (i.e. Amendments 7-A and 7-B) stems from proposals developed by the Separation and Airspace Safety Panel (SASP), the second meeting of the Operational Data Link Panel (OPLINKP/2), the third meeting of the Air Traffic Management Operation Panel (ATMOPSP/3), the first meeting of the Flight Operations Panel (FLTOPSP/1), the sixteenth meeting of the Operations Panel Working Group of the Whole (OPSP/WG/WHL/16), the third meeting of the Aerodromes Panel (AP/3) and the Meteorology (MET) Divisional Meeting (2014). The amendment is related to:

a) performance-based longitudinal and lateral separation minima and automatic dependent surveillance — contract (ADS-C) climb and descend procedure (CDP);

b) separation departing aircraft from arriving aircraft that are following an area navigation (RNAV) or required navigation performance (RNP) route;

[1] 5 November 2020 for Amendment 7-B related to an enhanced global reporting format in terms of implementation and publication of differences.

[2] 5 November 2020 for Amendment 7-B related to an enhanced global reporting format.

999 Robert-Bourassa Boulevard
Montréal, Quebec
Canada H3C 5H7
Tel.: +1 514-954-8219
Fax: +1 514-954-6077
Email: icaohq@icao.int
www.icao.int

c) data link initiation capability (DLIC), ADS-C, performance-based communication and surveillance (PBCS) and satellite voice communications (SATVOICE);

d) vectoring for final approach, advising of take-off run available (TORA) and use of SID/STAR;

e) standard phraseology for de/anti-icing ground and flight crews;

f) emergency descent procedures;

g) autonomous runway incursion warning system (ARIWS);

h) forwarding of special air-reports and definition of SIGMET information; and

i) an enhanced global reporting format for assessing and reporting runway surface conditions (2020 applicability).

3. An implementation task list, including an outline of guidance material, and an impact assessment for the amendment are presented in Attachments B and C, respectively.

4. Your Government is invited by the Council to implement the provisions of the PANS-ATM as amended. In this connection, I draw your attention to the decision taken by the Council, on 1 October 1973, to discontinue the publication of differences in Supplements to the PANS documents and, instead, to request States to publish up-to-date lists of significant differences from PANS documents in their Aeronautical Information Publications (AIPs).

5. Please note that the time between the approved date and the applicability date of 5 November 2020 for Amendment 7-B to the PANS-ATM is longer than usual due to the multidisciplinary nature of the proposal and the resulting need for distributing an information package as part of a roll-out plan to ensure that all disciplines are aligned towards a seamless implementation.

6. May I, therefore, invite your Government to publish in your Aeronautical Information Publication a list of any significant differences which will exist on 10 November 2016[3] between the amended provisions of the PANS-ATM and your national regulations and practices.

Accept, Sir/Madam, the assurances of my highest consideration.

Fang Liu
Secretary General

Enclosures:

A — Amendment to the Foreword of the PANS-ATM
B — Implementation task list and outline of guidance material in relation to Amendment 7 to the PANS-ATM
C — Impact assessment in relation to Amendment 7 to the PANS-ATM

[3] 5 November 2020 for Amendment 7-B related to an enhanced global reporting format.

ATTACHMENT A to State letter AN 13/2.1-16/54

AMENDMENT TO THE FOREWORD OF THE PANS-ATM, FIFTEENTH EDITION

Add the following at the end of Table A:

Amendment	***Source(s)***	***Subject***	***Approved Applicable***
7-A	The Separation and Airspace Safety Panel (SASP), the second meeting of the Operational Data Link Panel (OPLINKP/2), the third meeting of the Air Traffic Management Operation Panel (ATMOPSP/3) and the Secretariat, the first meeting of the Flight Operations Panel (FLTOPSP/1), the sixteenth meeting of the Operations Panel Working Group of the Whole (OPSP/WG/WHL/16), the third meeting of the Aerodromes Panel (AP/3) and the Meteorology (MET) Divisional Meeting (2014).	Performance-based longitudinal and lateral separation minima and ADS-C CDP; separation between arrival and departure operations; DLIC, CPDLC, ADS-C, PBCS and SATVOICE; procedures used to vector for final approach, advising of TORA and SID/STAR; standard phraseology for de/anti-icing ground and flight crews; emergency descent procedures; autonomous runway incursion warning system (ARIWS); and forwarding of special air-reports and definition of SIGMET information.	6 June 2016 10 November 2016

Amendment	***Source(s)***	***Subject***	***Approved Applicable***
7-B	The third meeting of the Aerodromes Panel (AP/3)	The use of a global reporting format for assessing and reporting runway surface conditions	6 June 2016 5 November 2020

ATTACHMENT B to State letter AN 13/2.1-16/54

IMPLEMENTATION TASK LIST AND OUTLINE OF GUIDANCE MATERIAL IN RELATION TO AMENDMENT 7 TO PANS-ATM (DOC 4444)

1. IMPLEMENTATION TASK LIST

1.1 Essential steps to be followed by a State in order to implement Amendment 7 to the PANS-ATM:

a) conduct a gap analysis between the amendment and national regulatory framework;

b) identification of the rule-making process necessary to transpose the amendment concerning the following subjects into the national requirements, where necessary;

c) drafting of the modification to the national requirements and means of compliance;

d) official adoption of the national requirements and means of compliance;

e) identification and publication of significant differences, if any, in the State's aeronautical information publication (AIP);

f) modification of surveillance programmes to include new requirements, if applicable;

g) revision of guidance material and checklists for safety oversight inspectors;

h) training of inspectors based on the revised inspector guidance material; and

i) ensure compliance by industry (air navigation services provider (ANSP) and operator) through safety oversight activities.

2. STANDARDIZATION PROCESS

2.1 Approval date: May 2016

2.2 Applicability date: 10 November 2016 for the elements concerning performance-based longitudinal and lateral separation minima and automatic dependent surveillance — contract (ADS-C) climb and descend procedure (CDP); separation between arrival and departure operations; data link initiation capability (DLIC), controller-pilot data link communications (CPDLC), automatic dependent surveillance — contract (ADS-C), performance-based communication and surveillance (PBCS) and satellite voice communications (SATVOICE); procedures used to vector for final approach, advising of take-off run available (TORA) and standard instrument departures (SID) and standard instrument arrivals (STAR) (SID/STAR); standard phraseology for de/anti-icing ground and flight crews; emergency descent procedures; autonomous runway incursion warning system (ARIWS); and forwarding of special air-reports and definition of SIGMET information.

2.3 Applicability date: 5 November 2020 for the element concerning the use of a global reporting format for assessing and reporting runway surface conditions.

2.4 Embedded applicability date(s): N/A

3. SUPPORING DOCUMENTATION

3.1 ICAO documentation

Title	Type (PANS/TI/Manual/Circ)	Planned publication date
Performance-based Communication and Surveillance Manual (Doc 9869)	Manual	November 2016
Global Operational Data Link (GOLD) Manual (Doc 10037)	Manual	November 2016
Satellite Voice Operations Manual (SVOM) (Doc 10038)	Manual	November 2016
Guidelines for the Implementation of Lateral Separation Minima Circular (Cir 341-AN/184)	Circular	Available
Automatic Dependent Surveillance — Contract (ADS-C) Climb and Descend Procedure (CDP) Circular (Cir 342-AN/200)	Circular	Available
Guidelines for the Implementation of Performance-based Longitudinal Separation Minima Circular (Cir 343-AN/201)	Circular	November 2016

3.2 External documentation

Title	External Organization	Publication date
None		

4. IMPLEMENTATION ASSISTANCE TASKS

Type	Global	Regional
Regional workshop as resources permit		ICAO regional offices or States offering to host regional events

5. UNIVERSAL SAFETY OVERSIGHT AUDIT PROGRAMME (USOAP)

5.1 No major changes to the USOAP CMA protocol questions are envisaged. However, in the area of ANS, existing protocol questions may need amendment or new protocol questions may be required to assess effective implementation by States. This will be assessed during the next amendment cycle of the protocol questions.

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ATTACHMENT C to State letter AN 13/2.1-16/54

IMPACT ASSESSMENT IN RELATION TO AMENDMENT 7 TO PANS-ATM (DOC 4444)

1. INTRODUCTION

1.1 Amendment 7 to the PANS-ATM is intended to address the requirements and procedures for the following:

a) performance-based longitudinal and lateral separation minima for aircraft in the en-route phase of flight and ADS-C CDP;

b) separation of departing aircraft from arriving aircraft that are following an RNAV or RNP route;

c) use of DLIC, CPDLC, ADS-C, PBCS and SATVOICE;

d) vectoring for final approach, use of TORA and SID/STAR;

e) standard phraseology for de/anti-icing ground and flight crews;

f) emergency descent;

g) use of ARIWS;

h) forwarding of special air-reports and definition of SIGMET information; and

i) use of an enhanced global reporting format for assessing and reporting runway surface conditions.

2. IMPACT ASSESSMENT

Amendment concerning performance-based longitudinal and lateral separation minima and ADS-C CDP

2.1 *Safety impact*: Positive — This new separation minima increases flexibility in air traffic management and is contingent on required communication performance (RCP) and required surveillance performance (RSP) which increases robustness and safety of data link operations.

2.2 *Financial impact*: Negligible — The financial impact is considered negligible for both State and industry if effective processes and procedures, necessary ground system automation and monitoring programmes are already in place. However, should those not be in place and the ANSPs wish to implement the procedure(s), associated implementation costs will only be incurred when the air traffic demand requires reduction in separation minima. This will provide for increased access to optimal flight levels, resulting in increased efficiency and fuel savings.

2.3 *Security impact*: No security impact is expected.

2.4 *Environmental impact*: Positive — Subject to traffic demand, the implementation of the new separation standards will facilitate increased availability of optimal flight levels, with a consequent reduction of emissions.

2.5 *Efficiency impact*: Positive — Subject to traffic demand, the implementation of the new separation standards will facilitate increased availability of optimal flight levels, with a consequent increase in efficiency.

2.6 *Expected implementation time*: One to two years — The new separation Standards will be implemented only when air traffic density necessitates a reduction in separation minima. If effective processes and procedures and necessary ground automation and monitoring programmes are already in place, it is anticipated that a shorter timeline will suffice. However, should those not be in place and ANSPs wish to implement, the implementation time will extend.

Amendment concerning separation between arrival and departure operations

2.7 *Safety impact*: Positive — This amendment provides an additional separation method for controllers to use in situations where none currently exist in the PANS-ATM. This change will therefore make airspace management easier and is, as a consequence, expected to inherently result in improved safety in the airspace. By defining where and when the aircraft should be before another aircraft is cleared to take-off, it is expected that the conflicts between arrivals and departures will be reduced with a consequent increase in the safety of operation.

2.8 *Financial impact*: Negligible — There will be a nominal cost to States, associated with the rule-making process necessary to transpose the modified ICAO provisions into national regulations. For industry, the cost incurred by the amendment will involve an analysis of departure and arrival tracks to determine the waypoint positions to ensure the necessary separation, which is already embedded in the exercise of their functions as procedure designers and/or airspace managers.

2.9 *Security impact*: No security impact is expected.

2.10 *Environmental impact*: Positive — With the reduction in waiting time to take-off, greenhouse gas emissions by aircraft on the ground will be reduced.

2.11 *Efficiency impact*: Positive — With the definition of points in the arrival and/or approach procedures, efficiency of operations are expected to increase with reduction in waiting time to take-off which will reduce fuel burn on the ground.

2.12 *Expected implementation time*: One year — To take advantage of the new departure vs arrival separation standards, the currently published departure and arrival procedures will need to be analysed to determine the waypoint positions to guarantee the necessary separation. From that point on, during the development of any applicable new procedures, procedure designers will conduct such an analysis as an integral part of their work. This ongoing development will therefore be coincident with the State performance-based navigation (PBN) implementation plan.

Amendment concerning DLIC, CPDLC, ADS-C, PBCS and SATVOICE

2.13 *Safety impact*: Positive — Clarification on terms and existing provisions regarding data link (DLIC, CPDLC and ADS-C) brought by this amendment will have a positive safety impact in particular for operations in oceanic and remote areas. The amendment regarding PBCS will also have a positive safety impact since ANSPs will be able to identify eligible aircraft to which reduced separation minima can be safely applied based on communication and surveillance capabilities filed in the flight plan. No safety impact is expected for the SATVOICE amendment.

2.14 *Financial impact*: Negligible to significant — No significant financial impact is expected for States but the financial impact for industry will vary, from nominal to significant, depending on the level of data link and PBCS implementation. Concerning the SATVOICE amendment, no significant financial impact is expected.

2.15 *Security impact*: Neutral — No security impact is expected.

2.16 *Environmental impact*: Neutral — No environmental impact is expected.

2.17 *Efficiency impact*: Positive — The amendment supports the implementation of data link, PBCS and SATVOICE, which enables more flexible use of airspace.

2.18 *Expected implementation time*: One to two years — Most changes are to clarify the terms and streamline existing provisions except those related to PBCS, which may require adaptation of the flight plan filing and processing system.

Amendment concerning procedures used to vector for final approach, advising of TORA and SID/STAR

2.19 *Safety impact*: Positive — This amendment will enhance the comprehensibility as well as the consistency of procedures, which will enable air traffic controllers and flight crews to have a common understanding of the terms and expectations.

2.20 *Financial impact*: Negligible — This amendment is largely procedural in nature and it is not expected that States would require any investment in systems or equipment. To prepare for implementation, there will be a need to share information, and training will be required to acquaint the air traffic controllers and flight crews with the new procedures.

2.21 *Security impact*: Neutral — No security impact is expected.

2.22 *Environmental impact*: Positive — The amendment, especially in regard to vectors for final, will have a positive environmental impact as it removes the implied requirement for aircraft to be established in level flight prior to intercepting the glide path thereby facilitating continuous descent and reducing aircraft noise and fuel burn.

2.23 *Efficiency impact*: Positive — There will be a reduction of workload for both air traffic controllers and flight crews with the removal of the requirement for flight crews to report when the aircraft has intercepted the final approach track. The other facet would be increased efficiency through reduced track miles.

2.24 *Expected implementation time*: One year —This amendment pertains only to operational procedures. It is envisaged that air traffic controllers and flight crews should be able to use the new procedures soon after they are allowed to do so.

Amendment concerning standard phraseology for de/anti-icing ground and flight crews

2.25 *Safety impact*: Positive — The amendment improves the procedures for required coordination between flight crew and ground de/anti-icing operations.

2.26 *Financial impact*: Negligible — The financial impact is considered neutral for States and minimal for industry. The amendment is largely procedural in nature, so it would not require modification to a State's current legal or regulatory framework and would not require any investment in systems or equipment. It is expected that industry would incorporate this amendment in the recurrent winter operations training.

2.27 *Security impact*: No security impact is expected.

2.28 *Environmental impact*: Positive — Better coordination between flight crew and de-icing/anti-icing ground crew will result in more efficient use of de-icing fluids and less waste.

2.29 *Efficiency impact*: Positive — Better coordination between flight crew and de-icing/anti-icing ground crew will result in more efficient use of de-icing fluids and less waste.

2.30 *Expected implementation time*: One year — ICAO is working closely with SAE to incorporate the content of this amendment in their documents. This will allow for wide industry adoption.

Amendment concerning emergency descent procedures

2.31 *Safety impact*: Positive — It removes uncertainty for air traffic controllers when an aircraft is executing an emergency descent, especially in congested airspace.

2.32 *Financial impact*: Negligible — The financial impact is considered neutral for States and minimal for industry. The amendment is largely procedural in nature, so it would not require modification to a State's current legal or regulatory framework and would not require any investment in systems or equipment. It is expected that industry would incorporate this amendment in recurrent training.

2.33 *Security impact*: No security impact is expected.

2.34 *Environmental impact*: No environmental impact is expected.

2.35 *Efficiency impact*: No efficiency impact is expected.

2.36 *Expected implementation time*: One year — It is envisaged that air traffic controllers and flight crews will become familiar with these procedures during their recurrent training.

Amendment concerning autonomous runway incursion warning system (ARIWS)

2.37 *Safety impact*: Positive — The ARIWS concept has been designed for reduction of the prevalence and consequences of runway incursions for specific cases where it is decided to implement.

2.38 *Financial impact*: The present cost of implementing an ARIWS is large but limited to a small amount of aerodromes where it is needed. It will be justified by the local assessment. The amendment to the PANS-ATM will only be applicable when the ARIWS is installed and used. The financial impact as a result of this amendment is considered negligible for States and industry. There will be a nominal cost to States, associated with the State rule-making process necessary to transpose the modified ICAO provisions into the national regulations. There will be minimal cost to industry, predominantly related to training of air traffic controllers and flight crews with respect to the operational procedures to use the ARIWS.

2.39 *Security impact*: No security impact is expected.

2.40 *Environmental impact*: No environmental impact is expected.

2.41 *Efficiency impact*: ARIWS provisions have been developed to minimize the impact on normal operations.

2.42 *Expected implementation time*: One year — The expected implementation tasks are primarily related to training air traffic controllers and flight crews with respect to the operational procedures to use the ARIWS.

Amendment concerning forwarding of special air-reports and definition of SIGMET information

2.43 *Safety impact*: No safety impact is expected.

2.44 *Financial impact*: No significant financial impact is expected.

2.45 *Security impact*: No security impact is expected.

2.46 *Environmental impact*: No environmental impact is expected.

2.47 *Efficiency impact*: Positive — Greater efficiency can be expected through the exchange of the special air-reports through the aeronautical fixed service (AFS) Internet-based services.

2.48 *Expected implementation time*: One year — The expected implementation tasks are primarily related to a slight adjustment of the means employed by ATS units and their operating procedures for forwarding special air-reports.

Amendment concerning use of an enhanced global reporting format for assessing and reporting runway surface conditions (2020 applicability)

2.49 *Safety impact*: Positive — The amendment will contribute to a reduction in runway excursion incidents/accidents by ensuring that runway surface conditions are reported in a standardized

manner, which will enable flight crews to accurately determine aeroplane take-off and landing performance.

2.50 *Financial impact*: Minimal — There will be a nominal cost to States, associated with the State rule-making process necessary to transpose the modified ICAO provisions into the national regulations. It is anticipated that there will be minimal cost to industry, predominantly related to training of air traffic controllers and flight crew with respect to the phraseologies.

2.51 *Security impact*: No security impact is expected.

2.52 *Environmental impact*: Positive — Due to fewer occurrences of runway excursion incidents and accidents.

2.53 *Efficiency impact*: Positive — Accurate and timely runway state information disseminated according to defined terminology and procedures will have a positive impact on the efficiency of the air transportation system. Occurrences of excursions, disruptions to aerodrome and air traffic operations such as, but not limited to, the removal of aircraft disabled at an aerodrome, in particular on a runway, are expected to be reduced.

2.54 *Expected implementation time*: One year — The expected implementation tasks are primarily related to training air traffic controllers and flight crews with respect the addition and alignment of phraseologies to the global reporting format for runway surface friction reporting. It should be noted that it is essential that these changes are made in close coordination with those to Annex 14 — *Aerodromes*, Volume I — *Aerodrome Design and Operations* and Annex 15 — *Aeronautical Information Services* in connection with the introduction of the global reporting format, and that this may affect the implementation date.

— END —

AMENDMENT No. 7-A

TO THE

PROCEDURES
FOR
AIR NAVIGATION SERVICES

AIR TRAFFIC MANAGEMENT

(Doc 4444)

INTERIM EDITION

The text of Amendment No. 7-A to the PANS-ATM (Doc 4444) was approved by the President of the Council of ICAO on behalf of the Council on **6 June 2016** for applicability on **10 November 2016**. This interim edition is distributed to facilitate implementation of the amendment by States. Replacement pages incorporating Amendment No. 7-A are expected to be distributed in October 2016. (State letter AN 13/2.1-16/54 refers.)

June 2016

INTERNATIONAL CIVIL AVIATION ORGANIZATION

NOTES ON THE EDITORIAL PRESENTATION
OF THE AMENDMENT 7-A TO THE PANS-ATM

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

1. ~~Text to be deleted is shown with a line through it.~~	text to be deleted
2. New text to be inserted is highlighted with grey shading.	new text to be inserted
3. ~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.	new text to replace existing text

TEXT OF AMENDMENT 7-A TO THE

PROCEDURES FOR AIR NAVIGATION SERVICES

AIR TRAFFIC MANAGEMENT

. . .

Chapter 1

DEFINITIONS

. . .

CPDLC message. Information exchanged between an airborne system and its ground counterpart. A CPDLC message consists of a single message element or a combination of message elements conveyed in a single transmission by the initiator.

CPDLC message set. A list of standard message elements and free text message elements

. . .

~~***Downstream data authority.*** A designated ground system, different from the current data authority through which the pilot can contact an appropriate ATC unit for the purposes of receiving a downstream clearance.~~

. . .

Free text message element. Part of a~~A~~ message ~~element used to convey information not conforming~~ that does not conform to any ~~standardized~~ standard message element ~~in the CPDLC message set~~ in the PANS-ATM (Doc 4444).

. . .

Logon address. A specified code used for data link logon to an ATS unit.

. . .

Performance-based communication (PBC). Communication based on performance specifications applied to the provision of air traffic services.

Note.— An RCP specification includes communication performance requirements that are allocated to system components in terms of the communication to be provided and associated transaction time, continuity, availability, integrity, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

Performance-based navigation (PBN). Area navigation based on performance requirements for aircraft operating along an ATS route, on an instrument approach procedure or in a designated airspace.

Note.— Performance requirements are expressed in navigation specifications (RNAV specification, RNP specification) in terms of accuracy, integrity, continuity, availability and functionality needed for the proposed operation in the context of a particular airspace concept.

. . .

Performance-based surveillance (PBS). Surveillance based on performance specifications applied to the provision of air traffic services.

Note.— An RSP specification includes surveillance performance requirements that are allocated to system components in terms of the surveillance to be provided and associated data delivery time, continuity, availability, integrity, accuracy of the surveillance data, safety and functionality needed for the proposed operation in the context of a particular airspace concept.

. . .

~~***Preformatted free text message element.*** A free text message element that is stored within the aircraft system or ground system for selection.~~

. . .

~~***RCP type***. A label (e.g. RCP 240) that represents the values assigned to RCP parameters for communication transaction time, continuity, availability and integrity.~~

. . .

Required communication performance (RCP) specification. ~~A statement of the performance requirements for operational communication in support of specific ATM functions.~~ A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based communication.

Required surveillance performance (RSP) specification. A set of requirements for air traffic service provision and associated ground equipment, aircraft capability, and operations needed to support performance-based surveillance.

. . .

***SIGMET information*.** Information issued by a meteorological watch office concerning the occurrence or expected occurrence of specified en-route weather ~~phenomena which~~ and other phenomena in the atmosphere that may affect the safety of aircraft operations.

. . .

~~***Standardized free text message element.*** A message element that uses a defined free text message format, using specific words in a specific order.~~

~~*Note.— Standardized free text message elements may be manually entered by the user or preformatted.*~~

Standard message element. Part of a message defined in the PANS-ATM (Doc 4444) in terms of display format, intended use and attributes.

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Chapter 4

GENERAL PROVISIONS FOR AIR TRAFFIC SERVICES

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4.4 FLIGHT PLAN

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4.4.1 Flight plan form

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4.4.1.4 An operator shall, prior to departure:

a) ensure that, where the flight is intended to operate on a route or in an area where ~~an RNP type~~ a navigation specification is prescribed, t~~he aircraft~~ it has an appropriate RNP approval, and that all conditions applying to that approval will be satisfied;

b) ensure that, where operation in reduced vertical separation minimum (RVSM) airspace is planned, ~~the aircraft~~it has the required RVSM approval; ~~and~~

c) ensure that, where the flight is intended to operate where an RCP ~~type~~ specification is prescribed, ~~the aircraft has~~ it has an appropriate ~~RCP~~ approval, and that all conditions applying to that approval will be satisfied; and~~.~~

d) ensure that, where the flight is intended to operate where an RSP specification is prescribed, it has an appropriate RSP approval, and that all conditions applying to that approval will be satisfied.

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4.5.7 Description of air traffic control clearances

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4.5.7.2 ROUTE OF FLIGHT

4.5.7.2.1 The route of flight shall be detailed in each clearance when deemed necessary. The phrase "cleared ~~via~~ flight planned route" may be used to describe any route or portion thereof, provided the route or portion thereof is identical to that filed in the flight plan and sufficient routing details are given to definitely establish the aircraft on its route. The phrases "cleared ~~via~~ (designation) departure" or "cleared ~~via~~ (designation) arrival" may be used when standard departure or arrival routes have been established by the appropriate ATS authority and published in Aeronautical Information Publications (AIPs).

Note.— See 6.3.2.3 pertaining to standard clearances for departing aircraft and 6.5.2.3 pertaining to standard clearances for arriving aircraft.

4.5.7.2.2 The phrase "cleared ~~via~~ flight planned route" shall not be used when granting a re-clearance.

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4.6 HORIZONTAL SPEED CONTROL INSTRUCTIONS

4.6.1 General

4.6.1.1 In order to facilitate a safe and orderly flow of traffic, aircraft may, subject to conditions specified by the appropriate authority, be instructed to adjust speed in a specified manner. Flight crews should be given adequate notice of planned speed control.

Note 1.— Application of speed control over a long period of time may affect aircraft fuel reserves.

Note 2.— Provisions concerning longitudinal separation using the Mach number technique are contained in Chapter 5, Separation Methods and Minima.

4.6.1.2 Speed control instructions shall remain in effect unless explicitly cancelled or amended by the controller.

Note.— Cancellation of any speed control instruction does not relieve the flight crew of compliance with speed limitations associated with airspace classifications as specified in Annex 11 — Air Traffic Services, *Appendix 4.*

4.6.1.~~2~~3 Speed control shall not be applied to aircraft entering or established in a holding pattern.

4.6.1.~~3~~4 Speed adjustments should be limited to those necessary to establish and/or maintain a desired separation minimum or spacing. Instructions involving frequent changes of speed, including alternate speed increases and decreases, should be avoided.

4.6.1.~~4~~5 The flight crew shall inform the ATC unit concerned if at any time they are unable to comply with a speed instruction. In such cases, the controller shall apply an alternative method to achieve the desired spacing between the aircraft concerned.

4.6.1.~~5~~6 At levels at or above 7 600 m (FL 250), speed adjustments should be expressed in multiples of 0.01 Mach; at levels below 7 600 m (FL 250), speed adjustments should be expressed in multiples of 20 km/h (10 kt) based on indicated airspeed (IAS).

Note 1.— Mach 0.01 equals approximately 11 km/h (6 kt) IAS at higher flight levels.

Note 2.— When an aircraft is heavily loaded and at a high level, its ability to change speed may, in cases, be very limited.

4.6.1.~~6~~7 Aircraft shall be advised when a speed control restriction is no longer required.

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4.6.4 SID and STAR

The flight crew shall comply with published SID and STAR speed restrictions unless the restrictions are

explicitly cancelled or amended by the controller.

Note 1.— Some SID and STAR speed restrictions ensure containment with RNAV departure or arrival procedure (e.g. maximum speed associated with a constant radius arc to a fix (RF) leg).

Note 2.— See 6.3.2.4 pertaining to clearances on a SID and 6.5.2.4 pertaining to clearances on a STAR.

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4.11 POSITION REPORTING

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4.11.5 Contents of ADS-C reports

4.11.5.1 ADS-C reports shall be composed of data blocks selected from the following:

a) **Aircraft identification**

b) **Basic ADS-C**
latitude
longitude
altitude
time
figure of merit

Note.— The basic ADS-C block is mandatory and is included in all ADS-C reports.

. . .

f) **Meteorological information**
wind speed
wind direction
wind quality flag (if available)
temperature
turbulence (if available)
humidity (if available)

Note.— The specifications for the elements in the meteorological information data block, including their ranges and resolutions, are shown in Appendix 4 to Annex 3.

. . .

~~h) **Extended projected profile (in response to an interrogation from the ground system)**~~
~~next waypoint~~
~~estimated altitude at next waypoint~~
~~estimated time at next waypoint~~
~~(next + 1) waypoint~~
~~estimated altitude at (next + 1) waypoint~~
~~estimated time at (next + 1) waypoint~~
~~(next + 2) waypoint~~

~~estimated altitude at (next + 2) waypoint~~
~~estimated time at (next + 2) waypoint~~
~~[repeated for up to (next + 128) waypoints]~~

~~Note. The specifications for the elements in the meteorological information data block, including their ranges and resolutions, are shown in Appendix 4 to Annex 3.~~

. . .

4.12.6 Forwarding of meteorological information

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4.12.6.2 When receiving special air-reports by data link communications, air traffic services units shall forward them without delay to their associated meteorological watch office, ~~and~~ the WAFCs, and the centres designated by regional air navigation agreement for the operation of aeronautical fixed service Internet-based services.

. . .

4.15 DATA LINK COMMUNICATIONS INITIATION PROCEDURES

4.15.1 General

Note 1.— Provisions concerning the data link initiation capability (DLIC) are contained in Annex 10, Volume II, Chapter 8.

Note 2.— Guidance material relating to the implementation of DLIC can be found in the Global Operational Data Link (GOLD) Manual *(Doc 10037).*

4.15.1.1 Before entering an airspace where data link applications are ~~required~~ used by the ATS unit, data link communications shall be initiated between the aircraft and the ATS unit in order to register the aircraft and, when necessary, allow the start of a data link application. This shall be initiated by the aircraft, either automatically or by the pilot, or by the ATS unit on address forwarding.

~~*Note. Guidance material relating to the data link initiation capability (DLIC) can be found in the* Manual of Air Traffic Services Data Link Applications *(Doc 9694)*).~~

4.15.1.2 The ~~DLIC~~ logon address associated with an ATS unit shall be published in Aeronautical Information Publications in accordance with Annex 15.

Note.— A given FIR may have multiple ~~DLIC~~ logon addresses; and more than one FIR may share the same ~~DLIC~~ logon address.

4.15.2 Aircraft initiation

~~Whenever the pilot or the aircraft initiates data link communication procedures, an initiation message shall be sent. Except when the initiation message is corrupted, it shall not be rejected by the ATS unit.~~ On receipt of a valid data link initiation request from an aircraft approaching or within a data link service area, the ATS unit shall accept the request and, if able to correlate it with a flight plan, shall establish a connection with the aircraft.

. . .

4.15.4 Failure

4.15.4.1 In the case of a~~n~~ data link initiation failure, the data link system shall provide an indication of the failure to the appropriate ATS unit(s)~~and the flight crew~~. The data link system shall also provide an indication of the failure to the flight crew when a data link initiation failure results from a logon initiated by the flight crew.

Note.— When the aircraft's logon request results from responding to a contact request by a transferring ATS unit, then both ATS units will receive the indication.

4.15.4.2 The ATS unit shall establish procedures to resolve, as soon as practicable, data link initiation failures. Procedures should include, as a minimum, ~~the following~~, verifying that the aircraft is initiating a data link request with the appropriate ATS unit (i.e. the aircraft is approaching or within the ATS unit's control area), and if so:

a) when a flight plan is available, verify that the aircraft identification, aircraft registration, or aircraft address and other details contained in the data link initiation request correspond with details in the flight plan, and where differences are detected verify the correct information and make the necessary changes; or

b) when a flight plan is not available, create a flight plan with sufficient information in the flight data processing system, to achieve a successful data link initiation; then

c) arrange for the re-initiation of the data link.

4.15.4.3 The aircraft operator shall establish procedures to resolve, as soon as practicable, data link initiation failures. Procedures should include, as a minimum, that the pilot:

a) verify the correctness and consistency of the flight plan information available in the FMS or equipment from which the ~~CPDLC communication~~ data link is initiated, and where differences are detected make the necessary changes;

b) verify the correct address of the ATS unit; then

c) re-initiate data link.

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Chapter 5

SEPARATION METHODS AND MINIMA

5.1 INTRODUCTION

. . .

Note 3.— Attention is drawn to the use of strategic lateral offset procedures (SLOP) described in Chapter 16, 16.5.

Note 4.— Procedures applicable to data link initiation capability (DLIC) are contained in Chapter 4. Procedures applicable to automatic dependent surveillance - contract (ADS-C) are contained in Chapter 13. Procedures applicable to controller-pilot data link communications (CPDLC) are contained in Chapter 14.

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5.4.1 Lateral separation

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5.4.1.2 LATERAL SEPARATION CRITERIA AND MINIMA

5.4.1.2.1 Means by which lateral separation may be applied include the following:

. . .

5.4.1.2.1.6 *Lateral separation of aircraft on parallel or non-intersecting tracks or ATS routes.* Within designated airspace or on designated routes, lateral separation between aircraft operating on parallel or non-intersecting tracks or ATS routes shall be established in accordance with the following:

a) for a minimum spacing between tracks of 93 km (50 NM) a navigational performance of RNAV 10 (RNP 10), RNP 4 or RNP 2 shall be prescribed;

b) for a minimum spacing between tracks of ~~55.5~~42.6 km (~~30~~23 NM) a navigational performance of RNP 4 or RNP 2 shall be prescribed. The communication system shall satisfy required communication performance 240 (RCP 240) and the surveillance system shall satisfy required surveillance performance 180 (RSP 180). Conformance monitoring shall be ensured by establishing an ADS-C event contract with a lateral deviation change event with a maximum of 5 NM threshold and a waypoint change event;

c) for a minimum spacing between tracks of 27.8 km (15 NM) a navigational performance of RNP 2 or a GNSS equipage shall be prescribed. Direct controller-pilot VHF voice communication shall be maintained while such separation is applied;

d) for a minimum spacing between tracks of 13 km (7 NM), applied while one aircraft climbs/descends through the level of another aircraft, a navigational performance of RNP 2 or a GNSS equipage shall be prescribed. Direct controller-pilot VHF voice communication shall be maintained while such separation is applied; and

e) for a minimum spacing between tracks of 37 km (20 NM), applied while one aircraft climbs/descends through the level of another aircraft whilst using other types of communication than specified in d) above, a navigational performance of RNP 2 or a GNSS equipage shall be prescribed.

Note 1.— Guidance material for the implementation of the navigation capability supporting 93 km (50 NM), ~~55.5~~42.6 km (~~30~~23 NM), 37 km (20 NM), 27.8 km (15 NM) and 13 km (7 NM) lateral separation minima is contained in the Performance-based Navigation (PBN) Manual *(Doc 9613). Guidance material for the implementation of the 93 km (50 NM), 42.6 km (23 NM), 37 km (20 NM), 27.8 km (15 NM) and 13 km (7 NM) lateral separation minima is contained in* ~~and~~ *Circular ~~334~~341,* Guidelines for the Implementation of Lateral Separation Minima.

Note 2.— Guidance material for the implementation of communication and surveillance capability supporting 93 km (50 NM) and ~~55.5~~ 42.6 km (~~30~~23 NM) lateral separation minima is contained in the ~~Manual on Required~~ Performance-based Communication and Surveillance (PBCS) Manual ~~Performance (RCP)~~ *(Doc 9869)* and the Global Operational Data Link (GOLD) Manual *(Doc 10037).* ~~*Information regarding RCP allocations for these capabilities is contained in RTCA DO-306/EUROCAE ED-122* Safety and Performance Standard for Air Traffic Data Link Services in Oceanic and Remote Airspace (Oceanic SPR Standard).~~

~~*Note 3.— Existing implementations of the 55.5 km (30 NM) lateral separation minimum require a communication capability of direct controller-pilot voice communications or CPDLC and a surveillance capability by an ADS-C system in which a periodic contract and waypoint change and lateral deviation event contracts are applied.*~~

Note ~~4~~3.— See Appendix 2, ITEM 10: EQUIPMENT AND CAPABILITIES, in relation to the GNSS prescribed in c), d) and e) above.

5.4.1.2.1.7 *Lateral separation of aircraft on intersecting tracks or ATS routes.* Lateral separation between aircraft operating on intersecting tracks or ATS routes shall be established in accordance with the following.

a) an aircraft converging with the track of another aircraft is laterally separated until it reaches a lateral separation point that is located a specified distance measured perpendicularly from the track of the other aircraft (see Figure 5-6); and

b) an aircraft diverging from the track of another aircraft is laterally separated after passing a lateral separation point that is located a specified distance measured perpendicularly from the track of the other aircraft (see Figure 5-6).

This type of separation may be used for tracks that intersect at any angles using the values for lateral separation points specified below:

Navigation	*Separation*
RNAV 10 (RNP 10)	93 km (50 NM)
RNP 4	~~55.5~~42.6 km (~~30~~23 NM)
RNP 2	27.8 km (15 NM)

5.4.1.2.1.8 When applying the 27.8 km (15 NM) separation minima specified in the table above, a GNSS, as indicated in the flight plan by the letter G meets the specified navigation performance.

Note.— Guidance material for the implementation of the navigation capability supporting 93 km (50 NM), ~~55.5~~42.6 km (~~30~~23 NM), and 27.8 km (15 NM) lateral separation minima is contained in the Performance-based Navigation (PBN) Manual *(Doc 9613). Supporting information for the implementation of the 93 km (50 NM), 42.6 km (23 NM) and 27.8 km (15 NM) lateral separation minima is contained in ~~and~~ Circular ~~334~~341,* Guidelines for the Implementation of Lateral Separation Minima.

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Editorial Note.— Move Figures 5-26, 5-27A, 5-27B and 5-28 from Section 5.4.2.6 to Section 5.4.2.5 with their associated paragraphs. Delete Section 5.4.2.6.4.

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~~5.4.2.6.4 *LONGITUDINAL DISTANCE-BASED SEPARATION MINIMA IN AN RNP RNAV ENVIRONMENT USING ADS-C*~~

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Insert new text as follows:

5.4.2.8 LONGITUDINAL SEPARATION MINIMA BASED ON DISTANCE USING ADS-C CLIMB AND DESCEND PROCEDURE (CDP)

5.4.2.8.1 When an aircraft on the same track is cleared to climb or descend through the level of another aircraft, the clearance should be issued provided the following requirements are met:

a) the longitudinal distance between the aircraft is determined by the ground automation system from near-simultaneous demand ADS-C reports which contain position accuracy of 0.25 NM or better (Figure of Merit 6 or higher);

Note.— Refer to 5.4.2.9.5 for distance calculations.

b) the longitudinal distance between the aircraft, as determined in a) above, is not less than:

1) 27.8 km (15 NM) when the preceding aircraft is at the same speed or faster than the following aircraft; or

2) 46.3 km (25 NM) when the following aircraft is not more than either 18.5 km/h (10 kt) or Mach 0.02 faster than the preceding aircraft;

c) the altitude difference between aircraft is not greater than 600 m (2 000 ft);

d) the clearance is issued with a restriction that ensures vertical separation is re-established within 15 minutes from the first demand report request; and

e) direct controller-pilot voice communications or CPDLC is maintained.

5.4.2.8.2 The application of the ADS-C climb and descend procedure (CDP) should be supported by an ongoing monitoring process.

Note.— Supporting information on ongoing monitoring is provided in Circular 342, Automatic Dependent Surveillance — Contract (ADS-C) Climb and Descend Procedure (CDP).

5.4.2.9 PERFORMANCE-BASED LONGITUDINAL SEPARATION MINIMA

Note.— Guidance material for implementation and application of the separation minima in this section is contained in the Performance-based Communication and Surveillance (PBCS) Manual *(Doc 9869), the* Global Operational Data Link (GOLD) Manual *(Doc 10037), the* Satellite Voice Operations Manual *(SVOM) (Doc 10038) and the* Guidelines for the Implementation of Performance-based Longitudinal Separation Minima *(Circular 343).*

5.4.2.9.1 Within designated airspace, or on designated routes, separation minima in accordance with the provisions of this section may be used.

5.4.2.9.2 The following separation minima may be used for aircraft cruising, climbing or descending on:

a) the same track; or
b) crossing tracks provided that the relative angle between the tracks is less than 90 degrees.

Separation minima	*RNP*	*RCP*	*RSP*	*Maximum ADS-C periodic reporting interval*
93 km (50 NM)	10	240	180	27 minutes
	4	240	180	32 minutes
55.5 km (30 NM)	2 or 4	240	180	12 minutes
5 minutes	2 or 4 or 10	240	180	14 minutes

Note.— Detailed information on the analysis used to determine these separation minima and monitoring procedures is contained in the Guidelines for the Implementation of Performance-based Longitudinal Separation Minima *(Circular 343).*

5.4.2.9.3 Opposite-direction aircraft on reciprocal tracks may be cleared to climb or descend to or through the levels occupied by another aircraft provided that ADS-C reports show that the aircraft have passed each other by the applicable separation minimum in 5.4.2.9.2.

5.4.2.9.4 The five-minute separation shall be calculated to a resolution of one second without rounding.

5.4.2.9.5 Separation shall be applied so that the distance or time between the calculated positions of the aircraft is never less than the prescribed minimum. This distance or time shall be obtained by one of the following methods:

a) when the aircraft are on the same identical track, the distance or time may be measured between the calculated positions of the aircraft or may be calculated by measuring the distances or times to a common point on the track (see Figures 5-29 and 5-30);

Note.— Same identical tracks are a special case of same track defined in 5.4.2.1.5 a) where the angular difference is zero degrees or reciprocal tracks defined in 5.4.2.1.5 b) where the angular difference is 180 degrees.

b) when the aircraft are on the same or reciprocal non-parallel tracks other than in a) above, or on crossing tracks, the distance or time shall be calculated by measuring the distances or times to the common point of intersection of the tracks or projected track (see Figures 5-31 to 5-33); and

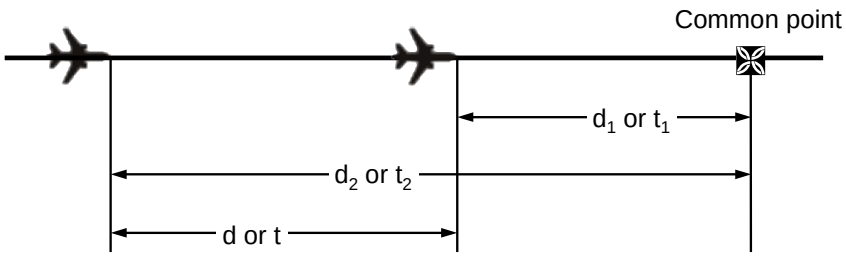
c) when the aircraft are on parallel tracks whose protection areas overlap, the distance or time shall be measured along the track of one of the aircraft as in a) above using its calculated position and the point abeam the calculated position of the other aircraft (see Figure 5-34).

Note.— In all cases presented in Figures 5-29 to 5-34, "d" and "t" are calculated by subtracting the distance or time of the closer aircraft from the common point from the distance or time of the more distant aircraft from the common point, except in Figure 5-33 where the two distances or times are added and the order of the aircraft is not important in the calculation.

5.4.2.9.6 The communication system provided to enable the application of the separation minima in 5.4.2.9.2 shall allow a controller, within 4 minutes, to intervene and resolve a potential conflict by contacting an aircraft using the normal means of communication. An alternative means shall be available to allow the controller to intervene and resolve the conflict within a total time of 10.5 minutes, should the normal means of communication fail.

5.4.2.9.7 When an ADS-C periodic or waypoint change event report is not received within 3 minutes of the time it should have been sent, the report is considered overdue and the controller shall take action to obtain the report as quickly as possible, normally by ADS-C or CPDLC. If a report is not received within 6 minutes of the time the original report should have been sent, and there is a possibility of loss of separation with other aircraft, the controller shall take action to resolve any potential conflict(s) as soon as possible. The communication means provided shall be such that the conflict is resolved within a further 7.5 minutes.

5.4.2.9.8 When information is received indicating ground or aircraft equipment failure or deterioration below the communication, navigation and surveillance performance requirements, ATC shall then, as required, apply alternative separation minima.

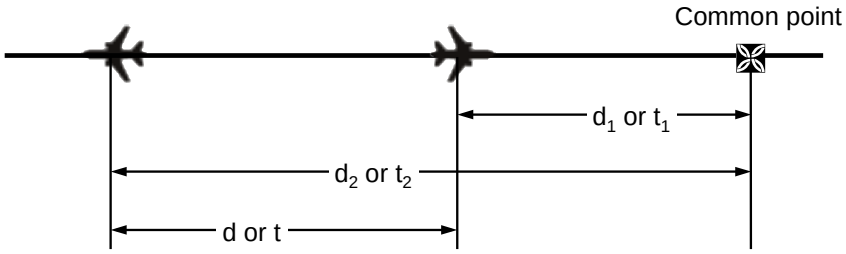


$d = d_2 - d_1$

or

$t = t_2 - t_1$

Figure 5-29. Calculation of longitudinal distance/time between aircraft — identical track, same direction (see 5.4.2.9.5 a))



$d = d_2 - d_1$

or

$t = t_2 - t_1$

Figure 5-30. Calculation of longitudinal distance/time between aircraft — identical track, opposite direction (see 5.4.2.9.5 a))

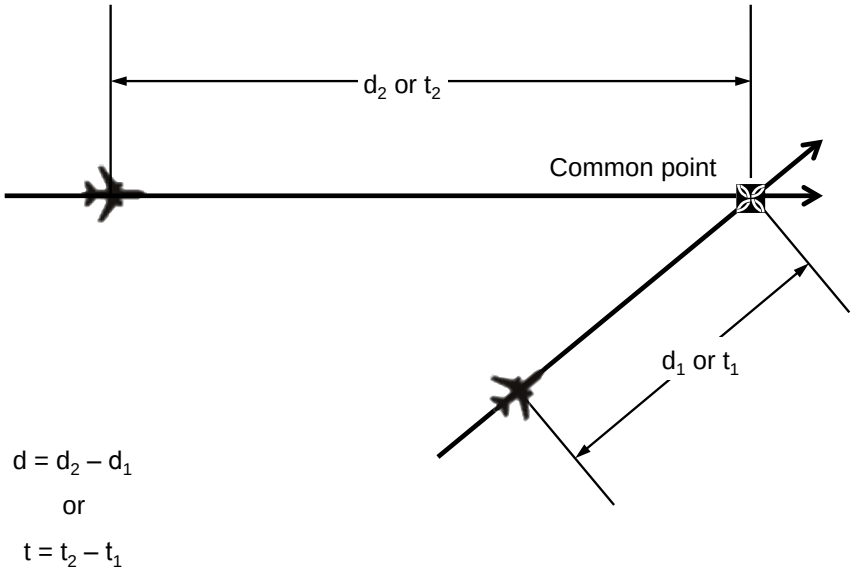


Figure 5-31. Calculation of longitudinal distance/time between aircraft — same track, but not identical and crossing tracks (see 5.4.2.9.5 b))

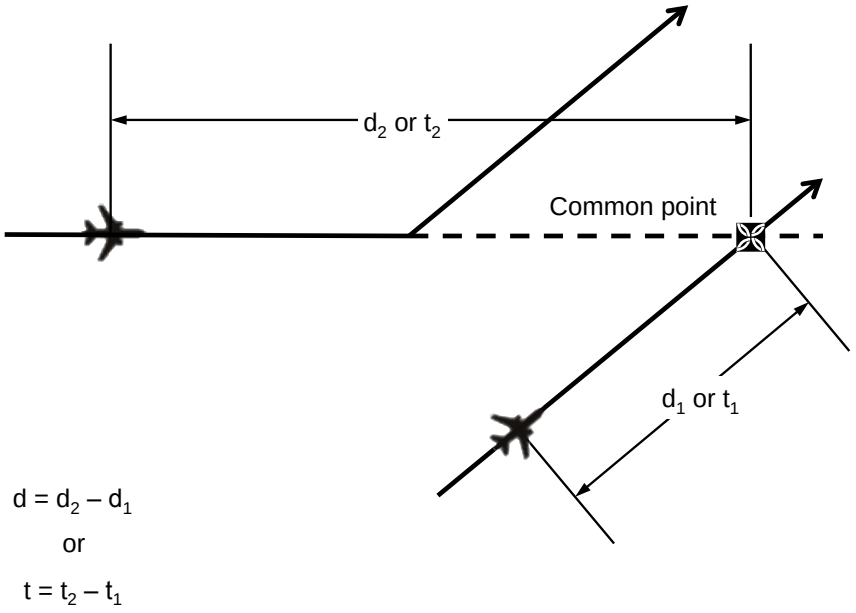
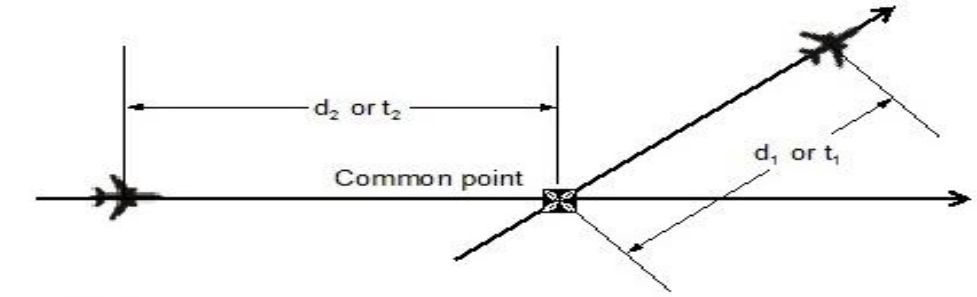


Figure 5-32. Calculation of longitudinal distance/time between aircraft — same track projected, but not identical (see 5.4.2.9.5 b))

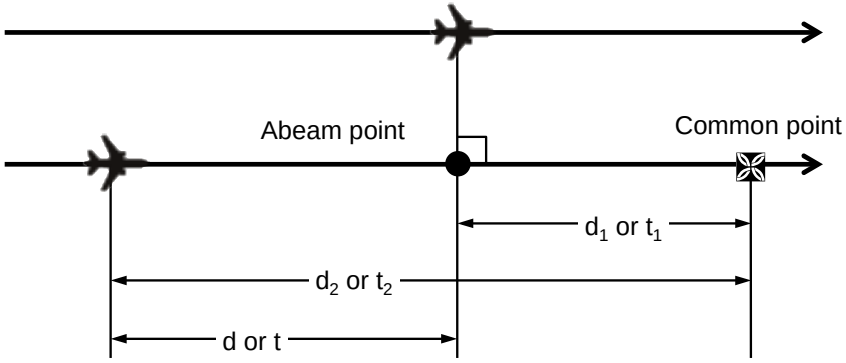


$d = d_2 + d_1$

or

$t = t_2 + t_1$

Figure 5-33. Calculation of longitudinal distance/time between aircraft — opposite sides of the common point (see 5.4.2.9.5 b))



$d = d_2 - d_1$

or

$t = t_2 - t_1$

Figure 5-34. Calculation of longitudinal distance/time between aircraft – parallel tracks (see 5.4.2.9.5 c))

End of new text.

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5.7 SEPARATION OF DEPARTING AIRCRAFT FROM ARRIVING AIRCRAFT

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Insert new text as follows:

5.7.1.3 If an arriving aircraft is following an RNAV or RNP instrument flight procedure, a departing aircraft may take off on a departure path that is clear of the arrival protection area for the arriving aircraft (see Figure 5-41) provided:

j) vertical separation is applied until the arriving aircraft has reported passing the compulsory reporting waypoint on the instrument flight procedure, the location of such waypoint to be determined by the appropriate ATS authority;

k) the take-off takes place before the arriving aircraft crosses a designated waypoint on the instrument flight procedure, the location of such waypoint to be determined by the appropriate ATS authority; and

l) the departing aircraft remains clear of the arrival protection area until another form of separation is established.

Note. — The arrival protection area is defined as the shaded area extending from a line 45 degrees from an established compulsory reporting waypoint to a line 45 degrees from the outermost edge of the remainder of the arrival and/or approach procedure. (See Figure 5-41).

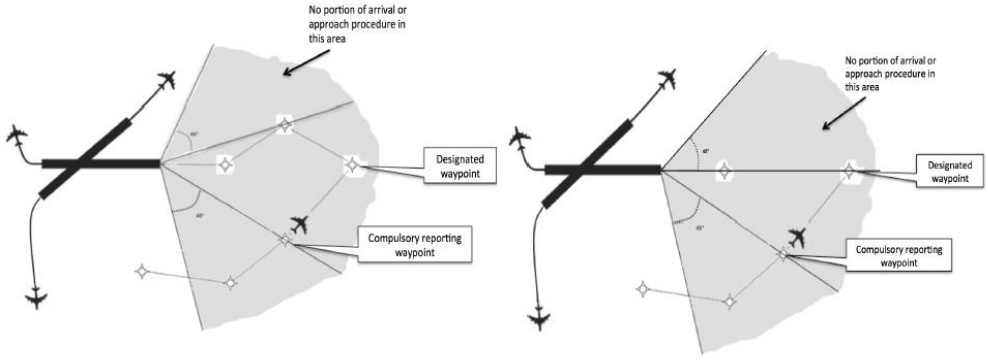

Figure 5-41 Examples of Arrival Protection Area

End of new text.

Editorial Note.— Renumber subsequent figures and *amend* related references in Chapter 5.

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Chapter 6

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6.3.2 Standard clearances for departing aircraft

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6.3.2.3 CONTENTS

Standard clearances for departing aircraft shall contain the following items:

a) aircraft identification;

b) clearance limit, normally destination aerodrome;

c) designator of the assigned SID, if applicable;

d) ~~initial~~ cleared level ~~except when this element is included in the SID description~~;

e) allocated SSR code;

f) any other necessary instructions or information not contained in the SID description, e.g. instructions relating to change of frequency.

Note 1. — See 6.3.2.4.1 for clearances to aircraft on SID.

Note 2.— The use of a SID designator without a cleared level does not authorize the aircraft to climb on the SID vertical profile.

6.3.2.4 ~~CLIMB~~ CLEARANCES ~~ABOVE LEVELS SPECIFIED IN~~ ON A SID

~~*Note. — See also 11.4.2.6.2.5.*~~

6.3.2.4.1 ~~When a departing aircraft on a SID is cleared to climb to a level higher than the initially cleared level or the level(s) specified in a SID, the aircraft shall follow the published vertical profile of a SID, unless such restrictions are explicitly cancelled by ATC.~~ Clearances to aircraft on a SID with remaining published level and/or speed restrictions shall indicate if such restrictions are to be followed or are cancelled. The following phraseologies shall be used with the following meanings:

a) CLIMB VIA SID TO *(level):*

i) climb to the cleared level and comply with published level restrictions;

ii) follow the lateral profile of the SID; and

iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

b) CLIMB VIA SID TO *(level)*, CANCEL LEVEL RESTRICTION(S):

i) climb to the cleared level, published level restrictions are cancelled;

ii) follow the lateral profile of the SID; and

iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

c) CLIMB VIA SID TO *(level)*, CANCEL LEVEL RESTRICTION(S) AT (*point(s)*):

i) climb to the cleared level, published level restriction(s) at the specified point(s) are cancelled;

ii) follow the lateral profile of the SID; and

iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

d) CLIMB VIA SID TO *(level)*, CANCEL SPEED RESTRICTION(S):

i) climb to the cleared level and comply with published level restrictions;

ii) follow the lateral profile of the SID; and

iii) published speed restrictions and ATC-issued speed control instructions are cancelled.

e) CLIMB VIA SID TO *(level)*, CANCEL SPEED RESTRICTION(S) AT (*point(s)*):

i) climb to the cleared level and comply with published level restrictions;

ii) follow the lateral profile of the SID; and

iii) published speed restrictions are cancelled at the specified point(s).

f) CLIMB UNRESTRICTED TO *(level)* or CLIMB TO *(level)*, CANCEL LEVEL AND SPEED RESTRICTION(S):

i) climb to the cleared level, published level restrictions are cancelled;

ii) follow the lateral profile of the SID; and

iii) published speed restrictions and ATC-issued speed control instructions are cancelled.

6.3.2.4.2 If there are no remaining published level or speed restrictions on the SID, the phrase CLIMB TO *(level)* should be used.

6.3.2.4.3 When subsequent speed restriction instructions are issued, and if the cleared level is unchanged, the phrase CLIMB VIA SID TO *(level)* should be omitted.

6.3.2.4.4 When a departing aircraft is cleared to proceed direct to a published waypoint on the SID, the speed and level restrictions associated with the bypassed waypoints are cancelled. All remaining published speed and level restrictions shall remain applicable.

6.3.2.4.5 When a departing aircraft is vectored or cleared to proceed to a point that is not on the SID, all the published speed and level restrictions of the SID are cancelled and the controller shall:

a) reiterate the cleared level;

b) provide speed and level restrictions as necessary; and

c) notify the pilot if it is expected that the aircraft will be instructed to subsequently rejoin the SID.

Note.— See also 8.6.5.2 regarding prescribed obstacle clearance.

6.3.2.4.6 ATC instructions to an aircraft to rejoin a SID shall include:

a) the designator of the SID to be rejoined unless advance notification of rejoin has been provided in accordance with 6.3.2.4.5;

b) the cleared level in accordance with 6.3.2.4.1; and

c) the position at which it is expected to rejoin the SID.

Note.— See 12.3.3.1 for phraseology on rejoin instructions.

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6.3.2.5 COMMUNICATION FAILURE

6.3.2.5.1 Clearances for departing aircraft may specify ~~an initial or intermediate~~ a cleared level other than that indicated in the filed flight plan for the en-route phase of flight, without a time or geographical limit for the ~~initial~~cleared level. Such clearances will normally be used to facilitate the application of tactical control methods by ATC, normally through the use of an ATS surveillance system.

6.3.2.5.2 Where clearances for departing aircraft contain~~ing~~ no time or geographical limit for ~~an initial or intermediate level~~ a cleared level~~are utilized~~, action to be taken by an aircraft experiencing air-ground communication failure in the event the aircraft has been radar vectored away from the route specified in its current flight plan should be prescribed on the basis of a regional air navigation agreement and included in the SID description or published in AIPs.

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6.5.2 Standard clearances for arriving aircraft

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6.5.2.3 CONTENTS

Standard clearances for arriving aircraft shall contain the following items:

a) aircraft identification;

b) designator of the assigned STAR if applicable;

c) runway-in-use, except when part of the STAR description;

d) ~~initial~~ cleared level~~, except when this element is included in the STAR description~~; and

e) any other necessary instructions or information not contained in the STAR description, e.g. change of communications.

Note 1.— See 6.5.2.4.1 for clearances on a STAR.

Note 2.— The use of a STAR designator without a cleared level does not authorize the aircraft to descend on the STAR vertical profile.

6.5.2.4 ~~DESCENT BELOW LEVELS SPECIFIED IN A STAR~~ CLEARANCES ON A-STAR

~~*Note. — See also 11.4.2.6.2.5.*~~

~~When an arriving aircraft on a STAR is cleared to descend to a level lower than the level or the level(s) specified in a STAR, the aircraft shall follow the published vertical profile of a STAR, unless such restrictions are explicitly cancelled by ATC. Published minimum levels based on terrain clearance shall always be applied.~~

6.5.2.4.1 Clearances to aircraft on a STAR with remaining published level and/or speed restrictions shall indicate if such restrictions are to be followed or are cancelled. The following phraseologies shall be used with the following meaning:

a) DESCEND VIA STAR TO *(level)*:

i) descend to the cleared level and comply with published level restrictions;

ii) follow the lateral profile of the STAR; and

iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

b) DESCEND VIA STAR TO *(level)*, CANCEL LEVEL RESTRICTION(S):

i) descend to the cleared level, published level restrictions are cancelled;

ii) follow the lateral profile of the STAR; and

iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

c) DESCEND VIA STAR TO *(level)*, CANCEL LEVEL RESTRICTION(S) AT (*point(s)*):

i) descend to the cleared level, published level restriction(s) at the specified point(s) are cancelled;

ii) follow the lateral profile of the STAR; and

iii) comply with published speed restrictions or ATC-issued speed control instructions as applicable.

d) DESCEND VIA STAR TO *(level)*, CANCEL SPEED RESTRICTION(S):

i) descend to the cleared level and comply with published level restrictions;

ii) follow the lateral profile of the STAR; and

iii) published speed restrictions and ATC-issued speed control instructions are cancelled.

e) DESCEND VIA STAR TO *(level)*, CANCEL SPEED RESTRICTION(S) AT (*point(s)*):

i) descend to the cleared level and comply with published level restrictions;

ii) follow the lateral profile of the STAR; and

iii) published speed restrictions are cancelled at the specified point(s).

f) DESCEND UNRESTRICTED TO *(level)* or DESCEND TO *(level)*, CANCEL LEVEL AND SPEED RESTRICTION(S):

i) descend to the cleared level, published level restrictions are cancelled;

ii) follow the lateral profile of the STAR; and

iii) published speed restrictions and ATC-issued speed control instructions are cancelled.

6.5.2.4.2 If there are no remaining published level or speed restrictions on the STAR, the phrase DESCEND TO *(level)* should be used.

6.5.2.4.3 When subsequent speed restriction instructions are issued and if the cleared level is unchanged, the phrase DESCEND VIA STAR TO *(level)* should be omitted.

6.5.2.4.4 When an arriving aircraft is cleared to proceed direct to a published waypoint on the STAR, the speed and level restrictions associated with the bypassed waypoints are cancelled. All remaining published speed and level restrictions shall remain applicable.

6.5.2.4.5 When an arriving aircraft is vectored or cleared to proceed to a point that is not on the STAR, all the published speed and level restrictions of the STAR are cancelled and the controller shall:

a) reiterate the cleared level;

b) provide speed and level restrictions as necessary and;

c) notify the pilot if it is expected that the aircraft will be instructed to subsequently rejoin the STAR.

Note.— See 8.6.5.2 regarding prescribed obstacle clearance.

6.5.2.4.6 ATC instructions to an aircraft to rejoin a STAR shall include:

a) the designator of the STAR to be rejoined, unless advance notification of rejoin has been provided in accordance with 6.5.2.4.5;

b) the cleared level on rejoining the STAR in accordance with 6.5.2.4.1; and

c) the position at which it is expected to rejoin the STAR.

Note.— See 12.3.3.2 for phraseology on rejoin instructions.

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Chapter 7

PROCEDURES FOR AERODROME CONTROL SERVICE

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7.9 CONTROL OF DEPARTING AIRCRAFT

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7.9.3 Take-off clearance

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7.9.3.2 When an ATC clearance is required prior to take-off, the take-off clearance shall not be issued until the ATC clearance has been transmitted to and acknowledged by the aircraft concerned. The ATC clearance shall be forwarded to the aerodrome control tower with the least possible delay after receipt of a request made by the tower or prior to such request if practicable.

7.9.3.3 The expression TAKE-OFF shall only be used in radiotelephony when an aircraft is cleared for take-off or when cancelling a take-off clearance.

Note. — The expression TORA, pronounced TOR-AH, may be used to indicate take-off run available.

7.9.3.4 Subject to 7.9.3.2, the take-off clearance shall be issued when the aircraft is ready for take-off and at or approaching the departure runway, and the traffic situation permits. To reduce the potential for misunderstanding, the take-off clearance shall include the designator of the departure runway.

7.9.3.5 In the interest of expediting traffic, a clearance for immediate take-off may be issued to an aircraft before it enters the runway. On acceptance of such clearance the aircraft shall taxi out to the runway and take off in one continuous movement.

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Chapter 8

ATS SURVEILLANCE SERVICES

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8.9 USE OF ATS SURVEILLANCE SYSTEMS IN THE APPROACH CONTROL SERVICE

. . .

8.9.3 General approach control procedures using ATS surveillance systems

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8.9.3.6 Aircraft vectored for final approach should be given a heading or a series of headings calculated to close with the final approach track. The final vector shall enable the aircraft to be established ~~in~~

~~level flight~~ on the final approach track prior to intercepting the specified or nominal glide path of the approach procedure from below ~~if an MLS, ILS or radar approach is to be made~~, and should provide an intercept angle with the final approach track of 45 degrees or less.

Note.— See Chapter 6, Section 6.7.3.2, and Section 6.7.3.2.3 concerning vectoring and level flight requirements of independent parallel approaches, respectively.

. . .

8.9.4.2 When clearance for the approach is issued, aircraft shall maintain last assigned level until intercepting the specified or nominal glide path of the approach procedure. If ATC requires an aircraft to intercept the glide path at a level other than a level flight segment depicted on the instrument approach chart, ATC shall instruct the pilot to maintain the particular level until established on the glide path.

8.9.4.3~~2~~ The controller shall be responsible for maintaining separation specified in 8.7.3 between succeeding aircraft on the same final approach, except that the responsibility may be transferred to the aerodrome controller in accordance with procedures prescribed by the appropriate ATS authority and provided an ATS surveillance system is available to the aerodrome controller.

8.9.4.4~~3~~ Transfer of control of succeeding aircraft on final approach to the aerodrome controller shall be effected in accordance with procedures prescribed by the appropriate ATS authority.

8.9.4.5~~4~~ Transfer of communications to the aerodrome controller should be effected at such a point or time that clearance to land or alternative instructions can be issued to the aircraft in a timely manner.

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Chapter 12

PHRASEOLOGIES

. . .

12.3 ATC PHRASEOLOGIES

12.3.1 General

	Circumstances	*Phraseologies*
12.3.1.2	LEVEL CHANGES, REPORTS AND RATES	
	. . .	. . .
	~~… clearance to cancel level restriction(s) of the vertical profile of a SID during climb~~	~~z) CLIMB TO *(level)* [LEVEL RESTRICTION(S) *(SID designator)* CANCELLED *(or)* LEVEL RESTRICTION(S) *(SID designator)* AT *(point)* CANCELLED];~~

Circumstances	*Phraseologies*
~~… clearance to cancel level restriction(s) of the vertical profile of a STAR during descent~~	~~aa) DESCEND TO *(level)* [LEVEL RESTRICTION(S) *(STAR designator)* CANCELLED *(or)* LEVEL RESTRICTION(S) *(STAR designator)* AT *(point)* CANCELLED].~~
... clearance to climb on a SID which has published level and/or speed restrictions, where the pilot is to climb to the cleared level and comply with published level restrictions, follow the lateral profile of the SID; and comply with published speed restrictions or ATC issued speed control instructions as applicable.	z) CLIMB VIA SID TO *(level)*
... clearance to cancel level restriction(s) of the vertical profile of a SID during climb	aa) [CLIMB VIA SID TO *(level)*], CANCEL LEVEL RESTRICTION(S)
... clearance to cancel specific level restriction(s) of the vertical profile of a SID during climb	bb) [CLIMB VIA SID TO *(level)*], CANCEL LEVEL RESTRICTION(S) AT *(point(s)*)
... clearance to cancel speed restrictions of a SID during climb	cc) [CLIMB VIA SID TO *(level)*], CANCEL SPEED RESTRICTION(S)
... clearance to cancel specific speed restrictions of a SID during climb	dd) [CLIMB VIA SID TO *(level)*], CANCEL SPEED RESTRICTION(S) AT *(point(s))*
…clearance to climb and to cancel speed and level restrictions of a SID	ee) CLIMB UNRESTRICTED TO *(level)* (*or)* CLIMB TO *(level),* CANCEL LEVEL AND SPEED RESTRICTIONS
... clearance to descend on a STAR which has published level and/or speed restrictions, where the pilot is to descend to the cleared level and comply with published level restrictions, follow the lateral profile of the STAR and comply with published speed restrictions or ATC issued speed control instructions.	ff) DESCEND VIA STAR TO *(level)*

Circumstances	*Phraseologies*
... clearance to cancel level restrictions of a STAR during descent	gg) [DESCEND VIA STAR TO *(level)*], CANCEL LEVEL RESTRICTION(S)
... clearance to cancel specific level restrictions of a STAR during descent	hh) [DESCEND VIA STAR TO *(level)*], CANCEL LEVEL RESTRICTION(S) AT *(point(s))*
... clearance to cancel speed restrictions of a STAR during descent	ii) [DESCEND VIA STAR TO *(level)*], CANCEL SPEED RESTRICTION(S)
... clearance to cancel specific speed restrictions of a STAR during descent	jj) [DESCEND VIA STAR TO *(level)*], CANCEL SPEED RESTRICTION(S) AT (*point(s*))
... clearance to descend and to cancel speed and level restrictions of a STAR	kk) DESCEND UNRESTRICTED TO *(level) or* DESCEND TO *(level),* CANCEL LEVEL AND SPEED RESTRICTIONS
. . . . .	. . .
12.3.2.2 INDICATION OF ROUTE AND CLEARANCE LIMIT	. . . 3) ~~VIA~~ FLIGHT PLANNED ROUTE; *Note.— Conditions associated with the use of this phrase are in Chapter 4, 4.5.7.2.* . . .
. . . . .	. . .
12.3.3.1 DEPARTURE INSTRUCTIONS	. . . f) CLEARED ~~VIA~~ *(designation)* DEPARTURE. *Note.— Conditions associated with the use of this phrase are in Chapter 4, 4.5.7.2.*

	Circumstances	*Phraseologies*
	…clearance to proceed direct with advance notice of a future instruction to rejoin the SID	g) CLEARED DIRECT *(waypoint)*, CLIMB TO *(level)*, EXPECT TO REJOIN SID [*(sid designator)*] [AT *(waypoint)*] *then* REJOIN SID [*(sid designator)*] [AT *(waypoint)*]
		h) CLEARED DIRECT *(waypoint)*,CLIMB TO *(level)* *then* REJOIN SID *(sid designator)* AT *(waypoint)*
12.3.3.2	APPROACH INSTRUCTIONS	a) CLEARED ~~(*or* PROCEED) VIA~~ *(designation)* ARRIVAL; b) CLEARED TO *(clearance limit)* ~~VIA~~ *(designation)* c) CLEARED (*or* PROCEED) ~~VIA~~ *(details of the route to be followed)*
	…clearance to proceed direct with advance notice of a future instruction to rejoin the STAR	d) CLEARED DIRECT *(waypoint)*, DESCEND TO *(level)*, EXPECT TO REJOIN STAR [*(star designator)*] AT *(waypoint)* *then* REJOIN STAR [*(star designator)*] [AT *(waypoint)*] e) CLEARED DIRECT *(waypoint)*, DESCEND TO *(level)* *then* REJOIN STAR *(star designator)* AT *(waypoint)*
		~~d)~~f) CLEARED *(type of approach)* APPROACH [RUNWAY *(number)*];
		Editorial Note.— Subsequent bullets to be renumbered accordingly.
	. . .	. . .

Circumstances	*Phraseologies*
12.4.1.6 SPEED CONTROL	. . .
	k) RESUME PUBLISHED SPEED
	~~k~~l) NO [ATC] SPEED RESTRICTIONS

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12.7 GROUND CREW/FLIGHT CREW PHRASEOLOGIES

12.7.1 Ground crew/flight crew phraseologies

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Editorial note.— Insert new paragraph 12.7.2 as follows:

12.7.2 De/anti-icing operations

Circumstances	*Phraseologies*
12.7.2.1 PRIOR TO DE-ICING/ANTI-ICING (GROUND CREW (ICEMAN) / FLIGHT CREW)	a) STANDING BY TO DE-ICE. CONFIRM BRAKES SET AND TREATMENT REQUIRED;
	*b) [AFFIRM] BRAKES SET, REQUEST *(type of de/anti-icing treatment and areas to be treated)*;
…aircraft configuration confirmation	c) HOLD POSITION AND CONFIRM AIRCRAFT CONFIGURED;
	*d) [AFFIRM] AIRCRAFT CONFIGURED, READY FOR DE-ICING;
	e) DE-ICING STARTS NOW.
	* Denotes pilot transmission.
12.7.2.2 UPON CONCLUDING DE-ICING/ANTI-ICING PROCEDURE	
…for de-icing operation	a) DE-ICING ON *(areas treated)* COMPLETE. ADVISE WHEN READY FOR INFORMATION;

Circumstances	*Phraseologies*
	b) TYPE OF FLUID (Type I *or* II *or* III *or* IV);
	c) HOLDOVER TIME STARTED AT *(time)*;
	d) ANTI-ICING CODE *(appropriate anti-icing code)*
	Note.— Anti-icing code example:
…for a two-step de-icing/anti-icing operation	*A de-icing/anti-icing procedure whose last step is the use of a mixture of 75% of a Type II fluid and 25% water, commencing at 13:35 local time, is recorded as follows:*
	TYPE II/75 13:35 (followed by complete name of anti-icing fluid)
	e) FINAL STEP STARTED AT *(time)*;
… De-icing/anti-icing complete	f) POST DE-ICING CHECK COMPLETED;
	g) PERSONNEL AND EQUIPMENT CLEAR OF AIRCRAFT;
12.7.2.3 ABNORMAL OPERATIONS	
… for spray nozzle proximity sensor activation	a) BE ADVISED NOZZLE PROXIMITY ACTIVATION ON *(significant point on aircraft)* [NO VISUAL DAMAGE *or* DAMAGE *(description of damage)* OBSERVED] [SAY INTENTIONS];
… for other aircraft having an emergency on the de-icing bay	b) EMERGENCY IN DE-ICING BAY *(de-icing bay number)* [SHUT DOWN ENGINES *or* STANDBY FOR FURTHER INSTRUCTIONS].

End of new text

. . .

Chapter 13

AUTOMATIC DEPENDENT SURVEILLANCE — CONTRACT (ADS-C) SERVICES

13.1 GENERAL

Note.— Guidance material concerning the implementation of ADS-C is contained in the Global Operational Data Link (GOLD) Manual *(Doc 10037).*

. . .

13.2 ADS-C GROUND SYSTEM CAPABILITIES

13.2.1 ADS-C ground systems used in the provision of air traffic services shall have a very high level of reliability, availability and integrity. The possibility of system failures or significant system degradations that may cause complete or partial interruptions of service shall be very remote. Backup facilities shall be provided.

Note 1.— An ADS-C ground system will normally consist of a number of integrated elements, including communication interfaces, a data-processing system and one or more controller interfaces.

Note 2.— Information pertaining to use of ADS-C and to system reliability, availability and integrity is contained in the ~~Manual of Air Traffic Services Data Link Applications *(Doc 9694)*~~ Performance-based Communication and Surveillance (PBCS) Manual *(Doc 9869)*.

. . .

13.4 USE OF ADS-C IN THE PROVISION OF AIR TRAFFIC CONTROL SERVICE

. . .

13.4.3 Provision of ADS-C services

13.4.3.1 GENERAL

The number of aircraft simultaneously provided with ADS-C services shall not exceed that which can safely be handled under the prevailing circumstances, taking into account:

a) the complexity of the traffic situation and associated workload within the sector or area of responsibility of the controller;

b) the level of automation of the ADS-C ground system;

c) the overall technical performance of the ADS-C systems and communications systems, including possible degradations that would require use of backup facilities;

d) the overall performance of the backup surveillance and communications systems; and

e) the effect of loss of controller-pilot communications.

~~*Note. — Further guidance on the factors to be considered can be found in the* Manual of Air Traffic Services Data Link Applications *(Doc 9694).*~~

. . .

13.4.3.4 GENERAL ADS-C PROCEDURES

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13.4.3.4.3 *ADS-C AGREEMENTS*

. . .

13.4.3.4.3.2 In airspace where procedural separation is being applied, ADS-C agreements shall, as a minimum, contain the following ADS contracts:

a) a periodic contract at an interval appropriate to the airspace requirements;

b) an event contract, specifying the following:

~~b~~1) a waypoint change event ~~contract~~;

~~c~~2) a lateral deviation event ~~contract~~; and

~~d~~3) a level range deviation event ~~contract~~.

~~*Note 1.— Circumstances may dictate that periodic contract reporting rate might be increased on receipt of a lateral deviation or level range deviation event report.*~~

Note ~~2~~.— A vertical rate change event specified at, for example, a negative vertical rate (i.e. a descent) exceeding 27 m/s (5 000 ft/min), may provide additional indication of an abnormal situation.

13.4.3.4.3.3 Upon receipt of an event report indicating a deviation from the clearance, the ATC unit shall establish a periodic contract at a reduced reporting interval, as deemed appropriate, requesting the ground vector data block in addition to basic ADS-C data block. The ATC unit shall advise the flight crew of the observed deviation and ascertain its intention using CPDLC or voice, as appropriate.

13.4.3.4.3.4 The reduced ADS-C periodic reporting interval shall be retained until the aircraft has resumed its clearance, at which time the event contract shall be re-established and the normal periodic contract restored. Action should be taken by the ATC unit to notify proximate aircraft if appropriate.

13.4.3.4.3.~~3~~5 When the application of specified separation minima is dependent on the reporting interval of periodic position reports, the ATC unit shall not establish periodic contracts with a reporting interval greater than the required reporting interval.

13.4.3.4.3.~~4~~6 Where an expected position report is not received within a prescribed time parameter, action shall be taken, as appropriate, to ascertain the position of the aircraft.

Note 1.— This may be achieved by the use of an ADS demand contract, CPDLC or voice

communications, or receipt of a subsequent periodic report.

Note 2.— Requirements concerning the provision of an alerting service are contained in Chapter 9.

~~13.4.3.4.3.5 An ADS-C aircraft observed to deviate significantly from its cleared flight profile shall be advised accordingly. Action shall be taken, as appropriate, to ascertain the position and intentions of the aircraft. Appropriate action shall also be taken if, in the opinion of the controller, such deviation is likely to affect the air traffic service being provided.~~

~~*Note.— This may be achieved by the use of an ADS demand contract, CPDLC or voice communications.*~~

. . .

13.4.3.4.5 *EMERGENCY ~~AND/OR URGENCY~~ REPORTS*

Note.— To indicate that it is in a state of emergency or ~~to transmit other urgent information~~ the state of emergency is terminated, an aircraft equipped with ADS-C might operate the emergency ~~and/or urgency~~ mode as follows:

a) emergency; and
~~b) communication failure;~~
~~c) unlawful interference;~~
~~d) minimum fuel; and/or~~
~~e) medical.~~
b) emergency cancelled.

13.4.3.4.5.1 When an ADS-C ~~emergency and/or urgency~~ report is received with an emergency status indication, the controller with responsibility for the flight must acknowledge receipt of the information by the most appropriate means of communication.

13.4.3.4.5.2 Both the aircraft and the ADS-C ground system shall be capable of supporting an emergency ~~and/or urgency~~ mode of ADS-C operation to assist ATC alerting procedures and to assist search and rescue operations. In the event of an aircraft in, or appearing to be in, any form of emergency, all possible assistance shall be provided by the controller.

Note.— The ADS-C airborne system will provide for a pilot-initiated emergency ~~and/or urgency~~ mode. It may also permit the aircraft to automatically establish the emergency ~~and/or urgency~~ mode.

13.4.3.4.5.3 The ADS-C ground system shall recognize the initiation, modification and termination of an emergency ~~and/or urgency~~ mode and alert the controller. The ADS-C ground system shall be able to modify the emergency ~~and/or urgency~~ reporting rate if necessary. The ADS-C ground system shall be able to suppress an emergency~~/urgency~~ indication.

. . .

13.5.3 Application of horizontal separation using ADS-C position information

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13.5.3.1 ADS-C-based longitudinal distance separation minima are detailed at 5.4.2.9 ~~6.4~~ of Chapter 5.

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Chapter 14

CONTROLLER-PILOT DATA LINK COMMUNICATIONS (CPDLC)

14.1 GENERAL

Note 1.— Provisions concerning CPDLC are contained in Annex 10, Volume II, Chapter 8.

Note 2.— Guidance material concerning the implementation of CPDLC is contained in the Global Operational Data Link (GOLD) Manual *(Doc 10037).*

14.1.1 ~~The~~ CPDLC ~~application~~ provides a means of communication between the controller and pilot, using ~~data link~~ the CPDLC message set for ATC communication.

. . .

Note 1.— See Appendix 5 for the CPDLC message set which lists the message elements and their respective message intent~~s~~ded/ use.

Note 2.— Message element intent and text and associated procedures are, in general, consistent with Chapter 12 — Phraseologies. It is, however, recognized that the CPDLC message set and the associated procedures differ somewhat from the voice equivalent used because of the differences between the two media.

~~14.1.2.1 The controller shall be provided with the capability to respond to messages, including emergencies, to issue clearances, instructions and advisories, and to request and provide information, as appropriate.~~

~~14.1.2.2 The pilot shall be provided with the capability to respond to messages, to request clearances and information, to report information, and to declare or cancel an emergency.~~

~~14.1.2.3~~14.1.3 The pilot and the controller shall be provided with the capability to exchange messages which ~~do not conform to defined formats (i.e. free text messages)~~ include standard message elements, free text message elements or combinations of both.

14.1.~~3~~4 Ground and airborne systems shall allow for messages to be appropriately displayed, printed when required and stored in a manner that permits timely and convenient retrieval should such action be necessary.

14.1.~~4~~5 Whenever textual presentation is required, the English language shall be displayed as a minimum.

~~14.1.5 Where applicable, the communication procedures for the provision of CPDLC shall be in accordance with Annex 10, Volume III, Part I, Chapter 3. Message element intent and text and associated procedures are, in general, consistent with Chapter 12 — Phraseologies. It is, however, recognized that the~~

~~CPDLC message set and the associated procedures differ somewhat from the voice equivalent used because of the differences between the two media; one being direct speech and the other an exchange of data, the latter of which can be displayed and/or printed.~~

. . .

14.3 EXCHANGE OF OPERATIONAL CPDLC MESSAGES

14.3.1 The controller or pilot shall construct CPDLC messages using ~~the defined message set, a free text message~~ standard message elements, free text message elements or a combination of both.

. . .

14.3.1.2 When CPDLC is being used, and the intent of the message is included in the CPDLC message set contained in Appendix 5, the associated ~~message~~ standard message elements shall be used.

. . .

14.3.2 Message attributes dictate certain message handling requirements for the CPDLC user receiving a message. Each CPDLC message has ~~three~~ two attributes: ~~Urgency,~~ Alert and Response.

~~14.3.2.1 URGENCY~~

~~The urgency attribute delineates the queuing requirements for received messages that are displayed to the end-user. Urgency types are presented in Table 14-1.~~

14.3.2.~~2~~1 ALERT

The alert attribute delineates the type of alerting required upon message receipt. Alert types are presented in Table 14-~~2~~1.

14.3.2.~~3~~2 RESPONSE

14.3.2.~~3~~2.1 The response attribute delineates valid responses for a given message element. Response types are presented in Table 14-~~3~~2 for uplink messages and Table 14-~~4~~3 for downlink messages.

14.3.2.~~3~~2.2 When a multi-element message requires a response~~, and the response is in the form of a single message element~~, the response shall apply to all message elements.

. . .

~~Table 14-1. Urgency attribute (uplink and downlink)~~

~~*Type*~~	~~*Description*~~	~~*Precedence*~~
~~D~~	~~Distress~~	~~1~~

~~U~~	~~Urgent~~	~~2~~
~~N~~	~~Normal~~	~~3~~
~~L~~	~~Low~~	~~4~~

Table 14-~~2~~1. Alert attribute (uplink and downlink)

. . .

Table 14-~~3~~2. Response attribute (uplink)

. . .

Table 14-43. Response attribute (downlink)

Type	*Response required*	*Valid responses*	*Precedence*
Y	Yes	Any CPDLC uplink message, LOGICAL ACKNOWLEDGEMENT (only if required)	1
N	No, unless logical acknowledgement required	LOGICAL ACKNOWLEDGEMENT (only if required), ~~SERVICE UNAVAILABLE~~ MESSAGE NOT SUPPORTED BY THIS ATC UNIT~~,~~ ~~FLIGHT PLAN NOT HELD~~, ERROR	2

. . .

14.3.3 Transfer of CPDLC

~~*Note. — Details on CPDLC transfer can be found in the* Manual of Air Traffic Services Data Link Applications *(Doc 9694)*~~

. . .

14.3.4 Free text messages~~ elements~~

Note — Provisions concerning the use of free text message elements are contained in Annex 10, Volume II, Chapter 8.

14.3.4.1 The use of free text message elements by controllers or pilots~~, other than standardized free text message elements,~~ should be avoided. ~~Standardized free text message elements should be preformatted and made available to controllers and pilots to facilitate their use.~~

Note ~~1~~.— While it is recognized that non-routine and emergency situations may necessitate use of

free text, particularly when voice communications have failed, the avoidance of utilizing free text messages is intended to reduce the possibility of misinterpretation and ambiguity.

~~*Note 2.— Provisions concerning the use of standardized free text message elements are contained in Annex 10, Volume II, Chapter 8.*~~

14.3.4.2 When determined acceptable by the appropriate ATS authority to use free text message elements, free text message elements should be stored for selection within the aircraft system or ground system to facilitate their use.

14.3.5 Emergencies, hazards and equipment failure procedures

. . .

~~14.3.5.2 When responding via CPDLC to a report indicating unlawful interference, uplink message Roger 7500 shall be used.~~

Editorial Note.— Renumber subsequent paragraphs accordingly

. . .

Chapter 15. PROCEDURES RELATED TO EMERGENCIES, COMMUNICATION FAILURE AND CONTINGENCIES

15.1 EMERGENCY PROCEDURES

. . .

15.1.4 Emergency descent

15.1.4.1 ~~GENERAL~~ ACTION BY THE ATS UNIT

~~Upon receipt of advice~~ Upon recognition that an aircraft is making an emergency descent ~~through other traffic~~, all ~~possible~~ appropriate action shall be taken immediately to safeguard all aircraft concerned. ~~When deemed necessary, air traffic control units shall immediately broadcast by means of the appropriate radio aids, or if not possible, request the appropriate communications stations immediately to broadcast an emergency message.~~ Appropriate actions may include the following, in the order appropriate for the circumstance:

a) broadcasting an emergency message;

b) issuing traffic information and/or instructions to aircraft affected by the descent;

c) advising the minimum flight altitude and altimeter setting for the area of operation; and

d) informing any other ATS units which may be affected by the emergency descent.

15.1.4.2 ACTION BY THE PILOT ~~IN COMMAND~~ OF THE AIRCRAFT IN AN EMERGENCY DESCENT

~~It is expected that aircraft receiving such a broadcast will clear the specified areas and stand by on the appropriate radio frequency for further clearances from the air traffic control unit.~~

The pilot shall take the following steps as soon as practicable in the order appropriate for the circumstance:

a) navigate as deemed appropriate by the pilot;

b) advise the appropriate ATS unit of the emergency descent and if able intentions;

c) set transponder to Code 7700 and, if applicable, select the appropriate emergency mode on ADS-B and/or ADS-C;

d) turn on aircraft exterior lights (commensurate with appropriate operating limitations);

e) watch for conflicting traffic both visually and by reference to ACAS (if equipped); and

f) when emergency descent is complete, coordinate further intentions with the appropriate ATS unit.

Note.— Procedures for the use of ACAS are contained in PANS-OPS, Volume I, Part III, Section 3, Chapter 3.

~~15.1.4.3 SUBSEQUENT ACTION BY THE AIR TRAFFIC CONTROL UNIT~~

~~Immediately after such an emergency broadcast has been made the ACC, the approach control unit, or the aerodrome control tower concerned shall forward further clearances to all aircraft involved as to additional procedures to be followed during and subsequent to the emergency descent. The ATS unit concerned shall additionally inform any other ATS units and control sectors which may be affected.~~

15.1.4.3 ACTION BY THE PILOT OF AIRCRAFT RECEIVING EMERGENCY DESCENT BROADCAST

Unless specifically instructed by the ATS unit to clear the area or threatened by immediate danger, the pilot shall take the following actions:

a) continue according to current clearance and maintain listening watch on the frequency in use for any further instructions from the ATS unit; and

b) watch for conflicting traffic both visually and by reference to ACAS (if equipped).

. . .

15.3 AIR-GROUND COMMUNICATIONS FAILURE

Note 4.— See also Chapter 6, 6.3.2.5, concerning departure clearances containing no geographical or time limit for ~~an initial~~ cleared level below the flight planned level and procedures to be applied in relation to an aircraft experiencing air-ground communication failure under such circumstances.

. . .

15.7 OTHER ATC CONTINGENCY PROCEDURES

. . .

Insert new text as follows:

15.7.5 Autonomous runway incursion warning system (ARIWS)

Note 1.— The generation of ARIWS warnings is a function based on surveillance data. The objective of the ARIWS function is to assist flight crews and vehicle drivers in the prevention of runway incursions by generating, in a timely manner, a direct warning of a possible runway hazard making it unsafe to enter, to cross a runway or to take-off

Note 2.— The function of ARIWS is to operate independently from ATC, and the warnings are generated for pilots and vehicle drivers.

Note 3.— Annex 14, Attachment A, Section 21, provides description of an autonomous runway incursion warning system (ARIWS) and information on its use.

15.7.5.1 In the event an ARIWS warning is generated that conflicts with the ATC clearance, the following action shall be taken by flight crew and vehicle drivers:

a) The flight crew or vehicle driver shall give priority to the ARIWS warning over the ATC clearance. They shall not proceed onto the runway or commence the take-off roll. The flight crew or vehicle driver shall inform the controller of the ARIWS warning and await further clearance.

b) In the event the aircraft or vehicle has initiated actions to comply with a clearance that conflicts with the warning, the flight crew or the vehicle driver shall use the warning to exercise their best judgement and full authority in the choice of the best course of action to resolve any potential conflict. The controller should be informed, when practicable, of the ARIWS warning.

15.7.5.2 ATS units shall have procedures in place for situations when controllers are informed of ARIWS warnings, including how to disable the ARIWS in case of malfunctions.

End of new text.
Renumber subsequent paragraphs accordingly

Chapter 16

MISCELLANEOUS PROCEDURES

. . .

16.5 STRATEGIC LATERAL OFFSET PROCEDURES (SLOP)

. . .

16.5.2 Strategic lateral offsets shall be authorized only in en-route airspace as follows:

a) where the lateral separation minima or spacing between route centre lines is ~~55.5~~42.6 km (~~30~~23 NM) or more, offsets to the right of the centre line relative to the direction of flight in tenths of a nautical mile up to a maximum of 3.7 km (2 NM); and

b) where the lateral separation minima or spacing between route centre lines is 11.1 km (6 NM) or more and less than ~~55.5~~42.6 km (~~30~~23 NM), offsets to the right of the centre line relative to the direction of flight in tenths of a nautical mile up to a maximum of 0.9 km (0.5 NM).

. . .

Appendix 2

FLIGHT PLAN

. . .

2. Instructions for the completion of the flight plan form

. . .

2.2 Instructions for insertion of ATS data

. . .

ITEM 10: EQUIPMENT AND CAPABILITIES

. . .

Radiocommunication, navigation and approach aid equipment and capabilities

. . .

INSERT one or more of the following letters to indicate the serviceable COM/NAV/approach aid equipment and capabilities available:

A	GBAS landing system	J6	CPDLC FANS 1/A SATCOM (MTSAT)
B	LPV (APV with SBAS)	J7	CPDLC FANS 1/A SATCOM (Iridium)
C	LORAN C	K	MLS
D	DME	L	ILS
E1	FMC WPR ACARS	M1	ATC SATVOICE ~~RTF SATCOM~~ (INMARSAT)
E2	D-FIS ACARS	M2	ATC SATVOICE ~~RTF~~ (MTSAT)
E3	PDC ACARS	M3	ATC SATVOICE ~~RTF~~ (Iridium)
F	ADF	O	VOR
G	GNSS If any portion of the flight is planned to be conducted under IFR, it refers to GNSS receivers that comply with the requirements of Annex 10, Volume I *(See Note 2)*	P1 ~~P9~~	~~Reserved for RCP~~ CPDLC RCP 400 (See Note 7)
		P2	CPDLC RCP 240 (See Note 7)
		P3	SATVOICE RCP 400 (See Note 7)
		P4–P9	Reserved for RCP
H	HF RTF	R	PBN approved *(See Note 4)*
I	Inertial Navigation	T	TACAN
J1	CPDLC ATN VDL Mode 2 *(See Note 3)*	U	UHF RTF
		V	VHF RTF
J2	CPDLC FANS 1/A HFDL	W	RVSM approved
		X	MNPS approved
J3	CPDLC FANS 1/A VDL Mode A	Y	VHF with 8.33 kHz channel spacing capability
J4	CPDLC FANS 1/A VDL Mode 2	Z	Other equipment carried or other capabilities *(See Note 5)*
J5	CPDLC FANS 1/A SATCOM (INMARSAT)		

Any alphanumeric characters not indicated above are reserved.

. . .

Note 7.— Guidance material on the application of performance-based communication, which prescribes RCP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual *(Doc 9869).*

Surveillance equipment and capabilities

INSERT N if no surveillance equipment for the route to be flown is carried, or the equipment is unserviceable,
OR

INSERT one or more of the following descriptors, to a maximum of 20 characters, to describe the serviceable surveillance equipment and/or capabilities on board:

. . .

ADS-C

D1 ADS-C with FANS 1/A capabilities
G1 ADS-C with ATN capabilities

Alphanumeric characters not indicated above are reserved.

Example: ADE3RV/HB2U2V2G1

Note 1.— The RSP specification(s), if applicable, will be listed in Item 18 following the indicator SUR/. Guidance material on the application of performance-based surveillance, which prescribes RSP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual *(Doc 9869).*

Note 2.— Additional surveillance equipment or capabilities ~~application should~~ will be listed in Item 18 following the indicator SUR/, as required by the appropriate ATS authority.

. . .

ITEM 18: OTHER INFORMATION

. . .

COM/ Indicate communication~~s~~ equipment and ~~applications or~~ capabilities not specified in Item 10 a).

DAT/ Indicate data communication equipment and ~~applications or~~ capabilities not specified in 10 a).

SUR/ Indicate ~~Include~~ surveillance equipment and capabilities not specified in Item 10 b). Indicate as many RSP specification(s) as apply to the flight, using designator(s) with no space. Multiple RSP specifications are separated by a space. Example: RSP180 RSP400.

Appendix 3

AIR TRAFFIC SERVICES MESSAGES

. . .

1. Message contents, formats and data conventions

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1.8 Accuracy in the preparation of ATS messages

. . .

Field Type 10 – Equipment and capabilities

. . .

SINGLE HYPHEN

(a) *Radiocommunication, navigation and approach aid equipment and capabilities*

1 LETTER as follows:

N no COM/NAV/approach aid equipment for the route to be flown is carried, or the equipment is unserviceable

OR S Standard COM/NAV/approach aid equipment for the route to be flown is carried and serviceable (s*ee Note 1*)

AND/OR ONE OR MORE OF THE FOLLOWING LETTERS to indicate the serviceable COM/NAV/approach aid equipment and capabilities

A	GBAS landing system	J7	CPDLC FANS 1/A SATCOM (Iridium)
B	LPV (APV with SBAS)	K	MLS
C	LORAN C	L	ILS
D	DME	M1	ATC SATVOICE ~~RTF SATCOM~~ (INMARSAT)
E1	FMC WPR ACARS	M2	ATC SATVOICE ~~RTF~~ (MTSAT)
E2	D-FIS ACARS	M3	ATC SATVOICE ~~RTF~~ (Iridium)
E3	PDC ACARS	O	VOR
F	ADF	P1~~–P9~~	~~Reserved for RCP~~CPDLC RCP 400 (See Note 7)
G	GNSS. If any portion of the flight is planned to be conducted under IFR it refers to GNSS receivers that comply with the requirements of Annex 10, Volume I *(See Note 2)*	P2	CPDLC RCP 240 (See Note 7)
		P3	SATVOICE RCP 400 (See Note 7)
		P4–P9	Reserved for RCP
H	HF RTF	R	PBN approved *(see Note 4)*
I	Inertial navigation	T	TACAN
J1	CPDLC ATN VDL Mode 2 *(see Note 3)*	U	UHF RTF
J2	CPDLC FANS 1/A HFDL	V	VHF RTF
J3	CPDLC FANS 1/A VDL Mode A	W	RVSM approved
J4	CPDLC FANS 1/A VDL Mode 2	X	MNPS approved
J5	CPDLC FANS 1/A SATCOM (INMARSAT)	Y	VHF with 8.33 kHz channel spacing capability
J6	CPDLC FANS 1/A SATCOM (MTSAT)	Z	Other equipment carried or other capabilities *(see Note 5)*

. . .

Note 7.— Guidance material on the application of performance-based communication, which prescribes RCP to an air traffic service in a specific area, is contained in the Performance-based Communication and Surveillance (PBCS) Manual *(Doc 9869).*

(b) *Surveillance equipment and capabilities* . . . *Note 1.— The RSP specification(s), if applicable, will be listed in Item 18 following the indicator SUR/. Guidance material on the application of performance-based surveillance, which prescribes RSP to an air traffic service in a specific area, is contained in the* Performance-based Communication and Surveillance (PBCS) Manual *(Doc 9869).* *Note 2.— Additional surveillance equipment or capabilities ~~application should~~ will be listed in Item 18 following the indicator SUR/, as required by the appropriate ATS authority.*

. . .

Field Type 18 — Other information

. . .

COM/	Indicate communication~~s~~ equipment and ~~applications or~~ capabilities not specified in Item 10 a).

DAT/	Indicate data communication equipment and ~~applications or~~ capabilities not specified in 10 a).

SUR/	Indicate ~~Include~~ surveillance equipment and capabilities not specified in Item 10 b). Indicate as many RSP specification(s) as apply to the flight, using designator(s) with no space. Multiple RSP specifications are separated by a space. Example: RSP180 RSP400..

. . .

Appendix 5

CONTROLLER-PILOT DATA LINK COMMUNICATIONS (CPDLC) MESSAGE SET

Note 1.— The message identifier of the CPDLC message set in this appendix is derived from the operational category of the CPDLC message element. A message element identifier of specific technologies, correlated to those defined in this document can be found in the Global Operational Data Link (GOLD) Manual *(Doc 10037).*

Note 2.— Parameters contained in message elements are defined in Table A-5-14-1 of this appendix. When they are optional in a message element, parameters are denoted with an [O].

~~1. Uplink messages~~

~~2. Downlink messages~~

1. Route message elements

Table A5-1-1. Route uplinks (RTEU)

Instructions to proceed via the specified route or named procedure, change the route, and notifications to expect

route changes.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~73~~ RTEU-1	Instruction to ~~be followed from departure until~~ proceed via the specified departure clearance ~~limit~~.	*(departure clearance)*	M	W/U
~~74~~ RTEU-2	Instruction to proceed directly ~~from its present position~~ to the specified position.	PROCEED DIRECT TO *(position)*	M	W/U
~~75~~	~~Instruction to proceed, when able, directly to the specified position.~~	~~WHEN ABLE PROCEED DIRECT TO *(position)*~~	~~M~~	~~W/U~~
~~76~~ RTEU-3	Instruction to proceed, at the specified time, directly to the specified position.	AT TIME *(time)* PROCEED DIRECT TO *(position)*	M	W/U
~~77~~ RTEU-4	Instruction to proceed, at the specified position, directly to the next specified position.	AT *(Position)* PROCEED DIRECT TO *(position)*	M	W/U
~~78~~ RTEU-5	Instruction to proceed~~,~~ upon reaching the specified level, directly to the specified position.	AT *(level single)* PROCEED DIRECT TO *(position)*	M	W/U
~~79~~ RTEU-6	Instruction to proceed to the specified position via the specified route.	CLEARED TO *(position)* VIA *(departure data[O]) (en-route data~~clearance~~)*	M	W/U
~~80~~ RTEU-7	Instruction to proceed via the specified route.	CLEARED *(departure data[O]) (en-route data~~clearance~~) (arrival approach data)*	M	W/U
~~81~~ RTEU-8	Instruction to proceed in accordance with the specified procedure.	CLEARED *(procedure name)*	M	W/U
~~83~~ RTEU-9	Instruction to proceed from the specified position via the specified route.	AT *(position)* CLEARED *(en-route data~~clearance~~) (arrival approach data)*	M	W/U
~~84~~ RTEU-10	Instruction to proceed from the specified position via the specified procedure.	AT *(position)* CLEARED *(procedure name)*	M	W/U
~~85~~	~~Notification that a clearance to fly on the specified route may be issued.~~	~~EXPECT *(route clearance)*~~	~~L~~	~~R~~
~~86~~	~~Notification that a clearance to fly on the specified route from the specified position may be issued.~~	~~AT *(position)* EXPECT *(route clearance)*~~	~~L~~	~~R~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~87~~	~~Notification that a clearance to fly directly to the specified position may be issued.~~	~~EXPECT DIRECT TO *(position)*~~	~~L~~	~~R~~
~~88~~	~~Notification that a clearance to fly directly from the first specified position to the next specified position may be issued.~~	~~AT *(position)* EXPECT DIRECT TO *(position)*~~	~~L~~	~~R~~
~~89~~	~~Notification that a clearance to fly directly to the specified position commencing at the specified time may be issued.~~	~~AT *(time)* EXPECT DIRECT TO *(position)*~~	~~L~~	~~R~~
~~90~~	~~Notification that a clearance to fly directly to the specified position commencing when the specified level is reached may be issued.~~	~~AT *(level)* EXPECT DIRECT TO *(position)*~~	~~L~~	~~R~~
~~91~~ RTEU-11	Instruction to enter a holding pattern ~~with the specified characteristics~~ at the specified position ~~and level~~ in accordance with the specified instructions. *Note.— RTEU-13 EXPECT FURTHER CLEARANCE AT [time] is appended to this message when an extended hold is anticipated (Chapter 6, 6.5.7 and 6.5.8 refer).*	AT *(position)* HOLD ~~AT *(position)*~~ MAINTAIN ~~*(level)*~~ INBOUND TRACK *(degrees) (direction)* TURNS *(leg type)* LEGS	M	W/U
~~92~~ RTEU-12	Instruction to enter a holding pattern ~~with the published characteristics~~ at the specified position ~~and level.~~in accordance with the published holding instructions. *Note.— RTEU-13 EXPECT FURTHER CLEARANCE AT [time] is appended to this message when an extended hold is anticipated (Chapter 6, 6.5.7 and 6.5.8 refer).*	AT *(position)* HOLD ~~AT *(position)*~~ AS PUBLISHED ~~MAINTAIN *(level)*~~	M	W/U
~~93~~ RTEU-13	Notification that an onwards clearance may be issued at the specified time.	EXPECT FURTHER CLEARANCE AT TIME *(time)*	~~L~~M	R
~~99~~ RTEU-14	Notification that a clearance may be issued for the aircraft to fly the specified procedure or clearance name.	EXPECT *(~~procedure name~~named instruction)*	~~L~~M	R

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~132~~	~~Instruction to report the present position.~~	~~REPORT POSITION~~	~~M~~	~~Y~~
~~137~~ RTEU-15	~~Instruction~~ Request to confirm the ~~currently~~ assigned route.	CONFIRM ASSIGNED ROUTE	~~L~~M	Y
~~138~~	~~Instruction to confirm the previously reported time over the last reported waypoint.~~	~~CONFIRM TIME OVER REPORTED WAYPOINT~~	~~L~~	~~Y~~
~~139~~	~~Instruction to confirm the identity of the previously reported waypoint.~~	~~CONFIRM REPORTED WAYPOINT~~	~~L~~	~~Y~~
~~140~~	~~Instruction to confirm the identity of the next waypoint.~~	~~CONFIRM NEXT WAYPOINT~~	~~L~~	~~Y~~
~~141~~	~~Instruction to confirm the previously reported estimated time at the next waypoint.~~	~~CONFIRM NEXT WAYPOINT ETA~~	~~L~~	~~Y~~
~~142~~	~~Instruction to confirm the identity of the next but one waypoint.~~	~~CONFIRM ENSUING WAYPOINT~~	~~L~~	~~Y~~
~~146~~	~~Instruction to report the present ground track.~~	~~REPORT GROUND TRACK~~	~~M~~	~~Y~~
~~147~~ RTEU-16	~~Instruction~~ Request to make a position report.	REQUEST POSITION REPORT	M	Y
~~181~~	~~Instruction to report the present distance to or from the specified position.~~	~~REPORT DISTANCE *(to/from) (position)*~~	~~M~~	~~Y~~
~~184~~	~~Instruction to report at the specified time the distance to or from the specified position.~~	~~AT (time) REPORT DISTANCE *(to/from) (position)*~~	~~L~~	~~Y~~
~~216~~	~~Instruction to file a flight plan.~~	~~REQUEST FLIGHT PLAN~~	~~M~~	~~Y~~
~~228~~ RTEU-~~16~~17	~~Instruction~~ Request to provide ~~report~~ the estimated time of arrival at the specified position.	~~REPORT~~ ADVISE ETA (position)	~~L~~M	Y
~~229~~	~~Instruction to report the preferred alternate aerodrome for landing.~~	~~REPORT ALTERNATE AERODROME~~	~~L~~	~~Y~~

Table A5-1-2. Route downlinks (RTED)

Requests to modify the route of flight.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~22~~ RTED-1	Request ~~to track from the present position~~ for a direct clearance to the specified position.	REQUEST DIRECT TO *(position)*	~~L~~M	Y
~~23~~ RTED-2	Request for the specified procedure or clearance name.	REQUEST *(~~procedure name)~~named instruction)*	~~L~~M	Y
~~24~~ RTED-3	Request for ~~a~~the specified route ~~clearance~~.	REQUEST CLEARANCE *(departure data[O]) (en-route data~~clearance~~) (arrival approach data[O])*	~~L~~M	Y
~~25~~ RTED-4	Request for ~~a~~the specified clearance.	REQUEST *(clearance type)* CLEARANCE	~~L~~M	Y
~~33~~	~~Notification of the present position.~~	~~PRESENT POSITION *(position)*~~	~~L~~	~~N~~
~~36~~	~~Notification of the present ground track in degrees.~~	~~PRESENT GROUND TRACK *(degrees)*~~	~~L~~	~~N~~
~~42~~	~~The next waypoint is the specified position.~~	~~NEXT WAYPOINT *(position)*~~	~~L~~	~~N~~
~~43~~	~~The ETA at the next waypoint is as specified.~~	~~NEXT WAYPOINT ETA *(time)*~~	~~L~~	~~N~~
~~44~~	~~The next but one waypoint is the specified position.~~	~~ENSUING WAYPOINT *(position)*~~	~~L~~	~~N~~
~~45~~	~~Clarification of previously reported waypoint passage.~~	~~REPORTED WAYPOINT *(position)*~~	~~L~~	~~N~~
~~46~~	~~Clarification of time over previously reported waypoint.~~	~~REPORTED WAYPOINT *(time)*~~	~~L~~	~~N~~
~~48~~ RTED-5	Position report.	POSITION REPORT *(position report)*	M	N
~~70~~ RTED-6	Request ~~a clearance to adopt~~ for the specified heading.	REQUEST HEADING *(degrees)*	~~L~~M	Y
~~71~~ RTED-7	Request ~~a clearance to adopt~~ for the specified ground track.	REQUEST GROUND TRACK *(degrees)*	~~L~~M	Y
~~78~~	~~Notification that at the specified time the aircraft's position was as specified.~~	~~AT *(time) (distance) (to/from) (position)*~~	~~L~~	~~N~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~51~~ RTED-8	Request for the ~~earliest~~ time ~~at which a clearance to regain the planned route~~ or position that can be expected to rejoin the cleared route.	WHEN CAN WE EXPECT BACK ON ROUTE	~~L~~M	Y
~~40~~ RTED-9	~~Readback of~~ Confirmation that the assigned route is the specified route.	ASSIGNED ROUTE *(departure data[O]) (en- route data~~clearance~~) (arrival approach data[O])*	M	N
~~104~~ RTED-10	Notification of estimated time of arrival at the specified position.	ETA *(position)* TIME *(time)*	~~L~~M	N
~~105~~	~~Notification of the alternate aerodrome for landing.~~	~~ALTERNATE AERODROME *(Airport)*~~	~~L~~	~~N~~

2. Lateral message elements

Table A5-2-1. Lateral uplinks (LATU)

Instructions to fly a parallel route or rejoin the originally cleared route, clearances to deviate from assigned route and notifications to expect offset change.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~64~~ LATU-1	Instruction to fly a parallel track to the cleared route at a displacement of the specified distance in the specified direction.	OFFSET *(specified distance) (direction)* OF ROUTE	M	W/U
~~65~~ LATU-2	Instruction to fly a parallel track to the cleared route at a displacement of the specified distance in the specified direction and commencing at the specified position.	AT *(position)* OFFSET *(specified distance) (direction)* OF ROUTE	M	W/U
~~66~~ LATU-3	Instruction to fly a parallel track to the cleared route at a displacement of the specified distance in the specified direction and commencing at the specified time.	AT TIME *(time)* OFFSET *(specified distance) (direction)* OF ROUTE	M	W/U
~~67~~ LATU-4	Instruction ~~that~~to rejoin the cleared ~~flight~~ route ~~is to be rejoined~~.	~~PROCEED BACK ON~~ REJOIN ROUTE	M	W/U
~~68~~ LATU-5	Instruction ~~that~~to rejoin the cleared ~~flight~~ route ~~is to be rejoined at or~~ before passing the specified position.	REJOIN ROUTE ~~BY~~ BEFORE PASSING *(position)*	M	W/U

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~69~~ LATU-6	Instruction ~~that~~ to rejoin the cleared ~~flight~~ route ~~is to be rejoined at or~~ before the specified time.	REJOIN ROUTE ~~BY~~ BEFORE TIME *(time)*	M	W/U
~~70~~ LATU-7	Notification that a clearance may be issued to enable the aircraft to rejoin the cleared route ~~at or~~ before passing the specified position.	EXPECT BACK ON ROUTE ~~BY~~ BEFORE PASSING *(position)*	~~L~~M	R
~~71~~ LATU-8	Notification that a clearance may be issued to enable the aircraft to rejoin the cleared route ~~at or~~ before the specified time.	EXPECT BACK ON ROUTE ~~BY~~ BEFORE TIME *(time)*	~~L~~M	R
~~72~~ LATU-9	Instruction to resume own navigation following a period of tracking or heading clearances. May be used in conjunction with an instruction on how or where to rejoin the cleared route.	RESUME OWN NAVIGATION	M	W/U
~~82~~ LATU-10	~~Approval~~ Instruction allowing deviation ~~to deviate~~ up to the specified distance(s) from the cleared route in the specified direction(s).	CLEARED TO DEVIATE UP TO ~~*(specified distance)*~~ *(~~direction~~lateral deviation)* OF ROUTE	M	W/U
~~94~~ LATU-11	Instruction to turn left or right as specified on to the specified heading.	TURN *(direction)* HEADING *(degrees)*	M	W/U
~~95~~ LATU-12	Instruction to turn left or right as specified on to the specified track.	TURN *(direction)* GROUND TRACK *(degrees)*	M	W/U
~~215~~ LATU-13	Instruction to turn ~~a~~ the specified number of degrees left or right.	TURN *(direction)* *(number of degrees)* DEGREES	M	W/U
~~96~~ LATU-14	Instruction to continue to fly ~~on~~ the ~~cu~~present heading.	CONTINUE PRESENT HEADING	M	W/U
~~97~~ LATU-15	Instruction to fly ~~on~~ the specified heading ~~from~~ upon reaching the specified position.	AT *(position)* FLY HEADING *(degrees)*	M	W/U
~~190~~ LATU-16	Instruction to fly ~~on~~ the specified heading.	FLY HEADING *(degrees)*	M	W/U

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~243~~ LATU-17	Instruction to report when ~~the aircraft is~~ clear of ~~adverse meteorological conditions, and a clearance to regain cleared flight route can be accepted~~ weather.	REPORT CLEAR OF WEATHER	~~L~~M	W/U
~~127~~ LATU-18	Instruction to report when the aircraft is back on the cleared route.	REPORT BACK ON ROUTE	~~L~~M	W/U
~~130~~ LATU-19	Instruction to report ~~when the aircraft has passed~~ upon passing the specified position.	REPORT PASSING *(position)*	~~L~~M	W/U
~~152~~	~~Instruction to report the earliest time or position when the specified offset track can be accepted.~~	~~WHEN CAN YOU ACCEPT *(specified distance)* *(direction)* OFFSET~~	~~L~~	~~Y~~
~~221~~	~~Instruction to stop turn at the specified heading prior to reaching the previously assigned heading.~~	~~STOP TURN HEADING *(degrees)*~~	~~M~~	~~W/U~~
~~98~~	~~Instruction to turn immediately left or right as specified on to the specified heading.~~	~~IMMEDIATELY TURN *(direction)* HEADING *(degrees)*~~	~~H~~	~~W/U~~
~~145~~	~~Instruction to report the present heading.~~	~~REPORT HEADING~~	~~M~~	~~Y~~

Table A5-2-2. Lateral downlinks (LATD)

Requests to offset or deviate from route.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~15~~ LATD-1	Request ~~that~~ for a parallel track~~,~~ ~~offset~~ from the cleared ~~track by~~ route at a displacement of the specified distance in the specified direction~~, be approved~~.	REQUEST OFFSET *(specified distance)* *(direction)* OF ROUTE	~~L~~M	Y
~~16~~	~~Request that a parallel track, offset from the cleared track by the specified distance in the specified direction, be approved from the specified position.~~	~~AT *(position)* REQUEST OFFSET *(specified distance)* *(direction)* OF ROUTE~~	~~L~~	~~Y~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~17~~	~~Request that a parallel track, offset from the cleared track by the specified distance in the specified direction, be approved from the specified time.~~	~~AT *(time)* REQUEST OFFSET *(specified distance)* *(direction)* OF ROUTE~~	~~L~~	~~Y~~
~~26~~	~~Request for a weather deviation to the specified position via the specified route.~~	~~REQUEST WEATHER DEVIATION TO *(position)* VIA *(route clearance)*~~	~~M~~	~~Y~~
~~27~~ LATD-2	Request for a weather deviation up to the specified distance(s) off track in the specified direction(s).	REQUEST WEATHER DEVIATION UP TO *~~(specified distance)~~* *(~~direction~~lateral deviation)* OF ROUTE	M	Y
~~35~~	~~Notification of the present heading in degrees.~~	~~PRESENT HEADING *(degrees)*~~	~~L~~	~~N~~
~~114~~ LATD-3	~~Notification~~ Report indicating that the aircraft is clear of weather~~ and is able to accept a clearance to regain cleared flight route.~~	CLEAR OF WEATHER	M	N
~~41~~ LATD-4	~~The aircraft has regained~~ Report indicating that the cleared route has been rejoined.	BACK ON ROUTE	M	N
~~59~~ LATD-5	~~Notification that the aircraft is~~ Report indicating diverting to the specified position via the specified route ~~due to an urgent need~~, which may be sent without any previous coordination done with ATC.	DIVERTING TO *(position)* VIA *(en-route data~~clearance~~)* *(arrival approach data[O])*	~~H~~M	Y
~~60~~ LATD-6	~~Notification~~ Report indicating that the aircraft is ~~deviating~~ offsetting to a parallel track at the specified distance in the specified direction ~~off~~ from the cleared route~~ and maintaining a parallel track due to an urgent need~~.	OFFSETTING *(specified distance)* *(direction)* OF ROUTE	~~H~~M	Y
~~80~~ LATD-7	~~Notification that the aircraft is~~ Report indicating deviating ~~up to the~~ specified distance ~~from the cleared route~~ or degrees in the specified direction ~~due to an urgent need~~ from the cleared route.	DEVIATING ~~UP TO~~ *(specified deviation~~ distance~~)* *(direction)* OF ROUTE	~~H~~M	Y
~~31~~ LATD-8	~~Notification of~~ Report indicating passing the specified position.	PASSING *(position)*	~~L~~M	N

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~85~~	~~We can accept a parallel track offset the specified distance in the specified direction at the specified time.~~	~~WE CAN ACCEPT *(specified distance) (direction)* AT *(time)*~~	~~L~~	~~N~~
~~86~~	~~We cannot accept a parallel track offset the specified distance in the specified direction.~~	~~WE CANNOT ACCEPT *(specified distance) (direction)*~~	~~L~~	~~N~~
~~117~~	~~We can accept a parallel track offset the specified distance in the specified direction at the specified position.~~	~~WE CAN ACCEPT *(specified distance) (direction)* AT *(position)*~~	~~L~~	~~N~~

3. Level message elements

Table A5-3-1. Level uplinks (LVLU)

Instructions to change the assigned level, responses to level request, modifications or restrictions to level clearances, and notifications to expect level clearance.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~6~~	~~Notification that a level change instruction should be expected.~~	~~EXPECT *(level)*~~	~~L~~	~~R~~
~~7~~ LVLU-1	Notification that an instruction ~~should~~ may be expected for the aircraft to commence climb at the specified time.	EXPECT ~~CLIMB~~ HIGHER AT TIME *(time)*	~~L~~M	R
~~8~~ LVLU-2	Notification that an instruction ~~should~~ may be expected for the aircraft to commence climb at the specified position.	EXPECT ~~CLIMB~~ HIGHER AT *(position)*	~~L~~M	R
~~9~~ LVLU-3	Notification that an instruction ~~should~~ may be expected for the aircraft to commence descent at the specified time.	EXPECT ~~DESCENT~~ LOWER AT TIME *(time)*	~~L~~M	R
~~10~~ LVLU-4	Notification that an instruction ~~should~~ may be expected for the aircraft to commence descent at the specified position.	EXPECT ~~DESCENT~~ LOWER AT *(position)*	~~L~~M	R
~~11~~	~~Notification that an instruction should be expected for the aircraft to commence cruise climb at the specified time.~~	~~EXPECT CRUISE CLIMB AT *(time)*~~	~~L~~	~~R~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~12~~	~~Notification that an instruction should be expected for the aircraft to commence cruise climb at the specified position.~~	~~EXPECT CRUISE CLIMB AT *(position)*~~	~~L~~	~~R~~
~~13~~	~~(reserved)~~		~~L~~	~~R~~
~~14~~	~~(reserved)~~		~~L~~	~~R~~
~~15~~	~~(reserved)~~		~~L~~	~~R~~
~~16~~	~~(reserved)~~		~~L~~	~~R~~
~~17~~	~~(reserved)~~		~~L~~	~~R~~
~~18~~	~~(reserved)~~		~~L~~	~~R~~
~~19~~ LVLU-5	Instruction to maintain the specified level or vertical range.	MAINTAIN *(level)*	M	W/U
~~20~~ LVLU-6	Instruction that a climb to ~~a~~ the specified level or vertical range is to commence and once reached ~~the specified level~~ is to be maintained.	CLIMB TO *(level)*	M	W/U
~~21~~ LVLU-7	Instruction that at the specified time a climb to the specified level or vertical range is to commence and once reached ~~the specified level~~ is to be maintained.	AT TIME *(time)* CLIMB TO *(level)*	M	W/U
~~22~~ LVLU-8	Instruction that at the specified position a climb to the specified level or vertical range is to commence and once reached ~~the specified level~~ is to be maintained.	AT *(position)* CLIMB TO *(level)*	M	W/U
~~23~~ LVLU-9	Instruction that a descent to ~~a~~ the specified level or vertical range is to commence and once reached ~~the specified level~~ is to be maintained.	DESCEND TO *(level)*	M	W/U
~~24~~ LVLU-10	Instruction that at ~~a~~ the specified time a descent to ~~a~~ the specified level or vertical range is to commence and once reached ~~the specified level~~ is to be maintained.	AT TIME *(time)* DESCEND TO *(level)*	M	W/U
~~25~~ LVLU-11	Instruction that at the specified position a descent to the specified level or vertical range is to commence and once reached ~~the specified level~~ is to be maintained.	AT *(position)* DESCEND TO *(level)*	M	W/U

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~26~~ LVLU-12	Instruction that a climb is to ~~commence at a rate~~ be completed such that the specified level is reached ~~at or~~ before the specified time. ~~When this message element is not concatenated with another vertical clearance, the level specified is the assigned level which is to be maintained.~~	CLIMB TO REACH *(level single)* ~~BY~~ BEFORE TIME *(time)*	M	W/U
~~27~~ LVLU-13	Instruction that a climb is to ~~commence at a rate~~ be completed such that the specified level is reached ~~at or~~ before passing the specified position. ~~When this message element is not concatenated with another vertical clearance, the level specified is the assigned level which is to be maintained.~~	CLIMB TO REACH *(level single)* ~~BY~~ BEFORE PASSING *(position)*	M	W/U
~~28~~ LVLU-14	Instruction that a descent is to ~~commence at a rate~~ be completed such that the specified level is reached ~~at or~~ before the specified time. ~~When this message element is not concatenated with another vertical clearance, the level specified is the assigned level which is to be maintained.~~	DESCEND TO REACH *(level single)* ~~BY~~ BEFORE TIME *(time)*	M	W/U
~~29~~ LVLU-15	Instruction that a descent is to ~~commence at a rate~~ be completed such that the specified level is reached ~~at or~~ before passing the specified position. ~~When this message element is not concatenated with another vertical clearance, the level specified is the assigned level which is to be maintained.~~	DESCEND TO REACH *(level single)* ~~BY~~ BEFORE PASSING *(position)*	M	W/U
~~30~~	~~Instruction that a level within the defined vertical range specified is to be maintained.~~	~~MAINTAIN BLOCK *(level)* TO *(level)*~~	~~M~~	~~W/U~~
~~31~~	~~Instruction that a climb to a level within the vertical range defined is to commence.~~	~~CLIMB TO AND MAINTAIN BLOCK *(level)* TO *(level)*~~	~~M~~	~~W/U~~
~~32~~	~~Instruction that a descent to a level within the vertical range defined is to commence.~~	~~DESCEND TO AND MAINTAIN BLOCK *(level)* TO *(level)*~~	~~M~~	~~W/U~~
~~33~~	~~(reserved)~~		~~L~~	~~Y~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~34~~	~~Instruction that a cruise climb to the specified level is to commence and continue and, once reached, the specified level is to be maintained.~~	~~CRUISE CLIMB TO *(level)*~~	~~M~~	~~W/U~~
~~35~~	~~Instruction to be used in conjunction with an associated level instruction indicating that a cruise climb can commence once above the specified level.~~	~~WHEN ABOVE *(level)* COMMENCE CRUISE CLIMB~~	~~M~~	~~W/U~~
~~36~~	~~Instruction that the climb to the specified level should be made at the aircraft's best rate.~~	~~EXPEDITE CLIMB TO *(level)*~~	~~M~~	~~W/U~~
~~37~~	~~Instruction that the descent to the specified level should be made at the aircraft's best rate.~~	~~EXPEDITE DESCENT TO *(level)*~~	~~M~~	~~W/U~~
~~38~~	~~Urgent instruction to immediately climb to the specified level and, once reached, the specified level is to be maintained.~~	~~IMMEDIATELY CLIMB TO *(level)*~~	~~H~~	~~W/U~~
~~39~~	~~Urgent instruction to immediately descend to the specified level and, once reached, the specified level is to be maintained.~~	~~IMMEDIATELY DESCEND TO *(level)*~~	~~H~~	~~W/U~~
~~40~~	~~(reserved)~~		~~L~~	~~Y~~
~~41~~	~~(reserved)~~		~~L~~	~~Y~~
~~192~~	~~Instruction that a change of level is to continue, but at a rate such that the specified level is reached at or before the specified time.~~	~~REACH *(Level)* BY *(Time)*~~	~~M~~	~~W/U~~
~~209~~	~~Instruction that a change of level is to continue, but at a rate such that the specified level is reached at or before the specified position.~~	~~REACH *(Level)* BY *(Position)*~~	~~M~~	~~W/U~~
~~219~~ LVLU-16	Instruction to stop the climb at the specified level and, once reached, this level is to be maintained. The specified level will be below the previously assigned level. This instruction should only be issued when the controller can confirm that the previously assigned level has not yet been reached.	STOP CLIMB AT *(~~L~~level single)*	M	W/U

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~220~~ LVLU-17	Instruction to stop the descent at the specified level and, once reached, this level is to be maintained. The specified level will be above the previously assigned level. This instruction should only be issued when the controller can confirm that the previously assigned level has not yet been reached.	STOP DESCENT AT *(~~L~~level single)*	M	W/U
~~171~~ LVLU-18	Instruction to climb at ~~not less than~~ the specified rate or greater.	CLIMB AT *(vertical rate)* ~~MINIMUM~~OR GREATER	M	W/U
~~172~~ LVLU-19	Instruction to climb at ~~not above~~ the specified rate or less.	CLIMB AT *(vertical rate)* ~~MAXIMUM~~OR LESS	M	W/U
~~173~~ LVLU-20	Instruction to descend at ~~not less than~~ the specified rate or greater.	DESCEND AT *(vertical rate)* ~~MINIMUM~~OR GREATER	M	W/U
~~174~~ LVLU-21	Instruction to descend at ~~not above~~ the specified rate or less.	DESCEND AT *(vertical rate)* ~~MAXIMUM~~OR LESS	M	W/U
LVLU-22	Notification that a clearance may be issued for the aircraft to commence a climb to the specified level at the specified number of minutes after departure.	EXPECT *(level single)* *(number of minutes)* AFTER DEPARTURE	M	R
~~128~~ LVLU-23	Instruction to report ~~when the aircraft has vacated~~ upon leaving the specified level ~~that has either been maintained or passed through on climb or descent~~.	REPORT LEAVING *(level single)*	~~L~~M	W/U
~~129~~ LVLU-24	Instruction to report when the aircraft is maintaining ~~level flight at~~ the specified level.	REPORT MAINTAINING *(level single)*	~~L~~M	W/U
~~133~~ LVLU-25	Instruction to report the present level.	REPORT PRESENT LEVEL	M	Y
~~180~~ LVLU-26	Instruction to report ~~when the aircraft is within~~ upon reaching the specified vertical range.	REPORT REACHING BLOCK *(level single)* TO *(level single)*	~~L~~M	W/U
~~135~~ LVLU-27	~~Instruction~~ Request to confirm the ~~currently~~ assigned level.	CONFIRM ASSIGNED LEVEL	~~L~~M	Y
~~231~~ LVLU-28	~~Instruction~~ Request to ~~indicate~~ provide the ~~pilot's~~ preferred level.	~~STATE~~ ADVISE PREFERRED LEVEL	~~L~~M	Y

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~232~~ LVLU-29	~~Instruction~~ Request to ~~indicate~~ provide the ~~pilot's~~ preferred time and/or position to commence descent to the aerodrome of intended arrival.	~~STATE~~ADVISE TOP OF DESCENT	L	Y
~~200~~	~~Instruction used in conjunction with a level clearance to report maintaining the level assigned~~	~~REPORT MAINTAINING~~	~~L~~	~~W/U~~
~~148~~ LVLU-30	Request for the earliest time or position ~~at which~~ when the specified level can be accepted.	WHEN CAN YOU ACCEPT *(level single)*	~~L~~M	Y
~~149~~ LVLU-31	~~Instruction~~ Request to ~~report~~ indicate whether or not the specified level can be accepted at the specified position.	CAN YOU ACCEPT *(level single)* AT *(position)*	~~L~~M	A/N
~~150~~ LVLU-32	~~Instruction~~ Request to ~~report~~ indicate whether or not the specified level can be accepted at the specified time.	CAN YOU ACCEPT *(level single)* AT TIME *(time)*	~~L~~M	A/N
~~175~~	~~(reserved)~~		~~L~~	~~W/U~~
~~185~~	~~(reserved)~~		~~M~~	~~W/U~~
~~186~~	~~(reserved)~~		~~M~~	~~W/U~~
~~236~~	~~Instruction to leave controlled airspace.~~	~~LEAVE CONTROLLED AIRSPACE~~	~~M~~	~~W/U~~
~~217~~	~~Instruction to report that the aircraft has landed.~~	~~REPORT ARRIVAL~~	~~M~~	~~Y~~

Table A5-3-2. Level downlinks (LVLD)

Requests to change the assigned altitude and inquiries when level change can be expected.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~6~~ LVLD-1	Request to fly at the specified level or vertical range.	REQUEST *(level)*	~~L~~M	Y
~~7~~	~~Request to fly at a level within the specified vertical range.~~	~~REQUEST BLOCK *(level)* TO *(level)*~~	~~L~~	~~Y~~
~~8~~	~~Request to cruise climb to the specified level.~~	~~REQUEST CRUISE CLIMB TO *(level)*~~	~~L~~	~~Y~~
~~9~~ LVLD-2	Request ~~to~~ for a climb to the specified level or vertical range.	REQUEST CLIMB TO *(level)*	~~L~~M	Y

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~10~~ LVLD-3	Request ~~to descend~~ for a descent to the specified level or vertical range.	REQUEST DESCENT TO *(level)*	~~L~~M	Y
~~11~~ LVLD-4	Request ~~that at the specified position~~ for a climb/descent to the specified level ~~be approved~~ or vertical range to commence at the specified position.	AT *(position)* REQUEST ~~CLIMB TO~~ *(level)*	~~L~~M	Y
~~12~~	~~Request that at the specified position a descent to the specified level be approved.~~	~~AT *(position)* REQUEST DESCENT TO *(level)*~~	~~L~~	~~Y~~
~~13~~ LVLD-5	Request ~~that at the specified time~~ for a climb/descent to the specified level ~~be approved~~ or vertical range to commence at the specified time.	AT TIME *(time)* REQUEST ~~CLIMB TO~~ *(level)*	~~L~~M	Y
~~14~~	~~Request that at the specified time a descent to the specified level be approved.~~	~~AT *(time)* REQUEST DESCENT TO *(level)*~~	~~L~~	~~Y~~
~~52~~ LVLD-6	Request for the earliest time ~~at which~~ or position that a ~~clearance to descend~~ descent can be expected.	WHEN CAN WE EXPECT LOWER LEVEL	~~L~~M	Y
~~53~~ LVLD-7	Request for the earliest time ~~at which~~ or position that a ~~clearance to~~ climb can be expected.	WHEN CAN WE EXPECT HIGHER LEVEL	~~L~~M	Y
~~54~~	~~Request for the earliest time at which a clearance to cruise climb to the specified level can be expected.~~	~~WHEN CAN WE EXPECT CRUISE CLIMB TO *(level)*~~	~~L~~	~~Y~~
~~28~~ LVLD-8	~~Notification of~~ Report indicating leaving the specified level.	LEAVING *(level single)*	~~L~~M	N
~~37~~ LVLD-9	~~Notification~~ Report indicating that the ~~aircraft is maintaining the~~ specified level is being maintained.	MAINTAINING *(level single)*	~~L~~M	N
~~69~~	~~Request that a descent be approved on a see-and-avoid basis.~~	~~REQUEST VMC DESCENT~~	~~L~~	~~Y~~
~~76~~ LVLD-10	~~Notification that the aircraft has reached a level within~~ Report indicating reaching the specified vertical range.	REACHING BLOCK *(level single)* TO *(level single)*	~~L~~M	N
~~32~~	~~Notification of the present level.~~	~~PRESENT LEVEL *(level)*~~	~~L~~	~~N~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~38~~ LVLD-11	~~Readback of~~ Confirmation that the assigned level or vertical range is the specified level or vertical range.	ASSIGNED LEVEL *(level)*	M	N
~~72~~	~~(reserved)~~		~~L~~	~~N~~
~~77~~	~~Readback of the assigned vertical range.~~	~~ASSIGNED BLOCK *(level)* TO *(level)*~~	~~M~~	~~N~~
~~106~~ LVLD-12	~~Notification of~~ Report indicating that the aircraft's preferred level is the specified level.	PREFERRED LEVEL *(level single)*	~~L~~M	N
~~29~~ LVLD-13	~~Notification of~~ Report indicating climbing to the specified level.	CLIMBING TO *(level single)*	~~L~~M	N
~~30~~ LVLD-14	~~Notification of~~ Report indicating descending to the specified level.	DESCENDING TO *(level single)*	~~L~~M	N
~~81~~ LVLD-15	~~We can accept~~ Indication that the specified level can be accepted at the specified time.	WE CAN ACCEPT *(level single)* AT TIME *(time)*	~~L~~M	N
~~115~~ LVLD-16	~~We can accept~~ Indication that the specified level can be accepted at the specified position.	WE CAN ACCEPT *(level single)* AT *(position)*	~~L~~M	N
~~82~~ LVLD-17	~~We cannot accept~~ Indication that the specified level cannot be accepted.	WE CANNOT ACCEPT *(level single)*	~~L~~M	N
~~87~~	~~Request for the earliest time at which a clearance to climb to the specified level can be expected.~~	~~WHEN CAN WE EXPECT CLIMB TO *(level)*~~	~~L~~	~~Y~~
~~88~~	~~Request for the earliest time at which a clearance to descend to the specified level can be expected.~~	~~WHEN CAN WE EXPECT DESCENT TO *(level)*~~	~~L~~	~~Y~~
~~109~~	~~Notification of the preferred time to commence descent for approach.~~	~~TOP OF DESCENT *(time)*~~	~~L~~	~~N~~
~~110~~	~~Notification of the preferred position to commence descent for approach.~~	~~TOP OF DESCENT *(position)*~~	~~L~~	~~N~~
~~111~~ LVLD-18	Notification of the preferred time and position to commence descent for approach.	TOP OF DESCENT ~~*(time)*~~ *(position)* TIME *(time)*	~~L~~M	N

4. Crossing constraint message elements

Table A5-4-1. Crossing constraint uplinks (CSTU)

Instructions to cross a specified position at a specified altitude, time, and/or speed, instruction to cancel a crossing constraint.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~42~~	~~(reserved)~~		~~L~~	~~R~~
~~43~~	~~(reserved)~~		~~L~~	~~R~~
~~44~~	~~(reserved)~~		~~L~~	~~R~~
~~45~~	~~(reserved)~~		~~L~~	~~R~~
~~46~~ CSTU-1	I Instruction that the specified position is to be crossed at the specified level~~. This may require~~ or within the ~~aircraft to modify its climb or descent profile~~ specified vertical range.	CROSS *(position)* AT *(level)*	M	W/U
~~47~~ CSTU-2	Instruction that the specified position is to be crossed at or above the specified level.	CROSS *(position)* AT OR ABOVE *(level single)*	M	W/U
~~48~~ CSTU-3	Instruction that the specified position is to be crossed at or below the specified level.	CROSS *(position)* AT OR BELOW *(level single)*	M	W/U
~~49~~	~~Instruction that the specified position is to be crossed at the specified level and that level is to be maintained when reached.~~	~~CROSS *(position)* AT AND MAINTAIN *(level)*~~	~~M~~	~~W/U~~
~~50~~	~~Instruction that the specified position is to be crossed at a level between the specified levels.~~	~~CROSS *(position)* BETWEEN *(level)* AND *(level)*~~	~~M~~	~~W/U~~
~~51~~ CSTU-4	Instruction that the specified position is to be crossed at the specified time.	CROSS *(position)* AT TIME *(time)*	M	W/U
~~52~~ CSTU-5	Instruction that the specified position is to be crossed ~~at or~~ before the specified time.	CROSS *(position)~~ AT OR~~* BEFORE TIME *(time)*	M	W/U
~~53~~ CSTU-6	Instruction that the specified position is to be crossed ~~at or~~ after the specified time.	CROSS *(position)* ~~AT OR~~ AFTER TIME *(time)*	M	W/U
~~54~~ CSTU-7	Instruction that the specified position is to be crossed ~~at a time~~ between the specified times.	CROSS *(position)* BETWEEN TIME *(time)* AND TIME *(time)*	M	W/U

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~55~~ CSTU-8	Instruction that the specified position is to be crossed at the specified speed~~ and the specified speed is to be maintained until further advised~~.	CROSS *(position)* AT *(speed)*	M	W/U
~~56~~ CSTU-9	Instruction that the specified position is to be crossed at ~~a speed equal to~~ or less than the specified speed ~~and the specified speed or less is to be maintained until further advised~~.	CROSS *(position)* AT *(speed)* OR LESS ~~THAN *(speed)*~~	M	W/U
~~57~~ CSTU-10	Instruction that the specified position is to be crossed at ~~a speed equal to~~ or greater than the specified speed ~~and the specified speed or greater is to be maintained until further advised~~.	CROSS *(position)* AT *(speed)* OR GREATER ~~THAN *(speed)*~~	M	W/U
~~58~~ CSTU-11	Instruction that the specified position is to be crossed at the specified time and at the level or within the vertical range as specified ~~level~~.	CROSS *(position)* AT TIME *(time)* AT *(level)*	M	W/U
~~59~~ CSTU-12	Instruction that the specified position is to be crossed ~~at or~~ before the specified time and at the level or within the vertical range as specified ~~level~~.	CROSS *(position)* ~~AT OR~~ BEFORE TIME*(time)* AT *(level)*	M	W/U
~~60~~ CSTU-13	Instruction that the specified position is to be crossed ~~at or~~ after the specified time and at the level or within the vertical range as specified ~~level~~.	CROSS *(position)* ~~AT OR~~ AFTER TIME*(time)* AT *(level)*	M	W/U
~~61~~ CSTU-14	Instruction that the specified position is to be crossed at the level or within the vertical range, as specified ~~level~~, and at the specified speed~~, and the level and speed are to be maintained~~.	CROSS *(position)* AT ~~AND MAINTAIN *(level)*~~ AT *(speed)*	M	W/U
~~62~~	~~Instruction that at the specified time the specified position is to be crossed at the specified level and the level is to be maintained.~~	~~AT *(time)* CROSS *(position)* AT AND MAINTAIN *(level)*~~	~~M~~	~~W/U~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~63~~ CSTU-15	Instruction that ~~at the specified time~~ the specified position is to be crossed at the specified time at the level or within the vertical range, as specified, and at the specified speed~~, and the level and speed are to be maintained~~.	~~AT *(time)*~~ CROSS *(position)* AT TIME *(time)* AT ~~AND MAINTAIN~~ *(level)* AT *(speed)*	M	W/U

5. Speed message elements

Table A5-5-1. Speed uplinks (SPDU)

Instructions to change or maintain speed, notifications to expect speed change.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~100~~ SPDU-1	Notification that a speed instruction may be issued to ~~be effective~~ take effect at the specified time.	EXPECT SPEED CHANGE AT TIME *(time)* ~~EXPECT *(speed)*~~	~~L~~M	R
~~101~~ SPDU-2	Notification that a speed instruction may be issued to ~~be effective~~ take effect at the specified position.	~~AT *(position)*~~ EXPECT ~~*(speed)*~~ SPEED CHANGE AT *(position)*	~~L~~M	R
~~102~~ SPDU-3	Notification that a speed instruction may be issued to ~~be effective~~ take effect at the specified level.	EXPECT SPEED CHANGE AT *(level single)* ~~EXPECT *(speed)*~~	~~L~~M	R
~~103~~	~~Notification that a speed range instruction may be issued to be effective at the specified time.~~	~~AT *(time)* EXPECT *(speed)* TO *(speed)*~~	~~L~~	~~R~~
~~104~~	~~Notification that a speed range instruction may be issued to be effective at the specified position.~~	~~AT *(position)* EXPECT *(speed)* TO *(speed)*~~	~~L~~	~~R~~
~~105~~	~~Notification that a speed range instruction may be issued to be effective at the specified level.~~	~~AT *(level)* EXPECT *(speed)* TO *(speed)*~~	~~L~~	~~R~~
~~106~~ SPDU-4	Instruction ~~that~~ to maintain the specified speed ~~is to be maintained~~.	MAINTAIN *(speed)*	M	W/U
~~188~~	~~Instruction that after passing the specified position the specified speed is to be maintained.~~	~~AFTER PASSING *(Position)* MAINTAIN *(Speed)*~~	~~M~~	~~W/U~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~107~~ SPDU-5	Instruction ~~that~~ to maintain the present speed ~~is to be maintained~~.	MAINTAIN PRESENT SPEED	M	W/U
~~108~~ SPDU-6	Instruction ~~that~~ to maintain the specified speed or ~~a~~ greater ~~speed is to be maintained~~.	MAINTAIN *(speed)* OR GREATER	M	W/U
~~109~~ SPDU-7	Instruction ~~that~~ to maintain the specified speed or ~~a lesser speed is to be maintained~~ less.	MAINTAIN *(speed)* OR LESS	M	W/U
~~110~~ SPDU-8	Instruction ~~that a speed within~~ to maintain the specified speed range ~~is to be maintained~~.	MAINTAIN *(speed)* TO *(speed)*	M	W/U
~~111~~ SPDU-9	Instruction that the present speed is to be increased to the specified speed and maintained until further advised.	INCREASE SPEED TO *(speed)*	M	W/U
~~112~~ SPDU-10	Instruction that the present speed is to be increased to the specified speed or greater, and maintained at or above the specified speed until further advised.	INCREASE SPEED TO *(speed)* OR GREATER	M	W/U
~~113~~ SPDU-11	Instruction that the present speed is to be reduced to the specified speed and maintained until further advised.	REDUCE SPEED TO *(speed)*	M	W/U
~~114~~ SPDU-12	Instruction that the present speed is to be reduced to the specified speed, or less, and maintained at or below the specified speed until further advised.	REDUCE SPEED TO *(speed)* OR LESS	M	W/U
~~115~~	~~Instruction that the specified speed is not to be exceeded.~~	~~DO NOT EXCEED *(speed)*~~	~~M~~	~~W/U~~
~~116~~ SPDU-13	Instruction ~~that the aircraft's~~ to resume a normal speed ~~be resumed~~. The aircraft no longer needs to comply with a previously issued speed restriction ~~(s) are cancelled~~.	RESUME NORMAL SPEED	M	W/U
~~189~~	~~Instruction that the present speed is to be changed to the specified speed.~~	~~ADJUST SPEED TO *(Speed)*~~	~~M~~	~~W/U~~
~~222~~ SPDU-14	~~Notification~~Indication that the ~~aircraft may keep its~~ preferred speed may be flown without restriction.	NO SPEED RESTRICTION	~~L~~M	R

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~223~~	~~Instruction to reduce present speed to the minimum safe approach speed.~~	~~REDUCE TO MINIMUM APPROACH SPEED~~	~~M~~	~~W/U~~
~~134~~ SPDU-15	~~Instruction~~ Request to report the ~~requested~~ speed defined by the specified speed type(s).	REPORT *(speed types) ~~(speed type) (speed type)~~* SPEED	M	Y
~~136~~ SPDU-16	~~Instruction~~ Request to confirm the ~~currently~~ assigned speed.	CONFIRM ASSIGNED SPEED	~~L~~M	Y
~~151~~ SPDU-17	~~Instruction to report~~ Request for the earliest time or position when the specified speed can be accepted.	WHEN CAN YOU ACCEPT *(speed)*	~~L~~M	Y

Table A5-5-2. Speed downlinks (SPDD)

Requests related to speed and inquiries when speed change can be expected.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~18~~ SPDD-1	Request ~~to fly at~~ for the specified speed.	REQUEST *(speed)*	~~L~~M	Y
~~19~~	~~Request to fly within the specified speed range.~~	~~REQUEST *(speed)* TO *(speed)*~~	~~L~~	~~Y~~
~~49~~ SPDD-2	Request for the earliest time ~~at which a clearance to~~ or position that the specified speed can be expected.	WHEN CAN WE EXPECT *(speed)*	~~L~~M	Y
~~50~~	~~Request for the earliest time at which a clearance to a speed within the specified range can be expected.~~	~~WHEN CAN WE EXPECT *(speed)* TO *(speed)*~~	~~L~~	~~Y~~
~~113~~ SPDD-3	~~Notification of the requested speed~~ Report indicating the speed defined by the specified speed types is the specified speed.	*(speed types) ~~(speed type) (speed type)~~* SPEED *(speed)*	~~L~~M	N
~~34~~	~~Notification of the present speed.~~	~~PRESENT SPEED *(speed)*~~	~~L~~	~~N~~
~~39~~ SPDD-4	~~Readback of~~ Confirmation that the assigned speed is the specified speed.	ASSIGNED SPEED *(speed)*	M	N
~~83~~ SPDD-5	~~We can accept~~ Indication that the specified speed can be accepted at the specified time.	WE CAN ACCEPT *(speed)* AT TIME *(time)*	~~L~~M	N

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~116~~	~~We can accept the specified speed at the specified position.~~	~~WE CAN ACCEPT *(Speed)* AT *(Position)*~~	~~L~~	~~N~~
~~84~~ SPDD-6	~~We cannot accept~~ Indication that the specified speed cannot be accepted.	WE CANNOT ACCEPT *(speed)*	~~L~~M	N

6. Air Traffic Advisory message elements

Table A5-6-1. Air traffic advisory uplinks (ADVU)

Advisories related to the use CPDLC, ADS-C and surveillance services.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~153~~	~~ATS advisory that the altimeter setting should be the specified setting.~~	~~ALTIMETER *(altimeter)*~~	~~L~~	~~R~~
~~213~~ ADVU-1	~~ATS~~ Advisory ~~that~~ providing the ~~specified~~ altimeter setting for ~~relates to~~ the specified facility.	*(facility Designation)* ALTIMETER *(altimeter setting)*	~~L~~M	R
~~154~~ ADVU-2	~~ATS~~ Advisory that ~~the radar~~ ATS surveillance service is terminated.	~~RADAR~~ SURVEILLANCE SERVICE TERMINATED	~~L~~M	R
~~191~~	~~ATS Advisory that the aircraft is entering airspace in which no air traffic services are provided and all existing air traffic services are terminated.~~	~~ALL ATS TERMINATED~~	~~M~~	~~R~~
~~155~~ ADVU-3	~~ATS~~ Advisory that ~~radar contact~~ ATS surveillance service has been established ~~at the~~. A position may be specified ~~position~~.	~~RADAR CONTACT *(position)*~~IDENTIFIED *(position[O])*	M	R
~~210~~	~~ATS advisory that the aircraft has been identified on radar and/or ADS-B at the specified position.~~	~~IDENTIFIED *(position)*~~	~~M~~	~~R~~
~~156~~ ADVU-4	~~ATS~~ Advisory that ~~radar~~ ATS surveillance contact has been lost.	~~RADAR CONTACT~~ IDENTIFICATION LOST	M	R
~~193~~	~~Notification that radar and/or ADS-B identification has been lost.~~	~~IDENTIFICATION LOST~~	~~M~~	~~R~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~158~~ ADVU-5	~~ATS~~ Advisory that the ~~ATIS information identified by the specified code is the~~ current ATIS ~~information~~ code is as specified.	ATIS *(~~atis~~ATIS code)*	~~L~~M	R
~~182~~	~~Instruction to report the identification code of the last ATIS received.~~	~~CONFIRM ATIS CODE~~	~~L~~	~~Y~~
~~212~~	~~ATS advisory that the specified ATIS information at the specified airport is current.~~	~~*(facility designation)* ATIS *(atis code)* CURRENT~~	~~L~~	~~R~~
~~214~~	~~ATS Advisory that indicates the RVR value for the specified runway.~~	~~RVR RUNWAY *(Runway)* *(Rvr)*~~	~~M~~	~~R~~
~~224~~	~~ATS Advisory that no delay is expected.~~	~~NO DELAY EXPECTED~~	~~L~~	~~R~~
~~225~~	~~ATS advisory that the expected delay has not been determined.~~	~~DELAY NOT DETERMINED~~	~~L~~	~~R~~
~~226~~	~~ATS advisory that the aircraft may expect to be cleared to commence its approach procedure at the specified time.~~	~~EXPECTED APPROACH TIME *(Time)*~~	~~L~~	~~R~~
~~237~~ ADVU-6	~~Indicates that the~~ Advisory to request ~~cannot be responded to by the current unit and that it should be requested from~~ again with the next ATC unit.	REQUEST AGAIN WITH NEXT ATC UNIT	~~L~~M	N
ADVU-7	Advisory of traffic significant to the flight.	TRAFFIC IS *(traffic description)*	M	R
ADVU-8	Instruction to report that the specified traffic has been visually sighted and passed. The instruction may indicate the estimated time of passing.	REPORT SIGHTING AND PASSING OPPOSITE DIRECTION *(aircraft type[O]) (traffic location) (ETP time[O])*	M	W/U
~~123~~ ADVU-9	Instruction ~~that~~ to select the specified ~~code (~~SSR code~~) is to be selected.~~.	SQUAWK *(SSR code)*	M	W/U
~~124~~ ADVU-10	Instruction ~~that the~~ to disable SSR transponder responses~~ are to be disabled~~.	STOP SQUAWK	M	W/U
~~239~~ ADVU-11	Instruction ~~that the~~ to stop ADS-B transmissions~~ are to be terminated~~.	STOP ADS-B TRANSMISSION	M	W/U

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~125~~ ADVU-12	Instruction ~~that the~~ to include level information in SSR transponder responses ~~should include level information~~.	SQUAWK MODE ~~CHARLIE~~ C	M	W/U
~~126~~ ADVU-13	Instruction ~~that the~~ to stop including level information in SSR transponder responses ~~should no longer include level information~~.	STOP SQUAWK MODE ~~CHARLIE~~ C	M	W/U
~~144~~ ADVU-14	~~Instruction~~ Request to ~~report~~ confirm the selected ~~(~~SSR~~)~~ code.	CONFIRM SQUAWK CODE	~~L~~M	Y
~~179~~ ADVU-15	Instruction that the "ident" function on the SSR transponder is to be actuated.	SQUAWK IDENT	M	W/U
ADVU-16	Instruction to activate the ADS-C capability.	ACTIVATE ADS-C	M	W/U
ADVU-17	Instruction to transmit voice position reports, as specified, due to ADS-C being out of service.	ADS-C OUT OF SERVICE REVERT TO VOICE POSITION REPORTS	M	W/U
ADVU-18	Instruction to intermediary aircraft to relay the specified message to the specified aircraft on the specified frequency, when provided.	RELAY TO *(aircraft identification) (unit name) (relay text) (frequency[O])*	M	W/U
ADVU-19	Request to check the aircraft lateral position, level or speed due to the ATC unit detecting a deviation from the clearance.	*(deviation type)* DEVIATION DETECTED. VERIFY AND ADVISE	M	W/U
~~240~~	~~Instruction that the ADS-B transmissions should include level information.~~	~~TRANSMIT ADS-B ALTITUDE~~	~~M~~	~~W/U~~
~~241~~	~~Instruction that the ADS-B transmissions should no longer include level information.~~	~~STOP ADS-B ALTITUDE TRANSMISSION~~	~~M~~	~~W/U~~
~~242~~	~~Instruction that the "ident" function of the ADS-B emitter is to be activated.~~	~~TRANSMIT ADS-B IDENT~~	~~M~~	~~W/U~~
~~244~~	~~ATS advisory that the radar and/or ADS-B service is terminated.~~	~~IDENTIFICATION TERMINATED~~	~~L~~	~~R~~

Table A5-6-2. Air traffic advisory downlinks (ADVD)

Reports related to the application of relay procedure

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~47~~ ADVD-1	Report indicating that the aircraft is squawking the specified ~~(~~SSR~~)~~ code ~~has been selected~~.	SQUAWKING *(SSR code)*	~~L~~M	N
~~79~~	~~The code of the latest ATIS received is as specified.~~	~~ATIS *(atis code)*~~	~~L~~	~~N~~
~~102~~	~~Used to report that an aircraft has landed.~~	~~LANDING REPORT~~	~~N~~	~~N~~
ADVD-2	Report indicating that whether or not traffic has been visually sighted and if so, if it has been passed. May provide a description of the aircraft.	TRAFFIC *(aircraft type[O]) (traffic location) (traffic visibility)*	M	N

7. Voice communications message elements

Table A5-7-1. Voice communications uplinks (COMU)

Instructions to monitor or contact air traffic control on voice frequencies and instruction to check stuck microphone.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~117~~ COMU-1	Instruction ~~that the ATS unit~~ to establish voice contact with the specified ATS unit ~~name is to be contacted~~ on the specified frequency.	CONTACT *(unit name) (frequency)*	M	W/U
~~118~~ COMU-2	Instruction ~~that~~ at the specified position ~~the ATS unit~~, to establish voice contact with the specified ATS unit ~~name is to be contacted~~ on the specified frequency.	AT *(position)* CONTACT *(unit name) (frequency)*	M	W/U
~~119~~ COMU-3	Instruction ~~that~~ at the specified time ~~the ATS unit~~ to establish voice contact with the specified ATS unit ~~name is to be contacted~~ on the specified frequency.	AT TIME *(time)* CONTACT *(unit name) (frequency)*	M	W/U
~~238~~ COMU-4	~~Notification that~~ Advisory of the secondary frequency ~~is as specified~~.	SECONDARY FREQUENCY *(frequency)*	~~L~~M	R

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~120~~ COMU-5	Instruction ~~that the ATS unit with~~ to monitor the specified ATS unit ~~name is to be monitored~~ on the specified frequency. The flight crew is not required to establish voice contact on the frequency.	MONITOR *(unit name) (frequency)*	M	W/U
~~121~~ COMU-6	Instruction ~~that~~ at the specified position ~~the ATS unit with~~, to monitor the specified ATS ~~unit name is to be monitored~~ on the specified frequency. The flight crew is not required to establish voice contact on the frequency.	AT *(position)* MONITOR *(unit name) (frequency)*	M	W/U
~~122~~ COMU-7	Instruction that at the specified time t~~he ATS unit with~~, to monitor the specified ATS unit ~~name is to be monitored~~ on the specified frequency. The flight crew is not required to establish voice contact on the frequency.	AT TIME *(time)* MONITOR *(unit name) (frequency)*	M	W/U
~~157~~ COMU-8	~~Notification that~~ Instruction to check the microphone due to detection of a continuous transmission ~~is detected~~ on the specified frequency. ~~Check the microphone button.~~	CHECK STUCK MICROPHONE *(frequency)*	~~M~~H	N
COMU-9	Advisory of the name of the current ATC unit.	CURRENT ATC UNIT *(unit name)*	M	N

Table A5-7-2. Voice communications downlinks (COMD)

Requests regarding voice contact or frequency change.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~20~~	~~Request for voice contact.~~	~~REQUEST VOICE CONTACT~~	~~L~~	~~Y~~
~~21~~ COMD-1	Request for voice contact on the specified frequency.	REQUEST VOICE CONTACT *(frequency)*	~~L~~M	Y
COMD-2	Notification from the intermediary aircraft of the specified response from the specified aircraft.	RELAY FROM *(aircraft identification) (relayed text response)*	M	N

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~89~~	~~The specified ATS unit is being monitored on the specified frequency.~~	~~MONITORING *(unit name)* *(frequency)*~~	~~M~~	~~N~~

8. Spacing message elements

Table A5-8-1. Spacing uplinks (SPCU)

Clearances to conduct spacing manoeuvre during en-route or arrival operations and notifications to expect spacing clearance.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~*~~ SPCU-1	ATS acknowledgement for the pilot use of the in-trail procedure when the ITP aircraft is behind the reference aircraft. This message element is always concatenated with a vertical clearance.	ITP BEHIND *(aircraft identification~~-of reference aircraft~~)*	~~L~~M	~~L~~N
~~*~~ SPCU-2	ATS acknowledgement for the pilot use of the in-trail procedure when the ITP aircraft is ahead of the reference aircraft. This message element is always concatenated with a vertical clearance.	ITP AHEAD OF *(aircraft identification~~-of reference aircraft~~)*	~~L~~M	~~L~~N
~~*~~ SPCU-3	ATS acknowledgement for the pilot use of the in-trail procedure when the ITP aircraft is behind both reference aircraft. This message element is always concatenated with a vertical clearance.	ITP BEHIND *(aircraft identification~~-of reference aircraft~~)* AND BEHIND *(aircraft identification~~-of reference aircraft~~)*	~~L~~M	~~L~~N
~~*~~ SPCU-4	ATS acknowledgement for the pilot use of the in-trail procedure when the ITP aircraft is ahead of both reference aircraft. This message element is always concatenated with a vertical clearance.	ITP AHEAD OF *(aircraft identification~~-of reference aircraft~~)* AND AHEAD OF *(aircraft identification~~-of reference aircraft~~)*	~~L~~M	~~L~~N

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
* SPCU-5	ATS acknowledgement for the pilot use of the in-trail procedure when the ITP aircraft is behind one reference aircraft and ahead of one reference aircraft. This message element is always concatenated with a vertical clearance.	ITP BEHIND *(aircraft identification~~-of reference aircraft~~)* AND AHEAD OF *(aircraft identification~~-of reference aircraft~~)*	~~L~~M	~~L~~M
~~* Use UM169 when sending these messages as free text.~~				

Table A5-8-2. Spacing downlinks (SPCD)

Responses and reports to conduct spacing manoeuvre during en-route or arrival operations.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
* SPCD-1	Advisory indicating that the pilot has the ITP equipment, and provides the specified distance to the reference aircraft, including aircraft identification. This message element is always concatenated with a vertical request.	ITP *(specified distance)* BEHIND *(aircraft identification~~-of reference aircraft~~)*	~~L~~M	N
* SPCD-2	Advisory indicating that the pilot has the ITP equipment, and provides the specified distance from the reference aircraft, including aircraft identification. This message element is always concatenated with a vertical request.	ITP *(specified distance)* AHEAD OF *(aircraft identification~~-of reference aircraft~~)*	~~L~~M	N
* SPCD-3	Advisory indicating that the pilot has the ITP equipment, and provides the specified distance to both reference aircraft, including aircraft identification. This message element is always concatenated with a vertical request.	ITP *(specified distance)* BEHIND *(aircraft identification~~-of reference aircraft~~)* AND *(specified distance)* BEHIND *(aircraft identification~~-of reference aircraft~~)*	~~L~~M	N

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~*~~ SPCD-4	Advisory indicating that the pilot has the ITP equipment, and provides the specified distance from both reference aircraft, including aircraft identification. This message element is always concatenated with a vertical request.	ITP *(specified distance)* AHEAD OF *(aircraft identification ~~of reference aircraft~~)* AND *(specified distance)* AHEAD OF *(aircraft identification ~~of reference aircraft~~)*	~~L~~M	N
~~*~~ SPCD-5	Advisory indicating that the pilot has the ITP equipment, and provides the specified distance to one reference aircraft and the specified distance from another reference aircraft, including aircraft identification. This message element is always concatenated with a vertical request.	ITP *(specified distance)* BEHIND *(aircraft identification ~~of reference aircraft~~)* AND *(specified distance)* AHEAD OF *(aircraft identification ~~of reference aircraft~~)*	~~L~~M	N

9. Emergency/urgency message elements

Table A5-9-1. Emergency/urgency uplinks (EMGU)

Instructions or annotations associated to instructions providing a high level of alert in the cockpit.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~131~~ EMGU-1	~~Instruction~~ Request to ~~report~~ provide the ~~amount of~~ fuel remaining (time) and the number of persons on board.	REPORT ~~REMAINING FUEL~~ ENDURANCE AND PERSONS ON BOARD	~~M~~H	Y
~~230~~ EMGU-2	Instruction to immediately comply with the associated instruction ~~is to be complied with immediately~~ to avoid an imminent situation.	IMMEDIATELY	H	N
~~235~~	~~Notification of receipt of an unlawful interference message.~~	~~ROGER 7500~~	~~H~~	~~N~~
EMGU-3	Request to confirm an ADS-C indicated emergency.	CONFIRM ADS-C EMERGENCY	H	A/N
~~199~~		~~*(FreeText)*~~	~~H~~	~~N~~

Table A5-9-2. Emergency/urgency downlinks (EMGD)

Reports providing a high level of alert to the air traffic control.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~55~~ EMGD-1	~~Urgency prefix.~~Indication of an urgent situation.	PAN PAN PAN	H	Y
~~56~~ EMGD-2	~~Distress prefix.~~Indication of an emergency situation.	MAYDAY MAYDAY MAYDAY	H	Y
~~112~~	~~Indicates specifically that the aircraft is being subjected to unlawful interference.~~	~~SQUAWKING 7500~~	~~H~~	~~N~~
~~57~~ EMGD-3	~~Notification of~~ Report indicating fuel remaining (time) and number of persons on board.	*(remaining fuel)* ~~OF FUEL REMAINING~~ ENDURANCE AND *(persons on board)* PERSONS ON BOARD	H	Y
~~58~~ EMGD-4	~~Notification~~Indication that the ~~pilot wishes to cancel or~~ emergency ~~condition~~ situation is cancelled.	CANCEL EMERGENCY	~~M~~H	Y
~~61~~	~~Notification that the aircraft is descending to the specified level due to an urgent need.~~	~~DESCENDING TO *(level)*~~	~~H~~	~~Y~~

10. Standard response message elements

Table A5-10-1. Standard response uplinks (RSPU)

Standard air traffic control responses to pilot inquiries and requests.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~0~~ RSPU-1	Indicate~~s~~ion that ~~ATC~~ the message cannot ~~comply~~ be complied with ~~the request~~.	UNABLE	M	N
~~1~~ RSPU-2	Indicate~~s~~ion that ~~ATC has received~~ the message ~~and~~ will ~~respond~~ be responded to shortly.	STANDBY	~~L~~M	N
~~2~~ RSPU-3	~~Indicates that ATC has received the request but it has been deferred until later~~ Indication that a long term delay in response can be expected.	REQUEST DEFERRED	~~L~~M	N

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~3~~ RSPU-4	Indicate~~s~~ion that ~~ATC has received and~~ the message is received~~understood the message~~.	ROGER	~~L~~M	N
~~4~~ RSPU-5	~~Yes~~ Indication that ATC is responding positively to the message.	AFFIRM	~~L~~M	N
~~5~~ RSPU-6	~~No~~ Indication that ATC is responding negatively to the message.	NEGATIVE	~~LM~~	N
~~211~~ RSPU-7	Indicate~~s~~ion that ~~ATC has received~~ the request ~~and~~ has ~~passed it~~ been forwarded to the next control ~~authority~~ unit.	REQUEST FORWARDED	~~L~~M	N
~~218~~	~~Indicates to the pilot that the request has already been received on the ground.~~	~~REQUEST ALREADY RECEIVED~~	~~N~~	~~N~~
~~143~~ RSPU-8	~~The request~~Request to confirm the referenced request since the initial request was not understood. ~~It~~ The request should be clarified and resubmitted.	CONFIRM REQUEST	~~L~~M	~~Y~~N

Table A5-10-2. Standard response downlinks (RSPD)

Standard responses to air traffic control instructions and inquiries.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~0~~ RSPD-1	Indication that the instruction is understood and will be complied with.	WILCO	M	N
~~1~~ RSPD-2	Indication that the instruction cannot be complied with.	UNABLE	M	N
~~2~~ RSPD-3	~~Wait for a reply~~ Indication that the message will be responded to shortly.	STANDBY	M	N
~~3~~ RSPD-4	Indication that the message is received ~~and understood~~.	ROGER	M	N
~~4~~ RSPD-5	~~Yes.~~ Indication of a positive response to a message.	AFFIRM	M	N
~~5~~ RSPD-6	~~No.~~ Indication of a negative response to a message.	NEGATIVE	M	N

11. Supplemental message elements

Table A5-11-1. Supplemental uplinks (SUPU)

Annotations to air traffic control instructions and standard responses.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~164~~ SUPU-1	Indication that the associated instruction ~~may~~ is to be ~~complied with at any future time~~ executed when the flight crew is ready.	WHEN READY	~~N~~M	N
~~165~~	~~Used to link two messages, indicating the proper order of execution of clearances/instructions.~~	~~THEN~~	~~N~~	~~N~~
~~166~~ SUPU-2	Indication that the associated ~~instruction~~ message is issued due to ~~traffic considerations~~ the specified reason.	DUE TO *(specified reason uplink~~traffic type~~)* ~~TRAFFIC~~	~~N~~M	N
~~167~~	~~The associated instruction is issued due to airspace restrictions.~~	~~DUE TO AIRSPACE RESTRICTION~~	~~N~~	~~N~~
~~168~~	~~The indicated communication should be ignored.~~	~~DISREGARD~~	~~M~~	~~R~~
~~176~~	~~Instruction that the pilot is responsible for maintaining separation from other traffic and is also responsible for maintaining visual meteorological conditions.~~	~~MAINTAIN OWN SEPARATION AND VMC~~	~~M~~	~~W/U~~
~~177~~	~~Used in conjunction with a clearance/instruction to indicate that the pilot may execute when prepared to do so.~~	~~AT PILOTS DISCRETION~~	~~L~~	~~N~~
SUPU-3	Instruction to execute the associated instruction at the aircraft's best performance rate.	EXPEDITE	M	N
SUPU-4	Indication that the associated instruction is either a revision to a previously issued instruction or is different from the requested clearance.	REVISED *(revision reason[O])*	H	N

Table A5-11-2. Supplemental downlinks (SUPD)

Annotations to requests and standard responses.

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~65~~ SUPD-1	~~Used to explain reasons~~ Indication ~~for pilot's~~ that the associated message is issued due to specified reason.	DUE TO ~~WEATHER~~ *(specified reason downlink)*	~~L~~N	N
~~75~~	~~Used in conjunction with another message to indicate that the pilot wishes to execute request when the pilot is prepared to do so.~~	~~AT PILOTS DISCRETION~~	~~L~~	~~N~~
~~66~~	~~Used to explain reasons for pilot's message.~~	~~DUE TO AIRCRAFT PERFORMANCE~~	~~L~~	~~N~~
~~74~~	~~States a desire by the pilot to provide his/her own separation and remain in VMC.~~	~~REQUEST TO MAINTAIN OWN SEPARATION AND VMC~~	~~L~~	~~Y~~
~~101~~	~~Allows the pilot to indicate a desire for termination of CPDLC service with the current data authority.~~	~~REQUEST END OF SERVICE~~	~~L~~	~~Y~~
~~103~~	~~Allows the pilot to indicate that he/she has cancelled IFR flight plan.~~	~~CANCELLING IFR~~	~~L~~	~~Y~~

12. Free text message elements

Used when none of the standard message elements in the CPDLC message set in this appendix are appropriate for a specific intended use.

Table A5-12-1. Free text uplinks (TXTU)

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~169~~ TXTU-1		*(free text)*	~~L~~M	R
~~183~~ TXTU-2		*(free text)*	M	N
~~187~~ TXTU-3		*(free text)*	N	N

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~196~~ TXTU-4		*(free text)*	M	W/U
~~205~~ TXTU-5		*(free text)*	M	A/N
~~178~~	~~(reserved)~~		~~L~~	~~Y~~
~~170~~		~~*(free text)*~~	~~H~~	~~R~~
~~194~~		~~*(free text)*~~	~~L~~	~~Y~~
~~195~~		~~*(free text)*~~	~~L~~	~~R~~
~~197~~		~~*(free text)*~~	~~M~~	~~W/U~~
~~198~~		~~*(free text)*~~	~~H~~	~~W/U~~
~~201~~	~~Not used.~~		~~L~~	~~N~~
~~202~~	~~Not used.~~		~~L~~	~~N~~
~~203~~		~~*(free text)*~~	~~M~~	~~R~~
~~204~~		~~*(free text)*~~	~~M~~	~~Y~~
~~206~~		~~*(free text)*~~	~~N~~	~~Y~~
~~207~~		~~*(free text)*~~	~~L~~	~~Y~~
~~208~~		~~*(free text)*~~	~~L~~	~~N~~

Table A5-12-2. Free text downlinks (TXTD)

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~91~~ TXTD-1		*(free text)*	~~L~~M	Y
~~97~~		~~*(freeText)*~~	~~L~~	~~N~~
~~98~~ TXTD-2		*(freeText)*	~~N~~M	N
~~67~~		~~*(free text)*~~	~~L~~	~~N~~
~~68~~		~~*(free text)*~~	~~H~~	~~Y~~
~~90~~		~~*(free text)*~~	~~M~~	~~N~~
~~92~~		~~*(free text)*~~	~~L~~	~~Y~~
~~93~~		~~*(free text)*~~	~~H~~	~~N~~
~~94~~		~~*(free text)*~~	~~H~~	~~N~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~95~~		~~*(free text)*~~	~~M~~	~~N~~
~~96~~		~~*(free text)*~~	~~L~~	~~N~~

13. System management message elements

Table A5-13-1. System management uplinks (SYSU)

Messages dedicated to the management of the CPDLC communications (usually sent by the ground system).

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~159~~ SYSU-1	~~A~~ System-generated ~~message notifying that the ground system has detected~~ notification of an error.	ERROR *(error information)*	~~M~~N	N
~~160~~ SYSU-2	~~Notification to the avionics that the specified data authority is the next data authority. If no data authority is specified, this indicates that any previously specified next data authority is no longer valid.~~ System-generated notification of the next data authority or the cancellation thereof.	NEXT DATA AUTHORITY *(facility designation[O])*	~~N~~M	N
~~161~~	~~Notification to the avionics that the data link connection with the current data authority is being terminated.~~	~~END SERVICE~~	~~N~~	~~N~~
~~162~~ SYSU-3	System-generated ~~N~~notification that ~~the ground system does not support this~~ received message is not supported.	MESSAGE NOT SUPPORTED BY THIS ATS~~C~~C UNIT	~~L~~M	N
~~163~~	~~Notification to the pilot of an ATSU identifier.~~	~~*(facility designation)*~~	~~N~~	~~N~~

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~227~~ SYSU-4	~~Confirmation to the aircraft system~~ System-generated notification that the ~~ground system has~~ received ~~the~~ message ~~to which the logical acknowledgement refers and found it~~ is acceptable for display ~~to the responsible person~~.	LOGICAL ACKNOWLEDGEMENT	~~M~~N	N
~~233~~ SYSU-5	~~Notification to~~ A system-generated message indicating that ~~messages sent requiring a~~ requests for logical ~~acknowledgement will~~ acknowledgements are not ~~be accepted by this ground system~~ permitted.	USE OF-LOGICAL ACKNOWLEDGEMENT PROHIBITED	M	N
~~234~~	~~Notification that the ground system does not have a flight plan for that aircraft.~~	~~FLIGHT PLAN NOT HELD~~	~~L~~	~~N~~
SYSU-6	Advisory providing the maximum one-way uplink message transmission delay.	LATENCY TIME VALUE *(latency value)*	N	N
SYSU-7	Indication that the received message has a latency greater than the requirement.	MESSAGE RECEIVED TOO LATE, RESEND MESSAGE OR CONTACT BY VOICE	M	N

Table A5-13-2. System management downlinks (SYSD)

Messages dedicated to the management of the CPDLC communications (usually sent by aircraft system).

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~62~~ SYSD-1	~~A~~ System-generated ~~message that the avionics has detected~~ notification of an error.	ERROR *(error information)*	~~L~~N	N
~~100~~ SYSD-2	~~Confirmation to the ground system~~ System-generated notification that the ~~aircraft system has~~ received ~~the~~ message ~~to which the logical acknowledgement refers and found it~~ is acceptable for display ~~to the responsible person~~.	LOGICAL ACKNOWLEDGEMENT	~~M~~N	N

Message element identifier	*Message element ~~intent/use~~intended use*	*~~Message element~~Format for message element display*	*ALRT*	*RESP*
~~63~~ SYSD-3	~~A~~ System-generated ~~denial to~~ rejection of any CPDLC message sent from a ground facility that is not the current data authority.	NOT CURRENT DATA AUTHORITY	~~L~~M	N
~~99~~ SYSD-4	~~A~~ System-generated ~~message to inform a~~ notification that the ground facility ~~that it~~ is now the current data authority.	CURRENT DATA AUTHORITY	~~L~~M	N
~~107~~ SYSD-5	~~A~~ System-generated ~~message sent to a ground system~~ notification that ~~tries to connect to an aircraft when a current data authority has not designated~~ the ground system is not designated as the ~~NDA~~ next data authority (NDA), indicating the identity of the Current Data Authority. Identity of the Next Data Authority, if any, is also reported.	NOT AUTHORIZED NEXT DATA AUTHORITY *(facility designation) (facility designation[O])*	~~L~~M	N
SYSD-6	Indication that the received message has a latency greater than the requirement.	MESSAGE RECEIVED TOO LATE, RESEND MESSAGE OR CONTACT BY VOICE	M	N
SYSD-7	System-generated notification that the aircraft is in the inhibited state.	AIRCRAFT CPDLC INHIBITED	M	N
~~64~~	~~Notification to the ground system that the specified ATSU is the current data authority.~~	~~*(facility designation)*~~	~~L~~	~~N~~
~~73~~	~~A system-generated message indicating the software version number.~~	~~*(version number)*~~	~~L~~	~~N~~

14. Message elements parameters

Table A5-14-1. Parameters

Provides descriptions for the variables used in the parameters specified in the message elements.

Variable	*Description*
aircraft identification	Provides the aircraft identification identical to, or the code equivalent of, the aircraft call sign as provided in the Item 7 of the flight plan.
aircraft type	Specifies the aircraft type when known.
altimeter setting	Specifies an altimeter in inches of mercury or hectopascals.
arrival approach data	Specifies at least one of the following: destination airport, arrival runway, arrival procedure, or approach procedure.

Variable	*Description*
ATIS code	Specifies the current ATIS code.
ATS route designator	Specifies the 2-7 character name of the route.
along track waypoint	Specifies point in the route specified as relative distance for another waypoint on the route. May include speed and level constraints at this point.
clearance limit	Specifies the farthest cleared point as a *position*.
clearance name	Specifies a 2-14 character name of a clearance, usually specifying the name of an unpublished procedure or route.
clearance type	Specifies the type of clearance as: approach, departure, further, startup, pushback, taxi, or oceanic.
degrees	Specifies direction in terms of degrees as either degrees from magnetic north or degrees from true north.

departure clearance	Specifies the required departure clearance information as one or more of the following:
	• departure airport;
	• departure runway;
	• cleared to position;
	• departure route data specified as either;
	  ○ the route is as filed; or
	  ○ a SID and optionally that the rest of the route after the SID is as filed (i.e. then as filed).
	• departure level, and any constraint on the level (duration or until position);
	• expected level and any constraint on the level (duration or until position);
	• departure speed and any constraint on the speed (duration or until position);
	• departure heading in degrees;
	• indication when no delay is expected;
	• target start-up approval time;
	• arrival and/or approach procedures including any special instructions;
	• *SSR code*;
	• *ATIS code*; and/or
	• departure frequency.

departure data	Specifies the departure data as at least one of the following: departure airport, departure runway, or departure procedure.
deviation type	Specifies the deviation type as a lateral position, level or speed.
direction	Specifies direction as: • left, right, or either side; • north, south, east, or west; or • northeast, northwest, southeast, or southwest.
SSR code	Specifies the SSR code as 4 octal digits.
specified reason downlink	Specifies the reason for the associated message as weather or aircraft performance.
specified reason uplink	Specifies the reason for the associated message as: opposite direction traffic, same direction traffic, converging traffic, crossing traffic, or diverging traffic, airspace restriction, invalid oceanic entry point, no flight plan held, oceanic clearance request received too late.
error information	Specifies reason for error as: unrecognized message reference number, insufficient resources, checksum failure, or undefined.

Variable	*Description*
ETP time	Specifies the estimated time (hours and minutes) of passing opposite direction traffic.
facility designation	Specifies the ICAO location indicator for a facility.
facility function	Specifies the function of the facility as: centre, approach, tower, final, ground control, clearance delivery, departure, control, radio, apron, information, ramp, flight watch, AOC/company, de-icing, or flight service.
free text	Provides additional information in a non-structured format.
frequency	Specifies the frequency as an HF, VHF, or UHF frequency, or as a SATVOICE number.
hold at waypoint	Specifies a holding instruction providing the position of the holding as: *position*, and additionally any or all of the following: holding speed low, waypoint level constraint, holding speed high, a left or right holding, degrees, time a further clearance is expected, and *leg type*.
latency value	Provides the CPDLC message latency value in seconds.
lateral deviation	Specifies the lateral deviation as the permitted distance left, right, or either side from the cleared route in nautical miles or kilometres.
latitude longitude	Specifies the latitude and longitude in degrees, minutes, tenths of minutes and direction (north, south, east or west).
leg type	Specifies a holding leg as distance (tenths of nautical miles or tenths of kilometres) or time (tenths of minutes).
level	Specifies a level as a single or block level in feet, metres, or flight levels.
level single	Specifies a single level in feet, metres, or flight levels.
named instruction	Specifies a named instruction as either a *clearance name* or a *procedure name*.
number of degrees	Provides the number of degrees.
number of minutes	Provides the number of minutes (time).
persons on board	Provides the number of persons on board or indicates that the number is unknown.
place bearing distance	Specifies a *place bearing* and a distance in nautical miles or kilometres.
place bearing	Specifies a *published identifier* and *degrees*.
position	Specifies a position as a: • *published identifier*; • *latitude longitude*; *or* • *place bearing distance*.
Position report	Provides information similar to a voice position report as defined in 4.11.2.
procedure name	Specifies a procedure name by specifying a procedure type (departure, arrival, or approach) and identifier (1-20 characters), and when applicable: • the runway; • any required procedure transition; and/or • any required additional information about the procedure.
published identifier	Specifies the published identifier name (1-5 characters) and associated latitude and longitude (degrees, minutes, seconds).
relay text	Specifies the information to be relayed to the specified aircraft as *free text*.
relayed text response	Specifies information relayed from the specified aircraft as *free text*.
remaining fuel	Specifies remaining fuel as time in seconds.
revision reason	Specifies the reason(s) for the clearance revision as any or all of the following: a level change, a speed change, a route change at a specified position, a route change at multiple waypoints, an entry point change, a clearance limit change, a named instruction change, and/or a ground location change.

Variable	*Description*
en-route data	Specifies the cleared route of flight for up to 128 waypoints with positional information (*route information*), including for each waypoint as required, level constraint, speed constraint, required time of arrival, holding instruction and fly-by or flyover information (*route information additional*). A *clearance limit* may be included. A locally defined *named instruction* may also be included.
route information additional	Specifies any or all of the following: • 1 to 8 *along track waypoint*; • 1 to 8 *hold at waypoint*; • 1 to 32 *waypoint speed level*; *and* • 1 to 32 *required time arrival*.
route information	Specifies route information as one of: • *published identifier*; • *latitude longitude*; • *place bearing distance*; or • *ATS route designator*.
required time arrival	For the specified position, provides the required time of arrival (hours, minutes (seconds (optional)), optionally any tolerance around the required time of arrival, and indicates the required time of arrival as at, before, or after the specified time.
runway	Specifies a runway by direction and configuration (left, right, centre, or none).
specified deviation	Specifies the deviation from the route as a *specified distance* or *number of degrees*.
specified distance	Specifies distance in nautical miles or kilometres.
speed	Specifies speed in English or metric units as indicated, true, ground, or Mach speed.
speed types	Specifies the speed as a minimum or maximum and 1 to 2 speed type(s), where the speed type indicates speed as: indicated, true, ground, Mach, approach, cruise, or present.
time	Specifies time in hours and minutes.
traffic description	Specifies a description of traffic significant to a flight by providing any or all of the following information: the *aircraft flight identification*, the *aircraft type*, the current flight level of the aircraft, the location relative to the given aircraft as the distance (if known) above or below, and indicates when known that the traffic is, opposite direction, same direction, converging, crossing, or diverging from the given aircraft.
traffic location	Specifies the location for opposite direction traffic indicating if the traffic is above or below the given aircraft, and when known, provides the vertical distance in feet or metres.
traffic visibility	Indicates the traffic visibility as: “sighted and passed”, “sighted”, or “not sighted”.
unit name	Specifies the unit name by providing any or all of the following: facility name, *facility designation*, or *facility function* as appropriate.
vertical rate	Specifies the vertical rate as feet/minute or metres/minute.
waypoint speed level	Specifies the speed and level constraints on the specified position.

— END —

AMENDMENT No. 7-B

TO THE

PROCEDURES
FOR
AIR NAVIGATION SERVICES

AIR TRAFFIC MANAGEMENT

(Doc 4444)

INTERIM EDITION

The text of Amendment No. 7-B to the PANS-ATM (Doc 4444) was approved by the President of the Council of ICAO on behalf of the Council on **6 June 2016** for applicability on **5 November 2020**. This interim edition is distributed to facilitate implementation of the amendment by States. Replacement pages incorporating Amendment No. 7-B are expected to be distributed in October 2016. (State letter AN 13/2.1-16/54 refers.)

June 2016

INTERNATIONAL CIVIL AVIATION ORGANIZATION

NOTES ON THE EDITORIAL PRESENTATION
OF THE AMENDMENT 7-B TO THE PANS-ATM

The text of the amendment is arranged to show deleted text with a line through it and new text highlighted with grey shading, as shown below:

1. ~~Text to be deleted is shown with a line through it.~~	text to be deleted
2. New text to be inserted is highlighted with grey shading.	new text to be inserted
3. ~~Text to be deleted is shown with a line through it~~ followed by the replacement text which is highlighted with grey shading.	new text to replace existing text

TEXT OF AMENDMENT 7-B TO THE

PROCEDURES FOR AIR NAVIGATION SERVICES

AIR TRAFFIC MANAGEMENT

Chapter 1

DEFINITIONS

. . .

Situation display. An electronic display depicting the position and movement of aircraft and other information as required.

~~***Slush***. Water-saturated snow which with a heel-and-toe slap-down motion against the ground will be displaced with a splatter; specific gravity: 0.5 up to 0.8.~~

~~*Note.— Combinations of ice, snow and/or standing water may, especially when rain, rain and snow, or snow is falling, produce substances with specific gravities in excess of 0.8. These substances, due to their high water/ice content, will have a transparent rather than a cloudy appearance and, at the higher specific gravities, will be readily distinguishable from slush.*~~

~~***Snow (on the ground)***.~~

~~a) *Dry snow*. Snow which can be blown if loose or, if compacted by hand, will fall apart upon release; specific gravity: up to but not including 0.35.~~

~~b) *Wet snow*. Snow which, if compacted by hand, will stick together and tend to or form a snowball; specific gravity: 0.35 up to but not including 0.5.~~

~~c) *Compacted snow*. Snow which has been compressed into a solid mass that resists further compression and will hold together or break up into lumps if picked up; specific gravity: 0.5 and over.~~

Special VFR flight. A VFR flight cleared by air traffic control to operate within a control zone in meteorological conditions below VMC.

. . .

4.12 REPORTING OF OPERATIONAL AND METEOROLOGICAL INFORMATION

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4.12.3 Contents of special air-reports

4.12.3.1 Special air-reports shall be made by all aircraft whenever the following conditions are encountered or observed:

a) moderate or severe turbulence; or

b) moderate or severe icing; or

c) severe mountain wave; or

d) thunderstorms, without hail that are obscured, embedded, widespread or in squall lines; or

e) thunderstorms, with hail that are obscured, embedded, widespread or in squall lines; or

f) heavy duststorm or heavy sandstorm; or

g) volcanic ash cloud; or

h) pre-eruption volcanic activity or a volcanic eruption. ; or

i) runway braking action encountered is not as good as reported.

Note.— Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.

Editorial Note.— Renumber subsequent bullets accordingly.

. . .

4.12.6 Forwarding of meteorological information

. . .

4.12.6.3 When receiving special air-reports by voice communications, air traffic services units shall forward them without delay to their associated meteorological watch offices, with the exception of conditions applying to runway braking action encountered.

4.12.7 Forwarding of braking action information

When receiving special air-reports by voice communications concerning braking action encountered that is not as good as that reported, air traffic service units shall forward them without delay to the appropriate aerodrome operator.

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Chapter 7

PROCEDURES FOR AERODROME CONTROL SERVICE

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7.5 ESSENTIAL INFORMATION ON AERODROME CONDITIONS

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7.5.2 Essential information on aerodrome conditions shall include information relating to the following:

a) construction or maintenance work on, or immediately adjacent to the movement area;

b) rough or broken surfaces on a runway, a taxiway or an apron, whether marked or not;

c) water, snow, slush ~~or~~ , ice or frost on a runway, a taxiway or an apron;

d) ~~water on a runway, a taxiway or an apron~~ anti-icing or de-icing liquid chemicals or other contaminant on a runway, taxiway or apron;

e) snow banks or drifts adjacent to a runway, a taxiway or an apron;

f) other temporary hazards, including parked aircraft and birds on the ground or in the air;

g) failure or irregular operation of part or all of the aerodrome lighting system;

h) any other pertinent information.

Note.— Up-to-date information on the conditions on aprons may not always be available to the aerodrome control tower. The responsibility of the aerodrome control tower in relation to aprons is, with respect to the provisions of 7.5.1 and 7.5.2, limited to the transmission to aircraft of the information which is provided to it by the authority responsible for the aprons.

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Chapter 11
AIR TRAFFIC SERVICES MESSAGES

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11.4.3.4 MESSAGES CONTAINING INFORMATION ON AERODROME CONDITIONS

Note.— Provisions regarding the issuance of information on aerodrome conditions are contained in Chapter 7, 7.5.

11.4.3.4.1 Whenever information is provided on aerodrome conditions, this shall be done in a clear and concise manner so as to facilitate appreciation by the pilot of the situation described. It shall be issued whenever deemed necessary by the controller on duty in the interest of safety, or when requested by

an aircraft. If the information is provided on the initiative of the controller, it shall be transmitted to each aircraft concerned in sufficient time to enable the pilot to make proper use of the information.

11.4.3.4.2 ~~Information that water is present on a runway shall be transmitted to each aircraft concerned, on the initiative of the controller, using the following terms~~ Whenever information is provided concerning runway surface conditions that may adversely affect aircraft braking action, the following terms shall be used, as necessary:

~~DAMP — the surface shows a change of colour due to moisture.~~

~~WET — the surface is soaked but there is no standing water.~~

~~STANDING WATER — for aeroplane performance purposes, a runway where more than 25 per cent of the runway surface area (whether in isolated areas or not) within the required length and width being used is covered by water more than 3 mm deep.~~

COMPACTED SNOW

DRY

DRY SNOW

DRY SNOW ON TOP OF COMPACTED SNOW.

DRY SNOW ON TOP OF ICE.

FROST

ICE

SLUSH

STANDING WATER

WATER ON TOP OF COMPACTED SNOW

WET

WET ICE

WET SNOW

WET SNOW ON TOP OF COMPACTED SNOW.

WET SNOW ON TOP OF ICE.

11.4.3.4.3 Appropriate ATS units shall have available for transmission to aircraft, upon request, the Runway Condition Report information. This shall be passed to aircraft in the order of the direction of landing or take-off.

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Chapter 12

PHRASEOLOGIES

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12.3 ATC PHRASEOLOGIES

12.3.1 General

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12.3.1.11 AERODROME INFORMATION *Note 1.— See 11.4.3.4.3 for requirements for passing RCR to pilots.* *Note 2.— This information is provided for runway thirds or the full runway, as applicable.*	~~a) [*(location)*] RUNWAY SURFACE CONDITION RUNWAY *(number) (condition)*~~ a) [*(location)*] RUNWAY *(number)* SURFACE CONDITION [CODE *(three digit number*)] *followed as necessary by:* 1. ISSUED AT (*date and time UTC);* 2. DRY, *or* WET ICE, *or* WATER ON TOP OF COMPACTED SNOW, *or* DRY SNOW, *or* DRY SNOW ON TOP OF ICE, *or* WET SNOW ON TOP OF ICE, *or* ICE, *or* SLUSH, *or* STANDING WATER, *or* COMPACTED SNOW, *or* WET SNOW, *or* DRY SNOW ON TOP OF COMPACTED SNOW, *or* WET SNOW ON TOP OF COMPACTED SNOW, *or* WET, *or* FROST; 3. DEPTH (*(depth of deposit)* MILLIMETRES *or* NOT REPORTED); 4. COVERAGE (*(number)* PER CENT *or* NOT REPORTED); 5. ESTIMATED SURFACE FRICTION (GOOD, *or* GOOD TO MEDIUM, *or* MEDIUM, *or* MEDIUM TO POOR, *or* POOR, *or* LESS THAN POOR); 6. AVAILABLE WIDTH *(number)* METRES; 7. LENGTH REDUCED TO *(number)* METRES; 8. DRIFTING SNOW; 9. LOOSE SAND; 10. CHEMICALLY TREATED; 11. SNOWBANK *(number)* METRES [LEFT, *or*

	RIGHT *or* LEFT AND RIGHT] [OF *or* FROM] CENTRELINE; 12. TAXIWAY *(identification of taxiway)* SNOWBANK *(number)* METRES [LEFT, *or* RIGHT *or* LEFT AND RIGHT] [OF *or* FROM] CENTRELINE; 13. ADJACENT SNOWBANKS; 14. TAXIWAY *(identification of taxiway)* POOR; 15. APRON *(identification of apron)* POOR; 16. *Plain language remarks* b) . . . e) CAUTION *(specify reasons)* RIGHT (*or* LEFT), (*or* BOTH SIDES) OF RUNWAY [*(number)*]; . . . ~~g) RUNWAY REPORT AT *(observation time)* RUNWAY *(number) (type of precipitant)* UP TO *(depth of deposit)* MILLIMETRES. ESTIMATED SURFACE FRICTION GOOD (*or* MEDIUM TO GOOD, *or* MEDIUM, *or* MEDIUM TO POOR, *or* POOR;~~ ~~h~~ g) BRAKING ACTION REPORTED BY *(aircraft type)* AT *(time)* GOOD (*or* ~~MEDIUM to~~ GOOD TO MEDIUM, *or* MEDIUM, *or* MEDIUM ~~to~~ TO POOR, *or* POOR); ~~i~~ h) ~~RUNWAY (*or* TAXIWAY)~~ *(~~number~~ identification of taxiway)* WET [*or* STANDING WATER, *or* SNOW REMOVED *(length and width as applicable), or* CHEMICALLY TREATED, *or* COVERED WITH PATCHES OF DRY SNOW (*or* WET SNOW, *or* COMPACTED SNOW, *or* SLUSH, *or* FROZEN SLUSH, *or* ICE, *or* WET ICE, *or* ICE UNDERNEATH, *or* ICE AND SNOW, *or* SNOWDRIFTS, *or* FROZEN RUTS AND RIDGES *or* LOOSE SAND)]; ~~j~~ i) TOWER OBSERVES *(weather information)*; ~~k~~ j) PILOT REPORTS *(weather information)*.
. . . . .	. . .

Appendix 1

INSTRUCTIONS FOR AIR-REPORTING BY VOICE COMMUNICATIONS

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1. Reporting instructions

MODEL AIREP SPECIAL

	ITEM	PARAMETER	TRANSMIT IN TELEPHONY as appropriate
Section 3	. . . 9	Phenomenon encountered or observed, prompting a special air-report: • Moderate turbulence • Severe turbulence • Moderate icing • Severe icing • Severe mountainwave • Thunderstorms without hail • Thunderstorms with hail • Heavy dust/sandstorm • Volcanic ash cloud • Pre-eruption volcanic activity or volcanic eruption Runway braking action • Good • Good to Medium • Medium • Medium to Poor • Poor • Less than Poor	TURBULENCE MODERATE TURBULENCE SEVERE ICING MODERATE ICING SEVERE MOUNTAINWAVE SEVERE THUNDERSTORMS THUNDERSTORMS WITH HAIL DUSTSTORM *or* SANDSTORM HEAVY VOLCANIC ASH CLOUD PRE-ERUPTION VOLCANIC ACTIVITY *or* VOLCANIC ERUPTION • GOOD • GOOD TO MEDIUM • MEDIUM • MEDIUM TO POOR • POOR • LESS THAN POOR

. . .

Section 3

Item 9 — PHENOMENON PROMPTING A SPECIAL AIR-REPORT. Report one of the following phenomena encountered or observed:

. . .

- volcanic ash cloud as “VOLCANIC ASH CLOUD”
- pre-eruption volcanic activity or a volcanic eruption as “PRE-ERUPTION VOLCANIC ACTIVITY or VOLCANIC ERUPTION”

The following specification applies:

Pre-eruption volcanic activity in this context means unusual and/or increasing volcanic activity which could presage a volcanic eruption.

Note.— In case of volcanic ash cloud, pre-eruption volcanic activity or volcanic eruption, in accordance with Chapter 4, 4.12.3, a post-flight report shall also be made on the special air-report of volcanic activity form (Model VAR).

- Good braking action as “BRAKING ACTION GOOD”
  Good to medium braking action as “BRAKING ACTION GOOD TO MEDIUM”
  Medium braking action as “BRAKING ACTION MEDIUM”
  Medium to poor braking action as “BRAKING ACTION MEDIUM TO POOR”
  Poor braking action as “BRAKING ACTION POOR”
  Less than poor braking action as “BRAKING ACTION LESS THAN POOR”

The following specifications apply:

Good — Braking deceleration is normal for the wheel braking effort applied and directional control is normal.

Good to medium — Braking deceleration or directional control is between Good and Medium.

Medium — Braking deceleration is noticeably reduced for the wheel braking effort applied or directional control is noticeably reduced.

Medium to poor — Braking deceleration or directional control is between Medium and Poor.

Poor — Braking deceleration is significantly reduced for the wheel braking effort applied or directional control is significantly reduced.

Less than poor — Braking deceleration is minimal to non-existent for the wheel braking effort applied or directional control is uncertain.

2.2 Information recorded on the volcanic activity reporting form (Model VAR) is not for transmission by RTF but, on arrival at an aerodrome, is to be delivered without delay by the operator or a flight crew member to the aerodrome meteorological office. If such an office is not easily accessible, the completed form shall be delivered in accordance with local arrangements made between the meteorological and ATS authorities and the operator.

. . .

— END —