Guidance Material for
Delivery of Oceanic Clearances by ORCA
(Shanwick)

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Contents

Summary of Changes from Issue 10:

	Reference:
Revised uplink messages	Appendix C
Revised timers	Section 3
Minor editorial changes	Various

Glossary:

AEEC	Airlines Electronic Engineering Committee
ACARS	Aircraft Communications, Addressing and Reporting System
ARINC	Aeronautical Radio Incorporated
CDO	Clearance Delivery Officer
CLA	Clearance Acknowledgement downlink message
CLX	Oceanic Clearance uplink message
EGGX	ICAO 4 letter code for Shanwick
ETA	Estimated Time of Arrival
FDPS	Flight Data Processing System
FSM	Flight System Message
HF	High Frequency
OACC	Oceanic Area Control Centre
OCA	Oceanic Control Area
ORCA	Oceanic Route Clearance Authorisation service
RCL	Request for Clearance
ScOACC	Scottish and Oceanic Area Control Centre
SITA	Société Internationale de Télécommunications Aéronautiques
TMI	Track Message Ident number

VHF   Very High Frequency

1.   Introduction

1.1   The Prestwick Oceanic Area Control Centre (OACC) provides an air traffic control service within the Shanwick Oceanic Control Area (OCA). All aircraft require permission in the form of an Oceanic Clearance prior to entering the Shanwick OCA.

1.2   Shanwick provides a Westbound Oceanic Clearance Delivery service via Datalink to aircraft fitted with an appropriate specification of Aircraft Communications, Addressing and Reporting System (ACARS) equipment. This service is known as Oceanic Route Clearance Authorisation (**ORCA**).

1.3   ORCA is available via network service providers and utilises their respective air-ground facilities. Appendix A provides an overview of this interface.

1.4   ORCA is configurable to accommodate variations in airline datalink communication capabilities. The principle operations are:

    -   datalink readback of clearance

    -   voice readback of clearance

    Datalink readback is the preferred mode of operation.

2. Connecting to ORCA

2.1 The ORCA transaction is initiated in all cases by a downlink request (RCL). This may be an AEEC 623 compliant RCL, or any suitable downlink reformatted by a ground based system into this format.

2.2 Any RCL must contain the following information, as a minimum:-
- ❖ Shanwick Entry Point.
- ❖ ETA for Entry Point.
- ❖ Requested Mach Number.
- ❖ Requested Flight Level.

2.3 Crews should add remarks (RMK/) indicating the preferred alternative to the requested clearance and maximum flight level that can be accepted at the Entry Point. Inclusion of this information greatly assists the Shanwick Controller and expedites clearance delivery process.

2.4 The RCL must contain the same callsign format as the current filed flight plan.

2.5 The RCL must comply with the formats shown in the examples below or it will be rejected by ORCA. The RMK/ field is free text and should be used to provide additional information to the controller. Only those abbreviations specified in Appendix B are permitted.

Examples:-

-DOGAL/1255 M082F370-RMK/2ND NAT D F370 MAX F390

-DINIM/0750 M082F350-RMK/2ND F330 MAX F350

-ERAKA/1710 M082F350-RMK/2ND NAT A F350 MAX F370

(Due to FDPS specifications, the RCL should not exceed 80 characters in total.)

3. Requesting Shanwick Oceanic Clearance

3.1 GENERAL

3.1.1 Aircraft must not enter Shanwick Oceanic Airspace without a clearance.

3.1.2 Crews should request Oceanic clearance not more than 90 minutes flying time from the OCA boundary. **RCLs outwith this parameter, will be rejected.**

3.1.3 Crews should request Oceanic clearance not less than 30 minutes flying time from the OCA boundary. **RCLs outwith this parameter, will be rejected.**

3.1.4 If a flight is within 15 minutes of the OCA boundary and no clearance has been received, the crew must contact Shanwick by voice and advise the ATC authority for the airspace in which they are operating.

3.2 ORCA USE

3.2.1 Crews requesting via ORCA must contact Shanwick by voice if no clearance has been received within 15 minutes of making a request for clearance. **It is the responsibility of the crew to monitor this time period.**

3.2.2 The crew should expect an advisory message from ORCA within 5 minutes. If this is not received one further attempt to downlink an RCL can be made (provided the 30-minute parameter, above, can still be met). If this second attempt to downlink the RCL also fails to generate an advisory message the crew must revert to voice procedures.

Example, expected response to an RCL:
RCL RECEIVED
IF NO CLEARANCE WITHIN 15 MINUTES
CONTACT SHANWICK BY VOICE

3.2.3 ORCA RCLs do not require crews to state TMI. The CLX contains a Track identifier and includes full route co-ordinates.

3.2.4 **When the aircraft is estimated to be 10 minutes from the boundary, if the transaction has not completed, ORCA will not be used to issue clearances.**

4. Clearance Negotiation

4.1 Upon receipt of the RCL, the Shanwick controller may wish to negotiate the clearance requirements with the crew. To achieve this, the controller may issue a datalink message instructing the crew to contact Shanwick by voice.

Example:
RCL RECEIVED
NEGOTIATION REQUIRED
CONTACT SHANWICK BY VOICE

4.2 The crew **must** contact Shanwick by voice as soon as possible, using the phrase "<CALLSIGN> ORCA CONTACT". This phrase assists the communicator in identifying ORCA flights.

4.3   The Oceanic Clearance will be issued via ORCA, unless otherwise advised by Shanwick.

5.   Clearance Delivery

5.1   The ORCA clearance message (CLX) shall be uplinked to the aircraft and shall contain the following information as a minimum:-

*   ❖   Callsign
*   ❖   Shanwick Boundary Entry Point and ETA.
*   ❖   Flight Level.
*   ❖   Mach Number.
*   ❖   Route information i.e. full NAT Track or Random Route details.
*   ❖   Destination.

5.2   The crew must check that the callsign in the CLX matches the Flight Plan callsign.

5.3   Clearances issued for Random or NAT Track aircraft contain the full route co-ordinates. Track aircraft clearances also include the Track identifier e.g. ALPHA, BRAVO etc. Crews must check that the route co-ordinates received match the published NAT track message and query any discrepancy using voice procedures.

5.4   The CLX may contain additional information, prefixed with the text "ATC/". This may be advisory information e.g. "LEVEL CHANGE or additional ATC instructions e.g. "NOT BEFORE 1125 AT GOMUP". ATC/ messages are detailed in Appendix D.

5.5   If an aircraft is cleared via a different Entry Point from that requested, Shanwick will calculate an ETA and this will be shown in the clearance. If this ETA differs from that calculated by the crew, by 3 minutes or more, Shanwick must be advised. (See section 8)

5.6   All Clearance messages terminate with the phrase- *END OF MESSAGE.*   If this text is not present, then data has been lost during transmission and the clearance must be ignored. Crews must revert to voice procedures.

5.7   If at any stage of an ORCA transaction the crew has cause for doubt, they must contact Shanwick by voice, using the phrase "<CALLSIGN> ORCA CONTACT".

6.   Clearance Acknowledgement

6.1   On receipt of the CLX, crew actions shall depend upon the aircraft's downlink capabilities.

6.2   Datalink Acknowledgement

6.2.1   For those aircraft equipped to downlink a datalink acknowledgement (CLA) for the CLX, the crew must send this message as soon as possible.

6.2.2   This CLX <u>must</u> be acknowledged. Should the crew require an alternative to the issued clearance, they must request again. (See Section 7).

6.2.3   Upon receipt of a valid CLA message, ORCA will uplink a Clearance Confirmed message. **The clearance transaction is not complete until the confirmation message is received**. If the confirmation message is not received, the crew must contact Shanwick by voice.

Example:
CLA RECEIVED
CLEARANCE CONFIRMED

6.2.4   If a CLA message is not received, Shanwick will issue a reminder message to the aircraft. **Failure to acknowledge the clearance will result in the clearance transaction being cancelled by ORCA and the crew being instructed to revert to voice procedures.**

6.3   Voice Acknowledgement

6.3.1   For those aircraft who are NOT equipped to downlink a CLA, the crew must contact Shanwick by voice, as soon as possible, using the phrase "<CALLSIGN> ORCA CLEARANCE   RECEIVED,   ADVISE   READY   FOR   READBACK. ***This ORCA clearance is not valid until Shanwick has confirmed the read-back.***

7. Reclearances

7.1   If a crew requests a new clearance, or Shanwick requires a change to an existing clearance, one or more CLXs may be received by the crew. These will be annotated "RECLEARANCE 1", "RECLEARANCE 2" etc.

7.2   All reclearances must be acknowledged. If a reclearance is received before a previous clearance, or reclearance, has been acknowledged, then the reclearance with the highest reclearance number should be acknowledged.

7.3   Due to Shanwick procedures, reclearances may not be numbered consecutively. This is not a cause for concern provided that the latest reclearance always has a higher number than any previous.

7.4   Having completed the transaction sequence, the crew may make a request for a change to the clearance by ORCA or voice, and this request will be dealt with appropriate to the method of request.

7.5   **A subsequent RCL does not cancel the issued clearance, which remains valid, until the associated reclearance has been confirmed.**

7.6   If Shanwick is unable to approve a request for a change to a clearance, the crew will receive a reclearance which is a repeat of the original, but which contains the text;
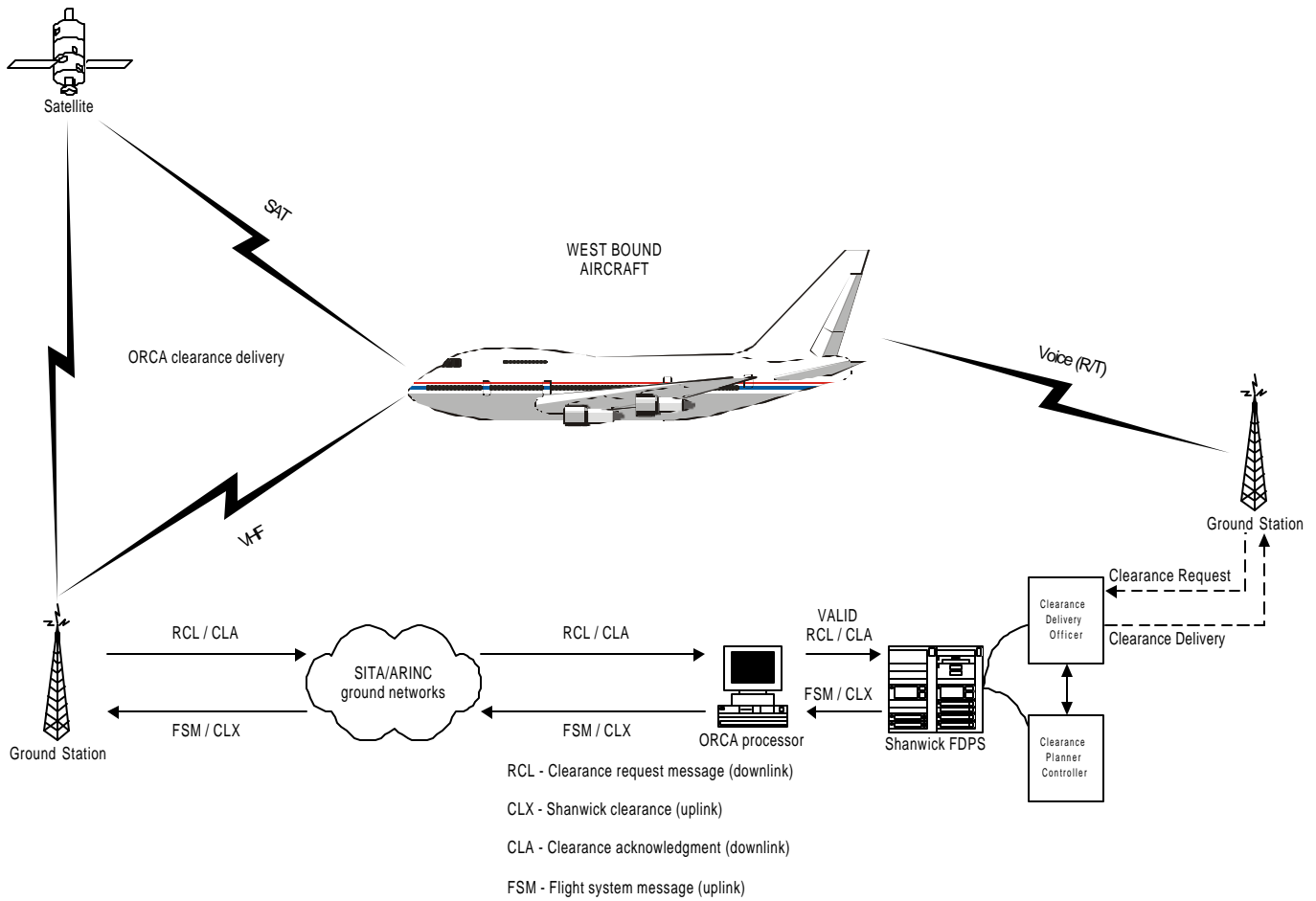
        ATC/ UNABLE TO APPROVE REQUEST

7.7   **Such reclearances must be acknowledged.** Failure to acknowledge the reclearance will result in the entire transaction being cancelled by ORCA.

8.   Time Revisions

8.1   If the ETA for the Entry Point changes by 3 minutes or more Shanwick must be advised. This may be achieved by voice or by an ORCA request, containing the revised ETA.

8.2   The crew should expect to receive a Reclearance showing the revised ETA. This may be a copy of the original CLX (containing the new ETA) or the CLX may contain a change in any clearance parameter, should the revised ETA make this necessary (accompanied by appropriate information in the ATC/ field).

8.3   If an aircraft is cleared via a different Entry Point from that requested, or previously cleared, Shanwick will calculate a revised ETA for that Entry Point and this will be shown in the clearance. If this ETA is different from that calculated by the crew by 3 minutes or more, Shanwick must be advised.

8.4   All reclearances **must** be acknowledged.

Appendix A **- System Overview Diagram**

Satellite

SAT

WEST BOUND
AIRCRAFT

ORCA clearance delivery

Voice (R/T)

VHF

Ground Station

Clearance Request

Clearance
Delivery
Officer

Clearance Delivery

RCL / CLA

RCL / CLA

VALID
RCL / CLA

SITA/ARINC
ground networks

FSM / CLX

FSM / CLX

ORCA processor

FSM / CLX

Shanwick FDPS

Clearance
Planner
Controller

Ground Station

RCL - Clearance request message (downlink)

CLX - Shanwick clearance (uplink)

CLA - Clearance acknowledgment (downlink)

FSM - Flight system message (uplink)

Appendix B - Terms Used in the RCL RMK/ Field

The following are expected abbreviations used in the RCL RMK/ field. These messages can be used in any sequence and/or combination to provide additional information to Shanwick.

RMK/ Field	Definition
2ND	Alternative Track or Level Request e.g. 2ND NAT C or 2ND F370
MAX	Maximum acceptable Flight Level at Oceanic Entry Point e.g. MAX F350 or 2ND F330 MAX 350
F	Flight level e.g. F370
M	Mach number e.g. M080
NAT	North Atlantic Track e.g. NAT D
1D STH	1 degree south e.g 2ND 1D STH NAT E or 2ND 1D STH
1D NTH	1 degree north e.g 1D NTH NAT A or 2ND 1D STH

Notes:
1. "-RMK/" text is required to comply with AEEC623 specification.

2. Provision of this additional information reduces the requirement for a controller to contact crews by voice for clearance negotiation.

3. To avoid confusion, any other Remarks should be written as free text, and not abbreviated.
Example, crews should not use "NBT" to represent Next Best Track, as Shanwick use this abbreviation for Not Before Time.

4. If the crew request an Entry Point that differs from the filed Flight Plan, the RMK/ entry should indicate this change. Using "RMK/ NEW ENTRY" will prevent Shanwick having to confirm this change by voice.

Appendix C - ORCA Messages and Crew Actions

Uplink messages will use a standard format, and give guidance to crews, where possible.

Messages ending in:	Crew action:
Resubmit your request	Amend the identified error, then re-send the RCL
Contact Shanwick by Voice	Contact Shanwick, by voice, as quickly as possible, but anticipate that clearance will be issued by ORCA
Revert to voice Procedures	An error or failure has occurred. Further ORCA messaging should not take place, and voice procedures must be used to obtain the Oceanic clearance

Specific Uplink Message	Crew Action
RCL RECEIVED *IF NO CLEARANCE WITHIN 15 MINUTES* *CONTACT SHANWICK BY VOICE*	Standby for clearance. If no CLX received within 15 mins, or if less than 15 mins flying time of the Entry Point - Contact Shanwick by voice.
RCL REJECTED *REQUEST BEING PROCESSED* *AWAIT TRANSACTION COMPLETION*	Await clearance issued on the basis of the original RCL, then input new RCL if required.
RCL REJECTED *FLIGHT PLAN NOT HELD*	Check that the correct callsign was used. Amend and re-request. OR Contact Shanwick by voice to provide FPL details and request clearance verbally.
RCL REJECTED *INVALID <callsign, Mach No, Level, etc>* *RESUBMIT YOUR REQUEST*	Check the identified error, amend and resubmit the RCL.
(CLA or) RCL REJECTED *ERROR IN MESSAGE* *REVERT TO VOICE PROCEDURES*	An error has been detected and further datalink communication should not take place. Contact Shanwick by voice to request and receive the clearance.
RCL REJECTED *RCL SENT TOO EARLY* *REQUEST AGAIN LATER*	Clearance request received more than 90 minutes prior to the boundary. Check the ETA, and re-request at the correct time.

Specific Uplink Message	Crew Action
RCL REJECTED *RCL RECEIVED TOO LATE* *REVERT TO VOICE PROCEDURES*	Clearance request received less than 30 minutes prior to the boundary. Check ETA. If less than 30 minutes from boundary, ORCA cannot be used. Contact Shanwick by voice. If more than 30 minutes from the boundary, amend ETA and resubmit RCL.
RCL REJECTED *INVALID REGISTRATION* *REVERT TO VOICE PROCEDURES*	Contact Shanwick by voice to request and receive the clearance.
RCL REJECTED *CALLSIGN ALREADY IN USE*	Another aircraft has already requested clearance using the callsign included in the RCL. Check the data, amend and re-submit the RCL. OR, Contact Shanwick immediately by voice.
RCL REJECTED *NETWORK CONGESTION* *REVERT TO VOICE PROCEDURES* *RCL REJECTED* *ORCA SERVICE NOT CURRENTLY AVAILABLE* *REVERT TO VOICE PROCEDURES* *RCL (or CLA) REJECTED* *GROUND SYSTEM ERROR* *REVERT TO VOICE PROCEDURES*	A network or ground system error has been detected. Contact Shanwick immediately by voice.
RCL RECEIVED *SHANWICK CLEARANCE NOT ACKNOWLEDGED* *SEND DATALINK ACKNOWLEDGMENT NOW*	Clearance Acknowledgement has not been received. Acknowledge clearance by datalink now. Failure to do so will result in transaction termination.
RCL REJECTED *TRANSACTION TIMEOUT* *REVERT TO VOICE PROCEDURES*	Acknowledgement has not been received. Clearance is not valid. Contact Shanwick by voice for clearance readback.

Specific Uplink Message	Crew Action
Clearance Message (CLX) or Reclearance 1,…Reclearance 2 etc.	Acknowledge any clearance or reclearance Acknowledge highest numbered reclearance only. If not understood, contact Shanwick by voice. Ensure message is terminated with "End of Message". If absent, clearance is incomplete - contact Shanwick by voice. Check NAT Track route matches published NAT Track.
CLA RECEIVED *CLEARANCE CONFIRMED*	Acknowledgement received. Clearance is now valid. If not received, contact Shanwick by voice.
RCL (or CLA) RECEIVED *NEGOTIATION REQUIRED* *CONTACT SHANWICK BY VOICE*	Negotiation is required, or communications problems encountered. Contact Shanwick by voice **immediately**. Anticipate that clearance will be issued via datalink.
CLA REJECTED *CLEARANCE CANCELLED* *REVERT TO VOICE PROCEDURES*	Invalid CLA received at ORCA. Transaction failed. Contact Shanwick by voice. OR A Re-clearance message has not been delivered. The current clearance may not be valid. Contact Shanwick by voice **immediately**.

Notes:

1. Where a clearance has been confirmed, and the aircraft's ETA changes by 3 minutes or more, Shanwick must be advised, by ORCA RCL or by voice.
   Crews must check that any Reclearance reflects this new ETA. The reclearance may also contain a change to any clearance parameter

2. Shanwick may initiate one or more reclearances. Due to procedures, reclearances may not be numbered consecutively. This is not a cause for concern provided that the latest Reclearance is always a higher number than the previous.

3. All messages are terminated by the phrase "END OF MESSAGE". If this is not present then the message is incomplete and the crew shall revert to voice procedures.

4. **It is imperative that crews acknowledge receipt of a clearance, even if a subsequent RCL is to be made.**

Appendix D - Terms Used in the ATC/ Field

For Information	
Level Change	Clearance is at a level different from that requested or previously cleared.
Mach Change	Clearance is at a speed different from that requested or previously cleared.
Entry Point Change	Clearance is via an Entry Point different from that requested, or previously cleared.
Route Change At {Position}	Clearance is via a single route point different from that requested or previously cleared.
Route Change At Multiple Route Points	Clearance is via a route that has two or more points different from that requested or previously cleared.
Request Level Change At {Position}	Pilot should request a level change at point specified.
Unable To Approve Request	Shanwick unable to approve request for change to clearance. This Reclearance should be a copy of the previous clearance. Crews should check for any discrepancy or ATC/ field information.

Further Instructions	
Not Before {Time} At {Position}	Cross specified position not before the specified time.
Not Later Than {Time} At {Position}	Cross specified position not later than the specified time.
Leave Level {Level} At {Position}	Leave the specified level at or after passing the specified position.
Leave Level {Level} At {Time}	Leave the specified level at or after the specified time.
Be Level {Level} At {Position}	Reach the specified level at or before the specified position.
Be Level {Level} At {Time}	Reach the specified level at or before the specified time.
Clearance Limit {Position}	Although further routing is indicated on clearance, clearance is only valid to specified point and onward clearance must be confirmed beyond this point.

Note: The ATC/ field is not always present. If present it may contain none, one, or more of the terms above.

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