



PIARCO INTERNATIONAL NOTAM OFFICE

AIC

Tele: 1 868 669-4128
1 868 668-8222 ext 2510, 2564
FAX: 1 868 669 1716
AFTN: TTPPYNYX
Email: aispublications@caa.gov.tt

TRINIDAD & TOBAGO
CIVIL AVIATION AUTHORITY,
P.O. BOX 2163, NATIONAL MAIL CENTRE, PIARCO
REPUBLIC OF TRINIDAD AND TOBAGO

01/16

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REPUBLIC OF TRINIDAD AND TOBAGO

FANS-1/A OPERATIONS IN THE PIARCO FIR

Introduction

This AIC is intended to provide flight crews and operators wishing to conduct FANS-1/A operations within the Piarco FIR with information relating to the CPDLC message sets for FANS equipped aircraft, ATC procedures, CPDLC/ADS-C log-on procedures, connection information and details relating to the airspace where a FANS-1/A service would be available.

This document also contains a small subset of what is expected to be the most common data link procedures, and the procedures developed to provide a data link service to FANS equipped aircraft.

FANS -1/A Airspace

The entire FIR of Piarco will be designated as FANS-1/A airspace with the following limitations.

- Full FANS- 1/A (CPDLC and ADS-C) service will be available East of 057⁰ W longitude from FL060 and above.
- Flights operating West 057⁰ W longitude will logon to Piarco only when instructed to do so.
- Flights operating West of 057⁰ W longitude shall expect only a CPDLC service.

FANS-1/A Service

A 'Log-On' address refers to the designator for a given Data Authority
For Piarco the FANS-1/A Log On address is TTZP.

Aircraft LOG-ON

FANS-1/A Log On should be established at least 15 minutes prior to the entry time for the Piarco FIR boundary. For flights departing aerodromes in the Piarco's FIR, Log On may be conducted by aircraft on the ground.

Required Aircraft LOG-ON parameters

A FANS-1/A service is only established when all the required Log On parameters match those contained in the ICAO flight plan.

Requirements for a FANS1/A LOG-ON

- Aircraft-ID as stated in item 7 of the ICAO flight plan, and the aircraft registration.
- Departure and destination airfields (not IATA codes).
- Route as stated in the ICAO flight plan

These are used to match the particular flight with the flight plan stored in the ground system.

Flight Planning

In order to use FANS-1/A services, aircraft operators shall file equipage J1 – J7 (as appropriate) in field 10a of their flight plan to indicate CPDLC equipage and D1 in field 10b to indicate ADS-C capability.

Notes:

- I. Using IATA flight ID, inserting additional leading zeros or spaces will result in a failed LOG-ON.*
- II. Incorrectly filed flight plans or late change of aircraft frame may result in a failed LOG-ON unless the flight plan is updated.*
- III. Operators shall desist from including hyphens in the aircraft registration when filing.*

Aircraft **must** be set to Log On to the correct Data Authority.

Establishing CPDLC Connection

Although an aircraft (FANS equipped) may be logged-on to a Data Authority, no CPDLC service will be available until an active CPDLC connection has been established.

The previous Data Authority is required to send a CPDLC END SERVICE REQUEST message to the aircraft.

A CPDLC CONNECTION REQUEST must then be sent by the receiving ground system and acknowledged by the airborne system.

On entry at Piarco's FIR a CPDLC position report should be made to verify that Piarco is the CURRENT DATA AUTHORITY.

If the downlink message fails then the pilot should attempt a manual logon by **SELECTING ATC COMM OFF THEN LOGON TO TTZP.**

Position Reporting

ADS-C shall be the primary means of position reporting in airspace East of 057° W longitude. Flights that are not ADS-C capable shall make reports via CPDLC or voice on the HF assigned.

Transfer of CPDLC between Piarco Data Authority and Adjacent Data Authorities

When possible, Piarco ground system will attempt to automatically nominate the appropriate Next Data Authority (NDA) to continue the CPDLC service. Crews should be aware that this may not always succeed and a manual log-on to the Next Data Authority may be required.

Supported Downlink Messages

Reference Number	Message Use	Message Element
DM 0	The instruction is understood and will be complied with	WILCO
DM 1	The instruction cannot be complied with	UNABLE
DM 2	Wait for a reply	STANDBY
DM 3	Message is Received and Understood	ROGER
DM 6	Request to fly at the specified Level	REQUEST [<i>level</i>]
DM 9	Request to climb to the specified Level	REQUEST CLIMB TO [<i>level</i>]
DM 10	Request to descend to the specified level	REQUEST DESCENT TO [<i>level</i>]
DM 22	Request to track from the present position direct to the specified position	REQUEST DIRECT TO [<i>position</i>]
DM 63	A system-generated denial to any CPDLC application message sent from a ground facility that is not the current data authority.	NOT CURRENT DATA AUTHORITY
DM 65	Used to explain the reasons for pilot's message	DUE TO WEATHER
DM66	Used to explain the reasons for pilot's message	DUE TO AIRCRAFT PERFORMANCE
DM 67	Normal urgency, low alert	[<i>free text</i>]
DM 98	Normal urgency, normal alert	[<i>free text</i>]

Supported Uplink Messages

Reference Number	Message Use	Message Element
UM 0	Indicates that ATC cannot comply with the request	UNABLE
UM1	Indicates that ATC has received the message and will respond	STANDBY
UM 3	Indicates that ATC has received and understood the message	ROGER
UM20	Instruction that a climb to a specified level is to commence and once reached the specified level is to be maintained	CLIMB TO AND MAINTAIN [level]
UM 21	Instruction that at the specified time a climb to the specified level is to commence and once reached the specified level is to be maintained	AT [time] CLIMB TO AND MAINTAIN [level]
UM 22	Instruction that at the specified position a climb to the specified level is to commence and once reached the specified level is to be maintained	AT [position] CLIMB TO AND MAINTAIN [level]
UM 23	Instruction that a descent a specified level is to commence and once reached the specified level is to be maintained	DESCEND TO AND MAINTAIN [level]
UM 28	Instruction that a descent is to commence at a rate such that the specified level is reached at or before the specified	DESCEND TO REACH [level] BY [time]
UM 25	Instruction that at the specified position a climb to the specified level is to commence and once reached the specified level is to be maintained	AT [position] DESCEND TO AND MAINTAIN [level]
UM 30	Instruction that a level within the defined vertical range specified is to be maintained.	MAINTAIN BLOCK [level] TO [level]
UM 46	Instruction that the specified position is to be crossed at the specified level. This may require the aircraft to modify its climb or descent profile.	CROSS [position] AT [level]

Reference Number	Message Use	Message Element
UM 74	Instruction to proceed directly from its present position to the specified position	PROCEED DIRECT TO [position]
UM 77	Instruction to proceed, at the specified position, directly to the specified position	AT [<i>position</i>] PROCEED DIRECT TO [<i>position</i>]
UM 82	Approval to deviate up to the specified distance from the cleared route in the specified direction	CLEARED TO DEVIATE UP TO [<i>specified distance</i>] [<i>direction</i>] OF ROUTE
UM 117	Instruction that the ATS unit with the specified ATS unit name is to be contacted on the specified frequency	CONTACT [UNIT NAME] [<i>frequency</i>]
UM 120	Instruction that the ATS unit with the specified ATS unit name is to be monitored on the specified frequency	MONITOR [UNIT NAME] [<i>frequency</i>]
UM 123	Instruction that the specified transponder code is to be selected	SQUAWK [<i>code</i>]
UM147	Instruction to make a position report	REQUEST POSITION REPORT
UM 148	Request the earliest time or position at which the specified level can be accepted.	WHEN CAN YOU ACCEPT [<i>level</i>]
UM 154	ATS Advisory that the radar service is terminated	RADAR SERVICES TERMINATED
UM 160	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	NEXT DATA AUTHORITY [<i>facility designation</i>]
UM 161	Notification to the avionics that the data link connection with the current data authority is being terminated.	END SERVICE
UM 169	Normal urgency attribute, low alert attribute	[free text]
UM 179	Instruction that the 'ident' function on the SSR transponder is to be actuated	SQUAWK IDENT

CPDLC Errors

If a flight crew receives an 'ERROR' response to a downlink message it should not be re-sent as this may generate another 'ERROR', and a possible time-out.

Important Notes

If a flight crew has any doubt regarding the content, validity or execution of a CPDLC message they must revert to voice communication immediately to clarify the meaning or intent of the message.

When querying a CPDLC UPLINK MESSAGE VIA VOICE, flight crews should reply with 'UNABLE', to the uplink message to close the dialogue.

Within Piarco's continental airspace (airspace west of 57W) CPDLC is a supplementary means of communication. Voice over R/T remains the primary means of communication.

In Piarco's oceanic airspace CPDLC shall be the primary means of communication and voice via HF shall be the alternate.

If a CPDLC instruction is superseded by a voice instruction, in order to avoid a time-out the flight crew are requested to respond 'UNABLE' to close the original CPDLC dialogue and follow the voice instruction.

Controllers may be required to respond to a downlink request with 'UNABLE' to close the dialogue.

Flight crews of FANS equipped aircraft are requested to respond promptly to uplinked CPDLC messages due to known network latency issues.

If a flight crew determines they will need a significant amount of time to respond to a message, they should send a STANDBY response.

Due to the potential for FANS message duplication, flight crews are requested to report any suspected instances of duplicated CPDLC messages by filing a safety occurrence report.

Operators should email fault reports or concerns to the Centralized Reporting Unit (CRU) at Piarco using the form contained in Appendix 2. This report should be sent as soon as the possible after the event to:

cru@caa.gov.tt

Flight Crews should respond as soon as possible to uplink messages to prevent a message time-out and to ensure no open dialogue exists.

Any queries relating to CPDLC operations should be sent to: piarcoacc@caa.gov.tt or cru@caa.gov.tt

CPDLC R/T Phraseology

APPENDIX 1

Operational Circumstance	Phraseology	Flight Crew Action
Controller uses a voice instruction to correct a CPDLC message	'(Aircraft Callsign) DISREGARD CPDLC (message type) MESSAGE, BREAK (followed by the correct clearance, instruction information or request)'	Crew to disregard a CPDLC message (of that type) that has arrived on the flight deck within the preceding 120 secs or one that arrives within the next 120 secs. If not already responded, crew to respond UNABLE to avoid message time out and unnecessary disconnects.
Delayed message or flight crew has not responded within 120 seconds.	'(Aircraft Callsign) DISREGARD CPDLC (climb/route/clearance, followed by executive instruction to clarify clearance) DISCONNECT CPDLC AND REVERT TO VOICE '	Crew to disregard a CPDLC message that has arrived on the flight deck within the previous 120 seconds and disconnect the CPDLC connection with the Current Data Authority. Crew will be required to LOG-ON manually with the next Data Authority
CPDLC Failure	CALLSIGN/ALL STATIONS CPDLC FAILURE AT (Unit) (followed by the appropriate clearance, instruction information or request)'	Crew shall revert to voice. ATC may require flight crews to clarify clearances.
Resumption of the normal use of CPDLC	'ALL STATIONS RESUME NORMAL CPDLC OPERATIONS'	

APPENDIX 2:



ANSP
Air Navigation
Service Provider

FANS Fault Notification Form

1. Reporting Date	2. Reporting Unit/Agency		
3. Callsign	4. Aircraft Type	5. Registration	6. Fans Equipment
7. Date of Occurrence	8. Time of Occurrence (UTC)	9. Occurrence Position in FIR	
10. Description and Action Followed:			
11. Crew/Controller Comments (If Any) :			

Classification:

1. Log-on received from aircraft not in your FIR
2. Aircraft Log-on with incorrect flight identification
3. Log-on from aircraft not declaring ADS capability in Flight Plan
4. Unknown ADS message received
5. Aircraft remain ADS connected after exiting airspace
6. Aircraft remain ADS connected after landing
7. Different reports in the same ADS message
8. Identical reports of Waypoint Change received in an ADS message
9. CPDLC Message: "Not Current Data Authority"
10. Incorrect downlink CPDLC message/s have been received
11. Other (describe): _____

(Adapted from: ICAO EUR/SAM Corridor)

SEND TO: cru@caa.gov.tt

END

