![Universal Avionics Systems Corporation logo]

UNILINK UL-800/801
FUTURE AIR NAVIGATION SYSTEM (FANS) 1/A+
OPERATOR'S MANUAL
SCN 30.X
With Corporate Database

RECORD OF REVISIONS

Rev No.	Issue Date	Insertion Date	Initials

Retain this record in front of the manual. Upon receipt of revision, insert and remove pages according to the *List of Effective Pages*. Then enter on this page the revision number, issue date, insertion date and your initials.

RECORD OF TEMPORARY CHANGES

Change No.	Issue Date/ Page	Insertion Date & Initials	Removal Date / Initials / Reason

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Original……..XX XXXX 201X

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63	X/XX/XX	97	X/XX/XX
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66	X/XX/XX	100	X/XX/XX
67	X/XX/XX	101	X/XX/XX
68	X/XX/XX	102	X/XX/XX
69	X/XX/XX	103	X/XX/XX
70	X/XX/XX	104	X/XX/XX
71	X/XX/XX	105	X/XX/XX
72	X/XX/XX	106	X/XX/XX
73	X/XX/XX	107	X/XX/XX
74	X/XX/XX	108	X/XX/XX
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76	X/XX/XX	110	X/XX/XX
77	X/XX/XX	111	X/XX/XX
78	X/XX/XX	112	X/XX/XX
79	X/XX/XX	113	X/XX/XX
80	X/XX/XX	114	X/XX/XX
81	X/XX/XX	115	X/XX/XX
82	X/XX/XX	116	X/XX/XX
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INTRODUCTION

The UniLink Airborne Datalink Product (hereafter referred to as "UniLink") is an air-to-ground digital data communication system that operates with Universal Avionics Systems Corporation's (UASC's) Fight Management Systems (FMSs). It is capable of using a variety of media such as Satellite Communications (SatCom) and Very High Frequency (VHF) communications to exchange data with datalink service providers (DSPs). When communicating over the Aircraft Communications Addressing and Reporting System (ACARS) network, UniLink is the functional equivalent of an ARINC 758 Communications Management Unit (CMU). The UL-801 contains an imbedded VHF data radio (VDR) whereas the UL-800 requires an external VDR. The VDR provides ACARS and various other types of network communications capability for UniLink.

The UniLink Future Air Navigation System (FANS) 1/A+ implementation is intended to improve safety of flight, enhance efficiency, and increase air traffic capacity. Air traffic capacity increase is promoted by augmenting voice transmissions between crews and ATC with datalink messages during flight in oceanic and remote areas that have limited or no radar coverage. The FANS 1/A+ implementation is defined in RTCA/DO-258A and ARINC 622. Features of this implementation include Air Traffic Services (ATS), Facilities Notification (AFN), Automatic Dependent Surveillance-Contract (ADS-C) , and Controller-Pilot Datalink Communications (CPDLC) text data transmissions.

The FAA has approved the aircraft datalink system to the criteria contained in AC 20-140A for FANS 1/A+ using VDL M2, VDL M0/A, and SatCom (IMMARSAT). The datalink system meets the aircraft-allocated performance requirements of RCP 240 and type 180 (all sub-networks), and the performance requirements for continental applications (VDL M2 only). This design approval does not constitute operational authorization.

NOTE: The colors shown on the screens in this operator's manual are based on an FMS with SCN 1000.5/1100.5 installed and configured for STANDARD-2 color pallet.

Components

One UASC FMS utilizing SCN 1000.5/1100.5 or later is required for UniLink FANS-1/A+ implementation. A complete system includes:

- UASC FMS (SCN 1000.5/1100.5 or later) with a Control Display Unit (CDU) or Multifunctional Control Display Unit (MCDU)

- FANS Visual Annunciator(s)

- FANS Aural Alerting device

- Cockpit Voice Recorder (CVR) (to record CPDLC/FANS messages and events)

- Approved SatCom System (to support remote oceanic FANS CPDLC communications)

- UniLink Airborne Datalink (SCN 30.X or later) - FANS Enabled will display the following MAIN MENU:

MCDU

Use of a UASC MCDU with the UniLink UL-80X involves the following configuration/operation performance considerations:

- When configured for a 429 interface, LSKs [L6] and [R6] will not be functional

- When configured for a 702 interface, LSKs [L5] and [R5] will not be functional (LSKs [L6] and [R6] will be used instead).

- The plus/minus ($\pm$) key will not operate as a space key. The MCDU [SP] key is used for the space function.
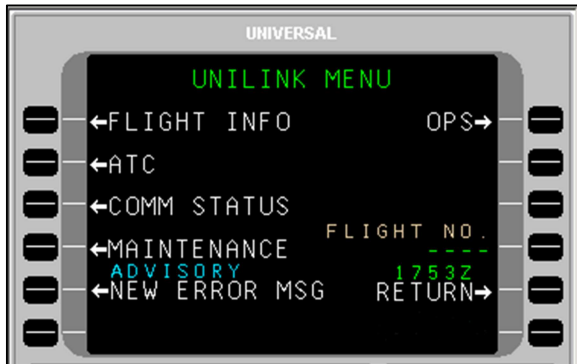
UNILINK MENU on MCDU (429 Interface)

Applications

FANS 1/A + is principally composed of three applications:

- **Controller-Pilot Datalink Communications (CPDLC)** – CPDLC allows datalink messages to substitute for traditional voice communications for routine communications between a crew and an air traffic controller. CPDLC messages can be used to request and grant clearances, to inform the ground of the aircraft's position and situation, and to provide instructions to the crew.

- **Air Traffic Services Facilities Notification (AFN)** – This application requires no crew action. AFN allows the aircraft and an Air Traffic Services (ATS) provider on the ground to exchange addresses, as well as information about which FANS applications they support.

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- **Automatic Dependent Surveillance-Contract (ADS-C)** – This application requires no crew action. ADS-C allows ATS providers to query the aircraft to provide position reports and other situational data at regular intervals or in response to events specified by the ATS provider, such as a change in altitude or lateral deviation.

Operations

NOTE: This Operator's Manual includes procedures and functions used in a FANS-Enabled UniLink System. Crews that operate this system must be trained and obtain operational approval from the state of registry.

Crew interface is accomplished through the FMS CDU and/or MCDU, utilizing a UASC FMS with SCN 1000.5/1100.5 or later. Data may be entered at any field highlighted by a cursor. The cursor is displayed in the first empty data field. Fields with plus signs (+) indicate information is required. Fields exhibiting minus signs (-) indicate input is optional.

If there is no cursor displayed in a data field, selecting the ENTER key will place the cursor over the first enterable field on the page. Data is then entered into the field using the CDU/MCDU alphanumeric keys. In some situations, flight progress and related data from the FMS will be prefilled. Subsequent presses of the [ENTER] key will move the cursor to the next enterable field. Pressing a line select key (LSK) highlights the corresponding data entry field. Selecting [ENTER] when the cursor is in the last data field on the page results in the cursor parking off of the page. Pressing [ENTER] again positions the cursor on the initial enterable field on the page.

FMS Input

The FMS continuously provides current data to UniLink. Many messages and requests have fields that prefill with FMS flight progress data and computed information. In most cases the user accepts the data for inclusion into the message. It is possible however to change a value by overriding that value with a manual data entry. Manual entries are generally retained until power shutdown, although data that would normally change as a flight progresses will be cleared once the page has been exited (is no longer displayed).

Source FMS

The crew must ensure that the FMS that is navigating the aircraft (Source FMS) is the same FMS that supplies data to UniLink. The Source FMS is shown on the SOURCE FMS page, accessed via MAINTENANCE > SENSOR STATUS > SOURCE FMS.
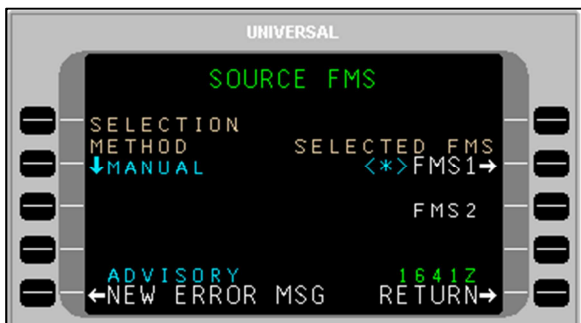
The Source FMS is indicated by an asterisk next to it. Any available FMS can be manually selected by pressing the adjacent LSK. If automatic (AUTO) selection is desired, the SELECTION METHOD LSK will toggle between MANUAL and AUTO.

NOTE: It is important for the crew to ensure that the Source FMS is not changed prior to an expected flight plan modification uplink. If the Source FMS is changed prior to the uplink, the flight plan information will need to be transferred to the new Source FMS from the previously designated FMS.

Communications

Prior to entering Oceanic Airspace (and loss of VHF communications) the crew should suspend VHF and transition to satellite communication (See STATE under VHF DATA in the COMM CONTROL section).

Current Time

On every UniLink screen above the RETURN option at LSK [5R], the current UTC time is displayed.

SEND

When the SEND LSK is pressed, the request is placed into queue for transmission. The delivery status of the message appears above the SEND option. If data required for the message has not been entered completely, the SEND option will display as inactive and if selected, a pop-up window DATA REQUIRED will display (indicating the data is insufficient).The SEND prompt will not display an arrow (indicating active) until all required data is entered. Clear the pop-up window by pressing any active LSK.
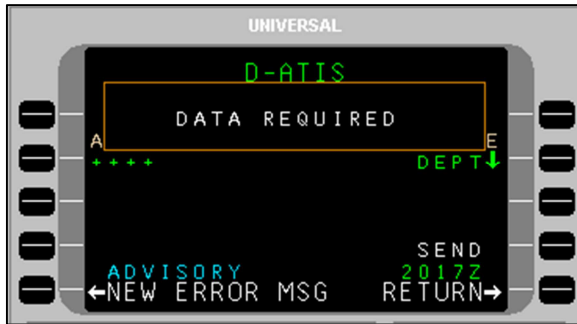
SEND status displays the current status of the message. When the SEND LSK is pressed, the status will briefly change to QUEUED, then SENDING. The selected media for transmission (VHF, SAT, or TEL) is indicated after SENDING. When acknowledgement is received from the DSP, SENT status will display.

UniLink Advisories

The bottom left LSK on each UniLink page will display either the UNILINK MENU prompt or UniLink advisories. UniLink advisories notify the crew of UniLink activity that may require user action. Only one advisory will display at a time in the order of priority. Pressing the adjacent LSK allows viewing of the advisory message.

When no advisory is displayed, the advisory field is used to display the UNILINK MENU prompt. Selecting this prompt displays the UNILINK MENU.

When on an FMS page, UniLink advisories will be indicated by the flashing MSG annunciator. Pressing the [MSG] key will allow viewing of UniLink advisories and messages via the NEW MESSAGE Advisory prompt (LSK [5L]). This will open the appropriate UniLink page.

Advisory Messages

NEW ERROR MSG – This advisory is active when an unviewed message exists in the Error Log. Selection of this advisory displays the detailed error message page for most recently logged error message that has not been viewed.

ACKNOWLEDGE – Indicates that an uplink message that is displayed requires crew acknowledgment. Selection will send an acknowledgment message.

NEW MSG – Indicates a new unverified message in the Uplink Log. Selection of this advisory displays the detailed message page for the latest unread unverified message.

NEW VERIF MSG– Indicates a new verified message in the Uplink Log. Selection of this advisory displays the detailed message page for the latest unread verified message.

NEW WX MAP – Indicates a new unviewed weather graphic in the Graphic Log. Selection of this advisory displays the most recent graphic.

SELCAL – Indicates a SELCAL request has been received. Selection of this advisory displays the SELCAL page.

VHF VOICE (applies to UL-800 only) – Indicates the VDR is in Voice Mode. Selection of this advisory displays the VHF VOICE page.

TEL SUSPEND – Indicates the configured dial attempt limit has been reached and TEL LINK has been suspended (or TEL LINK has been manually suspended). Selection of this advisory displays the TEL DATA page.

GND DELAY – Indicates a configurable timer has elapsed since the last OUT event (push back) and the OFF event (take off) has not yet occurred. Selection of this advisory displays the EST TIME OFF page.

NOCOMM – Indicates multiple air/ground links are not available. Selection of this advisory displays the COMM STATUS page.

SAT NOCOMM – Indicates the configured SatCom air/ground link is not available. Selection of this advisory displays the COMM STATUS page.

TEL NOCOMM – Indicates the configured airborne telephony (SatCom) system link is not available. Selection of this advisory displays the COMM STATUS page.

VHF NOCOMM – Indicates UniLink has determined that a VHF air/ground link is not available. Selection of this advisory displays the COMM STATUS page.

NEW ATC MSG – Indicates the presence of an unviewed CPDLC uplink. Selecting this advisory displays the uplink, together with any appropriate response options (e.g., WILCO/UNABLE). If multiple unviewed CPDLC uplinks are present, the oldest will be viewed, ensuring that messages are presented in the order received. If this advisory is active when the UNILINK prompt is selected on the FMS MESSAGE or DATA page, the advisory is selected automatically.

OPEN ATC MSG – Indicates the presence of a CPDLC uplink that has not yet received a closure response. Required closure responses include WILCO, UNABLE, ROGER, AFFIRM, and NEGATIVE. STANDBY is not a closure response and will not dismiss this advisory. The advisory remains active until the required closure response has been queued. If multiple open CPDLC uplinks are present, the oldest will be viewed, ensuring that messages are responded to in the order received. If this advisory is active when the UNILINK prompt is selected on the FMS MESSAGE or DATA page, the advisory is selected automatically.

ATC RPT READY – Indicates that the necessary conditions for sending a CPDLC report downlink previously requested by ATC have been met. If a single report is ready to be sent, and all the data required by that report is available, selecting the advisory will display a review page from which the report may be sent. If a single report is ready to be sent, and some of the data required by the report must be entered manually, selecting the advisory will display a message composition page on which the required data may be entered. If multiple reports are ready to be sent, selecting the advisory displays the ATC RPTS page, which contains a log of all ATC report requests that have not yet been fulfilled. From this page the desired report request can be selected, and the appropriate review page or message composition page will be displayed.

Once selected, this advisory is dismissed until another requested report becomes ready to send. It does not remain active until a report has been sent.

NOTE: UniLink's ability to detect REPORT PASSING events is limited. UniLink can detect the passing of a flight plan waypoint but cannot detect the passing of an arbitrary pair of lat/lon coordinates or a given latitude line or meridian. The pilot retains responsibility for monitoring the situation and sending requested reports when necessary.

ATC CNCT XXXX – Indicates that a new Air Traffic Service Unit (ATSU) has become the aircraft's current ATC data authority. The ICAO code (XXXX) of the ATSU is included in the advisory. This advisory is informational; it is dismissed when selected and requires no further action.

ATC DISCNECT – Indicates that the aircraft no longer has a current ATC data authority. The connection with the aircraft's current ATC data authority has been lost, and there is no next data authority to take its place. This advisory is informational; it is dismissed when selected and requires no further action.

ATC LOGON FAIL – Indicates that an attempted AFN log on has failed, either because a negative acknowledgement was received from the ATSU or because no acknowledgement was received within ten minutes of the transmission of the AFN log on downlink. Selecting this advisory displays the ATC LOG ON page, where the status indication above the LOG ON prompt at LSK [3L] indicates the reason for the failure (ERROR or TIMEOUT).

ATC RPTS FULL – Indicates that the log of pending CPDLC report requests received from ATC is now full, and one of these requests must be either satisfied or deleted. Selecting this advisory displays the ATC RPTS page. The log of pending report requests can hold up to fifteen entries.

Error Messages

Most error messages generate a NEW ERROR MSG advisory which is displayed in the ERROR LOG pages. Certain error messages which are considered more urgent are displayed in a pop-up window in the middle of the current UniLink page, for example: QUEUE FULL, DISPLAY PROCESSOR FAIL, or A740: PRINTER FAIL.

Entry Error Pop-up Windows

UniLink provides feedback when an invalid entry is made. After an invalid entry, a pop-up window identifies the entry error.
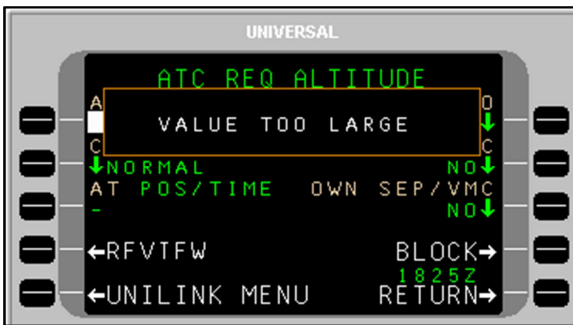
The following is a list of data entry errors and the condition that will initiate the error pop-up window.

Screen Text	Condition
VALUE TOO LARGE	The entered numeric value exceeds the allowable maximum.
VALUE TOO SMALL	The entered numeric value is less than the allowable minimum.
TOO MANY CHARACTERS	The entered number of characters exceeds the allowable maximum.
TOO FEW CHARACTERS	The entered number of characters is less than the allowable minimum.
VALUE MUST BE NUMERIC	The prompt only accepts digits.
VALUE MUST BE ALPHABETIC	The prompt only accepts letters.
TOO MUCH PRECISION	The entered numeric value has too many numbers to the right of

Screen Text	Condition
	the decimal point.
NEGATIVE NOT PERMITTED	The prompt only accepts positive numbers.
MISSING N OR S	The entered latitude does not specify a hemisphere.
MISSING E OR W	The entered longitude does not specify a hemisphere.
INVALID NUMBER	The entered characters could not be interpreted as a number.
INVALID ENTRY	The entered characters do not conform to specific textual data item input restrictions.
ILLEGAL HYPHEN	The entered tail number begins or ends with a hyphen.
ILLEGAL VHF FREQUENCY	The entered frequency is not a valid VHF Voice or data frequency, or is the CSC frequency (136.975).
ILLEGAL DATA FREQUENCY	The Emergency Voice frequency (121.500) has been entered at a prompt that expects to receive a data frequency.
PRESSURE OUT OF RANGE	The entered atmospheric pressure is out of range.
INVALID SECONDS VALUE	The entered seconds value within a time field is invalid.
INVALID MINUTES VALUE	The entered minutes value within a time field is invalid.
INVALID HOURS VALUE	The entered hours value within a time field is invalid.
INVALID DAY	The entered day value within a date field is invalid.
INVALID MONTH	The entered month value within a date field is invalid.
INVALID YEAR	The entered year value within a

Screen Text	Condition
	date field is invalid.
INVALID LEAP YEAR	The entered date value includes Feb 29th in a year that is not a leap year.
INVALID SECONDS	The entered seconds value within a latitude or longitude field is invalid.
INVALID MINUTES	The entered minutes value within a latitude or longitude field is invalid.
DATA CANNOT BE MODIFIED	(MCDU only) An attempt has been made to delete data from an edit prompt that displays read-only data.
TOO MANY VALUES	MCDU only) Too may slashes have been entered in the scratchpad; the number of entered values exceeds the number of values associated with an LSK.
INTERNAL ERROR	An error is detected in the software or customer database.
ENTER L OR R, THEN DISTANCE	The entered CPDLC offset value did not begin with L or R.
DATA REQUIRED	An attempt has been made to navigate to a new page or send a request without supplying required information.

Alerting

Message Alerting

Message alerting functions include visual and aural alerts, and digital outputs to various Line-Replaceable Units (LRU). The outputs are intended to drive visual or aural alerting when a new uplink message is received. The digital outputs provide messaging alerts that may be used by other devices for additional alerting functions, such as the FMS MSG annunciator.

Alert Inhibiting

UniLink Alert Inhibiting operates in order to suspend the output of message alerting during critical phases of flight (i.e., takeoff and landing). Displayed UniLink advisories are not suppressed during critical flight phases.

NOTE: If UniLink transitions out of the takeoff phase due to transitioning directly into the landing phase, UniLink will continuously inhibit alert outputs. This ensures there are no aural alerts that could potentially distract the crew.

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User Interface Menu Tree

The UniLink Main Menu page is accessed from the UNILINK prompt on either DATA 1/4 or the MESSAGE page (from a reboot or initial startup). To navigate down through the menu tree, select the applicable page option LSKs to move to the desired function. Use the RETURN LSK to move back up the menu tree.

Pages shown in the menu trees may or may not be available depending on specific installation configuration. Check with installer for specific configuration details.

UniLink Menu (SCN 30.X)

```
UNILINK
MENU
    └─ FLIGHT INFO
            ├─ D-ATIS
            ├─ TWIP
            ├─ DEPARTURE CLX
            ├─ OCEANIC CLX ── OCEANIC CLX ATC
            ├─ VERIFY MSGS
            ├─ PUSHBACK CLX
            └─ EXP TAXI CLX
    └─ ATC
            ├─ ATC EMERGENCY ── ATC REVIEW (MAYDAY)
            │                   ATC REVIEW (PAN)
            │                   ATC REVIEW (Cancel Emergency)
            ├─ ATC LOG ON 1/2 ── ATC LOG ON TO  (LOG ON TO Region pages including:
            │                       - N PACIFIC
            │                       - S PACIFIC
            │                       - ASIA
            │                       - INDIAN OCEAN
            │                       - N ATLANTIC
            │                       - S ATLANTIC
            │                       - EUROPE)
            └─ ATC LOG ON 2/2
```

(Continued on next page)

UniLink Menu (continued)

```
UNILINK
MENU              ATC
Continued      Continued
                              ┌──────────┐
                              │   ATC    │
                              │ REQUEST  │
                              └────┬─────┘
                                   │
                    ┌──────────────┴──────────┬─────────────┐
                    │                          │             │
              ┌──────────┐              ┌──────────┐   ┌──────────┐
              │ ATC REQ  │              │ ATC REQ  │   │ATC REVIEW│
              │ ALTITUDE │──────────────│ ALTITUDE │───│(REQUEST  │
              │ (SINGLE) │              │ (BLOCK)  │   │  BLOCK)  │
              └────┬─────┘              └──────────┘   └──────────┘
                   │                    ┌──────────┐
                   │                    │ATC REVIEW│
                   │                    │(REQUEST) │
                   │                    └──────────┘
              ┌──────────┐
              │ATC REVIEW│
              │(REQUEST  │
              │   VMC    │
              │ DESCENT) │
              └──────────┘

              ┌──────────┐              ┌──────────┐
              │ ATC REQ  │              │ ATC REQ  │   ┌──────────┐
              │  SPEED   │──────────────│  SPEED   │───│ATC REVIEW│
              │ (SINGLE) │              │ (BLOCK)  │   └──────────┘
              └────┬─────┘              └──────────┘
                   │                    ┌──────────┐
                   │                    │ATC REVIEW│
                   │                    └──────────┘
```

(Continued on next page)

UniLink Menu (continued)

```
UNILINK                      ATC
MENU            ATC        REQUEST
Continued     Continued    Continued

                           ┌──────────────┐
                           │     ATC      │
                           │   REQUEST    │
                           │  CLEARANCE   │
                           │ (FREE TEXT)  │
                           └──────────────┘

                           ┌──────────────┐   ┌──────────────┐
                           │ ATC REQ RTE  │   │     ATC      │
                           │     1/2      │───│   REQUEST    │
                           └──────────────┘   │     DTO      │
                                              └──────────────┘
                           ┌──────────────┐   ┌──────────────┐
                           │ ATC REQ RTE  │   │  ATC REVIEW  │
                           │     2/2      │───│              │
                           └──────────────┘   └──────────────┘

                           ┌──────────────┐   ┌──────────────┐
                           │  ATC REQ     │   │     ATC      │
                           │  OFFSET      │───│   REQUEST    │
                           └──────────────┘   │      AT      │
                                              └──────────────┘
                                              ┌──────────────┐
                                              │  ATC REVIEW  │
                                              │  (REQUEST    │
                                              │  OFFSET OF   │
                                              │ ROUTE FREE-  │
                                              │    TEXT)     │
                                              └──────────────┘

                           ┌──────────────┐   ┌──────────────┐
                           │  ATC REQ     │   │  ATC REVIEW  │
                           │  VOICE       │───│(REQUEST VOICE│
                           │  CONTACT     │   │CONTACT FREE- │
                           └──────────────┘   │    TEXT)     │
                                              └──────────────┘

              ┌──────────────┐
              │ ATC EXPECT   │
              │ WHEN CAN WE  │
              └──────────────┘
                           ┌──────────────┐   ┌──────────────┐
                           │  ATC EXP     │   │  ATC REVIEW  │
                           │  ALTITUDE    │───│ (WHEN CAN WE │
                           └──────────────┘   │ EXPECT FREE- │
                                              │    TEXT)     │
                                              └──────────────┘

                           ┌──────────────┐   ┌──────────────┐
                           │  ATC EXP     │   │  ATC EXP     │
                           │  SPEED       │───│ SPEED (BLOCK)│
                           │  (SINGLE)    │   └──────────────┘
                           └──────────────┘   ┌──────────────┐
                                              │  ATC REVIEW  │
                                              │ (WHEN CAN WE │
                                              │ EXPECT FREE- │
                                              │    TEXT)     │
                                              └──────────────┘
                           ┌──────────────┐
                           │  ATC REVIEW  │
                           │ (WHEN CAN WE │
                           │ EXPECT BACK  │
                           │  ON ROUTE    │
                           │ FREE-TEXT)   │
                           └──────────────┘
```

(Continued on next page)

UniLink Menu (continued)

```
UNILINK
MENU          ATC
Continued     Continued

                        ┌─────────────┐      ┌─────────────┐
                        │ ATC FREE-   │──────│ ATC REVIEW  │
                        │   TEXT      │      └─────────────┘
                        └─────────────┘

                        ┌─────────────┐
                        │ ATC RPTS 1/X│
                        └─────────────┘

                        ┌─────────────┐      ┌─────────────┐
                        │ ATC POS RPT │──────│    ATC      │
                        │    1/2      │      │  REPORTED   │
                        └─────────────┘      │    WPT      │
                                             └─────────────┘
                                             ┌─────────────┐
                                             │  ATC NEXT   │
                                             │    WPT      │
                                             └─────────────┘
                                             ┌─────────────┐
                                             │ ATC REVIEW  │
                                             └─────────────┘

                        ┌─────────────┐      ┌─────────────┐
                        │ ATC POS RPT │──────│    ATC      │
                        │    2/2      │      │  ENSUING    │
                        └─────────────┘      │    WPT      │
                                             └─────────────┘
                                             ┌─────────────┐
                                             │ ATC REVIEW  │
                                             └─────────────┘

                        ┌─────────────┐
                        │ ATC MSGS    │
                        │   1/X       │
                        └─────────────┘

┌─────────┐   ┌─────────┐   ┌─────────────┐   ┌─────────────┐
│ COMM    │───│ COMM    │───│ VHF VOICE   │   │ See NOTE 1  │
│ STATUS  │   │ CONTROL │   └─────────────┘   └─────────────┘
└─────────┘   └─────────┘   ┌─────────────┐   ┌─────────────┐
                            │ VHF DATA    │───│ FREQUENCIES │  See NOTE 1
                            └─────────────┘   └─────────────┘
                            ┌─────────────┐   ┌─────────────┐
                            │ SAT DATA    │   │ See NOTE 2  │
                            └─────────────┘   └─────────────┘
                            ┌─────────────┐   ┌─────────────┐
                            │ TEL DATA    │   │ See NOTE 3  │
                            └─────────────┘   └─────────────┘
```

(Continued on next page)

NOTES:

1. Only available if VHF is enabled in configuration (UL-800 only)
2. Only available if SAT is enabled in configuration.
3. Only available if TEL is enabled in configuration.

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Maintenance Menu

Maintenance provide access UniLink maintenance-related functions. They are accessed by pressing MAINTENANCE, LSK [4L] on the UNILINK MENU page. Other than TESTS, there are no user-related functions on these pages. See the associated UniLink Installation Manual for installation and maintenance procedures.

UNILINK
MENU
Continued

```
MAINTENANCE          DEVICES
    1/3

                 SENSORS 1/2 ─── DISCRETES

                                 BCST DATA

                                 SOURCE FMS

                 SENSORS 2/2 ─── VDR STATUS

                 VERSIONS

                 ERROR LOG

                 SYS CONFIG ─── I/O CONFIG ─── DISC IN
                    1/4
                               VHF CONFIG      DISC OUT

                               SAT CONFIG      ARINC RX

                               PRIORITY        ARINC TX

                               TEL CONFIG      SERIAL

                               POS REPORT      GRAPHICS

                               REVIEW
```
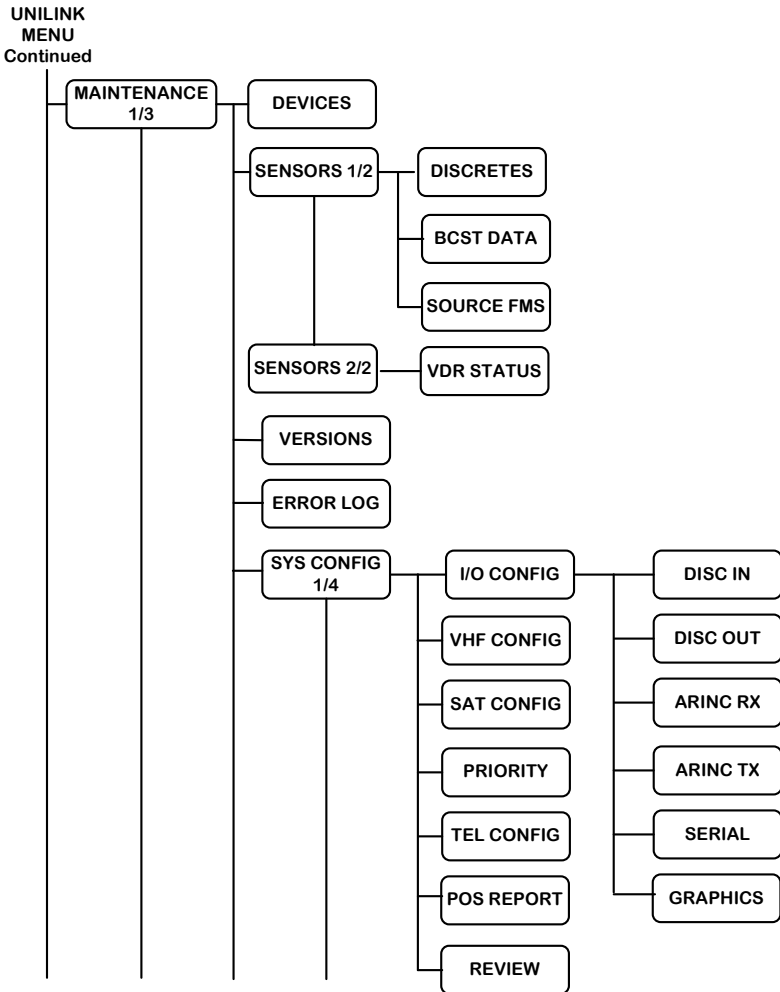
(Continued on next page)

Maintenance Menu (Continued)

```
UNILINK          MAINTENCE        SYS
MENU        MAINTENCE     1/3       CONFIG
Continued   Continued   Continued  Continued

                                   ┌──────────────┐      ┌──────────────┐
                                   │ SYS CONFIG   │──────│  AIRCRAFT    │
                                   │    2/4       │      └──────────────┘
                                   └──────────────┘
                                                         ┌──────────────┐
                                                         │ CLEARANCES   │
                                                         └──────────────┘

                                                         ┌──────────────┐
                                                         │   ALERTS     │
                                                         └──────────────┘

                                   ┌──────────────┐
                                   │ SYS CONFIG   │
                                   │    3/4       │
                                   └──────────────┘

                                   ┌──────────────┐
                                   │ SYS CONFIG   │
                                   │    4/4       │
                                   └──────────────┘

                                   ┌──────────────┐      ┌──────────────┐
                                   │    TESTS     │──────│    TESTS     │
                                   └──────────────┘      └──────────────┘

                                   ┌──────────────┐      ┌──────────────┐
                                   │  POWER LOG   │──────│  POWER LOG   │
                                   └──────────────┘      └──────────────┘

                                   ┌──────────────┐      ┌──────────────┐
                                   │  PRINT JOB   │──────│  PRINT JOBS  │
                                   └──────────────┘      └──────────────┘

              ┌──────────────┐     ┌──────────────┐      ┌──────────────┐
              │ MAINTENANCE  │─────│  DATA LOAD   │──────│  DATA LOAD   │
              │    2/3       │     │    1/2       │      │    2/2       │
              └──────────────┘     └──────────────┘      └──────────────┘

              ┌──────────────┐     ┌──────────────┐
              │ MAINTENANCE  │─────│  FANS FPL    │
              │    3/3       │     │    DATA      │
              └──────────────┘     └──────────────┘
```
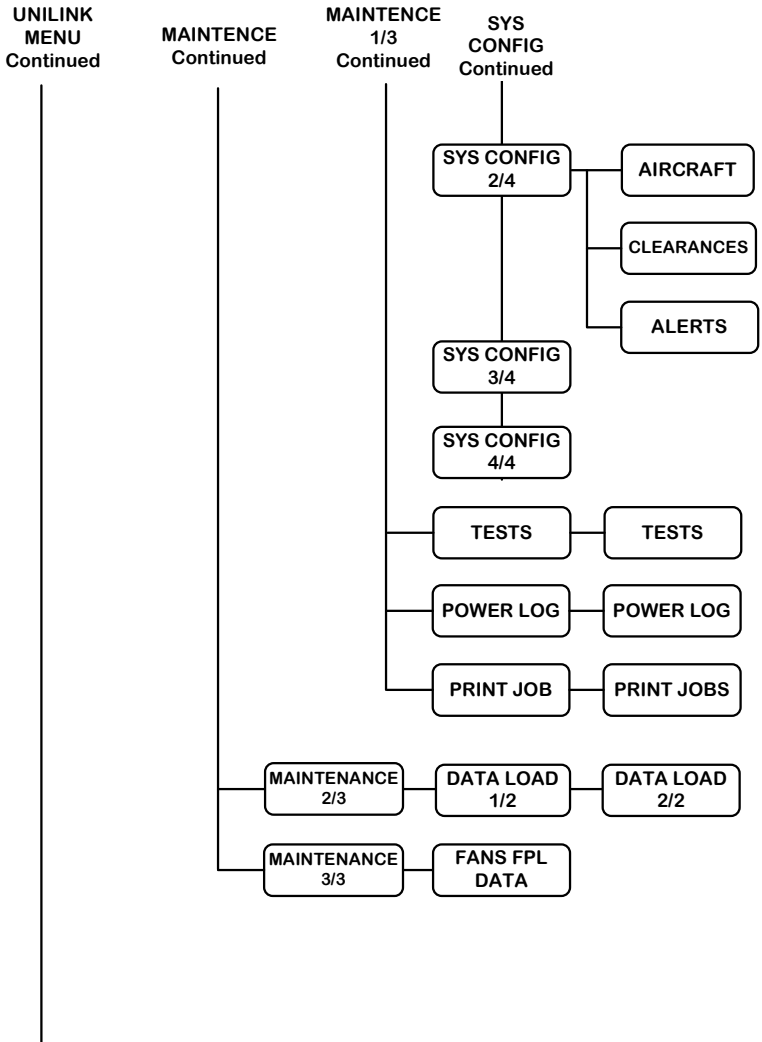
(Continued on next page)

OPS Menu

Operational (OPS) pages are used to access UniLink AOC-related functions. They are accessed through the UniLink Menu page by selecting OPS, LSK [1R}.

UNILINK
MENU
Continued

```
OPS 1/2
    ├─ FREE-TEXT ─── See NOTE 1.
    ├─ OOOI CURR ─── OOOI HIST
    ├─ TEXT WX ───── TEXT WX ───── WX MAP LOG
    │   REQUEST        TYPES
    │                            See NOTE 2.
    └─ WX MAP        US COMP
        REQUEST ──── RADAR
                     US TOPS/ ───── REGION
                     MVMT
                     IR SATELLITE ── REGION
                     ICING/TURB ──── REGION
                                     ALTITUDE
                     IFR/MVFR ────── REGION
                     SIGNIFICANT
                     WX
                     WINDS ───────── REGION
                     ALOFT
                                     ALTITUDE
```
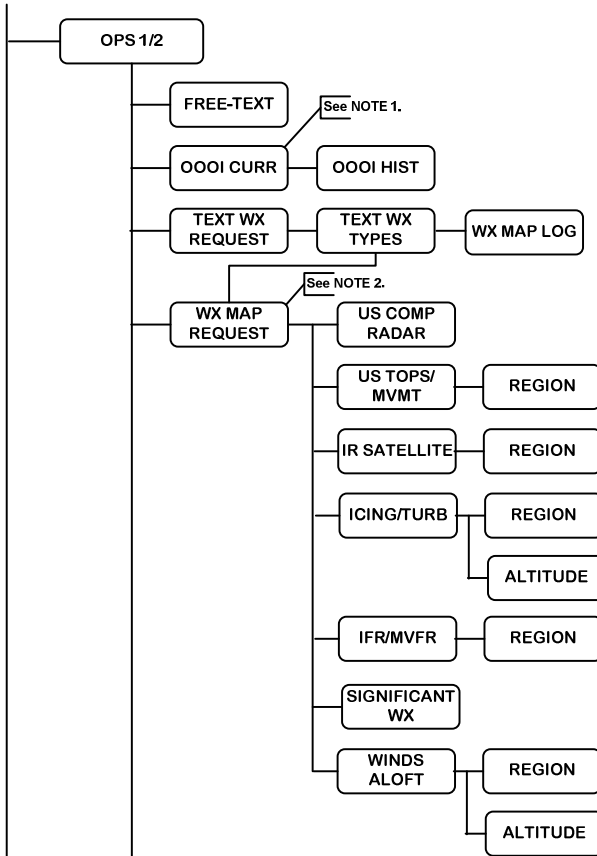
(Continued on next page)

NOTES:
1. Only available if OOOI is enabled in configuration
2. Only available if TEL is enabled in configuration.

OPS Menu (Continued)

```
UNILINK
MENU          OPS 1/2
Continued     Continued

                                          ┌─ See NOTE 1.
                          WX MAP LOG ──────┘

                          MESSAGE ─────────  VERIF MSGS
                          LOGS
                                             OPS MSGS

                                             WX MAP LOG


              OPS 2/2

                          DELAY ───────────  DELAY
                                             REASON

                          DIVERSION ───────  DIVERT
                                             REASON

                          ETA UPDATE ──────  ETA REASON

                          SITUATION ───────  SITUATION
                                             REASON

                          POS REPORT


                                    ┌─ See NOTE 2.
              SELCAL ───────────────┘
```
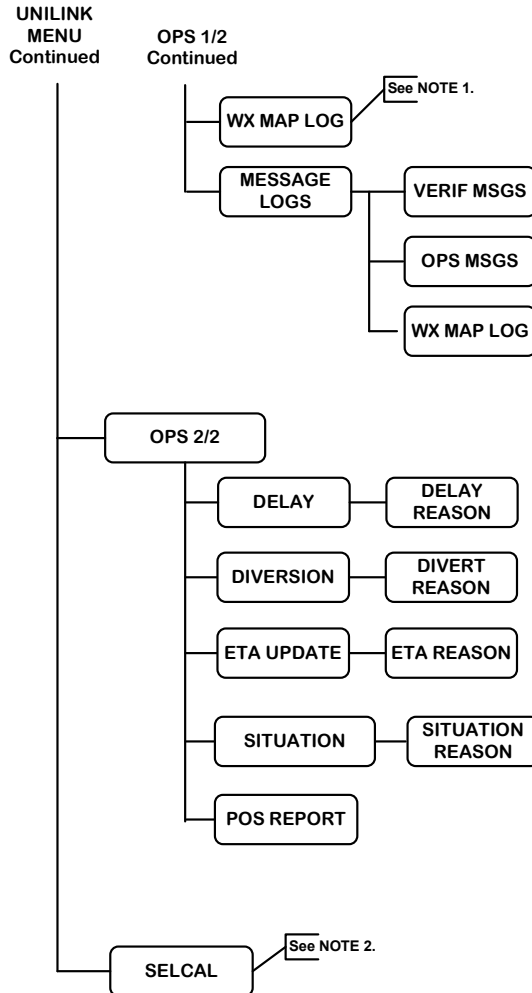
NOTES:

1. Only available if TEL is enabled in configuration
2. The SELCAL option only displays when associated messages are available. Check with DSP for availability of this feature.

UNILINK MENU

Menu Navigation: [DATA] or [MSG] > UNILINK

All UNILINK MENU options are contained on one page.

The UniLink Menu page is accessed by selecting UNILINK from either the FMS DATA 1/4 page or the FMS MESSAGE 1/1 page.
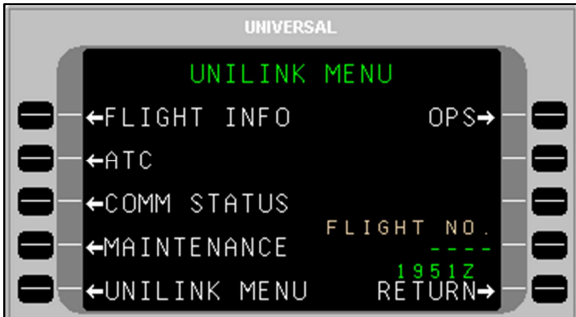
NOTE: Based on installation and configuration, the FLIGHT NO. field may or may not be displayed.

Flight Information

Menu Navigation: UNILINK MENU > FLIGHT INFO

On the UNILINK MENU page, press FLIGHT INFO, LSK [1L], to access the FLIGHT INFO page. All services provided on this menu are available only over the ACARS VHF or SatCom packet data network.

NOTE: Flight Information Services are advisory only. It is the responsibility of the crew to exercise reasonable and prudent judgment in the use of these advisory services.
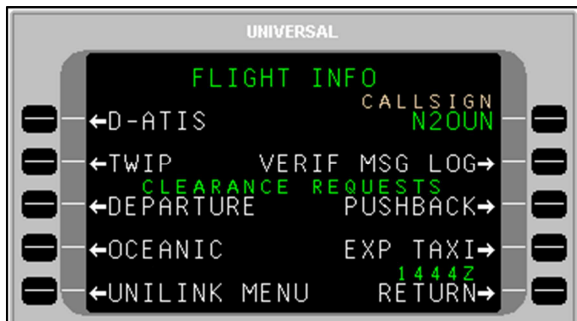
NOTE: DEPARTURE, OCEANIC, PUSHBACK, and EXP TAXI requests are configurable options and are not displayed if configured as disabled.

The aircraft tail number, or registration (entered during configuration), is automatically inserted in the CALL SIGN field (less any hyphen characters). If the aircraft has a different ATS call sign (flight identifier) assigned for the flight, it should be manually entered.

NOTE: If the flight number option is enabled in configuration and a flight number is entered on the UNILINK MENU page, the three-digit airline ID and four-digit flight number (e.g., UVA1234) is inserted in the CALLSIGN field, overriding the tail number.

To manually enter a callsign:

1. Press LSK [1R]. The CALLSIGN field will become active.

3. Enter the desired callsign using the alphanumeric keys.

4. Press [ENTER]. The new callsign will display in the field.

NOTE: The hierarchy of flight identifier information is as follows (with 1 being the highest):

1. A manually entered call sign

2. Airline ID/Flight Number (commercial airline only)

3. Default registration (set during installation/configuration)

D-ATIS Request

Menu Navigation: UNILINK MENU > FLIGHT INFO > D-ATIS

The D-ATIS page is used to request local arrival or departure Automatic Terminal Information Service (ATIS).
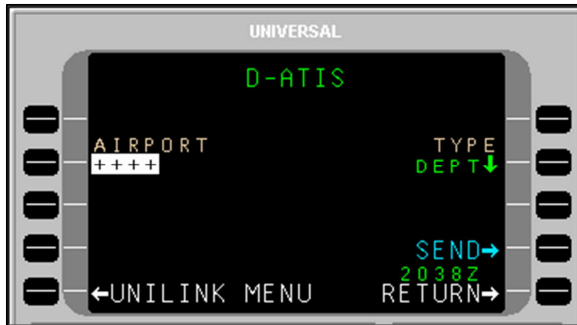
To request ATIS:

1. Press D-ATIS, LSK [1L] on the FLIGHT INFO page. The D-ATIS page will display.

2. With AIRPORT active, enter the Airport Identifier and press [ENTER] or accept the default destination airport from the FMS flight plan.

NOTE: If an incomplete airport identifier is entered, the pop-up window TOO FEW CHARACTERS will display and the field will flash. Pressing the LSK and re-entering a complete identifier will correct the error.

3. DEPT is the default type of ATIS. Press LSK [2R] to toggle this field between ARRV and DEPT as needed.

4. Press SEND, LSK [4R] to place the message in queue for transmission.

NOTE: If the information on this page is incomplete, the pop-up window DATA REQUIRED will display and the SEND prompt will not enable.

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TWIP Request

Menu Navigation: UNILINK MENU > FLIGHT INFO > TWIP

The TWIP page is used to request Terminal Weather Information for Pilots (TWIP).

To make a TWIP request:

1. Press TWIP, LSK [2L] on the FLIGHT INFO page. The TWIP page will display.

2. With AIRPORT active, enter a destination airport and press [ENTER] or accept the Destination Airport from the FMS flight plan.

NOTE: If an incomplete airport identifier is entered, the pop-up window TOO FEW CHARACTERS will display and the field will flash. Pressing the LSK and re-entering a complete identifier will correct the error.

3. Press the SEND LSK to place this message in queue for transmission. The SEND prompt will not be enabled if the information on this page is incomplete.

NOTE: If the information on this page is incomplete, the pop-up window DATA REQUIRED will display and the SEND prompt will not enable.

Departure Clearance Request

Menu Navigation: UNILINK MENU > FLIGHT INFO > DEPARTURE

The DEPARTURE CLX page is used to request departure clearance.
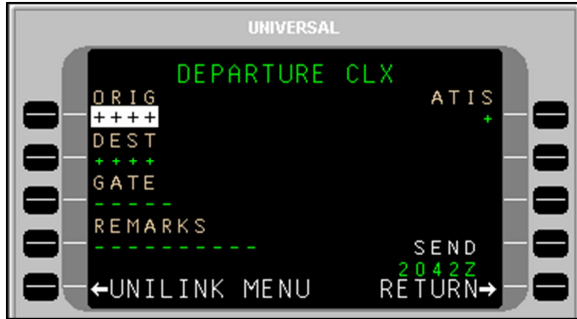
To request a Departure Clearance:

1. Press Departure, LSK [3L] on the FLIGHT INFO page. The DEPARTURE CLX page will display.

2. Verify or change the ORIG (origination) airport. This field defaults to the departure airport identifier from the FMS.

3. Verify or change the DEST (destination) airport. This field defaults to the destination airport from the FMS.

4. Enter GATE number (optional).

5. Press the REMARKS LSK to enter any remarks as needed (see the REMARKS Section in this manual).

6. Enter the latest ATIS version (alpha character).

7. Press SEND, LSK [4R] to place this message in queue for transmission.

NOTE: The SEND prompt will not be enabled if the required information on this page is incomplete, the call sign from the Flight Information Services page is not entered, or the aircraft type has not been configured from the Aircraft Configuration page. Any attempt to send this page with incomplete information results in the pop-up window DATA REQUIRED displaying.

Oceanic Clearance Request

Menu Navigation: UNIILINK MENU > FLIGHT INFO > OCEANIC

The OCEANIC CLX page is used to request Oceanic Clearance.

To request an Oceanic Clearance:

1. Press OCEANIC, LSK [4L] on the FLIGHT INFO page. The OCEANIX CLX page will display.

2. Press ATC, LSK [1L] to open the OCEANIX CLX ATC page.

3. Select the ATC Station using the adjacent LSK, or enter a station ID in the OTHER field, LSK [R4]. The OCEANIX CLX page will display, showing the selected ATC station.

4. If not active, press the ENTRY POINT, LSK [2L] and enter the point of entry into oceanic airspace. Press [ENTER].

NOTE: Enter three to eleven characters to specify the position by latitude/longitude or by waypoint identifier.

5. If not active, press the ENTRY TIME, LSK [3L] and enter the requested time for the clearance. Press [ENTER].

6. If not active, press MACH, LSK [2R] and enter the requested Mach number. Press [ENTER].

7. If not active, press ALTITUDE, LSK [3R] and enter the requested flight level. Press [ENTER].

8. Press the REMARKS LSK and enter any remarks as needed. OCEANIC Clearance remarks are entered using the OCEANIC CLX REMARKS page (see the REMARKS Page section in this manual).

9. Press SEND to place the message in queue for transmission.

NOTE: If the information on this page is incomplete, the pop-up window DATA REQUIRED will display and the SEND prompt will not enable.

Verified Message Log

Menu Navigation: UNILINK MENU > FLIGHT INFO > VERIF MSG LOG

The VERIF MSGS page displays all verified uplink and downlink messages and can be used to check the queue status of sent messages. See VERIF MSG LOG in the MESSAGE LOGS section of this manual.

Pushback Clearance Request

Menu Navigation: UNILINK MENU > FLIGHT INFO > PUSHBACK

The PUSHBACK CLX page is used to request pushback clearance.
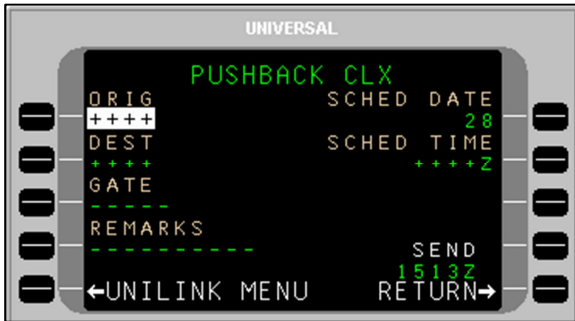
To request Pushback Clearance:

1. Press PUSHBACK, LSK [3R] on the FLIGHT INFO page. The PUSHBACK CLX page will display.

2. Verify the ORIG (Origination) airport. Change by pressing the ORIG field LSK (if not active) and entering a different airport. Press [ENTER].

3. If not active, press DEST (Destination), LSK [2L] to enter the destination airport. Press [ENTER].

4. If not active, press GATE, LSK [3L] to enter gate Information (optional). Press [ENTER].

5. If not active, press SCHED DATE, LSK [1R] to enter the scheduled date (day). Press [ENTER].

NOTE: Default date is per GMT.

6. If not active, press SCHED TIME, LSK [2R] to enter the scheduled time. Press [ENTER].

7. Press REMARKS, LSK [4L] to enter any remarks as needed (optional). Pushback remarks are entered using the PUSHBACK CLX REMARKS page (See the Remarks Page section in this manual).

8. Press SEND, LSK [4R] to place the message in queue for transmission.

Expected Taxi Clearance Request

Menu Navigation: UNILINK MENU > FLIGHT INFO > EXP TAXI

The EXP TAXI CLX is used to request an Expected Taxi Clearance.

```
                    UNIVERSAL

              EXP  TAXI  CLX
   ORIG           SCHED  DATE
   ++++                     28
   DEST           SCHED  TIME
   ++++                  ++++Z
   LOCATION
   -----
   REMARKS
   ---------             SEND
                         1548Z
   ←UNILINK  MENU    RETURN→
```
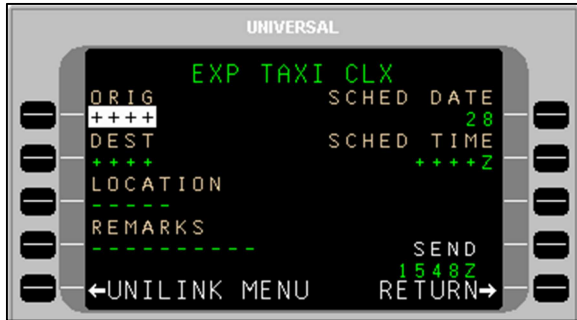
To request an Expected Taxi Clearance:

1. Press EXP TAXI, LSK [4R] on the FLIGHT INFO page. The EXP TAXI CLX page will display.

2. Verify the ORIG (Origination) airport. Change by pressing the ORIG field LSK (if not active) and entering a different airport. Press [ENTER].

3. If not active, press DEST (Destination), LSK [2L] to enter the destination airport. Press [ENTER].

4. If not active, press GATE, LSK [3L] to enter gate Information (optional). Press [ENTER].

5. If not active, press SCHED DATE, LSK [1R] to enter the scheduled date (day). Press [ENTER].

NOTE: Default date is per GMT.

6. If not active, press SCHED TIME, LSK [2R] to enter the scheduled time. Press [ENTER].

7. Press REMARKS, LSK [4L] to enter any remarks as needed (optional). Taxi Clearance remarks are entered using the EXP TAXI CLX REMARKS page (See the Remarks Page section in this manual).

8. Press SEND to place the message in queue for transmission.

Remarks – Create and Include with Requests

Menu Navigation: UNILINK MENU > FLIGHT INFO > DEPARTURE or OCEANIC or PUSHBACK or EXP TAXI

The Remarks page is available from the following Flight Information (FLIGHT INFO) services pages:

- DEPARTURE
- OCEANIC
- PUSHBACK
- EXP TAXI

To access the REMARKS Page:

1. On a Flight Information service page (in this example, OCEANIC CLX), press the REMARKS LSK.

The associated Remarks page will open with the cursor (@) flashing on the text line.
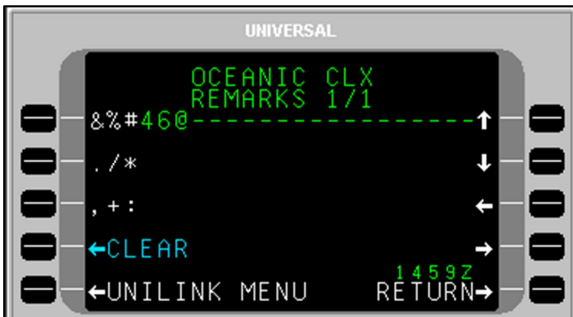
NOTE: In this example, OCEANIC CLX is used. All REMARKS pages are operated in the same manner.

2. Create a message using the alphanumeric keys and LSKs.

    - The [+] key inserts spaces in the text ([SP] key on MCDU). Text will automatically word wrap to the next line as applicable. The number of pages in the message will increase as necessary to accommodate entered text.

    - LSKs [1L] through [3L] provide special characters as indicated on the display. Pressing the specific LSK multiple times cycles through the displayed choices. To enter a special character several times in a row, select another key between special character LSK presses (example: to enter several periods in a row, press LSK [2L], then the right-arrow key (which does nothing), then [2R], then the right-arrow key, etc.).

    - The arrow LSKs ([1R] through [4R]) move the cursor position within text already entered. Text entered at the cursor position in front of other text is inserted and word wrapping will occur as necessary.

    - To start a new line of text, press [ENTER]; the cursor will start a new line of text (the active text line will have larger text).

    - The CLEAR LSK erases all entered text on the page.

3. When finished editing the text portion of the message, press RETURN, LSK [5R]. The entered text will display in the REMARKS field for review.

NOTE: The REMARKS field displays the first 7 characters of entered text. A following ellipsis (…) indicates there is more text in the message. The REMARKS page allows review of the entire remarks text.

4. Press the SEND LSK to place the message in queue for transmission.

ATC

Menu Navigation: UNILINK MENU > ATC

The ATC page provides a number of options for communicating with Air Traffic Control. Options to communicate emergencies, various reports, requests, and general commentary are available on this page. To access the ATC page, press ATC, LSK [2L] on the UNILINK MENU page.

NOTE: If connected to a Current Data Authority (CDA), it will display in the page title. Otherwise dashed lines will display.
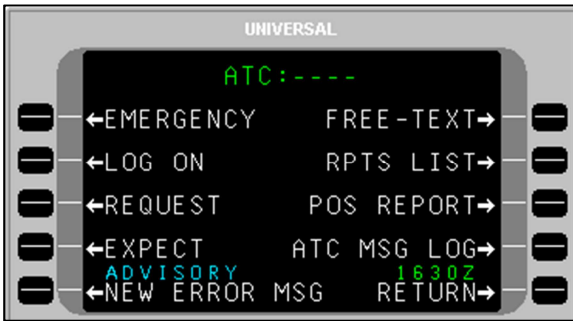
EMERGENCY

Menu Navigation: UNILINK MENU > ATC > EMERGENCY

The ATC EMERGENCY page displays emergency communication and messaging options. Selecting EMERGENCY, LSK [1L} opens the ATC EMERGENCY page.
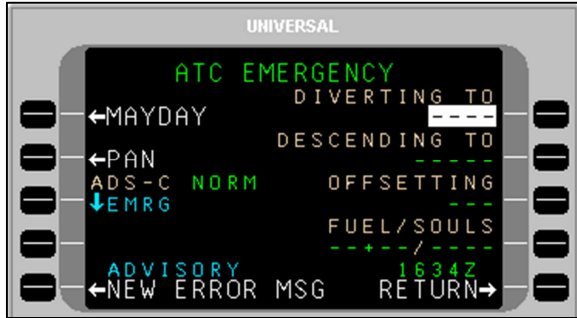
Create and Send an Emergency Message

To send an emergency message:

1. Verify that fields for LSKs [R1] through [R4} (DIVERTING TO, DESCENDING TO, OFFSETTING, FUEL/SOULS) are correct.

NOTE: All these fields are optional.

DIVERTING TO – A four character airport identifier indicating the diversion destination.

DESCENDING TO – Altitude the aircraft will descend to using the following entry criteria:

- Flight Level – Enter the three digit designation for flight level (370 = FL370), "FL" followed by a three digit number

- Altitude (feet) – Enter the altitude (i.e., 16000)

- Altitude Below 600 ft. – Enter the altitude with a leading 0 (0137 = 137 ft)

- Metric Flight Level – Enter S followed by a number

- Altitude (meters) – Enter a number followed by an "M"

Altitude Data Ranges

Units	Lower Limit	Upper Limit	Resolution
Feet	0	25,000	10
Meters	0	16,000	1
Flight Level	030	600	1 (i.e., 100 ft.)
Metric Flight Level	0100	2000	1 (i.e., 10m.)

OFFSETTING – The offset distance from the original flight plan track the aircraft will acquire using the following criteria:

- Entered distance must be preceded by an "L" or "R" as applicable

- Offset distance must be between 1 and 128 NM, per RTCA DO-258A. UniLink allows communication of an offset up to 128 NM; however, the UASC FMS will only accept a maximum of 99.9 NM. A full offset distance greater than 99.9 NM will require manual steering by the crew.

FUEL/SOULS – Indicate the flight time in hours + minutes (XX+XX) that the remaining fuel makes available (maximum entry of 23+59), and the number of persons onboard.

2. Press the MAYDAY or PAN LSK as needed. The associated ATC REVIEW page will display. Depending on how much information was pre-filled or entered into the right-hand fields on the ATC EMERGENCY page, the ATC REVIEW page will have multiple pages.

NOTE: For a Mayday downlink, an abbreviated position report including current position, time, altitude, and speed will display on the ATC REVIEW page (if available from the source air data computer (ADC) or the FMS).

NOTE: The SEND option will not be available for sending the message until all pages in the ATC REVIEW have been viewed.
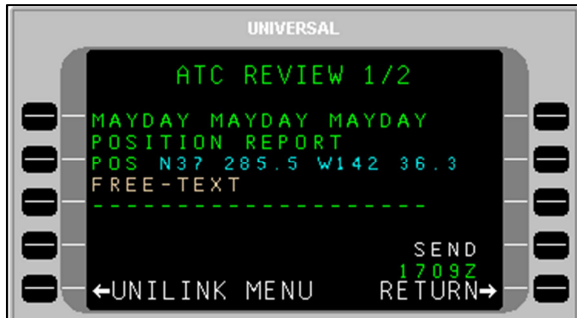
3. As needed, press the FREE-TEXT, LSK [3L] and enter information as required. Press the [ENTER] key.

NOTE: The FREE-TEXT field is optional. It can contain a maximum of 24 characters.

4. Press the SEND LSK. QUEUED will display above the SEND option to indicate the message is in queue for transmission. The SEND option will no longer have an arrow.

5. Press the RETURN LSK to display the ATC EMERGENCY page.

Cancel an Emergency

To cancel an emergency:

1. On the ATC EMERGENCY page, press CANCEL EMRG, LSK [4L]. The ATC REVIEW (CANCEL EMERGENCY) page will display.

NOTE: The CANCEL EMRG prompt becomes visible only after sending a MAYDAY downlink.
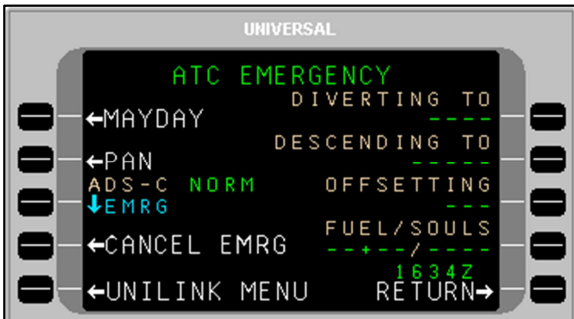
2. Press the FREE-TEXT LSK and enter information as needed.

3. Press the SEND LSK to place the message is in queue for transmission.

LOG ON

Menu Navigation: UNILINK MENU > ATC > LOG ON

The ATC LOG ON page is used to log on to an ATC facility via the ATS Facilities Notification (AFN) application. This log-on functions as a datalink equivalent to voice initial contact.
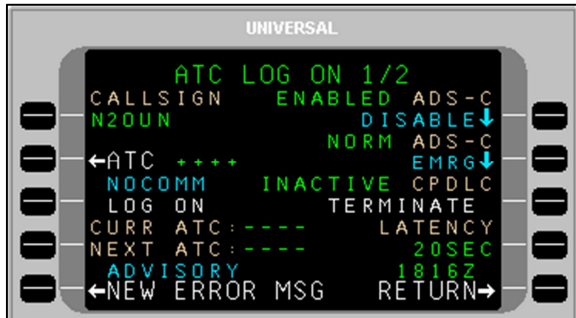
Prior to initiating an ATC Log On, the following should be verified:

- The aircraft identification matches the identification in the filed flight plan
- The flight plan contains the correct aircraft registration and address
- (If planning to use ADS-C services), ADS-C is ENABLED
- Prior to ATC LOG ON, and throughout FANS operations, the crew should ensure the flight path intent data (waypoint Lat/Long, altitude, and offsets) of the Universal Avionics FMS providing data to the UL-80X remains synchronized to the navigating FMS by automatic or manual means for at least the next two waypoints.

Appropriate times and conditions for performing an ATC log on include:

Time/Condition	ATSU/ATC
Prior to takeoff (where permitted or required), but no earlier than 45 minutes prior to ETD	Current ATSU for the FIR that the departure airport is located within.
15 minutes or more prior to FIR boundary estimate, above 10,000 feet	Current ATSU for the FIR in which the aircraft is operating
Less than 15 minutes prior to FIR boundary estimate, above 10,000 feet	Next ATSU that provides CPDLC and/or ADS-C services for the FIR on that flight

Following an unsuccessful data link transfer to another ATSU or when instructed by ATC	As instructed per above

LOG ON

To perform an AFN log on:

1. Verify the aircraft identification. Or press CALLSIGN, LSK [1L], enter an aircraft call sign, and press [ENTER].

2. Press ATC, LSK [2L] to select an ATC facility. The ATC LOG ON TO page will open for selection of a region. A region selection opens listings of specific ATC facility identifiers. A facility ID may also be manually entered. Selecting an ATC facility returns the display to ATC LOG ON 1/2.

3. Once an ATC facility is selected, the LOG ON option becomes active (arrow displays). Press LOG ON, LSK [3L] to initiate an AFN log on downlink message.

NOTE: A successful AFN log on is indicated by SUCCESS displaying above the LOG ON option. The ATC facility may in turn initiate ADS-C and/or CPDLC connections with UniLink.

AFN log on failure is indicated by an ATC LOGON FAIL advisory alert and a status of either TIMEOUT (no response to the AFN log on downlink within 10 minutes) or ERROR (if UniLink received an error response to the log on downlink). The user may attempt another AFN log on or revert to voice communications.

Automatic Dependent Surveillance-Contract (ADS-C)

ADS-C surveillance is dependent on automatic downlink information from onboard avionics triggered by specified events or time intervals. The ADS-C interface (provided by the ATC database) provides the following functions:

ADS-C Disable/Enable – Pressing LSK [1R] toggles ENABLED and DISABLED:

- ENABLED allows the ADS-C contract with ATC to be established

- DISABLED suspends ADS-C communication and terminates all existing contracts.

ADS-C NORM/EMRG – Pressing LSK [2R] toggles the ADS-C application mode between Normal and Emergency. This will also change the ADS-C mode on the ATC EMERGENCY page (and vice versa).

The ATC LOG ON page 2/2 (ADS-C STATUS) – Pressing the [NEXT] key displays the Status of each ADS-C connection (including ACARS address, periodic contracts, event contracts, and emergency/normal mode).

Controller-Pilot Datalink Communications (CPDLC)

CPDLC is a two-way datalink system allowing controllers at a CDA to communicate text messages to the crew instead of using traditional voice communications.

When a successful AFN log on is established, a CPDLC connection can be made by the CDA. When the CDA establishes a CPDLC connection, the CPDLC status displayed at LSK [3R] changes from INACTIVE to ACTIVE. Selecting TERMINATE at LSK [3R] breaks all exiting CPDLC connections, returning the CPDLC status to INACTIVE. An ATC facility cannot establish another CPDLC connection with UniLink until the user performs another successful AFN log on.

NOTE: The crew should exercise prompt response/closure following receipt of a CPDLC uplink. Open CPDLC uplinks should not be deleted.

CURR (Current) ATC and NEXT ATC

These fields display the identifiers for the CDA and Next Data Authority (NDA).

Exiting a FANS Service Area:

Approximately 15 minutes after exiting CPDLC or ADS-C service areas, the following should display:

ATC LOG ON 1/2:

- The CURR ATC and NEXT ATC fields on ATC LOG ON 1/2 display dashes
- The CPDLC field, LSK [3R] displays INACTIVE
- The ADS-C field, LSK [1R] displays either ENABLED or DISABLED (but not ACTIVE)

ATC LOG ON 2/2:

- All five ADS-C connection fields display dashes

NOTE: If a CPDLC or ADS-C connection remains active, the crew should take action to ensure the connections are terminated.

LATENCY

Upon CPDLC connection, the CDA (ATC) may send a FREE-TEXT uplink with the desired message latency value. Latency may be reset by the crew to the ATC-specified value. Upon hand-off to a different ATC, a new value request may be received. The request will be in the form of SET MAX UPLINK DELAY VALUE TO [value] SECONDS or CONFIRM MESSAGE LATENCY TIMER OFF.

To change the LATENCY value:

1. Press LATENCY, LSK [4R].

2. Using the numeric keys, type in the desired value (can be set to a non-zero value between 1 and 999).

3. Press [ENTER].

To turn off the LATENCY function:

1. Press LATENCY, LSK [4R].

2. Press the [BACK] key.

3. Press the [ENTER] key. The field will show **–SEC** to indicate LATENCY is turned off.

Received CPDLC uplinks can have an optional SENT timestamp appended to the message (at ATC's discretion). The message latency value is used by UniLink to determine if a received uplink is delayed by comparing the sent time to the system time at which the uplink was received. The delayed status of a given message is displayed following the message text (example):

2211Z KZAK¨ NEW

PROCEED DIRECT TO NUCAR

(SENT 2205Z – DELAYED)

The time stamp that follows the uplink ATC message will include the word DELAYED ("SENT 1234Z--DELAYED"). The crew may decide to respond to the uplink normally or to contact ATC for clarification. UniLink resets the message latency value to the default value stored in the configuration module whenever the aircraft is without a CPDLC connection such as end of flight, commanded termination, etc. The latency value is not automatically reset during a CPDLC handoff.

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REQUEST

Menu Navigation: UNILINK MENU > ATC > REQUEST

The ATC REQUEST page is used to communicate various flight operations requests via the CPDLC connection. Each request option (ALTITUDE, VMC DESCENT, SPEED, etc.) utilizes specific sub-pages to implement the request.
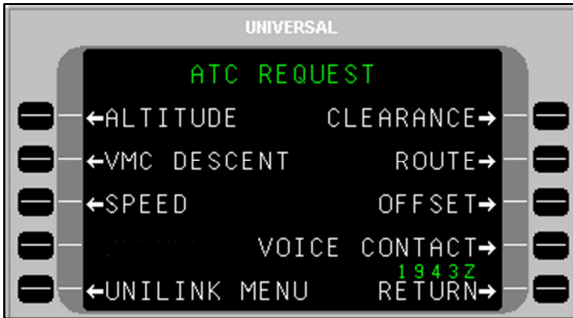
ALTITUDE

Menu Navigation: UNILINK MENU > ATC > REQUEST > ALTITUDE

Altitude requests can be made for SINGLE or BLOCK altitudes. SINGLE altitudes are specific, whereas BLOCK altitudes refer to a range or "block" of altitudes. Consequently, altitude requests will be made from either the ATC REQ ALTITUDE – SINGLE or ATC REQ ALTITUDE – BLOCK page.

To make an altitude request – **Single Altitude**:

1. From the ATC REQUEST page, press ALTITUDE, LSK [1L]. The ATC REQ ALTITUDE – SINGLE page will display.
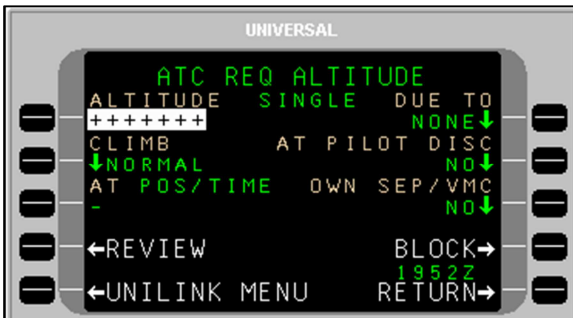
2. With ALTITUDE active, enter the desired altitude and press [ENTER].

NOTE: Altitude can be entered as follows:

- Flight Level – Enter the three digit designation for flight level (370 = FL370), "FL" followed by a three digit number
- Altitude (feet) – Enter the altitude (i.e., 16000)
- Altitude Below 600 ft. – Enter the altitude with a leading 0 (0137 = 137 ft)
- Metric Flight Level – Enter "S" followed by a number
- Altitude (meters) – Enter a number followed by an "M"

Altitude Data Ranges

Units	Lower Limit	Upper Limit	Resolution
Feet	0	25,000	10
Meters	0	16,000	1
Flight Level	030	600	1 (i.e., 100 ft.)
Metric Flight Level	0100	2000	1 (i.e., 10m.)

3. Press CLIMB, LSK [2L] and toggle between NORMAL and CRUISE as applicable.

4. Press AT, LSK [3L] (optional). The ATC REQUEST AT screen will display.

NOTE: When the AT LSK is selected, the CLIMB option will automatically set to NORMAL; CPDLC does not allow an altitude request at a position or time to involve a CRUISE climb.
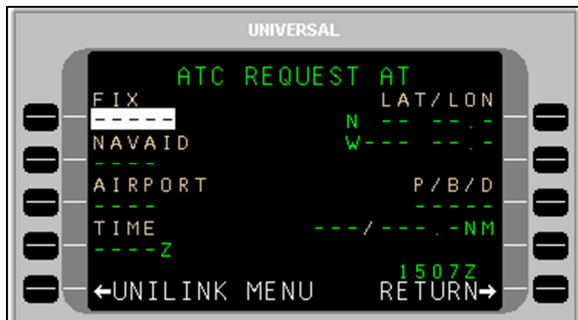
5. Press the appropriate LSK to enter information for FIX, NAVAID, AIRPORT, TIME (ZULU), LAT/LON, or Place/Bearing/Distance (P/B/D). Display will return to ATC REQ ALTITUDE page.

6. Press DUE TO, LSK [1R] and toggle between WEATHER, A/C PERF, or NONE as applicable (default is NONE).

7. Press AT PILOT DISC, LSK [2R] and toggle between NO and YES to indicate altitude change at the crew's discretion (default is NO).

8. Press OWN SEP/VMC, LSK [3R] and toggle between NO and YES to indicate whether traffic separation will be maintained by the crew (per VMC rules) or separation will be under ATC control (default is NO)

9. Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display, reflecting the information entered on the ATC REQ ALTITUDE page.

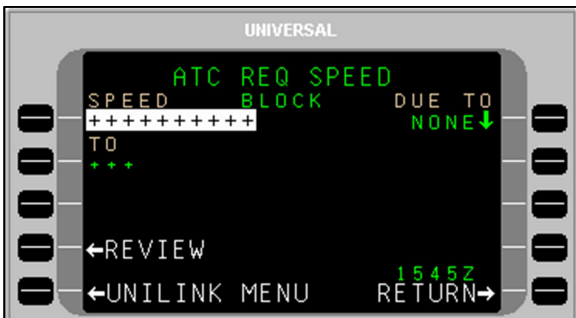**NOTE**: If no data was entered in the ALTITUDE field, the pop-up window DATA REQUIRED will display.

10. Press FREE-TEXT, LSK [3L] (optional) and enter information as needed.

11. Press SEND, LSK [4R] to put the altitude request in queue for transmission.

To make an altitude request – **Block Altitude:**

1. From the ATC REQUEST page, press ALTITUDE, LSK [1L]. The ATC REQ ALTITUDE – SINGLE page will display.

2. Press BLOCK, LSK [4R]. The ATC REQ ALTITUDE - BLOCK page will display.
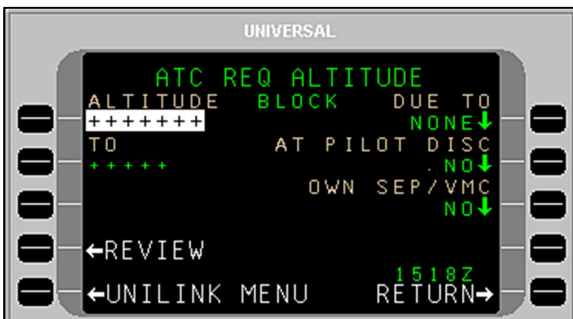
3. With ALTITUDE active, enter one end of a desired altitude range and press [ENTER].

4. If not active, press TO, LSK [2L] and enter the other end of the desired altitude range. Press [ENTER].

NOTE: Altitude can be entered as follows:

- Flight Level – Enter the three digit designation for flight level (370 = FL370), "FL" followed by a three digit number

- Altitude (feet) – Enter the altitude (i.e., 16000)

- Altitude Below 600 ft. – Enter the altitude with a leading 0 (0137 = 137 ft)

- Metric Flight Level – Enter S followed by a number

- Altitude (meters) – Enter a number followed by an "M"

Altitude Data Ranges

Units	Lower Limit	Upper Limit	Resolution
Feet	0	25,000	10
Meters	0	16,000	1
Flight Level	030	600	1 (i.e., 100 ft.)
Metric Flight Level	0100	2000	1 (i.e., 10m.)

5. Press DUE TO, LSK [1R] and toggle between WEATHER, A/C PERF, or NONE as applicable (default is NONE).

6. Press AT PILOT DISC, LSK [2R] and toggle between NO and YES to indicate altitude change at the crew's discretion (default is NO).

7. Press OWN SEP/VMC, LSK [3R] and toggle between NO and YES to indicate whether traffic separation will be maintained by the crew (per VMC rules) or separation will be under ATC control (default is NO)

8. Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display, reflecting the information entered on the ATC REQ ALTITUDE-BLOCK page.

NOTE: If no data was entered in the ALTITUDE or TO fields, the pop-up window DATA REQUIRED will display.

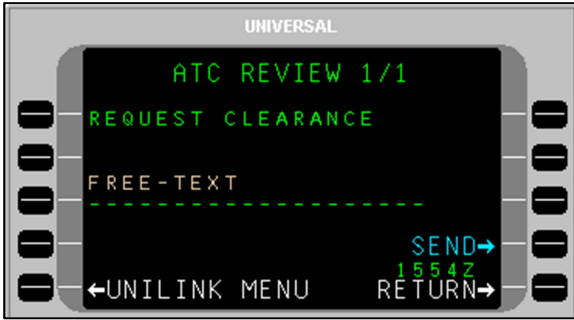9. Press FREE-TEXT, LSK [3R] and enter information as needed.

10. Press SEND, LSK [4R] to put the altitude request in queue for transmission.

VMC DESCENT

Menu Navigation: UNILINK MENU > ATC > REQUEST > VMC DESCENT

The ATC REVIEW – REQUEST VMC DESCENT page is used to request a crew-controlled descent under Visual Meteorological Conditions (VMC) flight rules.
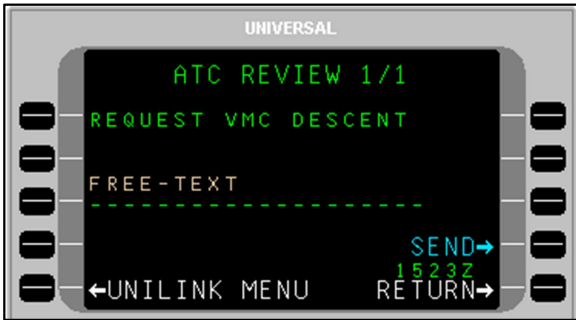
To make a VMC request:

1. Press VMC DESCENT, LSK [2R] on the ATC REQUEST page. The ATC REVIEW – REQUEST VMC DESCENT page will display.
2. Press FREE-TEXT, LSK [3L] and enter text as need regarding the descent request.
3. Press SEND, LSK [4R] to place the message in queue for transmission.

SPEED

Menu Navigation: UNILINK MENU > ATC > REQUEST > SPEED

Speed requests can be made for SINGLE or BLOCK speeds. SINGLE speeds are specific, whereas BLOCK speeds refer to a speed range or "block." Consequently, speed requests will be made from either the ATC REQ SPEED – SINGLE or ATC REQ SPEED – BLOCK page.

To make a speed request **- Single Speed:**

1. Press SPEED, LSK [3L] on the ATC REQUEST page. The ATC REQ SPEED – SINGLE page will display.

2. With SPEED active, enter a desired speed as follows:

    *   To enter speed in IAS (knots) - enter the speed value (i.e. 235) and press [ENTER]. The entered value will be followed by IAS.

    *   To enter a Mach value - type M, use the [+] key to place a period, then enter the value. Press [ENTER] and an M will display after the entered value.

    *   To enter speed in IAS KPH – enter the speed value (i.e., 235), then enter KM and press [ENTER]. The entered value will be followed by KM IAS.

        Speed Data Ranges:

Units	Lower Limit	Upper Limit	Resolution
Knots IAS	70	380	10
KPH IAS	100	1370	10
Mach	0.61	6.04	0.01

3. Press DUE TO, LSK [1R] and toggle between WEATHER, A/C PERF, or NONE as applicable (default is NONE).

4.   Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display, reflecting the information entered on the ATC REQ SPEED page.

NOTE: If no data was entered in the SPPED field, the pop-up window DATA REQUIERED will display.

5.   Press FREE-TEXT, LSK [3L] and enter information as needed.

NOTE: Text is limited to 24 characters on the page (text will not wrap).

6.   Press SEND, LSK [4R] to put the speed request in queue for transmission.

To make a speed request **- Block Speed:**

1.   From the ATC REQUEST page, press Speed, LSK [3L]. The ATC REQ SPEED – SINGLE page will display.

2.   Press BLOCK, LSK [4R]. The ATC REQ SPEED - BLOCK page will display.

3.   With SPEED active, enter a desired speed as follows:

   •   To enter speed in IAS (knots) - enter the speed value (i.e. 235) and press [ENTER]. The entered value will be followed by IAS.

   •   To enter a Mach value - type M, use the [+] key to place a period, then enter the value. Press [ENTER] and an M will display after the entered value.

   •   To enter speed in IAS KPH – enter the speed value (i.e., 235), then enter KM and press [ENTER]. The entered value will be followed by KM IAS.

Speed Data Ranges:

Units	Lower Limit	Upper Limit	Resolution
Knots IAS	70	380	10
KPH IAS	100	1370	10
Mach	0.61	6.04	0.01

4. Press TO, LSK [2L] and enter the other end of the desired speed range.

5. Press DUE TO, LSK [1R] and toggle between WEATHER, A/C PERF, or NONE as applicable (default is NONE).

6. Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display, reflecting the information entered on the ATC REQ SPEED - BLOCK page.

**NOTE**: If no data was entered in the SPEED or TO fields, the pop-up window DATA REQUIERED will display

7. Press FREE-TEXT, LSK [3R] and enter information as needed.

NOTE: Text is limited to 24 characters on the page (text will not wrap).

8. Press SEND, LSK [4R] to put the altitude request in queue for transmission.

CLEARANCE

Menu Navigation: UNILINK MENU > ATC > REQUEST > CLEARANCE

ATC Clearance requests are made utilizing the ATC REVIEW PAGE.

```
                  UNIVERSAL

             ATC REVIEW 1/1

     REQUEST CLEARANCE


     FREE-TEXT
     --------------------

                          SEND→
                          1554Z
     ←UNILINK MENU        RETURN→
```

To request ATC clearance:

1. Press CLEARANCE, LSK [1R]. The ATC REVIEW-REQUEST CLEARANCE page will display.

2. Press FREE-TEXT, LSK [3L] and enter request information.

NOTE: Text is limited to 24 characters on the page (text will not wrap).

3. Press SEND, LSK [4R] to put the request into queue for transmission.

ROUTE

Menu Navigation: UNILINK MENU > ATC > REQUEST > ROUTE

NOTE: DTO, Track, Heading, and procedures are all mutually exclusive. If data is entered in one of these fields, entry of data in another field prior to sending the request will eliminate the previous field entry.

The ATC route request pages are used to submit ATC requests for direct-to routes; arrival, approach, and departure procedures; and heading clearances. The route request pages include ATC REQ RTE 1/2 and 2/2. Access ATC REQ RTE page 1/2 by selecting ROUTE, LSK [2R] from the ATC REQUEST page.
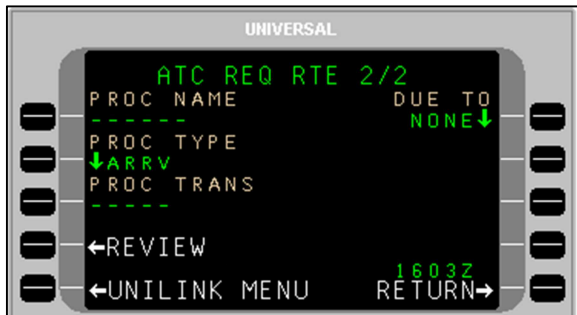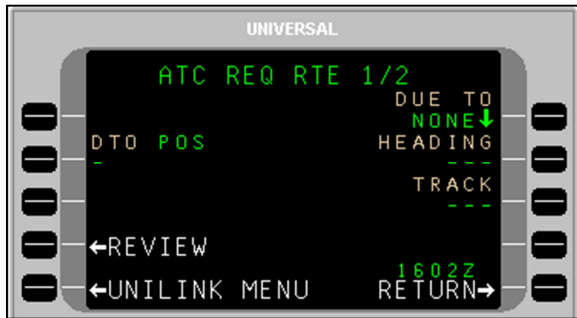
Direct-To

To make a Direct-To route request:

1. On the ATC REQ RTE 1/2 page, press DTO, LSK [2L]. The ATC REQUEST DTO page will display.
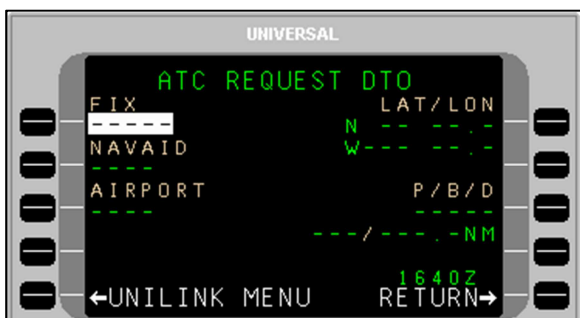
2. Press the appropriate LSK to enter information for FIX, NAVAID, AIRPORT, LAT/LON, or Place/Bearing/Distance (P/B/D). The display will return to the ATC REQ RTE 1/2 page showing the entered information at the DTO option.

3. If applicable, press DUE TO, LSK [1R] and toggle between NONE, WEATHER, and A/C PERF as applicable.

4. Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display showing information from the ATC REQ RTE 1/2 page.

NOTE: If no data was entered in the DTO field, the pop-up window DATA REQUIRED will display.

5. Press FREE-TEXT, LSK [3R] to add any additional text for the Direct-To request.

6. Press SEND, LSK [4R] to put the request into queue for transmission

Heading or Ground Track

To make a heading or ground track route request:

1. On the ATC REQ RTE 1/2 page, press HEADING, LSK [2R], or TRACK, LSK [3R], as needed.

2. Enter the desired heading or ground track.

NOTE: Entry of a number will result in a magnetic heading. Entry of a number followed by a "T" will result in a true heading.

3. If applicable, press DUE TO, LSK [1R] and toggle between WEATHER, A/C PERF, or NONE (NONE is the default).

4. Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display showing the information entered on the ATC REQ RTE 1/2 page.

NOTE: If no data was entered in the HEADING or TRACK fields, the pop-up window DATA REQUIRED will display.

5. Press FREE-TEXT, LSK [3L] and enter additional information as needed.

6. Press SEND, LSK [4R] to put the request into queue for transmission.

Procedure - Arrival, Approach, or Departure

To make a Procedure request:

1. On ATC REQ RTE 2/2, press PROC NAME, LSK [1L] and enter the desired procedure name (up to six alphanumeric characters).

2. Press PROC TYPE, LSK [2L] and toggle between DEPT (departure), ARRV (arrival), and APPR (approach) as applicable.

3. Press PROC TRANS, LSK [3L] (optional) and enter a transition (up to five alphanumeric characters).

4. Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display with the procedure request information showing.

NOTE: If no data was entered in the PROC NAME field, the pop-up window DATA REQUIRED will display.

5. Press FREE-TEXT, LSK [3L] and enter additional information as needed.

6. Press SEND, LSK [4R] to put the request into queue for transmission.

OFFSET

Menu Navigation: UNILINK MENU > ATC > REQUEST > OFFSET

An offset request involves specifying to ATC a direction and a lateral distance (offset) from the desired track (DTK). The ATC REQ OFFSET page, accessed via LSK [3R] on the ATC REQUEST page, is used to make an offset request.
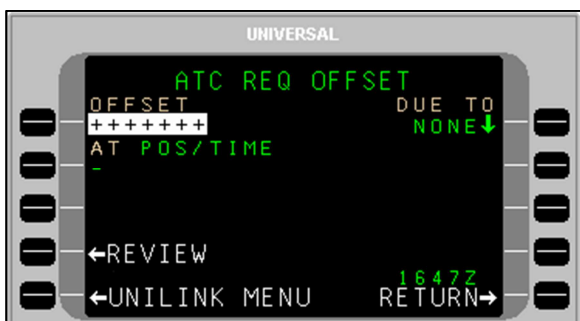
To make an Offset request:

1. With OFFSET active, enter an offset distance and press [ENTER].

NOTE: Entered distance (in NM) must be preceded by an "L" or "R" to indicate offset side from track. Offset distances must be between 1 and 128 NM (the UASC FMS has a maximum of 99.9 NM).

NOTE: It is recommended that offsets beyond 25 NM of the original route be avoided. Greater offsets may cause ETAs in ADS-C reports to exceed the three-minute error tolerance requirement.

2. Press AT, LSK [2L] (optional). The ATC REQUEST AT page will display.

3. Press the appropriate LSK to enter information for FIX, NAVAID, AIRPORT, TIME (ZULU), LAT/LON, or Place/Bearing/Distance (P/B/D). The display will return to the ATC REQ OFFSET page showing the entered information at the AT option.

4. Press DUE TO, LSK [1R] and toggle between WEATHER, A/C PERF, or NONE (NONE is the default).

NOTE: If no valid entry is made at the AT option and the value of DUE TO is WEATHER, the ATC REVIEW page will indicate

REQUEST WEATHER DEVIATION UP TO (offset distance and direction) OF ROUTE.

5. Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page displays showing the information from the ATC REQ OFFSET page.

NOTE: If no data was entered in the OFFSET field, the pop-up window DATA REQUIRED will display.

6. Press FREE-TEXT, LSK [3L] and enter text as needed.

7. Press SEND, LSK [4R] to put the OFFSET request in queue for transmission.

VOICE CONTACT

Menu Navigation: UNILINK MENU > ATC > REQUEST > VOICE CONTACT

The ATC REQ VOICE CONTACT page, accessed via LSK [4R] on the ATC REQUEST page, is used to request voice communication with ATC on a specific frequency or channel.

To make a voice contact request:

1. Press the associated LSK for VHF FREQ, HF FREQ, UHF FREQ, or SAT CHANNEL as needed. Enter a frequency or channel.

NOTE: A valid entry at any of the LSKs will invalidate (remove) the entry at any other LSK made previously.

2. Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display, showing REQUEST VOICE CONTACT and the entered frequency or channel. (If no frequency or channel was entered, none will display on the REVIEW page).

3. Press FREE-TEXT, LSK [3L] and enter text as needed.

NOTE: Text is limited to 24 characters on the page (text will not wrap).

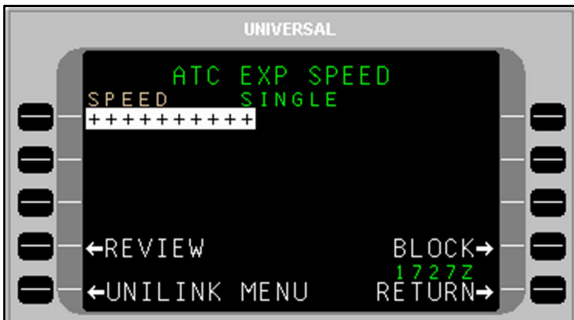4. Press SEND, LSK [4R] to put the voice contact request in queue for transmission.

EXPECT

Menu Navigation: UNILINK MENU > ATC > EXPECT

CPDLC Negotiation Requests (or ATC EXPECT) are used as a follow-up to previous altitude, speed, or route requests made to ATC (if ATC has not responded in a timely manner). This is accomplished via the ATC EXPECT page, accessed by pressing EXPECT, LSK [4L] on the ATC page.

ALTITUDE

Menu Navigation: UNILINK MENU > ATC > EXPECT > ALTITUDE

To create an altitude negotiation request:

Press ALTITUDE, LSK [1L]. The ATC EXP ALTITUDE page will display.
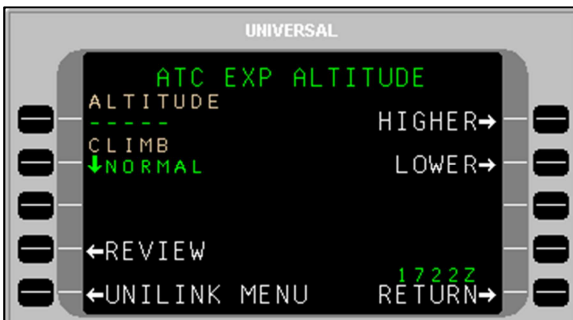
NOTE: There are two ways to indicate altitude for the ATC EXP ALTITUDE request. The user can enter a specific altitude and indicate the type of climb (if ascending), or the altitude change can be identified as either HIGHER or LOWER without a specific altitude indicated.

Specific altitude request:

1. Press ALTITUDE, LSK [1L] and enter a desired altitude.

NOTE: Altitude can be entered as follows:

- Flight Level – Enter the three digit designation for flight level (370 = FL370), or "FL" followed by a three digit number
- Altitude (feet) – Enter the altitude (16000)
- Altitude Below 600 ft. – Enter the altitude with a leading 0 (0137 = 137 ft)
- Metric Flight Level – Enter "S" followed by a number
- Altitude (meters) – Enter a number followed by "M"

Altitude Data Ranges

Units	Lower Limit	Upper Limit	Resolution
Feet	0	25,000	10
Meters	0	16,000	1
Flight Level	030	600	1 (i.e., 100 ft.)
Metric Flight Level	0100	2000	1 (i.e., 10m.)

2. Press CLIMB, LSK [2L] and toggle NORMAL or CRUISE as desired.

General altitude request:

3. Press HIGHER or LOWER (LSKs [1R] or [2R] respectively). An asterisk (∗) will display next to the selection. CLIMB will default to NORMAL (it is not applicable in a general altitude request).

4. After entering specific or general altitude request information, press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display showing the information entered on the ATC EXP ALTITUDE page – "WHEN CAN WE EXPECT (specific altitude value entered information)."

NOTE: If no data was entered in the ALTITUDE field, or either HIGHER or LOWER selected, the pop-up window DATA REQUIRED will display.

5. Press FREE-TEXT, LSK [3L] and enter text as needed.
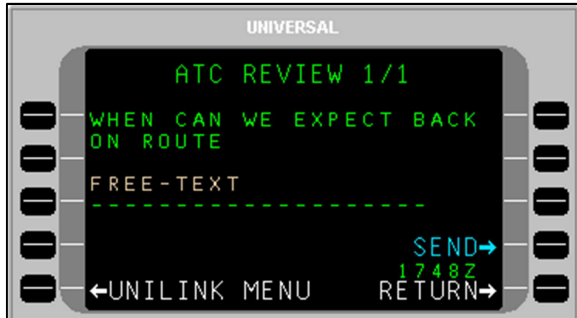
NOTE: Text is limited to 24 characters on the page (text will not wrap).

6. Press SEND, LSK [4R] to put the request in queue for transmission.

SPEED

Menu Navigation: UNILINK MENU > ATC > EXPECT > SPEED

Speed negotiation requests can be made for specific speeds (Single) or speed ranges (Block).

Speed – Single*:*

1. Press SPEED: LSK [2L]. The ATC EXP SPEED – SINGLE page will display.

2. With SPEED active, enter a desired speed as follows:

- To enter speed in IAS (knots) - enter the speed value (i.e. 235) and press [ENTER]. The entered value will be followed by IAS.

- To enter a Mach value - type M, use the [+] key to place a period, then enter the value. Press [ENTER] and an M will display after the entered value.

- To enter speed in IAS KPH – enter the speed value (i.e., 235), then enter KM and press [ENTER]. The entered value will be followed by KM IAS.

Speed Data Ranges:

Units	Lower Limit	Upper Limit	Resolution
Knots IAS	70	380	10
KPH IAS	100	1370	10
Mach	0.61	6.04	0.01

3. Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display showing the entered speed from the ATC EXP SPEED – SINGLE page: "WHEN CAN WE EXPECT (specific speed value entered)."

NOTE: If no data was entered in the SPEED field, the pop-up window DATA REQUIERED will display

4. Press FREE-TEXT, LSK [3L] and add text as needed.

NOTE: Text is limited to 24 characters on the page (text will not wrap).

5. Press SEND, LSK [4R] to put the speed negotiation request into queue for transmission.

Speed – Block:

1. Press SPEED: LSK [2L]. The ATC EXP SPEED – SINGLE page will display.

2. Press BLOCK, LSK [4R]. The ATC EXP SPEED – BLOCK page will display.
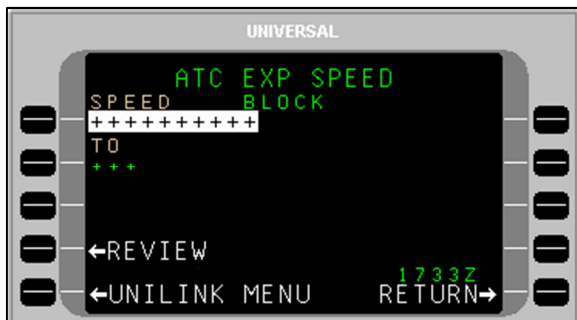
3. With SPEED active, enter the bottom of the desired speed range:

- To enter speed in IAS (knots) - enter the speed value (i.e. 235) and press [ENTER]. The entered value will be followed by IAS.

- To enter a Mach value - type M, use the [+] key to place a period, then enter the value. Press [ENTER] and an M will display after the entered value.

- To enter speed in IAS KPH – enter the speed value (i.e., 235), then enter KM and press [ENTER]. The entered value will be followed by KM IAS.

  Speed Data Ranges:

Units	Lower Limit	Upper Limit	Resolution
Knots IAS	70	380	10
KPH IAS	100	1370	10
Mach	0.61	6.04	0.01

4. In the TO field, enter top of the desired speed range.

5. Press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display showing the entered speeds from the ATC EXP SPEED – BLOCK page. – "WHEN CAN WE EXPECT (speed value entered).TO (speed value entered)."

NOTE: If no data was entered in the SPEED or TO fields, the pop-up window DATA REQUIERED will display

6. Press FREE-TEXT, LSK [3L] and add text as needed.

NOTE: Text is limited to 24 characters on the page (text will not wrap).

7. Press SEND, LSK [4R] to put the speed negotiation request into queue for transmission.

BACK ON ROUTE

Menu Navigation: UNILINK MENU > ATC > EXPECT > BACK ON ROUTE

1. Press BACK ON ROUTE, LSK [3L]. The ATC REVIEW 1/1 page will display showing "WHEN CAN WE EXPECT BACK ON ROUTE."

2. Press FREE-TEXT, LSK [3L] and enter text as needed.

NOTE: Text is limited to 24 characters on the page (text will not wrap).

3. Press SEND, LSK [4R] to put the speed negotiation request into queue for transmission.

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ATC FREE-TEXT

Menu Navigation: UNILINK MENU > ATC > FREE-TEXT

General purpose communications with ATC can be performed through the FREE-TEXT function. Communications of a non-emergency nature or general inquiries are made using the ATC FREE-TEXT page.
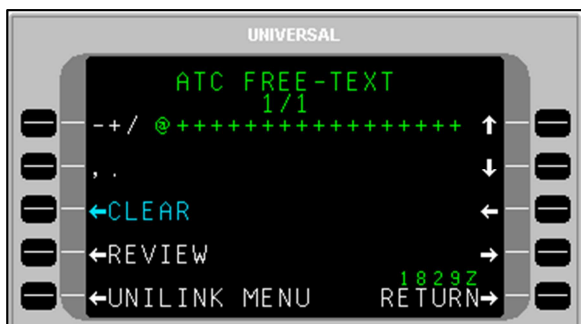
To send a text message:

1. Press FREE-TEXT, LSK [1R] on the ATC page. The ATC FREE-TEXT 1/1 page will display with the cursor (@) flashing at the beginning of the text line.

2. Enter text (alphanumeric keys) as needed.

   - The plus/minus [±] key is used to insert a space ([SP] key on MCDU). The text automatically word wraps to the next line. The number of pages in the message will increase as necessary to accommodate entered text.

   - LSKs [1L] and [2L] are used to insert special characters as indicated on the display. Selecting the same special character key multiple times will cause the selected character to cycle between the displayed choices. To enter a special character several times in a row, select another key between special character LSK presses (example: to enter several periods in a row, press LSK [2R], then the right-arrow key (which does nothing), then [2R], then the right-arrow key, etc.).

   - The arrow LSKs ([1R] through [4R]) will move the cursor position within the text that has been entered.

3. To delete entire message, press CLEAR, LSK [3L].

4. When finished entering text, press REVIEW, LSK [4L]. The ATC REVIEW 1/X page will display showing text entered on the ATC FREE-TEXT page.

NOTE: If no text was entered on the FREE-TEXT page, the pop-up window DATA REQUIRED will display.

5. Press SEND, LSK [4R] to put the message into queue for transmission.

RPTS LIST

Menu Navigation: UNILINK MENU > ATC > RPTS LIST

The RPTS (reports) LIST function provides a listing (displayed on the ATC RPTS 1/X page) of the 15 oldest unanswered report requests by ATC, with the most recent request shown first. As reports successfully complete transmission (i.e., receive an ACARS network acknowledgement), they are deleted from the RPTS LIST. The number of pages of the ATC RPTS screen is dependent on the number of requested reports. UniLink displays up to four report requests per page for a maximum of four pages.

NOTE: A report requested by ATC can be accessed and sent via the ATC RPTS 1/X page.

Report Statuses include:

Status	Description
PENDING	UniLink has not yet determined that the conditions have been met for the report to be sent.
READY	UniLink has determined that the conditions have been met for the report to be sent.
QUEUED	UniLink placed the report in its downlink queue but has not yet successfully transmitted it.
SENDING	UniLink is transmitting the report.

To view the Reports List:

1. On the ATC page press RPTS LIST, LSK [2R]. The ATC RPTS 1/X page will display, showing the 15 oldest unanswered report requests in queue. Above each report is displayed the time the report was received and its status.

NOTE: If the request title is truncated (as in the above example due to no text wrapping), the complete title can be viewed on an ATC MSG page.

2. To view a specific report response, press the left LSK adjacent the listed request.

3. To delete a specific report, press the adjacent right-hand LSK. A pop-up window will display to DELETE or CANCEL; press the desired LSK.

4. Press RETURN, LSK [5R] to return to the ATC page.

NOTE: UniLink does not detect duplicate uplink ATC requests. This must be done by the crew.

To respond to an ATC report request:

1. On the ATC RPTS 1/X page, find the requested report.

2. Press the left-hand LSK adjacent the report. If UniLink is capable of prefilling the data required in the report, the ATC RPT 1/1 page will display showing the requested information. If UniLink does not have enough information to prefill the report, a data entry page will display depending on the specific report data required.
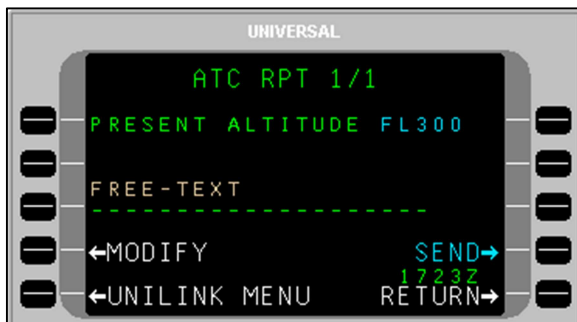
(Example of an ATC RPT page)

3. If needed, press MODIFY, LSK [4L]. Depending on the requested information, the ATC report page will display (such as ATC PRESENT ALTITUDE or ATC ASSIGNED ROUTE).

4. Modify the information as needed and press REVIEW, LSK [4L]. The ATC RPT page displays showing the changed information.

5. As needed, press FREE-TEXT, LSK [3L] and enter text.

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6. Press SEND, LSK [4R] to put the message in queue for transmission.

Immediate and Delayed Reports and Requests

There are over 20 possible report or request pages, categorized as either Immediate or Delayed.

Immediate Requests and Reports

Immediate uplink requests and reports, listed in Table 1, do not require a ROGER response and can be fulfilled immediately. If UniLink receives a valid Data Transaction uplink containing a request, that request will be added to the RPTS LIST with status pending.

NOTE: Data statuses include:

- Sufficient = UniLink supplies the necessary data on the page
- Insufficient = UniLink cannot supply all the data and it will need to be entered
- No Data = No data is required for the communication

TABLE 1 – Immediate Reports and Requests

Uplink Requests	Downlink Reports	
Display	Display	Data
CONFIRM ALTITUDE	PRESENT ALTITUDE [altitude]	Sufficient
CONFIRM POSITION	PRESENT POSITION [position]	Sufficient
CONFIRM SPEED	PRESENT SPEED [speed]	Sufficient
CONFIRM HEADING	PRESENT HEADING [degrees]	Sufficient
CONFIRM GROUND TRACK	PRESENT GROUND TRACK [degrees]	Sufficient
CONFIRM ASSIGNED ALTITUDE	ASSIGNED ALTITUDE [altitude]	Sufficient
	ASSIGNED BLOCK [altitude] TO [altitude]	Insufficient
CONFIRM ASSIGNED SPEED	ASSIGNED SPEED [speed]	Insufficient
CONFIRM NEXT WAYPOINT	NEXT WAYPOINT [position]	Sufficient
CONFIRM NEXT	NEXT WAYPOINT ETA [time]	Sufficient

Uplink Requests	Downlink Reports	
Display	Display	Data
WAYPOINT ETA		
CONFIRM ENSUING WAYPOINT	ENSUING WAYPOINT [position]	Sufficient
CONFIRM REPORTED WAYPOINT	REPORTED WAYPOINT [position]	Sufficient
CONFIRM TIME OVER REPORTED WAYPOINT	REPORTED WAYPOINT [time]	Sufficient
CONFIRM SQUAWK	SQUAWKING [beacon code]	Insufficient
REQUEST POSITION REPORT	POSITION REPORT [position report]	Insufficient
REPORT REMAINING FUEL AND SOULS ON BOARD	[remaining fuel] OF FUEL REMAINING AND [remaining souls] SOULS ON BOARD	Insufficient
WHEN CAN YOU ACCEPT [altitude]	WE CAN ACCEPT [altitude] AT [time]	Insufficient
	WE CAN ACCEPT [altitude] AT [position]	Insufficient
	WE CANNOT ACCEPT [altitude]	Insufficient
WHEN CAN YOU ACCEPT [speed]	WE CAN ACCEPT [speed] AT [time]	Insufficient
	WE CAN ACCEPT [speed] AT [position]	Insufficient
	WE CANNOT ACCEPT [speed]	Insufficient
WHEN CAN YOU ACCEPT [distance offset] [direction] OFFSET	WE CAN ACCEPT [distance offset] [direction] OFFSET AT [time]	Insufficient
	WE CAN ACCEPT [distance offset] [direction] OFFSET AT [position]	Insufficient
	WE CANNOT ACCEPT [distance offset] [direction]	Insufficient

Uplink Requests	Downlink Reports	
Display	Display	Data
	OFFSET	
CONFIRM ASSIGNED ROUTE	CONFIRM ASSIGNED ROUTE NOT SUPPORTED	No Data
REPORT DISTANCE [to from] [position]	AT [time] [distance] [to from] [position]	Insufficient
CONFIRM ATIS CODE	ATIS [ATIS code]	Insufficient

Delayed Requests and Reports

Delayed uplink requests and reports, listed in Table 2, do require a ROGER response and cannot be fulfilled immediately. If the crew queues a positive downlink closure response (i.e., ROGER) to a Data Transaction uplink containing a delayed request, UniLink will add the request to the RPTS LIST with status pending.

NOTE: Data statuses include:

- Specified = All data is specified by ATC

- No Data = No data is required for the communication

TABLE 2 – Delayed Reports and Requests

Uplink Reports	Downlink Reports	
Display	Display	Data
REPORT LEAVING [altitude]	LEAVING [altitude]	Specified
REPORT PASSING [position]	PASSING [position]	Specified
REPORT LEVEL [altitude]	LEVEL [altitude]	Specified
REPORT BACK ON ROUTE	BACK ON ROUTE	No Data
REPORT REACHING [altitude]	REACHING [altitude]	Specified
REPORT REACHING BLOCK [altitude] TO [altitude]	REACHING BLOCK [altitude] TO [altitude]	Specified

Delayed Report and Request downlinks are auto-generated. If UniLink designates a delayed uplink request as READY, a FANS visual alert is activated in addition to displaying the ATC RPT READY advisory. The crew may access the ATC RPTS LIST and send any report at any time regardless of UniLink PENDING/READY designation. The PENDING/READY designation and ATC RPT READY advisory are intended to aid in the timely response of reports, but it is ultimately the responsibility of the crew to ensure reports are transmitted at the appropriate time.

NOTE: The BACK ON ROUTE downlink can only be sent in response to a REPORT BACK ON ROUTE uplink. The crew must use voice communication to report BACK ON ROUTE in the absence of an uplink.

POS REPORT

Menu Navigation: UNILINK MENU > ATC > POS REPORT

The POS (Position) REPORT function allows the user to make a position report to ATC. A report is made via ATC POS RPT pages.

```
              UNIVERSAL
        ATC POS RPT 1/2
RPTD WPT POS          ATA
-                   ----Z

NEXT WPT POS          ETA
-                   ----Z

←REVIEW
                    2002Z
←UNILINK MENU     RETURN→
```

```
              UNIVERSAL
        ATC POS RPT 2/2
NX+1 WPT POS        SPEED
-                     ---
                  ALTITUDE
                      0FT
DEST ETA       TEMPERATURE
----Z                +0°C
                    WINDS
←REVIEW        360°T/  0KTS
                    2004Z
←UNILINK MENU     RETURN→
```
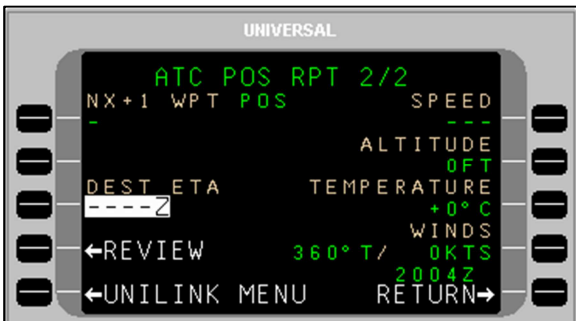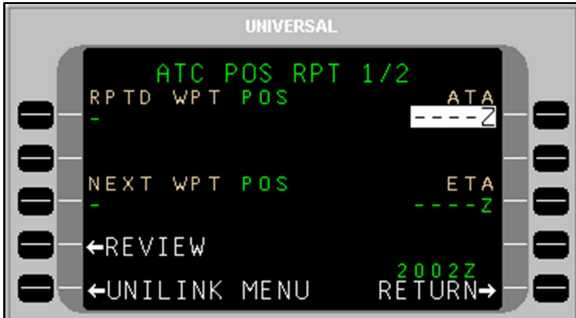
To make a position report:

1. Press POS REPORT, LSK [3R] on the ATC page. ATC POS RPT 1/2 will display.

NOTE: ATC POS RPT can also be accessed from the RPTS 1/X page if a position report request has been received.

2. Review the auto-filled information in the fields on pages 1/2 and 2/2.

3. If any information is missing or incorrect, press the adjacent LSK and enter the correct information.

NOTE: ALTITUDE is required. All other information is optional.

4. Press REVIEW, LSK [4L]. The ATC REVIEW page with information for the position report will display.

5. Press SEND, LSK [4R] to put the position report in queue for transmission.

ATC MSG LOG

Menu Navigation: UNILINK MENU > ATC >ATC MSG LOG

The ATC Message Log (ATC MSG LOG) function provides a log of up to 150 of the most recent viewable messages exchanged with ATC (75 most recently received and 75 most recently queued), with the newest message shown first. The message entries are displayed on the ATC MSGS 1/X page, accessed from the ATC page by pressing ATC MSG LOG (LSK [4R]).
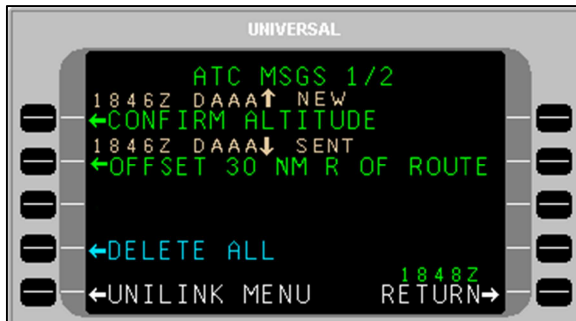
The ATC MSG LOG page allows users to review and/or print a message (if a printer is configured).

NOTE: The number of pages of the ATC MSGS screen is dependent on the number of viewable messages that UniLink has logged. ATC MSGS displays up to four messages per page (except for the first page which lists a maximum of three). ATC MSGS may be composed of up to 38 pages.

UniLink assigns a status to each uplink message as follows:

Status	Description
NEW	UniLink has not yet displayed the uplink message to the user.
OLD	UniLink has displayed the uplink message to the user and the message does not require a downlink closure response message from the user.

OPEN	UniLink has displayed the uplink message to the user but the message requires a downlink closure response message from the user.
WILCO hhmmZ	UniLink sent a WILCO downlink closure response message initiated by the user at the indicated time.
UNABLE hhmmZ	UniLink sent an UNABLE downlink closure response message initiated by the user at the indicated time.
AFFIRM hhmmZ	UniLink sent an AFFIRM downlink closure response message initiated by the user at the indicated time.
NEGATV hhmmZ	UniLink sent a Negative downlink closure response message initiated by the user at the indicated time.
ROGER hhmmZ	UniLink sent a ROGER downlink closure response message initiated by the user at the indicated time.
STANDBY	UniLink sent a STANDBY downlink response message initiated by the user.
ABORTD hhmmZ	UniLink aborted the uplink message at the indicated time because it closed the CPDLC connection.

UniLink assigns a status to each downlink message as follows:

Status	Description
QUEUED	UniLink placed the downlink message in its downlink queue but has not yet successfully transmitted it.
SENDING [medium]	UniLink is transmitting the downlink message via the indicated medium. (The possible media are VHF and SAT [SATCOM], depending on UniLink configuration).
SENT hhmmZ	UniLink successfully transmitted a downlink message at the indicated time that does not require an uplink closure response message from ATC.
OPEN	UniLink successfully transmitted a downlink that requires an uplink closure response message from ATC.
UNABLE hhmmZ	UniLink received an UNABLE uplink closure response message from ATC at the indicated time.
STANDBY	UniLink received a STANDBY uplink response message from ATC.
DEFERRED	UniLink received a REQUEST DEFERRED uplink response message from ATC.
ROGER hhmmZ	UniLink received a ROGER uplink closure response message from ATC at the indicated time.
AFFIRM	UniLink received an AFFIRM uplink closure response message

Status	Description
hhmmZ	from ATC at the indicated time.
NEGATV hhmmZ	UniLink received a NEGATIVE uplink closure response message from ATC at the indicated time.
CLOSED hhmmZ	UniLink received an uplink closure response message other than ROGER, AFFIRM, NEGATIVE, or UNABLE from ATC at the indicated time.
ABORTD hhmmZ	UniLink aborted the downlink message at the indicated time because it closed the CPDLC connection.

To review a message:

1. On the ATC MSGS page, locate the message of interest.

2. Press the left LSK adjacent that message. While displaying the detailed message page, pressing [PREV] and [NEXT] can be used to navigate multiple page messages. .

3. Press RETURN to return to the ATC MSGS page.

To delete all messages in the messages log:

1. On the ATC MSGS 1/X page, press DELETE ALL, LSK [4L]. A CONFIRM/CANCEL pop-up window will display.

2. Press CONFIRM to delete all entries or CANCEL to cancel the DELETE ALL function.

To delete or print messages in the messages log:

1. On the ATC MSGS page, press the adjacent right-hand LSK. A PRINT/DELETE/CANCEL pop-up menu will display.

2. Press the desired LSK (to print or delete).

3. Press the CANCEL LSK to cancel the function.

NOTE: PRINT will display on the pop-up menu only if a printer is configured.

To print a message from the detailed message display:

1. On the ATC MSGS page, locate the message of interest.

2. Press the adjacent left-hand LSK. The ATC MSG screen will display with the selected message showing.

3. Press the PRINT LSK.

COMM STATUS

Menu Navigation: UNILINK MENU > COMM STATUS

The COMM STATUS page displays the current configured status of available communication media links.

MODE

The MODE field indicates the manner in which ACARS will be used.

- MODE A = POA (Plain Old ACARS)
- MODE B = AOA (AVLC Over ACARS)
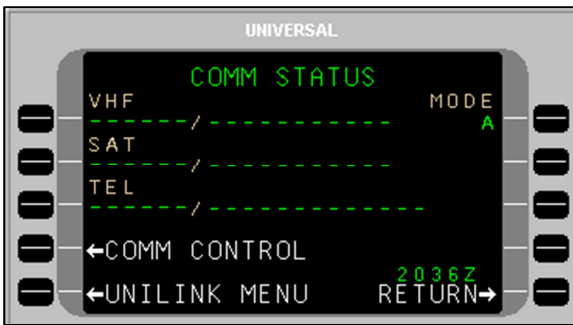
Based on the aircraft installation and configuration, all three media statuses may or may not display. If not configured, the media title will not display and the position on the page will be empty. The possible statuses include:

VHF Media Status	Reason
COMM / IDLE	Communications have been established with the ground and datalink messages can be transmitted over VHF. No data is currently being transmitted.
COMM / SENDING	A message is currently in the process of being transmitted over VHF and UniLink is waiting for acknowledgement from the ground.
NOCOMM / NO FREQ	UniLink has not selected a frequency for tuning due to invalid FMS lat/long or no radio type
NOCOMM / SCANNING	UniLink is automatically selecting a frequency for tuning in current region with enabled DSP.

VHF Media Status	Reason
NOCOMM / CONNECTING	UniLink has sent communication to the ground and is awaiting a reply.
NOCOMM / NO DSP	All DSPs have been manually selected OFF.
NOCOMM / VOICE	The VDR is in VOICE mode. **NOTE**: Does not apply to UL-801 with internal VDR.
NOCOMM/VDR INOP	VDR inoperative.
NOCOMM/VDR FAULT	VDR is reporting a fault.
NOCOMM/VDR UNAVAIL	UniLink has not set the VDR's protocol state.
NOCOMM/MONITORING	UniLink has not detected a viable VDL Mode 2 ground station.
NOCOMM/SUSPEND	VHF communications have been suspended by the crew.

SatCom Media Status	Reason
COMM / IDLE	SatCom (SAT) communication has been established and datalink messages can be transmitted over SatCom. No data is currently being transmitted.
COMM / SENDING	A message is currently in the process of being transmitted. UniLink is waiting for acknowledgement from the ground.
NOCOMM / SDU UNAVAIL NOTE: SDU is the Satellite Data Unit.	The SatCom's system SDU is reporting that it is unavailable.
NOCOMM / SDU INOP	UniLink does not detect the SDU.
NOCOMM / AUTO DELAY	UniLink is waiting before trying to establish a SatCom (SAT) link again.
NOCOMM / TIMEOUT	Retries have been exhausted, and Auto Return to Comm configuration setting is disabled. A manual Link Test must be performed, or an uplink received for the medium to return to COMM.
NOCOMM / CONNECTING	A SatCom (SAT) link is in the process of being established.

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SatCom Media Status	Reason
NOCOMM/SUSPENDED	SatCom (SAT) link has been suspended by the crew.

TEL Media Status	Reason
COMM / MDM TIMEOUT	UniLink has dialed the phone but a timeout occurred prior to a connection being established. **NOTE:** Sequential, excessive timeouts will result in the NOCOMM / AUTO DELAY message displaying.
COMM / DIALING	UniLink has provided the phone with the dial string command and is waiting for the phone to answer.
COMM / CONNECTING	The ground has answered the phone and UniLink is communicating with the DSP
COMM / IDLE	The phone is hung up and no attempt is currently being made to use it and SatCom (TEL) is not suspended or waiting to retry.
COMM / CONNECTED	The phone line is connected and messages can or are currently being transferred.
COMM / PLEASE WAIT	TEL SUSPEND has been manually activated. UniLink is in the process of shutting down the connection.
NOCOMM / SUSPENDED	SatCom (TEL) has been suspended, either by the crew or automatically due to excessive failed attempts.
NOCOMM / AUTO DELAY	UniLink is waiting for the configurable AUTO-DELAY timer to expire before trying again

TEL Media Status	Reason
NOCOMM / CONFIG FAIL	While CONNECTING with the ground server, a message is received saying the configuration sent by UniLink is invalid. The SatCom (TEL) system is permanently shut down. Cycling UniLink power is required to exit this state.
NOCOMM / INIT FAIL	The SatCom (TEL) system is not available for operation. One or both of the following configuration items are invalid: Aircraft Registration Number, or Phone Access Number.
NOCOMM / DIALING	UniLink exited out of the 5-minute delay and is in the process of making another connection attempt.
NOCOMM / PLEASE WAIT	TEL SUSPEND has been manually activated while a connection is in progress. UniLink is in the process of shutting down the connection.
NOCOMM / MDM TIMEOUT	UniLink exited out of the 5-minute delay and while in the process of making another connection attempt the UniLink modem has timed out.

COMM CONTROL

Menu Navigation: UNILINK MENU > COMM STATUS > COMM CONTROL

The COMM CONTROL page provides access to media control pages and options. Access the COMM CONTROL page by selecting COMM STATUS, LSK [3L] from the UNILINK MENU page. Then select COMM CONTROL, LSK [4L] from the COMM STATUS page to display the COMM CONTROL page. The COMM CONTROL page gives access to VHF VOICE (UL-800 only), VHF DATA, SAT DATA, and TEL DATA options (as configured and installed).
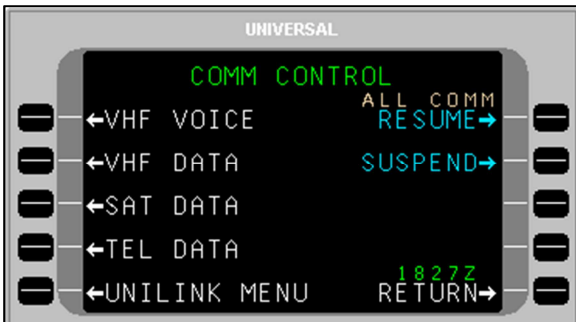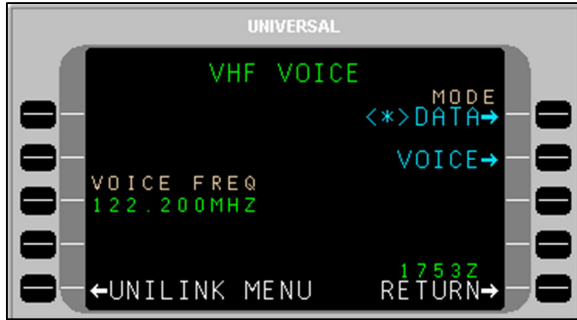

UL-800 with External VDR
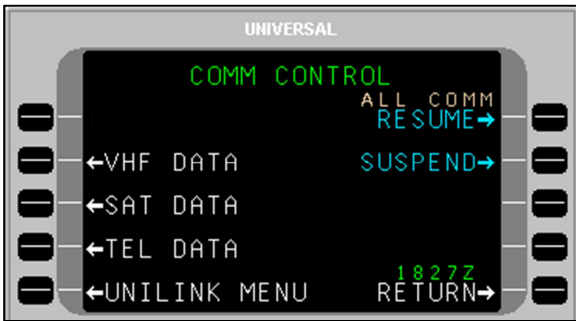
UL-801 with Internal VDR

VHF Voice (UL-800 only)

Menu Navigation: UNILINK MENU > COMM STATUS > COMM CONTROL > VHF VOICE

The VHF VOICE option is available if the VHF radio supports voice communications (does not apply to UL-801 with internal VDR). Pressing VHF VOICE, LSK [1L] from the COMM CONTROL page displays the VHF VOICE page.

UL-800 with External VDR

The VHF VOICE page is used to enable/disable VHF voice mode. LSKs [1R] and [2R] allow selection of the MODE as either DATA or VOICE respectively (an asterisk <*> indicates the selected mode).

DATA Mode - UniLink data communication; no voice communications. UniLink will tune to the appropriate datalink frequencies only.

VOICE Mode - UniLink no longer communicates via VHF to support datalink communications. The external VDR is used for voice and voice frequencies are tuned via VOICE FREQ, LSK [3L].

VHF voice frequency can be tuned from this page if Voice Frequency Control enabled in configuration. Valid frequency range is:

- If configured for frequency spacing of 25KHz - 118.000 to 136.950
- If configured for frequency spacing of 25KHz/8.33KHz - 118.000 to 136.965 and 136.980 to 136.990

NOTE: The frequency 136.975 is a reserved frequency.

VHF Data

Menu Navigation: UNILINK MENU > COMM STATUS > COMM CONTROL > VHF DATA

The VHF DATA page allows the user to enable or disable the individual DSPs and provides access to the VHF Frequency (FREQUENCIES) page. On the COMM CONTROL page press VHF DATA, LSK [2L] to access the VHF DATA page.

NOTE: The FREQUENCIES prompt is only displayed while the VHF link is operating in POA (mode).
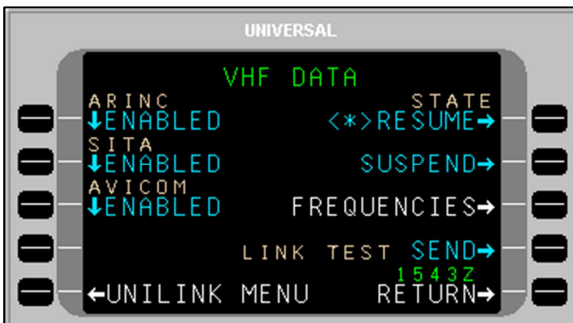
Pressing the LSK adjacent to each DSP toggles the network status between DISABLED and ENABLED. In the ENABLED status, UniLink will communicate with the service provider as appropriate. The DISABLED status prohibits communications with the provider. If all Service Providers are selected to DISABLED, the VHF status displayed on the COMM STATUS page will reflect NOCOMM/NO DSP.

To resolve a VHF NOCOMM problem:

1. On the VHF DATA page, ensure VHF STATE is not set to SUSPEND.

2. Press LINK TEST SEND. This will initiate a link test to reestablish VHF communications.

Communications should be reestablished within approximately one minute and the NOCOMM advisory should no longer be displayed.

If NOCOMM continues to be displayed, this may indicate an equipment or VHF system network failure not associated with incorrect frequency usage.

STATE

- RESUME: When selected, <∗> will display. This allows the VHF system to resume operation.

- SUSPEND: When selected, <∗> will display. This suspends the system. While suspended, no VHF transmissions will be permitted by UniLink and no VHF uplink messages will be processed.

DSPs

DSPs are configured into UniLink at installation. These selections are the default selections displayed on the VHF DATA page but may be overridden by the crew. Care should be taken when overriding these selections to ENABLED as network access fees may be charged to your account by the service provider.

DSPs include:

ARINC   Worldwide except Japan

SITA   Worldwide except Japan

AVICOM   Japan

ALL COMM

The ALL COMM function allows the status of all media DATA (VHF, TEL, SAT) to be set to SUSPEND or RESUME.

- RESUME: When selected, <*> will display. This allows the communication system (VHF, SAT, TEL) to resume operation.

- SUSPEND: When selected, <*> will display. This suspends the configured communication system (VHF, SAT, TEL).

Each individual media DATA page has a STATE function that allows the same RESUME or SUSPEND status to be set just for that specific link.

FREQUENCIES

Menu Navigation: UNILINK MENU > COMM STATUS > COMM CONTROL > VHF DATA > FREQUENCIES

The FREQUENCIES page is accessed by selecting the FREQUENCIES, LSK [3R] on the VHF DATA page. The FREQUENCIES page displays the primary frequency table and a field for secondary frequency selection. Normal frequency selection is controlled automatically by UniLink management logic and user intervention is not required.
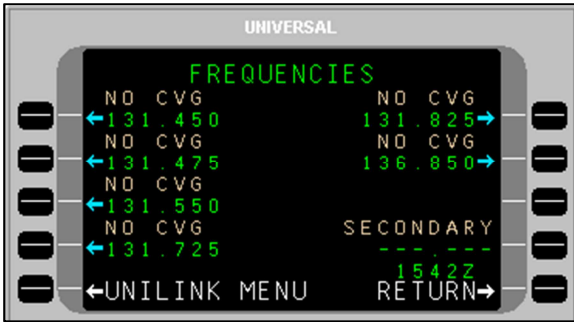

If the UniLink Geographic Database indicates that a DSP has coverage on a particular frequency at the aircraft's current location, the DSP's name will be displayed above the frequency (ARINC, SITA, AVICOM, or MULTIPLE). Otherwise NO CVG (No Coverage) will display.

LSKs allow manual selection of a primary frequency. The <∗> icon indicates the frequency that is currently tuned. The secondary frequency may be manually entered or uplinked from the ground. Any entry in the range of 118.000 through 136.975 will be accepted. Only one frequency, primary or secondary, can be selected at a time.

TEL DATA

Menu Navigation: UNILINK MENU > COMM STATUS > COMM CONTROL > TEL DATA

The TEL DATA page is available if an air phone is configured. The TEL DATA page displays the DSP configured telephone number and also allows manual override with a different number.
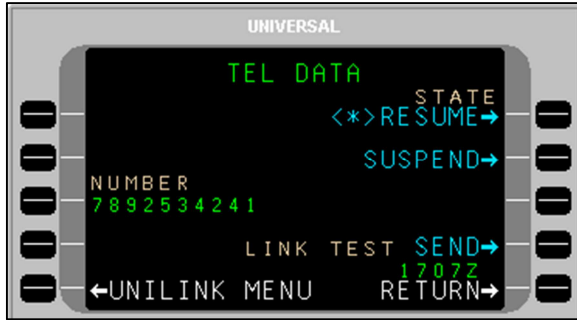
To override the configured telephone number, press NUMBER, LSK [3L]. This highlights the NUMBER field and allows the displayed number to be edited or a new number to be entered. An entry of up to 19 digits is acceptable. The new entry will remain active until the system is restarted, or the number may be restored to the configured value by pressing the [BACK], then [ENTER] keys. From the CDU/MCDU keyboard enter **P** for pause, **L** for #, or **A** for *.

Contact your DSP for the appropriate telephone number.

When the SUSPEND option is selected, telephone communication is suspended and no datalink messages can be sent via telephony. When RESUME is selected, the telephone can be used for sending messages. The SUSPEND option is automatically selected if there have been excessive unsuccessful attempts at sending messages via telephony to the ground. Any manual selection will override any automatically set condition. A <*> indicates the current state.

STATE

- RESUME: When selected, <*> will display. This allows the TEL system to resume operation.

- SUSPEND: When selected, <*> will display. This suspends the system. While suspended, no TEL transmissions will be permitted by UniLink and no TEL uplink messages will be processed.
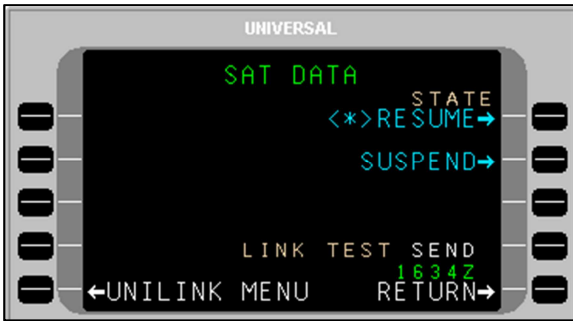
Telephone Link Test

This feature provides the operator the ability to test the telephone link by sending a downlink over the telephone system and then displays the link test status. Run the test by selecting LINK TEST SEND, LSK [4R]. The state of the telephone link test will display on the line above.

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Once the test is complete, the telephone status is displayed on the COMM STATUS page. The displayed status is described in the COMM Status section of this manual.

SAT DATA

Menu Navigation: UNILINK MENU > COMM STATUS > COMM CONTROL > SAT DATA

The SAT DATA page allows the user to send a SatCom link test.

SatCom Datalink Test

This feature provides the operator the ability to test the SatCom link by sending a downlink over the SatCom system and then display the link test status. Run the test by selecting LINK TEST SEND, LSK [4R]. While the test is running, the state of the SatCom link test is displayed on the line above.

Once the test is complete, the SatCom status is displayed on the COMM STATUS page. The displayed status is described in the COMM Status section of this manual.

STATE

- RESUME: When selected, <∗> will display. This allows the
  SAT system to resume operation.
- SUSPEND: When selected, <∗> will display. This suspends the
  SAT system. While suspended, no SAT transmissions will be permitted by UniLink and no VHF uplink messages will be processed.