CKC LABORATORIES, INC.
Testing the Future

EXHIBIT E

SYSTEM MANUAL

5473A CLOUDS REST • MARIPOSA, CALIFORNIA 95338 • (209) 966-5240 • FAX (209) 966-4257

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UNIVERSAL® AVIONICS
SYSTEMS CORPORATION

FCC ID: NWS1066A

UNILINK

UL-601
Installation Manual

Part Number
1066-XX-XXX Series

PRELIMINARY

3260 East Lerdo Road
Tucson, AZ 85706
(520)295-2300 • (800)321-5253

23-20-02 June 8, 1998

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Introduction

1. Makeup and Use of This Manual

A. Application

This manual provides installation information about the UniLink UL–601 System. This manual applies to the following combinations of UniLink Part Number and Software Control Number.

UniLink Hardware / Software

UniLink Part Number	Software Control Number	
		11.X
1066–10–XXX		✔
1066–11–XXX		✔

B. Organization

This manual provides information about:

- ➢ Description of the components of the UL–601.
- ➢ Environmental Qualification Forms.
- ➢ UniLink Equipment Specification.
- ➢ Installation and wiring requirements.
- ➢ Worksheets and procedures for installing system data including configuring the UNS–1K Configuration Module.

C. Abbreviations and Terminology

This manual contains no abbreviations or terms that have varying interpretations throughout the industry. However, we use the terms FMS to refer to both Flight Management Systems and Multi–Mission Management Systems

The front panel of the Control Display Unit (CDU), part of the FMS, contains an array of push buttons or keys that are used by the pilot to operate the system. Instructions in this manual refer to specific keys by name. We bracket the legend on the key in the text. Examples: [ENTER], [A]. Line select keys (LSK) are referred to by numerical order (top to bottom) and side. Text appearing on the display may be included. Examples: [1L], RETURN [5R].

2. History

This is the first publication of this manual. The style of this manual is consistent with the style of our latest Component Maintenance manuals. Our Component Maintenance Manuals are designed to comply with the requirements of *ATA Specification 100.*

Description and Operation

1. Description

A. General

UniLink is a two-way data link for air-to-ground communications which allows you to connect with a service provider for any number of conveniences such as pre-departure and oceanic clearances, flight plans, weather (including graphics), digital ATIS, Terminal Weather Information for Pilots (TWIP) and messaging.

UniLink utilizes VHF signals, airborne telephones and SATCOM, allowing users an appropriate choice of the communications system best suited for their operations and immediate requirements.

Some functions are only available through specific communications systems. For example, predeparture clearance (PDC), oceanic clearance (OC), digital ATIS, and terminal weather information for pilots (TWIP) are available only when UniLink is interfaced with a VHF radio. Graphical weather information is available only when the UniLink is interfaced with an airborne telephone system.

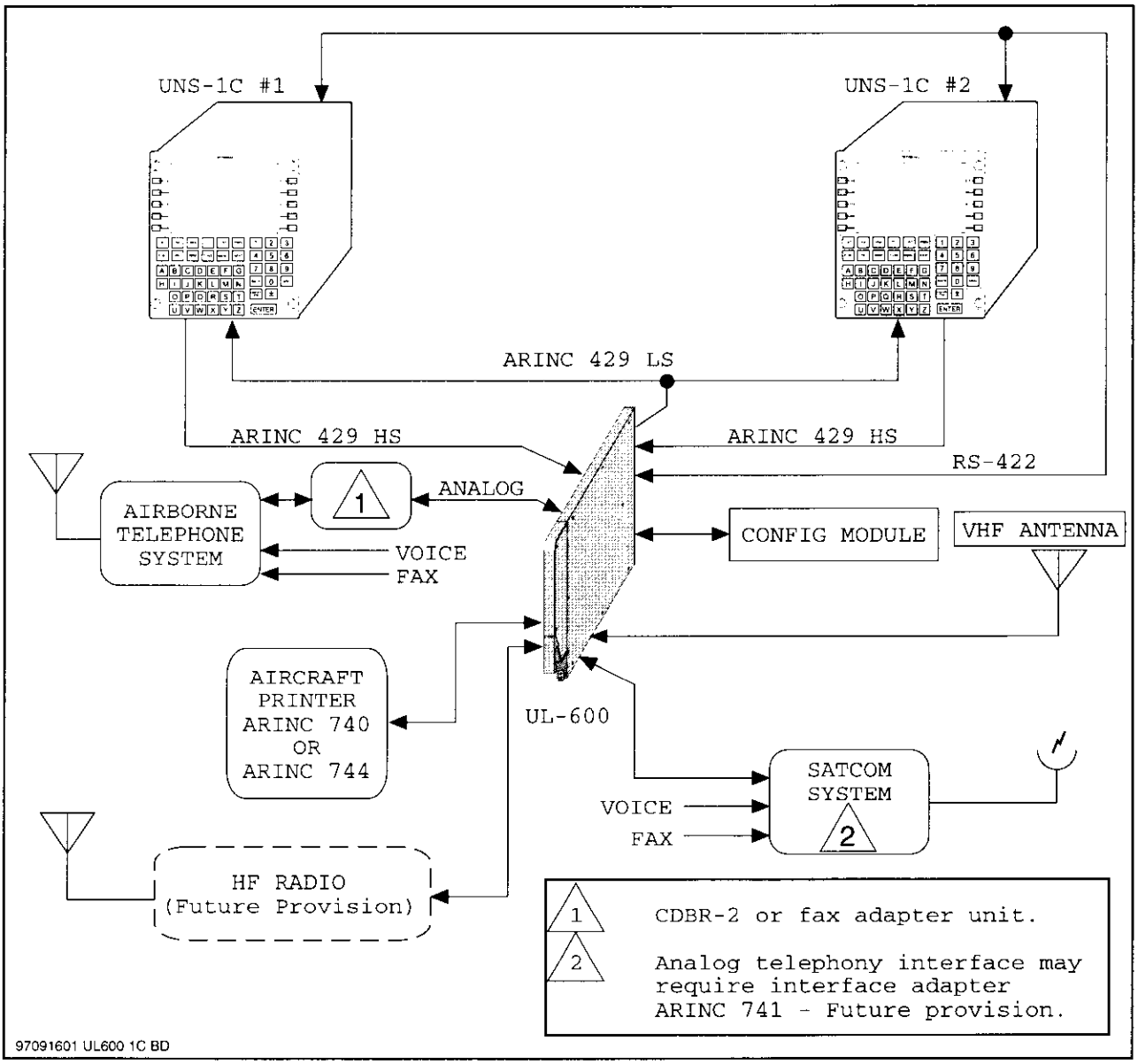
The communications link connects the user directly with a contracted service provider. Which service provider is selected is the user's decision.

UniLink provides a general purpose communications link between the aircraft and ground computers. The transmission media available for the communications link are VHF radio, satellite communications and airborne telephone. It is capable of simultaneously transmitting and/or receiving messages on more than one transmission medium at a time. Messages may be generated on the ground and sent to the aircraft (uplink message) or messages can be generated from the aircraft and sent to the ground (downlink message). Downlink messages are either generated internally by the UniLink or any one of the peripheral units may generate a message to be passed on to the UniLink for transmission. When UniLink receives an uplink message, it automatically determines if the message should be processed internally or be sent to a peripheral device specified by a message sub-label. Messages can be predefined as ARINC Airborne Communications Addressing and Reporting System (ACARS) messages or UniLink supported messages, such as specialized weather requests or graphical weather maps.

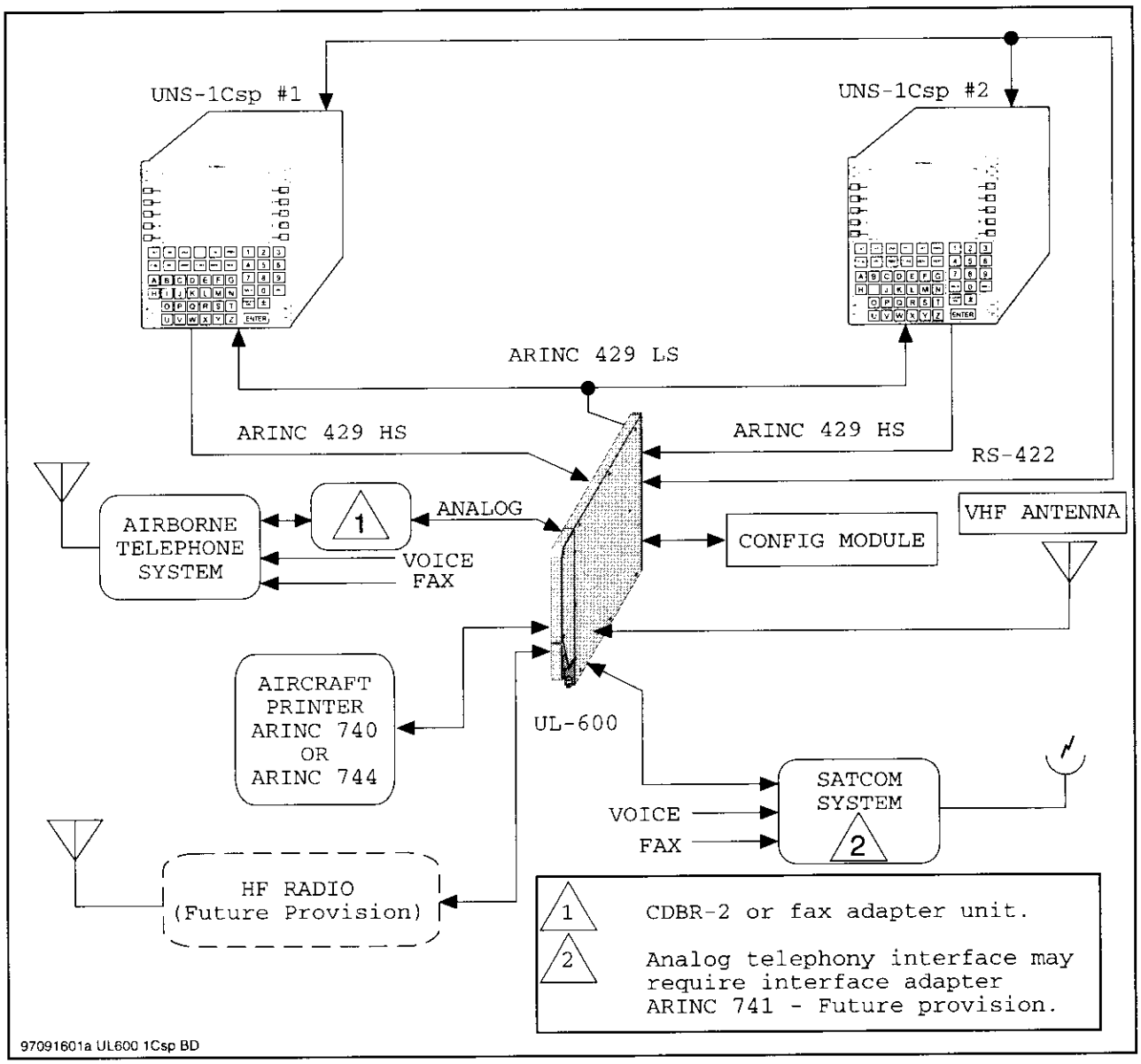
B. UASC FMS Interface

The UL-601 interfaces with up to three UASC Flight Management Systems. However, the UniLink responds to only one FMS at a time. The ARINC 429 interface uses the ARINC 739 protocol for display control and ARINC 619 bit oriented file transfer protocol for file exchange between the devices. Each UASC FMS provides a high speed ARINC 429 channel as inputs to UniLink. The specific channel will be specified by the configuration module. UniLink provides up to three general purpose ARINC 429 output buses configurable to high or low speed. The configuration module contains the information on connections between the UASC FMS and UniLink. UniLink provides an RS422 transmitter and an RS422 receiver proprietary graphics display bus interface between the unit and each FMS.

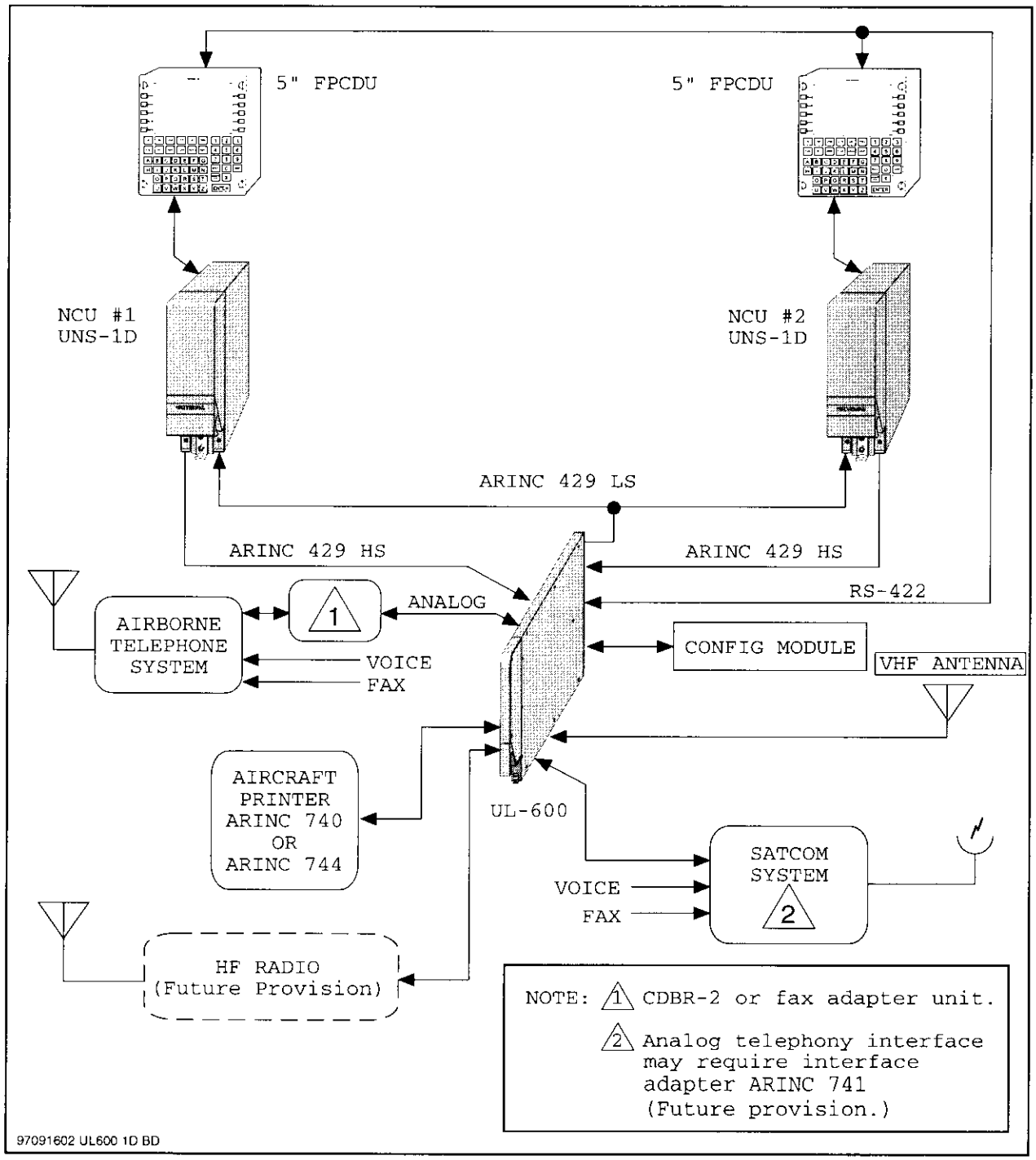
(1) UL-601 to UNS-1C Block Diagram



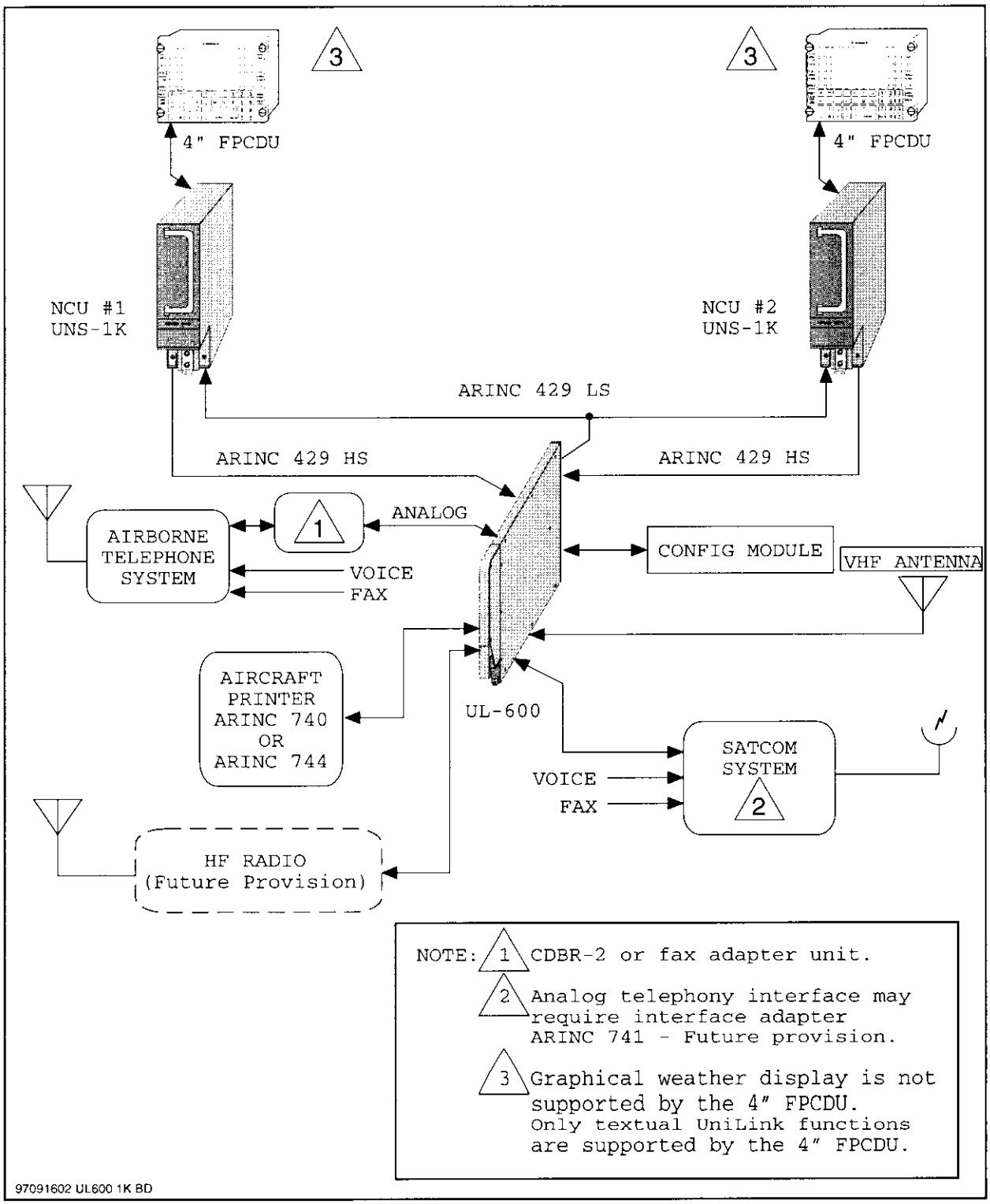
(2) UL-601 to UNS-1Csp Block Diagram



(3) UL-601 to UNS-1D Block Diagram



(4) UL-601 to UNS-1K Block Diagram



C. UniLink System Components

(1) Processor

The CPU used for UniLink is a 32-bit integrated microcontroller that provides high performance data manipulation capabilities with peripheral subsystems.

(2) Memory

UniLink contains two megabytes of FLASH memory used to store loadable software and configuration data tables. The memory device uses a blocked array architecture to provide independent erasure of memory blocks. UniLink provides two megabyte of Random Access Memory (RAM) for program execution and dynamic storage.

(3) VHF Modem

UniLink provides a VHF modem which provides an interface to a VHF radio. The VHF modem connects to the VHF radio through audio input and output interface connections. The modem can communicate with the VHF radio at a rate of 2400 baud using 1200Hz or 2400Hz signals. The VHF modem has a self-test mode that is initiated upon a command from the unit processor.

(4) Airborne Telephone Modem

UniLink contains a dedicated airborne telephone modem that provides an interface to the aircraft airborne telephone system. The processor communicates with the airborne telephone modem through a standard register interface. The modem conforms to the V.34 standard, allowing it to communicate at a rate of up to 28.8 kilobaud. The airborne telephone modem uses the standard set of Hayes compatible commands and registers.

D. ARINC 429 Channels

UniLink uses a multi-channel ARINC 429 controller which provides the ARINC 429 interfaces. It provides eight ARINC 429 receivers and three ARINC 429 transmitters.

(1) ARINC 429 Receivers

The eight ARINC 429 receivers can be independently configured for supported ARINC devices. The receiver bus speed (high or low) is determined by the ARINC device selected during configuration.

(2) ARINC Transmitters

The three ARINC 429 transmitters can be independently configured for bus speed (high or low). Multiple ARINC devices of the same bus speed can be selected by each transmitter, not to exceed the transmitter bus capacity. Currently (January 1998) all supported ARINC devices are low speed.

E. RS232/422 Serial Ports

UniLink provides eight general purpose RS232/422 transmitters and eight general purpose RS232/422 receivers. These ports are available to perform as eight full duplex channels. The ports are capable of operating up to a 19.2 kilobaud rate. The average baud rate for all channels will not exceed 9600 baud. One RS422 port is reserved for the CDU graphics bus. The serial port type selection (RS232 or RS422) is done in pairs.

F. Discrete Inputs/Outputs

UniLink provides 16 general purpose TTL-level discrete input connections and 16 TTL-level discrete output connections. Various configurations of UniLink may level shift these discretes to drive relays and accept high power inputs. One output discrete is reserved and is used to drive the push-to-talk switch for the VHF radio.

G. Transmission Media Management

UniLink is capable of managing multiple media so that simultaneous transmission and receipt of messages is possible on several different media at the same time. In the initial release, UniLink provides individual media man-

agement of the VHF radio and airborne telephone. In future versions UniLink will also manage Satellite Data Units and HF Radio interfaces.

H. VHF Management

UniLink requires a dedicated VHF radio for its data communication. UniLink communicates with the VHF radio via Audio Modem for the data communication, and through CSDB for frequency tune and a discrete output for the push-to-talk (PTT) switch. UniLink is not affected by any radio status data that may be provided by the radio. The type of radio and method used for radio tuning is stored in the configuration module. VHF Management requires that UniLink perform the following tasks in order to manage the VHF air-ground link:

- Acquire a frequency
- Establish a frequency or channel
- Maintain the frequency or channel

UniLink is in a NOCOMM status when acquiring a frequency. The system supports establishing and maintaining contact with Category A ground networks. In Category A operation, all ground stations within VHF range accept downlink messages. UniLink accepts the Autotune message and tunes the radio to the requested frequency.

I. Airborne Telephone Management

A dedicated airborne telephone modem is designed into UniLink. This modem is used to transfer data between a supported ground station and the aircraft subsystems. For example, the airborne telephone modem is initially used for uploading messages, text weather, and graphical weather data from a service provider. In the future it may be used to upload other types of files and data. UniLink manages only one telephone line.

J. ACARS Message Processing

UniLink provides services in the Airborne Communications Addressing and Reporting System (ACARS). There are two types of ACARS data communications, ground-to-air via uplink messages and air-to-ground via downlink messages. Messages sent from one aircraft to another can only be accomplished through the use of user-defined messages via the ground network. Uplink messages are generated by Airline Operations Centers (AOC) or an equivalent service provider, ATC facilities or a Data Link Service Provider (DSP) such as ARINC or SITA and, when not generated by a DSP, are passed to a DSP which then sends the uplink messages to a designated UniLink system or aircraft. The message is then processed by UniLink or, when the message is meant for a peripheral unit, is passed on to the appropriate peripheral unit. Down link messages are generated by UniLink or one of its airborne peripherals (which then passes the message to UniLink) and are sent by UniLink to a DSP, which then forwards the downlink message, when appropriate, to the designated AOC or ATC facility.

(1) ACARS Uplink Message Receiving

When UniLink receives and uplink message from the ground system, it performs a Block Check Sequence (BCS) error check. If the message is error-free, UniLink determines if the message is addressed to the aircraft in which the unit is installed. If so, it generates a positive acknowledgment for transmission to the ground. If the uplink message contains an error, UniLink generates a negative technical acknowledgment. Upon receipt of the negative technical acknowledgment, the ground system should retransmit the uplink message.

(2) ACARS Uplink Message Log

UniLink maintains an uplink message log capable of storing at least 25 blocks of uplink messages. UniLink stores only those uplink messages that are defined as requiring storage in the log. UniLink allows users to delete or print specific messages from the message log. When the message log is full and a new message requiring storage is received, UniLink will delete the oldest read message in the log. When the log is full of messages that have not been read and a new message requiring storage is received,

UniLink will send a negative acknowledgment of receipt of the uplink message. UniLink will annunciate a "log full" state to the flight crew when the message log contains 24 blocks of unread messages.

(3) ACARS Downlink Message Origination

UniLink generates downlink messages by one of two methods, by the flight crew via the user interface or as a response to an event having occurred, such as engine start.

(4) ACARS Downlink Message Queue

Once a downlink message is encoded, it is queued until the message can be transmitted to the ground. UniLink is capable of queuing at least 70 blocks of downlink messages. It is capable of grouping messages into types and limiting the number of messages of each type that can be stored in the queue at any time. UniLink can also delete all messages of a given type from the queue, such as deleting all ATC messages at the end of a flight.

(5) ACARS Downlink Message Transmission

UniLink only transmits messages once it has determined that the channel is clear. When a valid communication link exists, UniLink transmits the message having the highest priority. If more than one message shares the highest priority then UniLink selects the oldest from that group of messages. UniLink completes transmission of a message block prior to transmitting another message block. Upon receipt of the downlinked message, the DSP performs a BCS error check and, if the message is error-free, routes it to the proper destination. The ground system also generates a positive technical acknowledgment for the message and transmits it to the aircraft. Upon receipt of a positive technical acknowledgment, UniLink considers the message successfully transmitted and deletes it from the downlink queue.

K. Status Messages

UniLink provides status messages to alert the flight crew of system events or data entry errors.

Examples of crew alerts are: MESSAGE PRINTING, VHF COMM AVAILABLE, etc.

Examples of data entry errors are: INVALID ENTRY, INVALID FORMAT, etc.

2. Operation

The UniLink is operated by controls provided by the Control Display Unit (CDU). Refer to the Operator's Manual for your installation for UniLink Operating Procedures. The same Operator's Manual also introduces the CDU, explain the CDU operating philosophy, and provides a detailed explanation of the keyboard keys and their associated functions.

Environmental Qualification

1. Environmental Qualification Forms

The environmental categories under which the UL–601 is approved (Reference RTCA. DO–160C) are listed on the following Environmental Qualification Forms.

ENVIRONMENTAL QUALIFICATION FORM

NOMENCLATURE: UniLink Unit

PART NO.: 1066–()–()

PMA NUMBER: PQ2128NM-D

MANUFACTURER'S SPECIFICATION AND/OR OTHER APPLICABLE SPECIFICATION:
Contained in the appropriate Installation Manual

MANUFACTURER: Universal Avionics Systems Corporation
3260 E. Lerdo Road
Tucson, AZ. 85706–5021

CONDITIONS	DO–160C Rev 3 SECTION # PARA #	DESCRIPTION OF CONDUCTED TESTS Note 1
TEMPERATURE, ALTITUDE, DECOMPRESSION, AND OVERPRESSURE	4.0	EQUIPMENT TESTED TO CATEGORY A2E1
TEMPERATURE VARIATION	5.0	EQUIPMENT TESTED TO CATEGORY B
HUMIDITY	6.0	EQUIPMENT TESTED TO CATEGORY A 95%, 55°C, 48 HOURS
OPERATIONAL SHOCKS AND CRASH SAFETY	7.0	EQUIPMENT TESTED
VIBRATION	8.0	EQUIPMENT TESTED WITHOUT SHOCK MOUNTS TO CATEGORIES C, M & N (EQUIPMENT RACK, NON–ISOLATED DO–160C, TABLE 8–1)
EXPLOSION PROOFNESS	9.0	EQUIPMENT TESTED TO CATEGORY E2
WATERPROOFNESS	10.0	EQUIPMENT TESTED TO CATEGORY W
FLUIDS SUSCEPTIBILITY	11.0	EQUIP. IDENTIFIED AS X NOT TESTED
SAND AND DUST	12.0	EQUIP. IDENTIFIED AS X NOT TESTED
FUNGUS	13.0	EQUIP. IDENTIFIED AS X NOT TESTED

NOTE: 1 The information listed provides levels tested. It is not intended to be a comprehensive listing of all test conditions.

CONDITIONS	DO–160C Rev 3 SECTION # PARA #	DESCRIPTION OF CONDUCTED TESTS Note 1
SALT SPRAY	14.0	EQUIP. IDENTIFIED AS X NOT TESTED
MAGNETIC EFFECT	15.0	EQUIPMENT TESTED TO CATEGORY Z
POWER INPUT	16.0	EQUIPMENT TESTED TO CATEGORY Z
VOLTAGE SPIKE	17.0	EQUIPMENT TESTED TO CATEGORY A
AUDIO FREQUENCY SUSCEPTIBILITY	18.0	EQUIPMENT TESTED TO CATEGORY Z
INDUCED SIGNAL SUSCEPTIBILITY	19.0	EQUIPMENT TESTED TO CATEGORY Z
CONDUCTED / RADIATED SUSCEPTIBILITY	20.0	EQUIPMENT TESTED TO CATEGORY R
EMISSION OF RADIO FREQUENCY ENERGY	21.0	EQUIPMENT TESTED TO CATEGORY Z
LIGHTNING INDUCED TRANS SUSCEPTIBILITY	22.0	EQUIPMENT TESTED TO CATEGORY A3E3
LIGHTNING DIRECT EFFECTS	23.0	EQUIPMENT IDENTIFIED AS X NOT TESTED
ICING	24.0	EQUIPMENT IDENTIFIED AS X NOT TESTED

NOTE: 1 The information listed provides levels tested. It is not intended to be a comprehensive listing of all test conditions.

ENVIRONMENTAL QUALIFICATION FORM

NOMENCLATURE: Configuration Module

PART NO.: 10651

PMA NUMBER: PQ2128NM-D

MANUFACTURER'S SPECIFICATION AND/OR OTHER APPLICABLE SPECIFICATION:
Contained in the appropriate Installation Manual

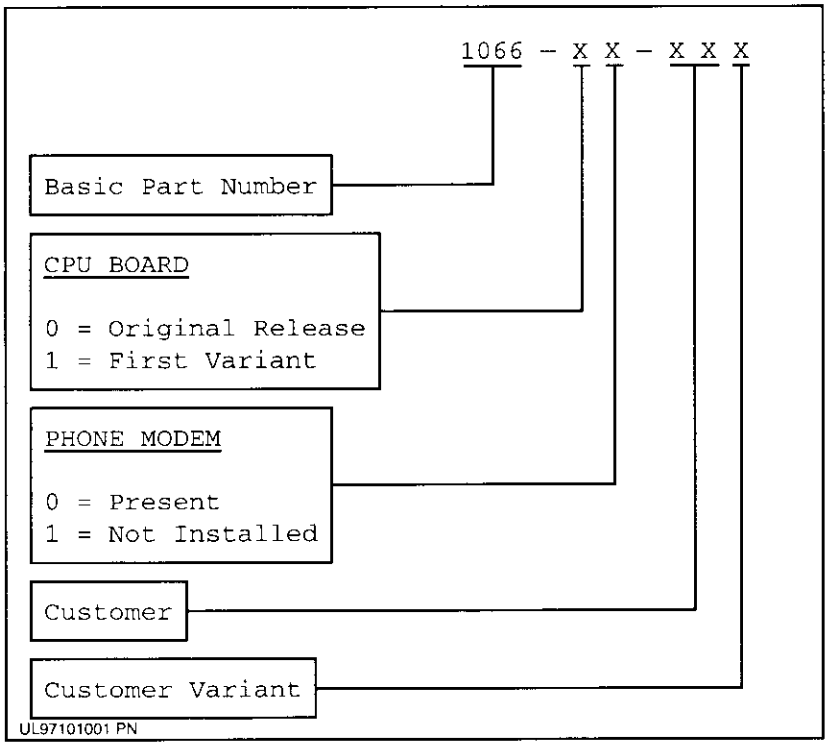
MANUFACTURER: Universal Avionics Systems Corporation
3260 E. Lerdo Road
Tucson, AZ. 85706–5021

CONDITIONS	DO–160C Rev 3 SECTION # PARA #	DESCRIPTION OF CONDUCTED TESTS Note 1.
TEMPERATURE, ALTITUDE, DECOMPRESSION, AND OVERPRESSURE	4.0	EQUIPMENT TESTED TO CATEGORY A2E1
TEMPERATURE VARIATION	5.0	EQUIPMENT TESTED TO CATEGORY B
HUMIDITY	6.0	EQUIPMENT TESTED TO CATEGORY A 95%, 55°C, 48 HOURS
OPERATIONAL SHOCKS AND CRASH SAFETY	7.0	EQUIPMENT TESTED
VIBRATION	8.0	EQUIPMENT TESTED WITHOUT SHOCK MOUNTS TO CATEGORIES C, M & N (EQUIPMENT RACK, NON–ISOLATED DO–160C, TABLE 8–1)
EXPLOSION PROOFNESS	9.0	EQUIPMENT TESTED TO CATEGORY E2
WATERPROOFNESS	10.0	EQUIPMENT TESTED TO CATEGORY W
FLUIDS SUSCEPTIBILITY	11.0	EQUIP. IDENTIFIED AS X NOT TESTED
SAND AND DUST	12.0	EQUIP. IDENTIFIED AS X NOT TESTED
FUNGUS	13.0	EQUIP. IDENTIFIED AS X NOT TESTED
SALT SPRAY	14.0	EQUIP. IDENTIFIED AS X NOT TESTED
MAGNETIC EFFECT	15.0	EQUIPMENT TESTED TO CATEGORY Z
POWER INPUT	16.0	EQUIPMENT TESTED TO CATEGORY Z
NOTE: 1 The information listed provides levels tested. It is not intended to be a comprehensive listing of all test conditions.		

CONDITIONS	DO–160C Rev 3 SECTION # PARA #	DESCRIPTION OF CONDUCTED TESTS Note 1.
VOLTAGE SPIKE	17.0	EQUIPMENT TESTED TO CATEGORY A
AUDIO FREQUENCY SUSCEPTIBILITY	18.0	EQUIPMENT TESTED TO CATEGORY Z
INDUCED SIGNAL SUSCEPTIBILITY	19.0	EQUIPMENT TESTED TO CATEGORY Z
CONDUCTED / RADIATED SUSCEPTIBILITY	20.0	EQUIPMENT TESTED TO CATEGORY R
EMISSION OF RADIO FREQUENCY ENERGY	21.0	EQUIPMENT TESTED TO CATEGORY Z
LIGHTNING INDUCED TRANS SUSCEPTIBILITY	22.0	EQUIPMENT TESTED TO CATEGORY A3E3
LIGHTNING DIRECT EFFECTS	23.0	EQUIPMENT IDENTIFIED AS X NOT TESTED
ICING	24.0	EQUIPMENT IDENTIFIED AS X NOT TESTED
NOTE: 1 The information listed provides levels tested. It is not intended to be a comprehensive listing of all test conditions.		

Equipment Specifications

A. UniLink Part Number Matrix



B. UniLink Installation Kit

Installation Kit # K12030-1

Quantity	Part Number	Description
1	13636-93601-2 or 93601-2	Rack, ARINC 600, 1 MCU (Barry Controls)
6	MS24693C4	Screw, Recessed, Cres, 100° CSK, 4-40 x 3/8"
1	1219	Rack Connector
2	MS51957-19	Screw, 4-40 x 7/8", Cres (for config module)
2	MS21083C04	Nut, 4-40, Cres, Self Lock (for config module)

C. Power

POWER SPECIFICATIONS

COMPONENT		CURRENT (A @ Vdc)			POWER (W @ Vdc)		
TYPE	PART No.	19.0 V MIN	27.5 V NOMINAL	32.0 V MAX	19.0 V MIN	27.5 V NOMINAL	32.0 V MAX
UL–601	1066–()–()	1.0 A	700 mA	600 mA	19.0 W	19.25 W	19.20 W

D. Weights

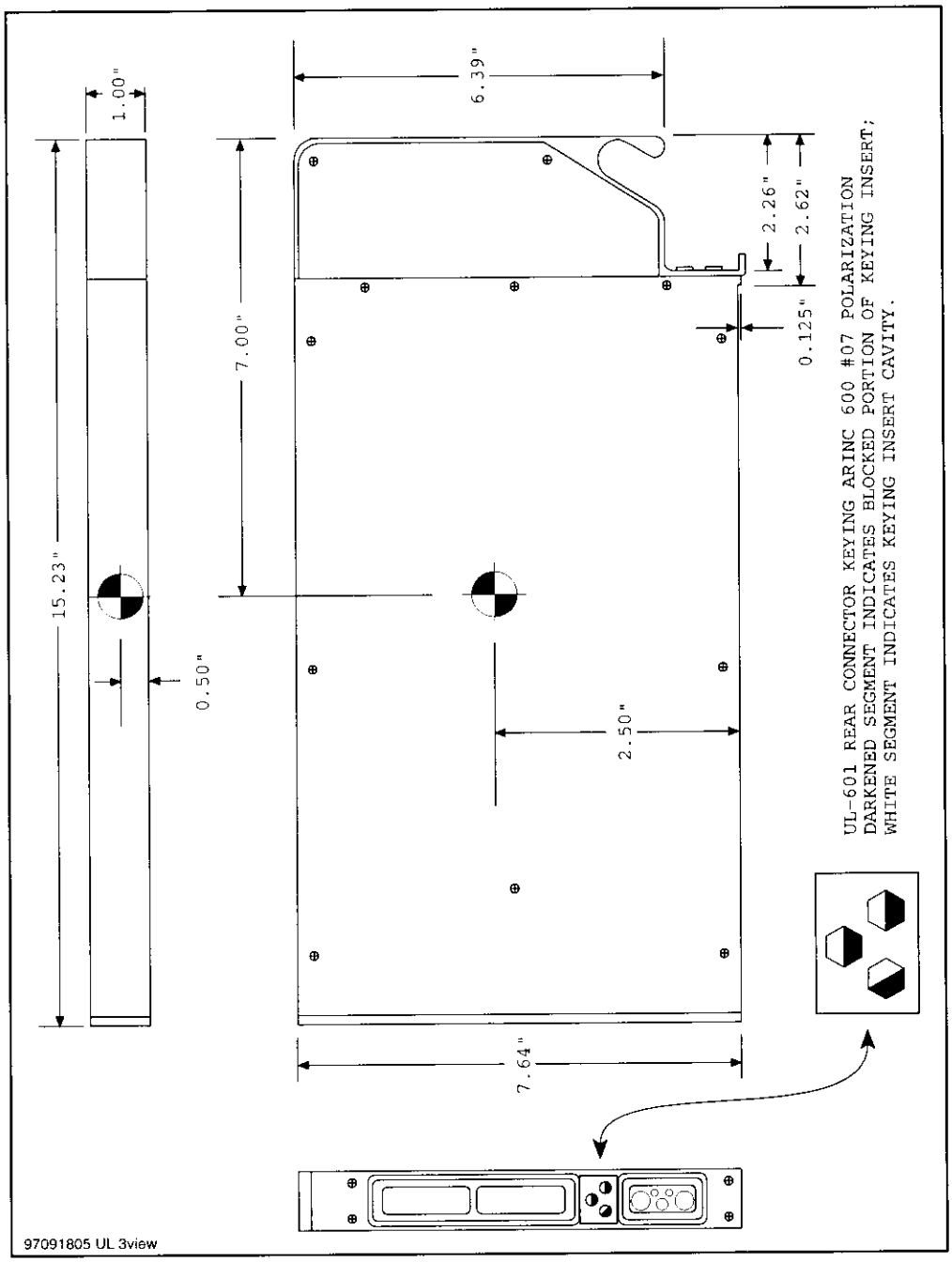
EQUIPMENT WEIGHTS

COMPONENT	WEIGHT
UL-601 UniLink	4.8 lb.
Equipment Rack	11.5 oz.
Connector	5.9 oz.
Configuration Module	0.5 oz.

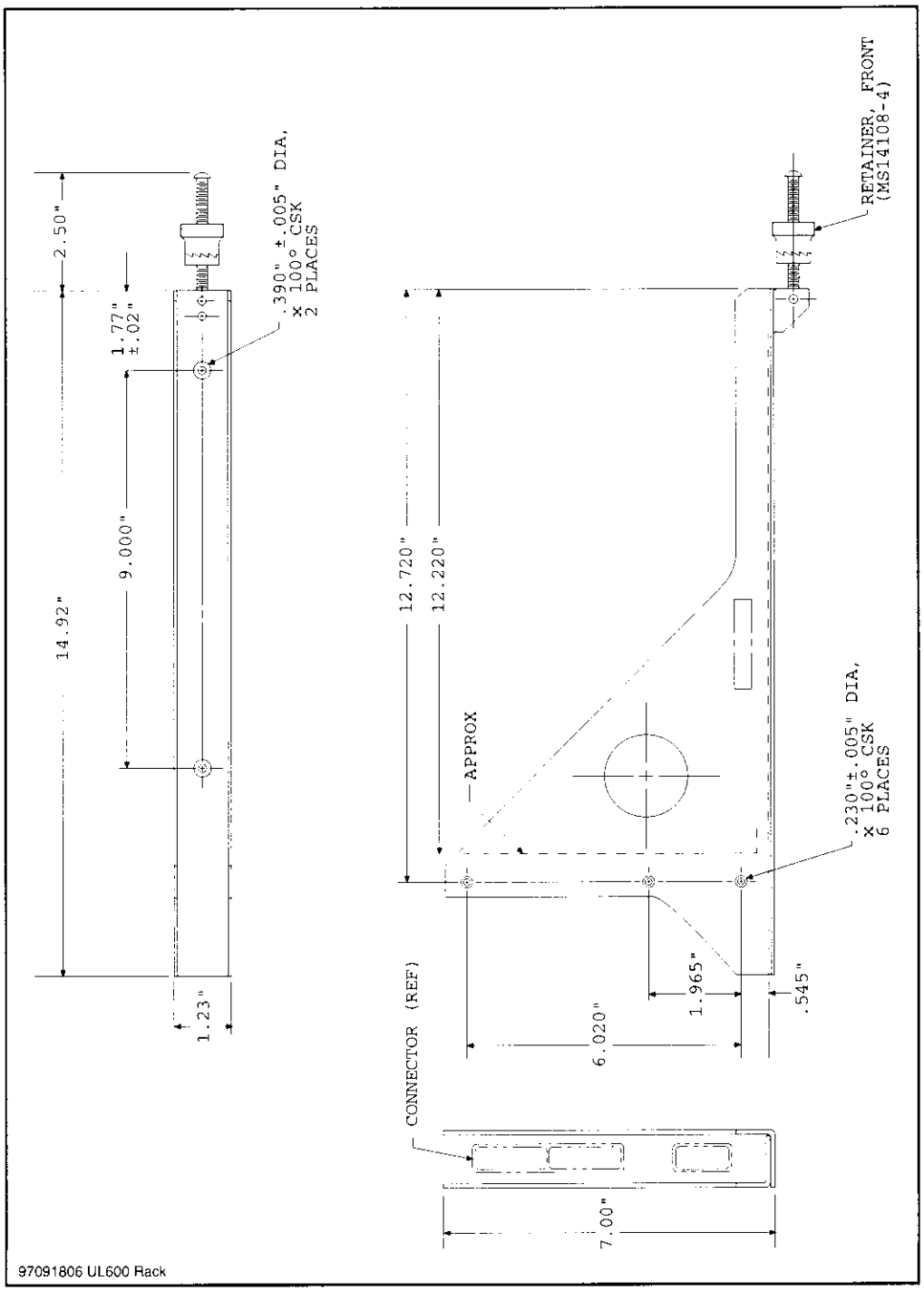
E. Equipment Drawings

Refer to your FMS Technical Manual for NCU, CDU, and DTU drawings.

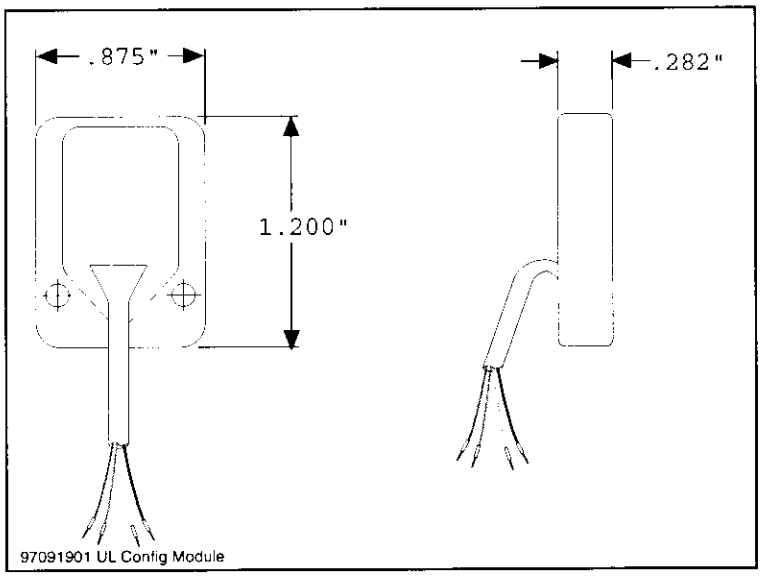
(1) UL-601 (P/N 1066-XX-XXX) Outline Drawing



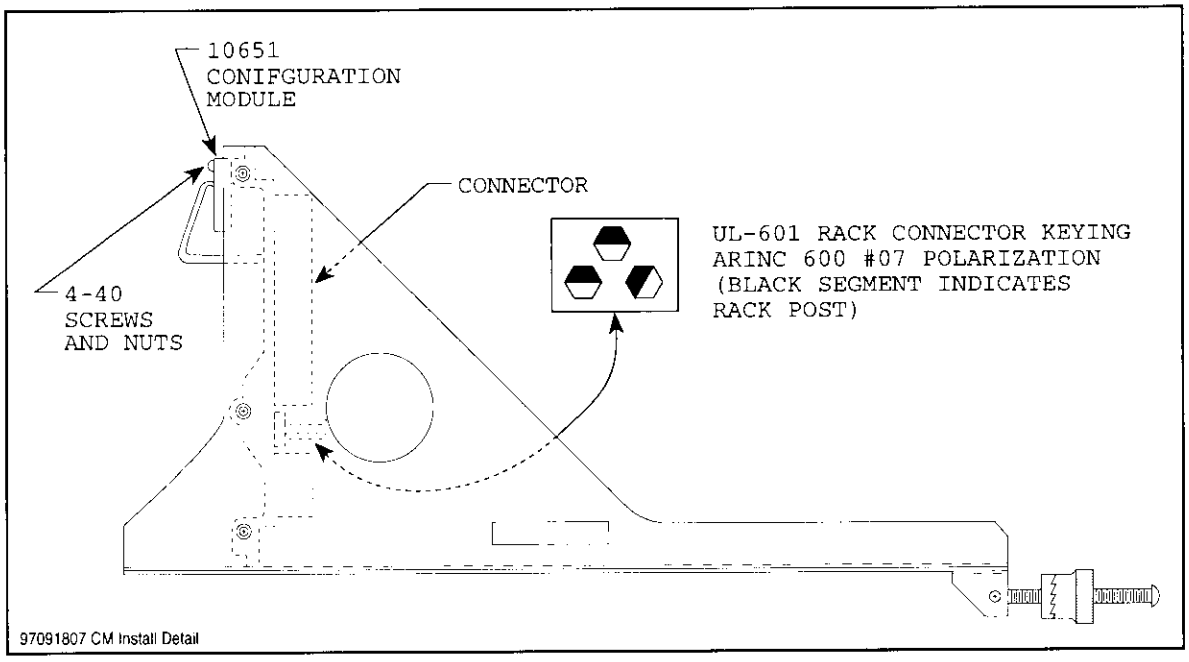
(2) Rack Drawing (P/N 13636-93601-2)



(3) Configuration Module (P/N 10651) Drawing



(4) Configuration Module Installation Detail



Installation and Wiring

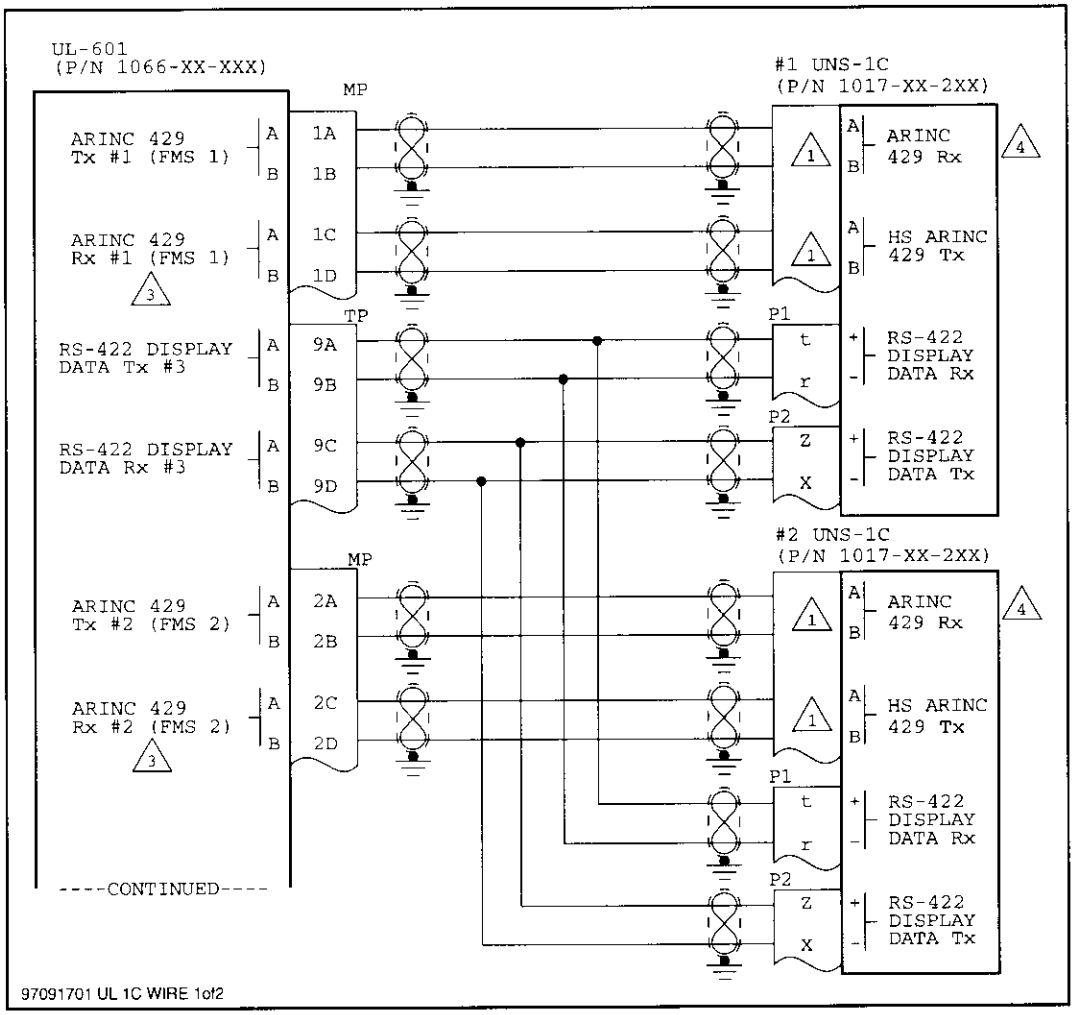
1. Wiring Diagrams

The following wiring diagrams show connections between the UL–601and other avionics equipment used in typical installations. Refer to the appropriate FMS technical manual for additional required wiring.

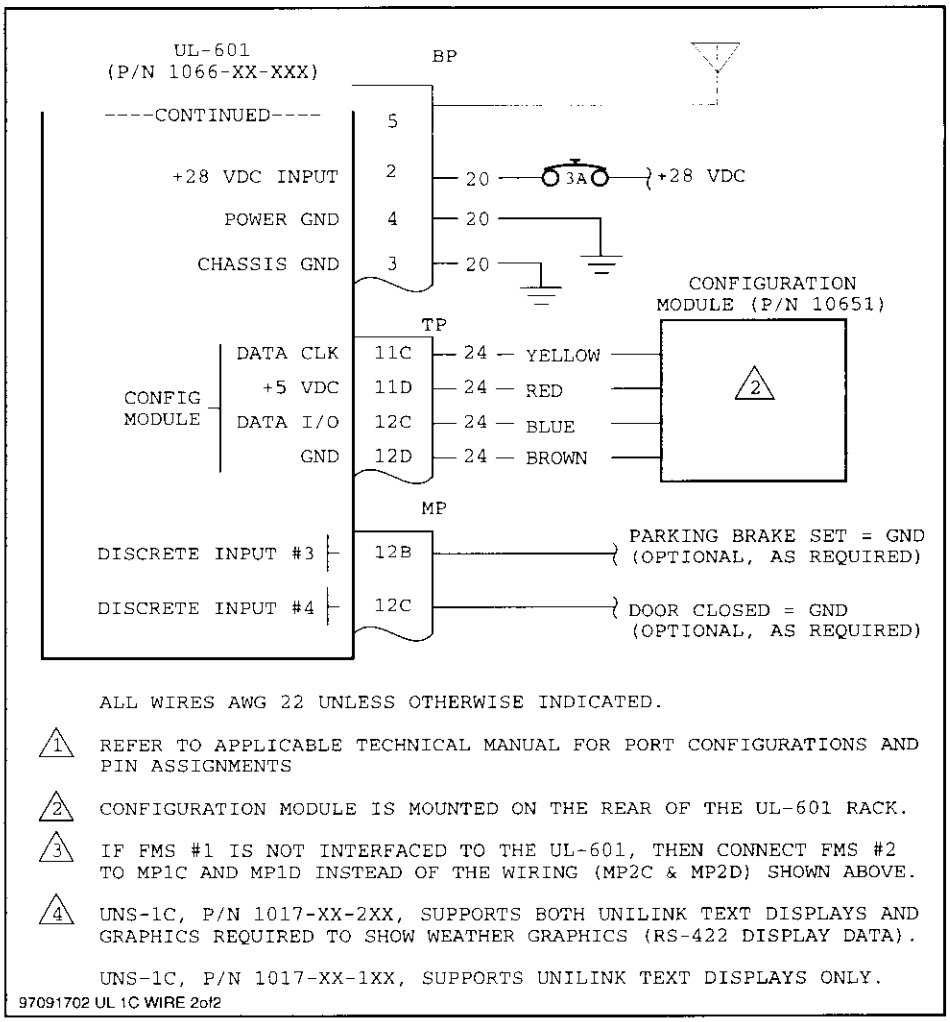
These diagrams include our suggested choices for configurable discretes and communications ports. Mark the configuration worksheets to show your actual installation. Configuration worksheets are found below in the *System Data Installation* section of this manual.

A. UL-601 to FMS

(1) UL-601 to UNS-1C

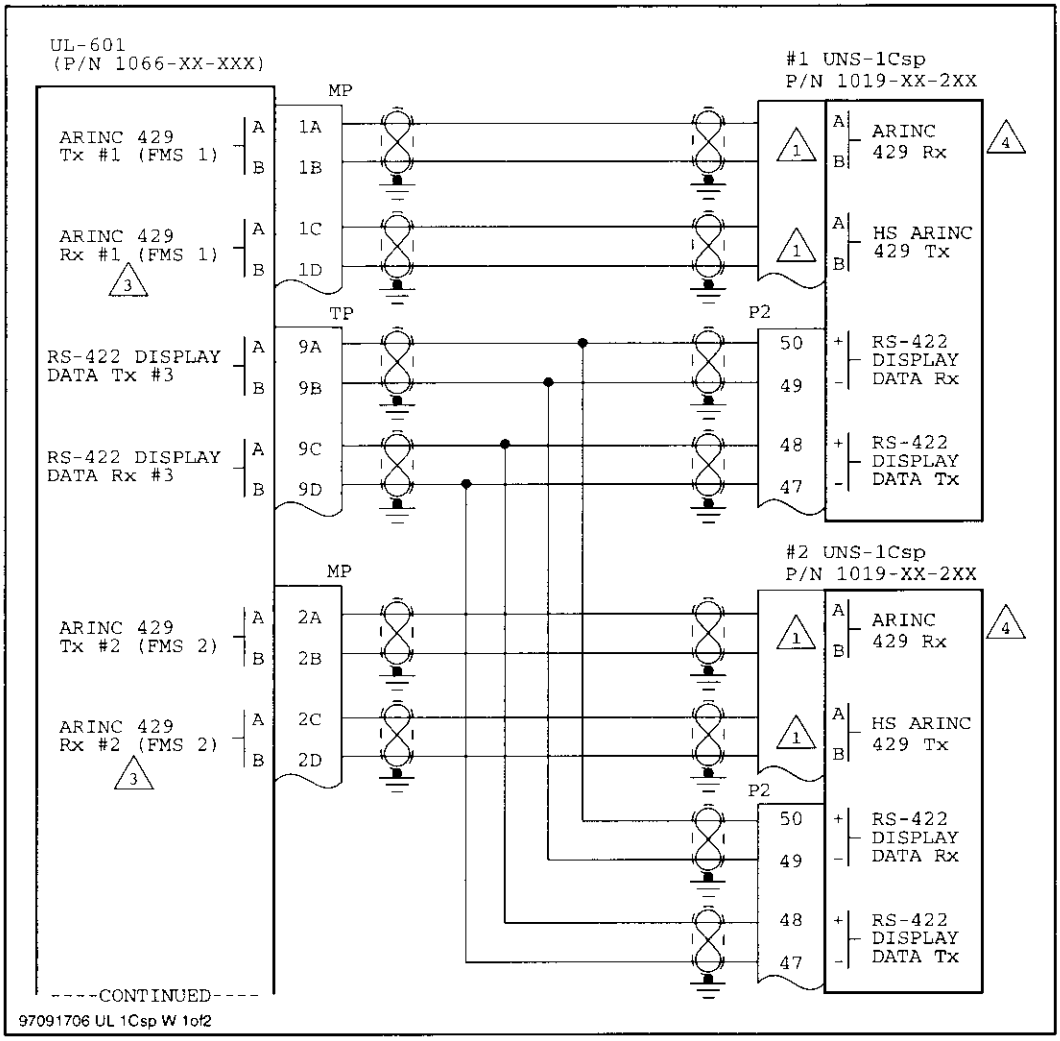


UL-601 to UNS-1C Wiring diagram — Sheet 1 of 2

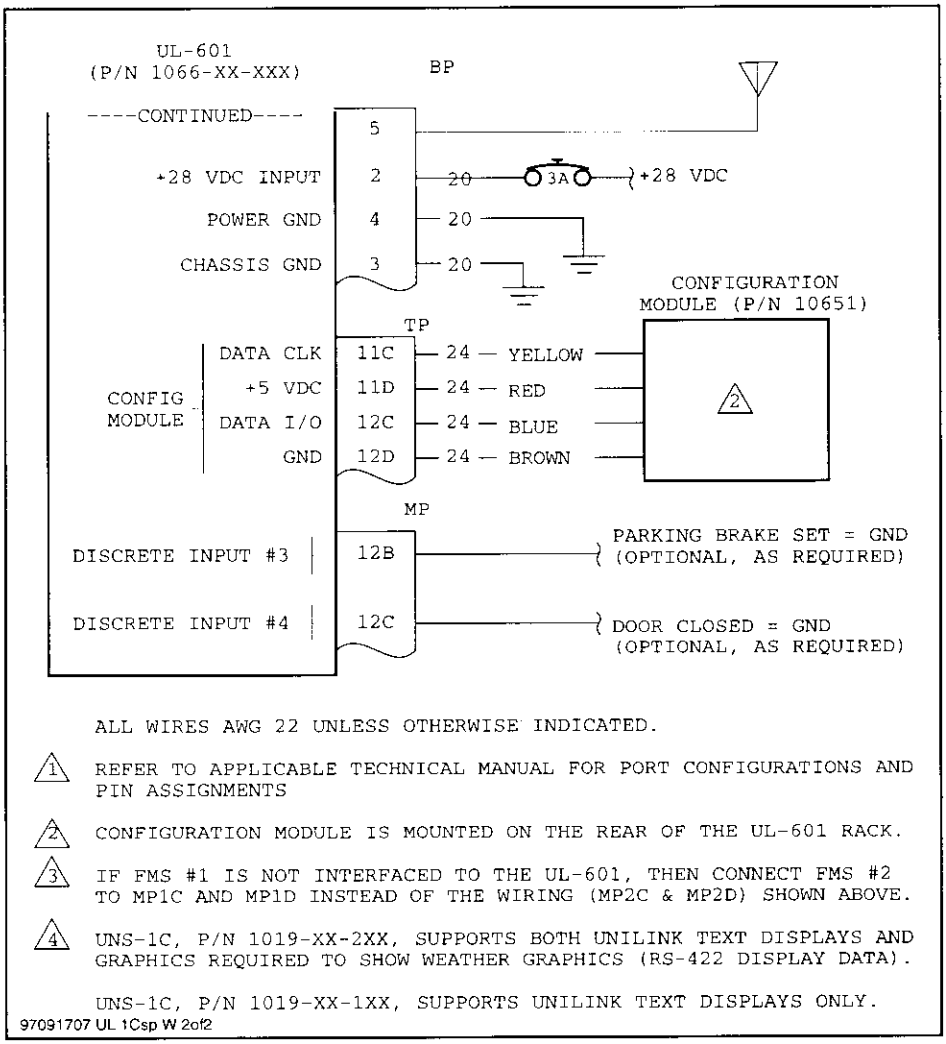


UL-601 to UNS-1C Wiring diagram — Sheet 2 of 2

(2) UL-601 to UNS-1Csp

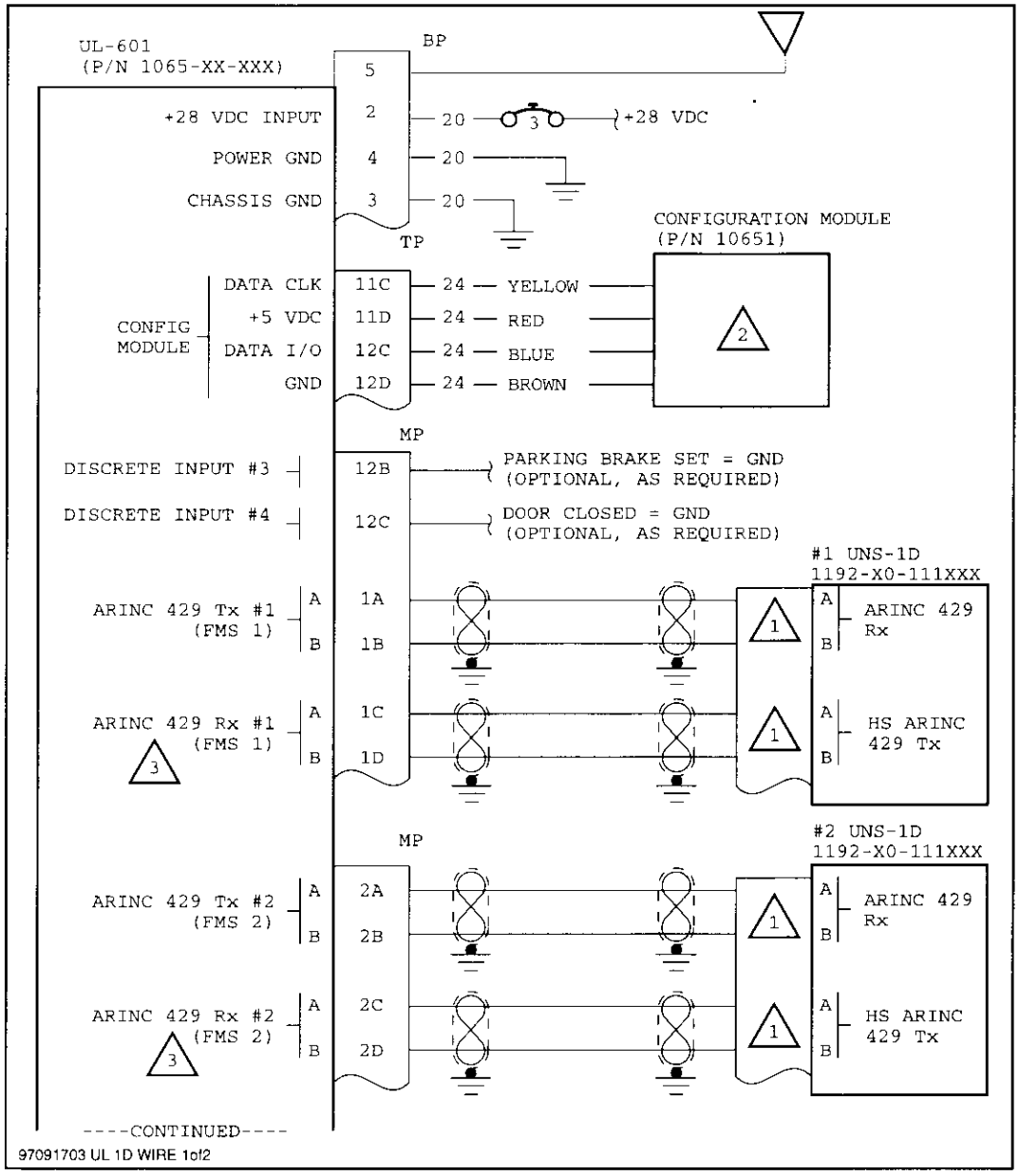


UL-601 to UNS-1Csp Wiring diagram — Sheet 1 of 2

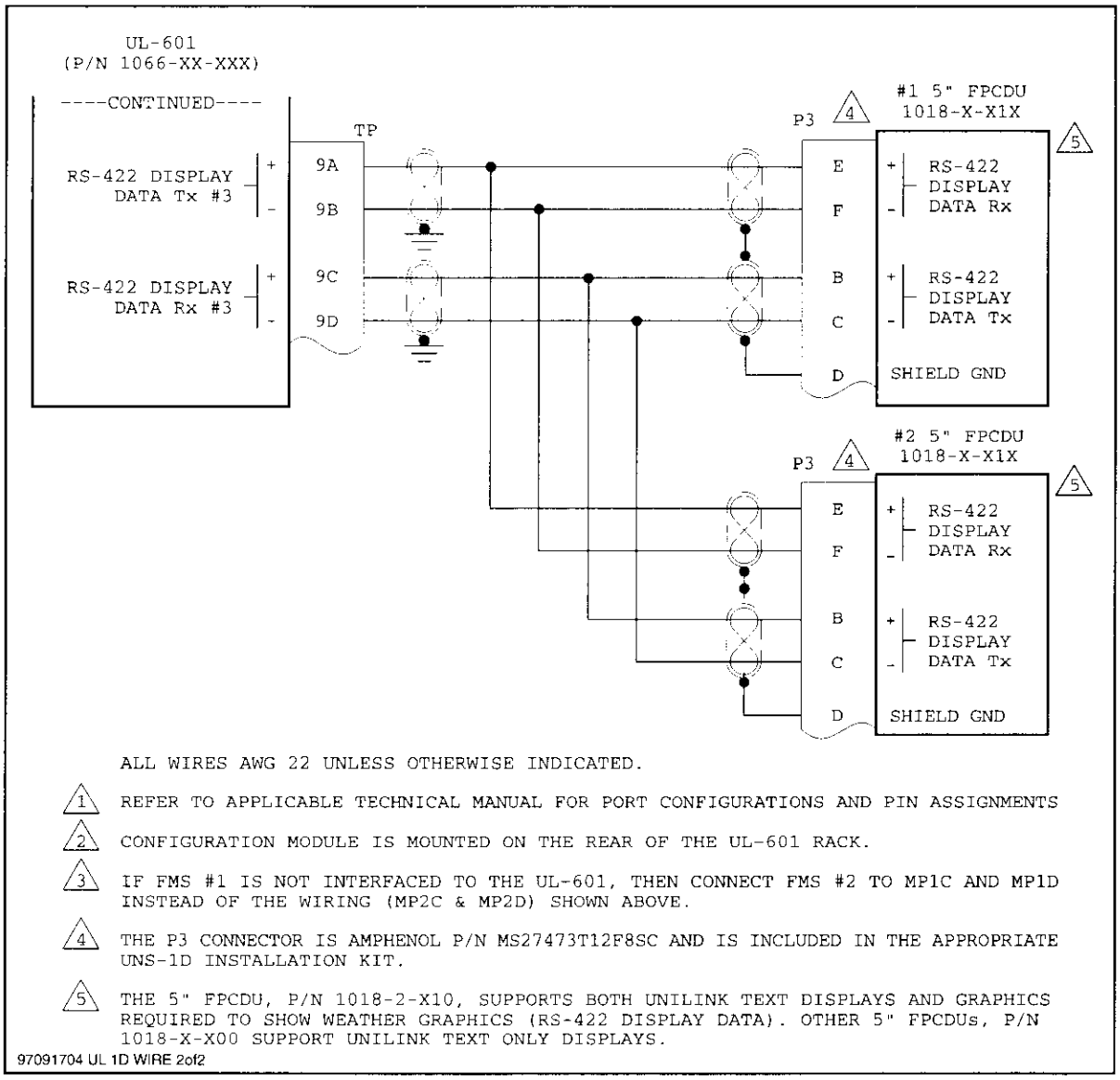


UL-601 to UNS-1Csp Wiring diagram — Sheet 2 of 2

(3) UL-601 to UNS-1D

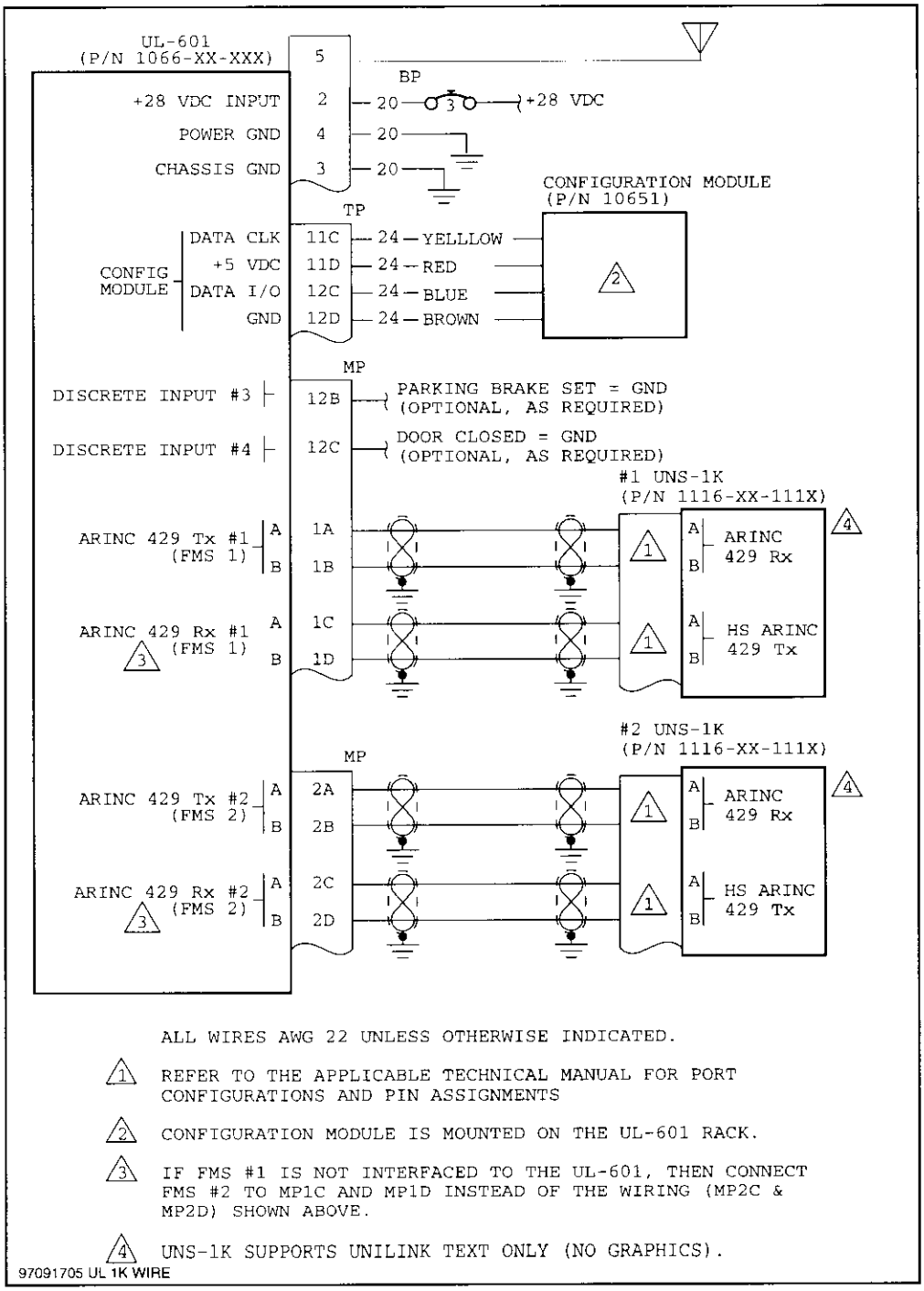


UL-601 to UNS-1D Wiring diagram — Sheet 1 of 2



UL-601 to UNS-1D Wiring diagram — Sheet 2 of 2

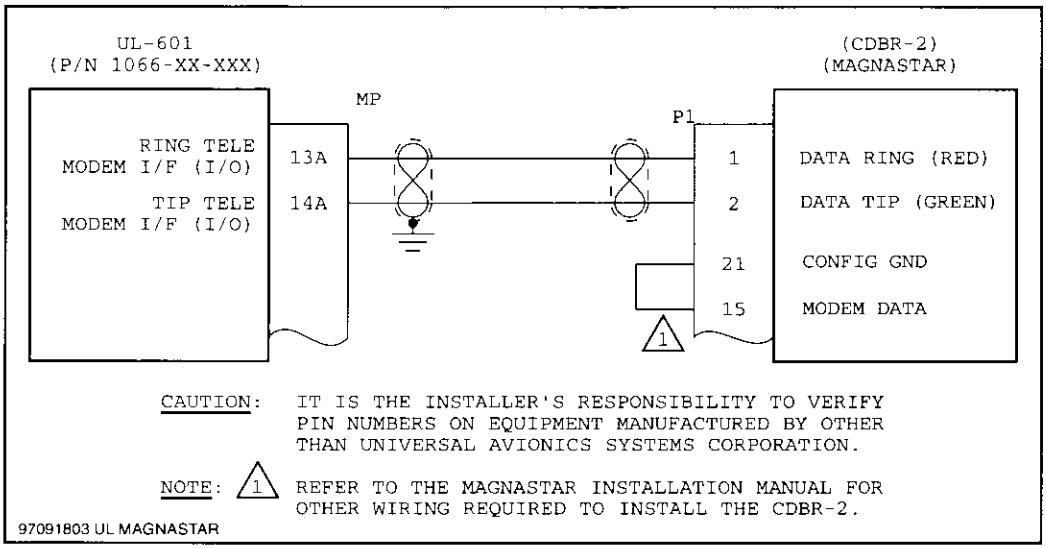
(4) UL-601 to UNS-1K



UL-601 to UNS-1K Wiring Diagram

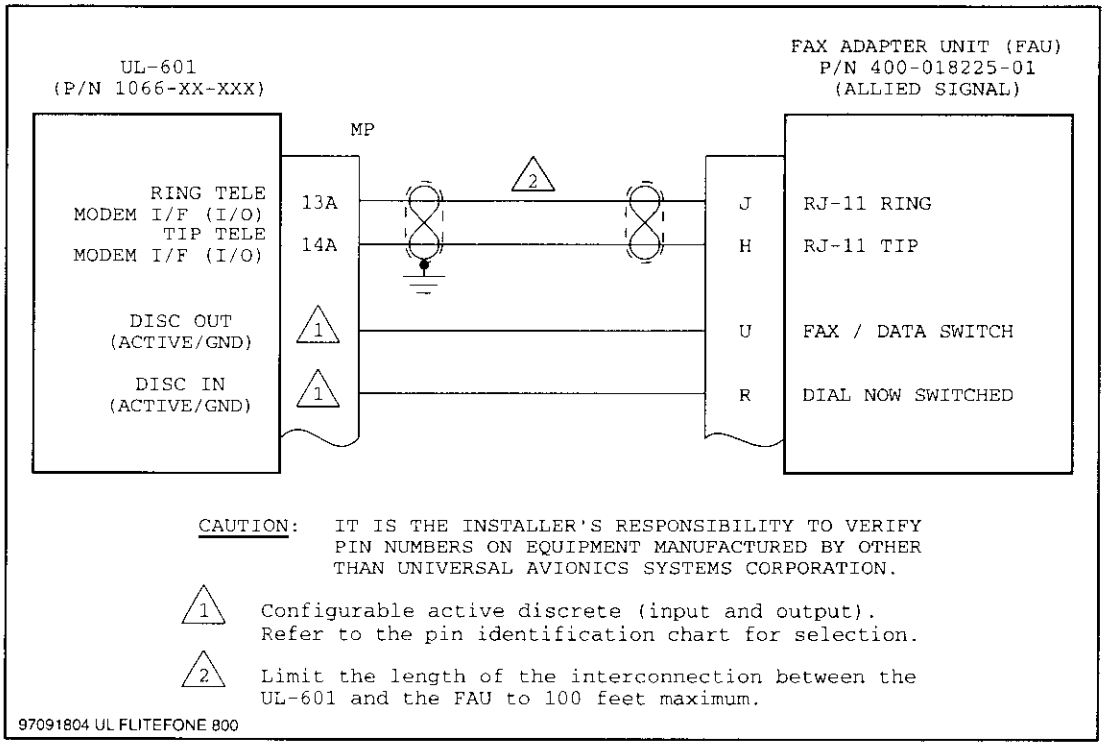
B. UL-601 to Airborne Telephone

(1) UL-601 to Magnastar



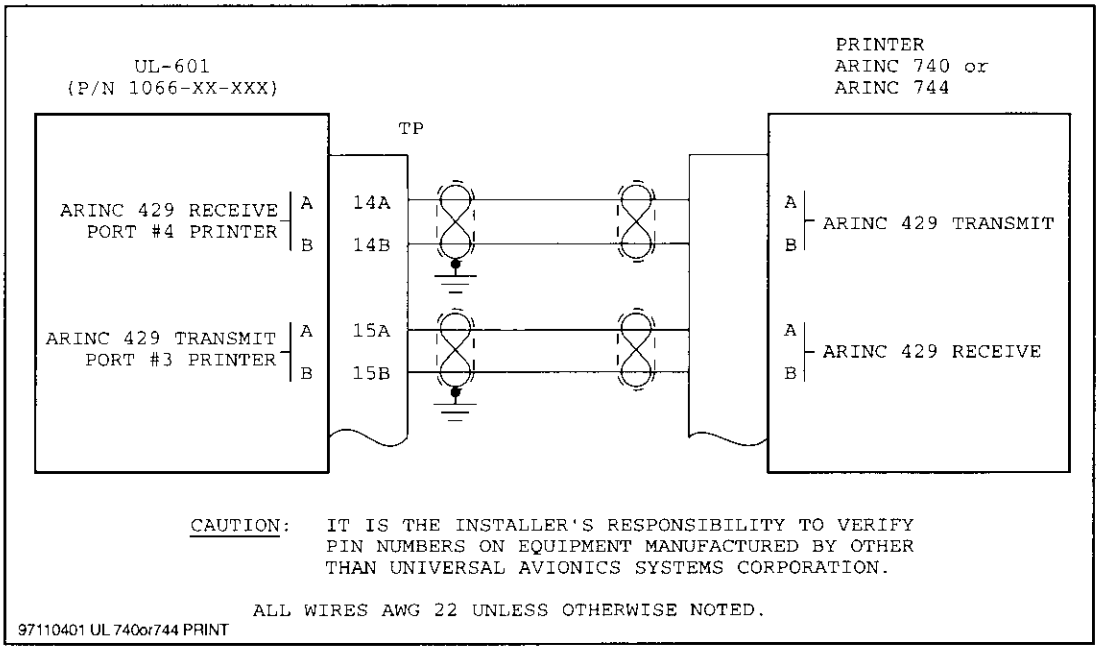
UL-601to Magnastar Wiring Diagram

(2) UL-601 to Flitefone 800



UL-601 to Flitefone 800 Wiring Diagram

C. UL-601 to ARINC 740 / 744 Printer



2. UL–601 Connector Pin Identification

(1) Top Plug

UL–601 – Top Plug
Pin Identification Chart Plug

TOP PLUG – P/N 1066–XX–XXX	
Pin	**Function**
1A	Reserved 1
1B	Reserved 2
1C	Reserved 3
1D	Reserved 4
2A	Reserved 5
2B	Reserved 6
2C	Reserved 7
2D	Reserved 8
3A	Radio CSDB Tune Bus[1]
3B	Radio CSDB Tune Bus[1]
3C	Radio CSDB Tune Bus[1]
3D	Radio CSDB Tune Bus[1]
4A	RS422 / RS232 Tx (+) #7
4B	RS422 Tx (-) #7
4C	RS422 / RS232 Rx (+) #7
4D	RS422 Rx (-) #7
5A	RS422 / RS232 Tx (+) #6
5B	RS422 Tx (-) #6
5C	RS422 / RS232 Rx (+) #6
5D	RS422 Rx (-) #6
6A	RS422 / RS232 Tx (+) #5
6B	RS422 Tx (-) #5

UL–601 – Top Plug
Pin Identification Chart Plug (Continued)

TOP PLUG – P/N 1066–XX–XXX	
Pin	**Function**
6C	RS422 / RS232 Rx (+) #5
6D	RS422 Rx (-) #5
7A	RS422 / RS232 Tx (+) #4
7B	RS422 Tx (-) #4
7C	RS422 / RS232 Rx (+) #4
7D	RS422 Rx (-) #4
8A	RS422 / RS232 Tx (+) #2
8B	RS422 Tx (-) #2
8C	RS422 / RS232 Rx (+) #2
8D	RS422 Rx (-) #2
9A	RS422 / RS232 Tx (+) #3
9B	RS422 Tx (-) #3
9C	RS422 / RS232 Rx (+) #3
9D	RS422 Rx (-) #3
10A	RS232 Tx Diag
10B	RS232 Rx Diag
10C	RS232 Return Diag
10D	Spare 1
11A	Spare 2
11B	Spare 3
11C	Config Mod Clock
11D	Config Mod Power
12A	ARINC 429 Rx #8 (A)
12B	ARINC 429 Rx #8 (B)

UL–601 – Top Plug
Pin Identification Chart Plug (Continued)

TOP PLUG – P/N 1066–XX–XXX	
Pin	**Function**
12C	Config Mod Data (I/O)
12D	Config Mod Ground
13A	ARINC 429 Rx #6 (A)
13B	ARINC 429 Rx #6 (B)
13C	ARINC 429 Rx #7 (A)
13D	ARINC 429 Rx #7 (B)
14A	ARINC 429 Rx #4 (A)
14B	ARINC 429 Rx #4 (B)
14C	ARINC 429 Rx #5 (A)
14D	ARINC 429 Rx #5 (B)
15A	ARINC 429 Tx #3 (A)
15B	ARINC 429 Tx #3 (B)
15C	ARINC 429 Rx #3 (A)
15D	ARINC 429 Rx #3 (B)
[1] Do not connect anything to these ports. Connections are internal.	

(2) Middle Plug

UL–601 Middle Plug
Pin Identification Chart

MIDDLE PLUG – P/N 1066–XX–XXX	
Pin	**Function**
1A	ARINC 429 Tx #1 (A)
1B	ARINC 429 Tx #1 (B)
1C	ARINC 429 Rx #1 (A)
1D	ARINC 429 Rx #1 (B)
2A	ARINC 429 Tx #2 (A)
2B	ARINC 429 Tx #2 (B)
2C	ARINC 429 Rx #2 (A)
2D	ARINC 429 Rx #2 (B)
3A	RS232 Return
3B	Spare 4
3C	Spare 5
3D	Spare 6
4A	RS422 / RS232 Tx (+) #1
4B	RS422 Tx (-) #1
4C	RS422 / RS232 Rx (+) #1
4D	RS422 Rx (-) #1
NOTE: 1. MP3A is the return for both MP4A & MP4C if configured for RS-232. 2. MP4A, MP4B, MP4C & MP4D are used if configured for RS-422 (CSDB).	
5A	Discrete Out #14 (Active Gnd)
5B	Discrete Out #15 (Active Gnd)
5C	Discrete Out #16 (Active Gnd)
5D	Spare 7
6A	Discrete Out #10 (Active Gnd)

UL–601 Middle Plug
Pin Identification Chart (Continued)

MIDDLE PLUG – P/N 1066–XX–XXX	
Pin	**Function**
6B	Discrete Out #11 (Active Gnd)
6C	Discrete Out #12 (Active Gnd)
6D	Discrete Out #13 (Active Gnd)
7A	Discrete Out #6 (Active Gnd)
7B	Discrete Out #7 (Active Gnd)
7C	Discrete Out #8 (Active Gnd)
7D	Discrete Out #9 (Active Gnd)
8A	Discrete Out #2 (Active Gnd)
8B	Discrete Out #3 (Active Gnd)
8C	Discrete Out #4 (Active Gnd)
8D	Discrete Out #5 (Active Gnd)
9A	Discrete In #13 (Active Gnd)
9B	Discrete In #14 (Active Gnd)
9C	Discrete In #15 (Active Gnd)
9D	Discrete In #16 (Active Gnd)
10A	Discrete In #9 (Active Gnd)
10B	Discrete In #10 (Active Gnd)
10C	Discrete In #11 (Active Gnd)
10D	Discrete In #12 (Active Gnd)
11A	Discrete In #5 (Active Gnd)
11B	Discrete In #6 (Active Gnd)
11C	Discrete In #7 (Active Gnd)
11D	Discrete In #8 (Active Gnd)
12A	Discrete In #2 (Active Gnd)
12B	Discrete In #3 (Active Gnd)

UL–601 Middle Plug
Pin Identification Chart (Continued)

MIDDLE PLUG – P/N 1066–XX–XXX	
Pin	**Function**
12C	Discrete In #4 (Active Gnd)
12D	Spare 8
13A	Telephone Ring (Modem I/F)
13B	Telephone 3 Reserved
13C	Telephone 2 Reserved
13D	Telephone 1 Reserved
14A	Telephone Tip (Modem I/F)
14B	Discrete Out #1 (Active Gnd)
14C	Ground Return VHF-ACARS (VHF Radio - Active Ground)
14D	Discrete In #1 (Active Gnd)
15A	Modem Tx (+)
15B	Modem Tx (-)
15C	Modem Rx (+)
15D	Modem Rx (-)

(3) Bottom Plug

UL–601 Bottom Plug
Pin Identification Chart

BOTTOM PLUG – P/N 1066–XX–XXX	
Pin	**Function**
1	Spare
2	+28 VDC
3	Chassis Gnd
4	Power Gnd
5	Reserved

System Data Installation (General)

1. International Civil Aviation Organization (ICAO) Aircraft Type Designators

When installing system data the ICAO aircraft type designator will be used. The following table contains ICAO designators for various aircraft. Use it or ICAO Document 8643 to ascertain the correct designator for your aircraft.

MANUFACTURER/MODEL	ICAO DESIGNATOR
AIRBUS	
A-300	A300
A-310	A310
ATR	
ATR-42/72	ATR
BAC	
111 One-eleven	BA111
BEECH	
90, A90 to E90 King Air	BE9L
200, 1300 Super King Air	BE20
300 Super King Air	BE30
B300 Super King Air 350	B350
400 Beechjet	MU30
1900 (C-12J)	B190
BELL	
212, 412	B12
214ST	BSTP
222, 230,430	B222

MANUFACTURER/MODEL	ICAO DESIGNATOR
BOEING	
707	B708
727 (C-22)	B727
737-100/200 (CT-43)	B73A
737-300/400/500	B73B
747-100/200/300 (E-4, VC-25)	B74A
747SP	B74S
757	B757
C135	C135
BRITISH AEROSPACE	
BAC 111 One-eleven	BA11
BAe-125-700/800 (C-29)	H25B
BAe-125-1000	H25C
BAe-146, RJ	BA46
BAe-4100 Jetstream 41	JSTB
CANADAIR	
CL-600/601/604 Challenger	CL60
RJ Regional Jet	CARJ
CESSNA	
F406 Caravan 2	F406
441 Conquest, Conquest 2	C441
500, 501 Citation, Citation 1/1SP	C500
525 Citation Jet	C525
526 Citation Jet	C526

MANUFACTURER/MODEL	ICAO DESIGNATOR
550, S550, 551, 552 Citation 2/S2/2SP/Bravo	C550
560 Citation 5	C560
650 Citation 3/6/7	C650
DASSAULT	
Falcon 10, Mystére 10	FA10
Falcon 20, Mystére 20	FA20
Falcon 50, Mystére 50	FA50
Falcon 900, Mystére 900	F900
Falcon 2000	F2TH
DEHAVILLAND CANADA	
DHC-6 Twin Otter	DHC6
DHC-7 Dash 7	DHC7
DHC-8 Dash 8	DHC8
DOUGLAS	
DC-8	DC8
DC-9	DC9
EMBRAER	
EMB-110/111 Bandeirante	E110
EMB-120 Brasilia	E120
EMB-145	E145
EUROCOPTER	
AS-365/565 Dauphin	AS65
BK-117	BK17
FOKKER	
50	F50

MANUFACTURER/MODEL	ICAO DESIGNATOR
GRUMMAN	
G-159 Gulfstream 1	G159
G-1159 Gulfstream 2	GULF
Albatross	U16
GULFSTREAM AEROSPACE	
Gulfstream 3/4/5	GULF
HAWKER	
HS-124-400/600	H25A
HS-125-700	H25B
IAI	
1123 Westwind	WW23
1124 Westwind	WW24
1125 Astra	ASTR
Galaxy	GLAX
ILYUSHIN	IL96
LEARJET	
31	LJ31
35	LJ35
45	LJ45
55	LJ55
60	LJ60
LOCKHEED	
C-130	C130
L-1011 TriStar	L101

MANUFACTURER/MODEL	ICAO DESIGNATOR
McDONNEL DOUGLAS	
DC-8	DC8
DC-9	DC9
DC-10	DC10
MD-81/82/83/87/88	MD80
MD-90	MD90
MITSUBISHI	
MU-300 Diamond	MU30
PIPER	
PA-42 Cheyenne 3/400	PA42
RAYTHEON	
90 King Air	BE9L
200 Super King Air (C-12)	BE20
300 Super King Air	BE30
B300 Super King Air 350	BE350
400 Beechjet	MU30
1900	B190
Hawker 800	H25B
Hawker 1000	H25C
REIMS	
F406 Caravan 2	F406
SIKORSKY	
S-70	H60
S-76	S76

MANUFACTURER/MODEL	ICAO DESIGNATOR
TUPOLEV	
Tu-154	T154
WESTLAND	
Puma	PUMA

System Data Installation For SCN 10.X

1. Configuration Worksheets

Universal Avionics Systems Corporation recommends that the following worksheets be completed in order to easily program the UniLink configuration module. One set of worksheets should be filled out. Fill in the blanks and check the appropriate boxes based on the wiring of the aircraft and its set of avionics components. Further, these worksheets may be submitted along with other approval paperwork. A copy of these worksheets should be filed along with the aircraft paper work for future reference.

NOTE: You are hereby authorized to reproduce these worksheets as well as the configuration module programming procedures if desired.

A. Aircraft Information

Date: _____

Company Address: _____

_____

_____

A/C Manufacturer: _____

A/C Model No.: _____

A/C Serial No.: _____

ICAO Aircraft Type: _____ (Not more than four characters)

A/C Registration No.: _____ (Not more than seven alphanumeric characters)

NOTE: 1. The last two items above are required to configure the UniLink.
2. Refer to ICAO Doc 8643 for a list of assigned aircraft type designators.

B. Position Report

These settings control automatic reporting of aircraft position data to the ground service provider for flight following and reporting. Many service providers recommend disabling automatic reporting. Set the options as recommended by or per agreement with your service provider.

In Air Automatic	☐ ENABLED	☐ DISABLED
In Air Interval	_____	Up to Two digits
On Ground Automatic	☐ ENABLED	☐ DISABLED
On Ground Interval	_____	Up to Two digits

C. VHF Communications

(1) Network Control

These settings determine which ACARS Data Link Service Providers will be accessed automatically by UniLink. These defaults can be overridden by the operator on the Network Control Page.

ARINC	☐ ON	☐ OFF
AIR CAN	☐ ON	☐ OFF
SITA	☐ ON	☐ OFF
AVICOM	☐ ON	☐ OFF

(2) Timers and Radio

The contact timer is used to verify that the current VHF frequency is still usable when the channel has not had any uplink traffic received for a period of time. Enable this option if VHF is the only medium being configured.

If NONE is selected for Radio, then the FLT INFO SRV prompt on the Main Menu is removed and VHF only message functions are no longer accessible.

The tracker timer is used to provide flight following information to the service provider. This setting should be disabled unless your service provider says otherwise.

Contact Timer	☐ ENABLED	☐ DISABLED	
Tracker Timer	☐ ENABLED	☐ DISABLED	
Radio	☐ NONE	☐ Collins VHF22	☐ Collins VHF422

D. Tel Comm

When the Air Phone is set to NONE, the WX MAPS prompt on the Main Menu page disappears.

Air Phone	☐ None	☐ Magnastar C2000	☐ Flitefone 496/800

Access Number _____ (Not more than 19 digits)

NOTE:
1. The access number is the primary telephone number shown on the Telephone Number page.
2. Call Universal Weather and Aviation, Inc. at 1-800-231-5600 to request service for your aircraft. You must provide the aircraft identification (tail number) to be entered into their database for textual weather products.
3. When configuring for Universal Weather Graphics, enter this phone number 1 713 944 0366 (Do not enter spaces).
4. A "P" may be entered to insert a pause as required by some ground circuits.

E. OOOI and Clearance Functions

OOOI Times	☐ Enabled	☐ Disabled
Departure Clearance	☐ Enabled	☐ Disabled
Oceanic Clearance	☐ Enabled	☐ Disabled

F. Discretes

Refer to *UL–601 Connector Pin Identification* above for pin numbers.

(1) Discretes In

UniLink Discrete Inputs

Discrete In 1	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 2	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 3	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 4	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 5	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 6	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 7	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 8	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 9	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status

NOTE:
1. Do not configure any UniLink Discrete Input for Strut. Instead, use the strut switch logic provided by the FMS.
2. The Voice / Data option is provisional only, do not select this option for UniLink SCN 10.X.

UniLink Discrete Inputs (Continued)

Discrete In 10	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 11	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 12	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 13	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 14	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 15	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 16	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status

NOTE:
1. Do not configure any UniLink Discrete Input for Strut. Instead, use the strut switch logic provided by the FMS.
2. The Voice / Data option is provisional only, do not select this option for UniLink SCN 10.X.

(2) Discrete Out

UniLink Discrete Outputs

Discrete Out 1	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 2	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 3	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 4	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 5	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 6	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 7	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 8	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 9	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 10	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 11	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 12	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 13	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 14	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 15	☐ Not Used	☐ Push To Talk	☐ Tel Data
Discrete Out 16	☐ Not Used	☐ Push To Talk	☐ Tel Data

G. ARINC Ports

(1) ARINC Receive Ports

UniLink ARINC Receive Ports

ARINC Receive Port 1	☐ FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
ARINC Receive Port 2	☐ Not Used	☐ 740 / 744 PRT	
	☐ FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
ARINC Receive Port 3	☐ Not Used	☐ 740 / 744 PRT	
	☐ FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
ARINC Receive Port 4	☐ Not Used	☐ 740 / 744 PRT	
	☐ FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
ARINC Receive Port 5	☐ Not Used	☐ 740 / 744 PRT	
	☐ FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
ARINC Receive Port 6	☐ Not Used	☐ 740 / 744 PRT	
	☐ FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
ARINC Receive Port 7	☐ Not Used	☐ 740 / 744 PRT	
	☐ FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
ARINC Receive Port 8	☐ Not Used	☐ 740 / 744 PRT	
	☐ FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3

NOTE: An input source may be configured only once on the ARINC Receivers pages.

(2) ARINC Transmit Ports

UniLink ARINC Transmit Ports

Port 1 Speed	Low (Not configurable)		
Port 2 Speed	☐ Not Used	☐ Low	☐ High
Port 3 Speed	☐ Not Used	☐ Low	☐ High
Port 1 Device	☐ None	☐ 740 PRT	
	☐ FMS 1	☐ FMS 2	
Port 2 Device	☐ None	☐ 740 PRT	
	☐ FMS 1	☐ FMS 2	
Port 3 Device	☐ None	☐ 740 PRT	
	☐ FMS 1	☐ FMS 2	

NOTE: When configuring a UniLink ARINC transmit port for "None," you must remove any <SEL> indicator by pushing the LSK for the selected device.

H. Serial Ports

(1) Port Types

UniLink Serial Port Types

Port 1/2	☐ Not Used	☐ ~~RS232~~	☐ RS422
Port 3/4	☐ Not Used	☐ ~~RS232~~	☐ RS422
Port 5/6	☐ Not Used	☐ ~~RS232~~	☐ RS422
Port 7/8	☐ Not Used	☐ ~~RS232~~	☐ RS422

NOTE: The RS232 option is provisional.
Select RS422 on any port configured for the CSDB Tune or Disp Proc device.

(2) Port Devices

UniLink Serial Port Devices

Port 1	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 2	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 3	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 4	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 5	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 6	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 7	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 8	☐ Not Used	☐ CSDB Tune	☐ Disp Proc

2. Configuration Procedures

The Flight Management System must be configured before you configure the UniLink. Refer to the appropriate technical manual for FMS configuration procedures.

NOTE: The FMS ARINC receiver port that receives data from the UL-601 must be configured for "UNILINK." Only one receiver port on each FMS may be configured for a datalink device. UniLink and AFIS are mutually exclusive. Only one may be configured

The FMS transmitter port that supplies data to the UL-601 must be configured for ARINC 429 HS.

You should perform the steps of each procedure in the order indicated by the large number in the corner of the text box.

Some of the items you may configure are limited to a small number of options that are selectable by pushing a line select key. The options appear one at a time in a set sequence and are included in the text of the step.

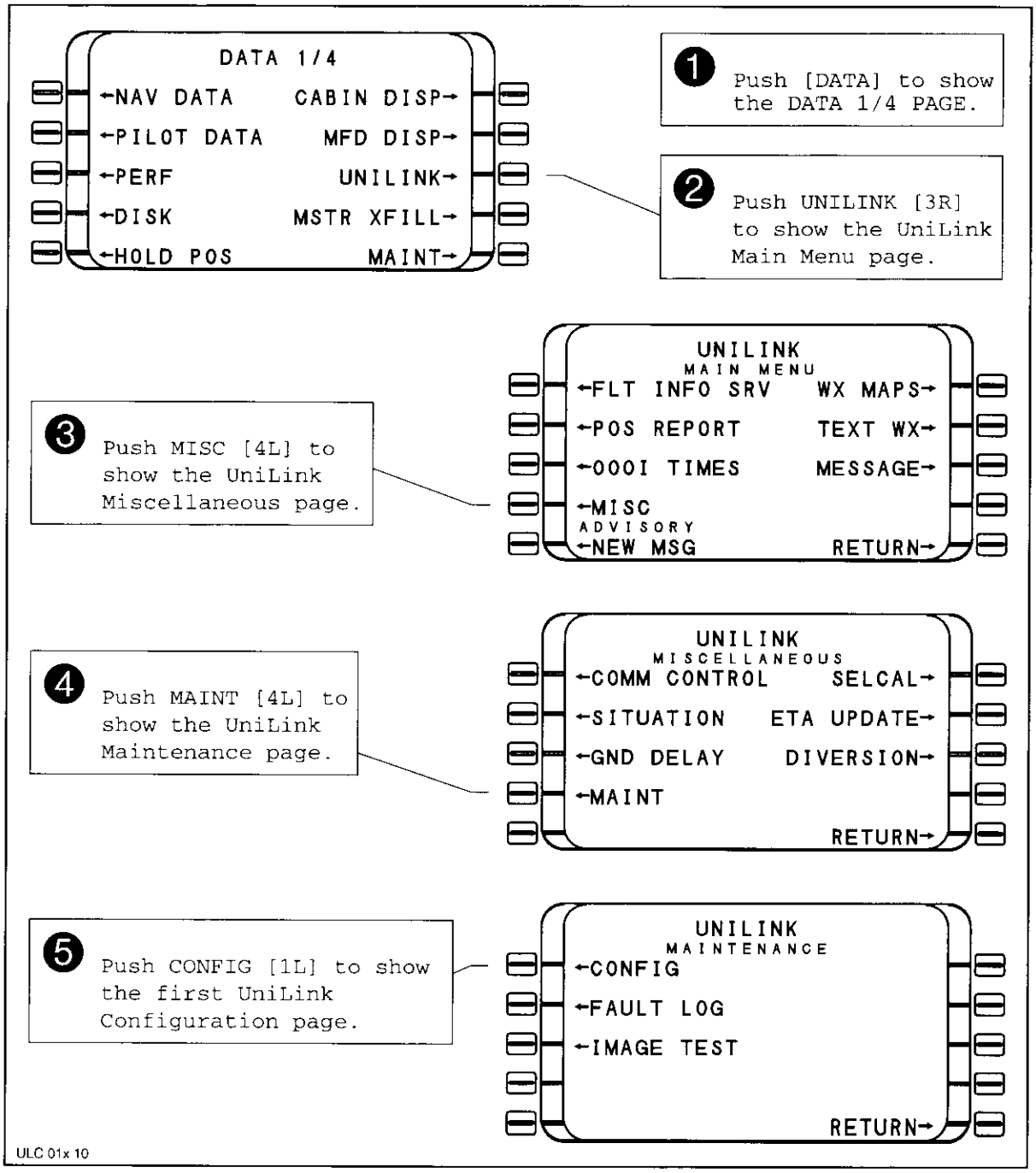
Other items you may configure are limited to more than a few options. These items are selected by typing the number of the option as shown in a numbered list on a display page.

For those items that have many possible configurations you will type an entry in a fill-in field. For example, the ICAO has assigned hundreds of aircraft type designators. These type designators consist of not more that four characters. On the Aircraft Configuration page the aircraft type field allows you to enter up to four characters.

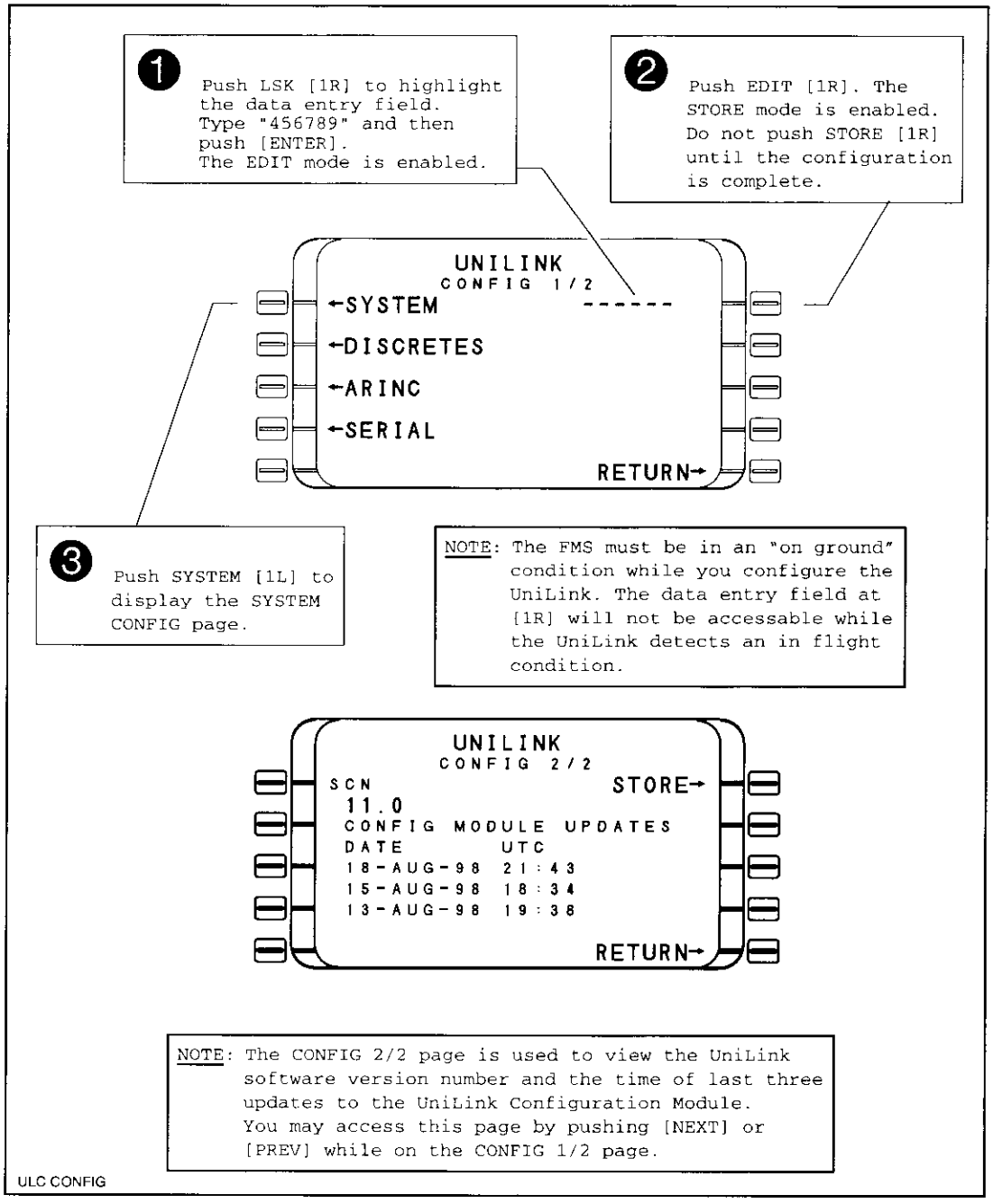
If an entry field is not highlighted, push the corresponding line select key to bring the cursor highlight to the field.

A. Configuration Edit Mode

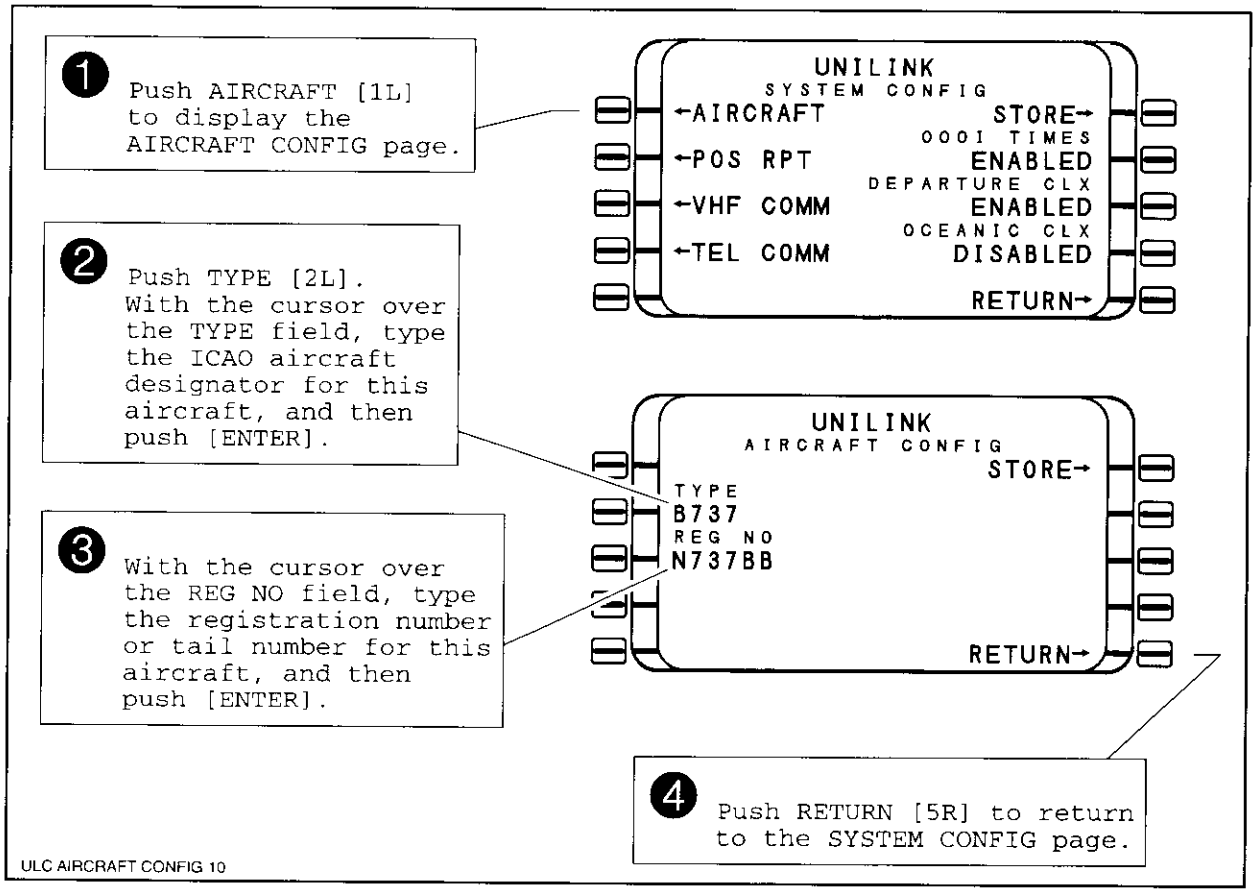
(1) Selecting UniLink Display Page



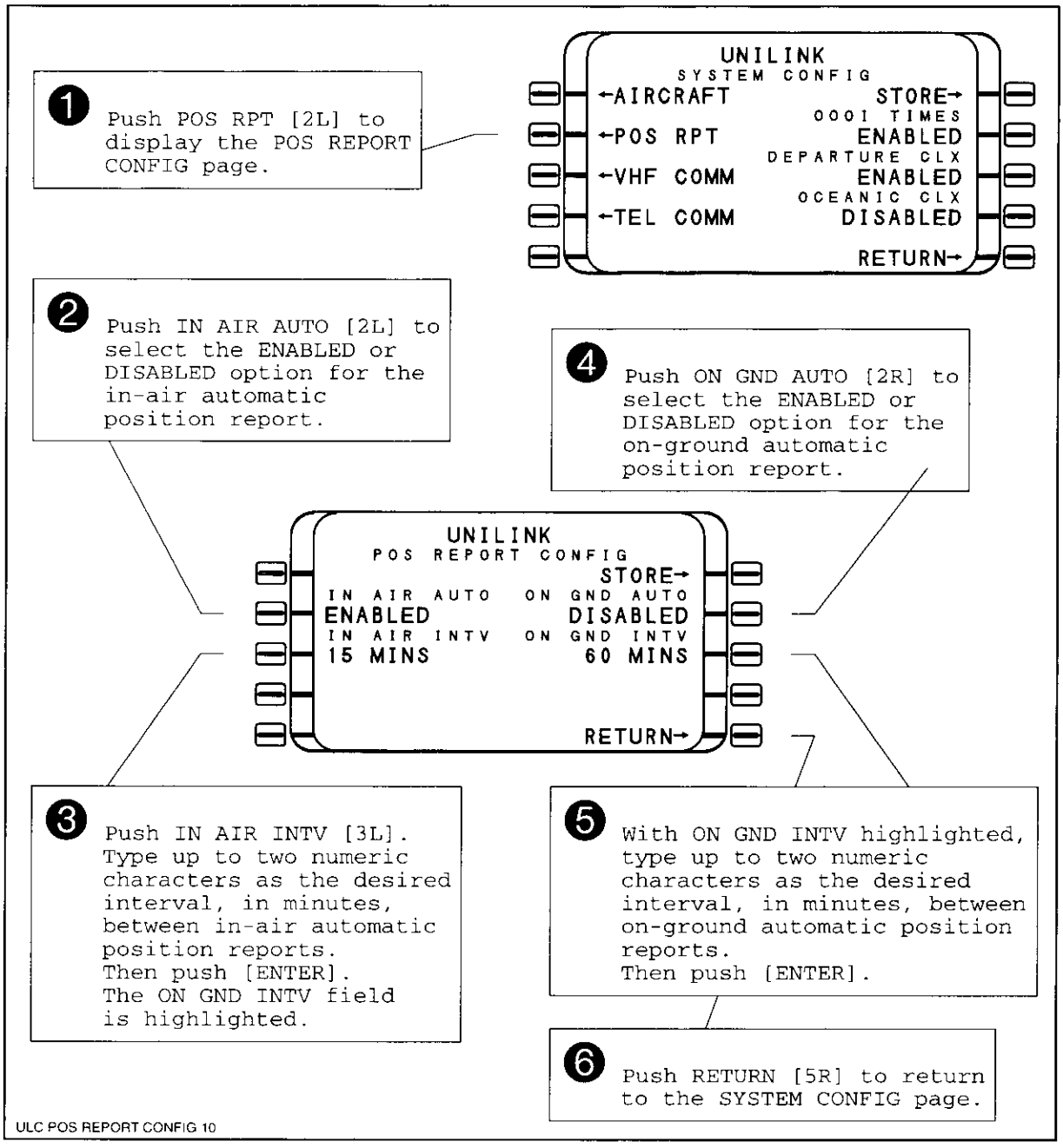
(2) Edit Mode


1
Push LSK [1R] to highlight the data entry field. Type "456789" and then push [ENTER]. The EDIT mode is enabled.
2
Push EDIT [1R]. The STORE mode is enabled. Do not push STORE [1R] until the configuration is complete.
UNILINK
CONFIG 1/2
←SYSTEM
←DISCRETES
←ARINC
←SERIAL
RETURN→
3
Push SYSTEM [1L] to display the SYSTEM CONFIG page.
NOTE: The FMS must be in an "on ground" condition while you configure the UniLink. The data entry field at [1R] will not be accessable while the UniLink detects an in flight condition.
UNILINK
CONFIG 2/2
SCN
11.0
STORE→
CONFIG MODULE UPDATES
DATE UTC
18-AUG-98 21:43
15-AUG-98 18:34
13-AUG-98 19:38
RETURN→
NOTE: The CONFIG 2/2 page is used to view the UniLink software version number and the time of last three updates to the UniLink Configuration Module. You may access this page by pushing [NEXT] or [PREV] while on the CONFIG 1/2 page.
ULC CONFIG

B. Aircraft Configuration

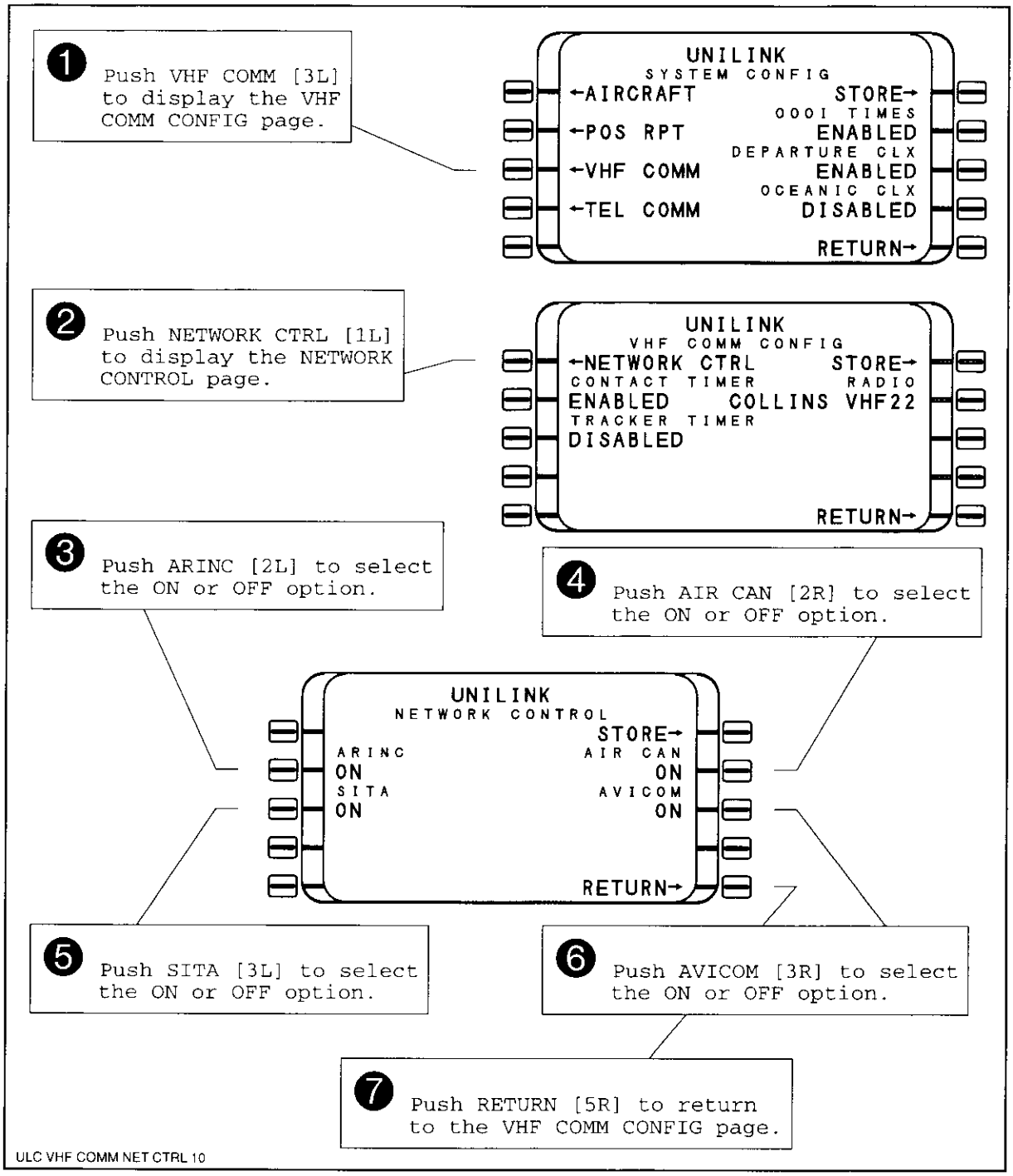


C. Position Report Configuration

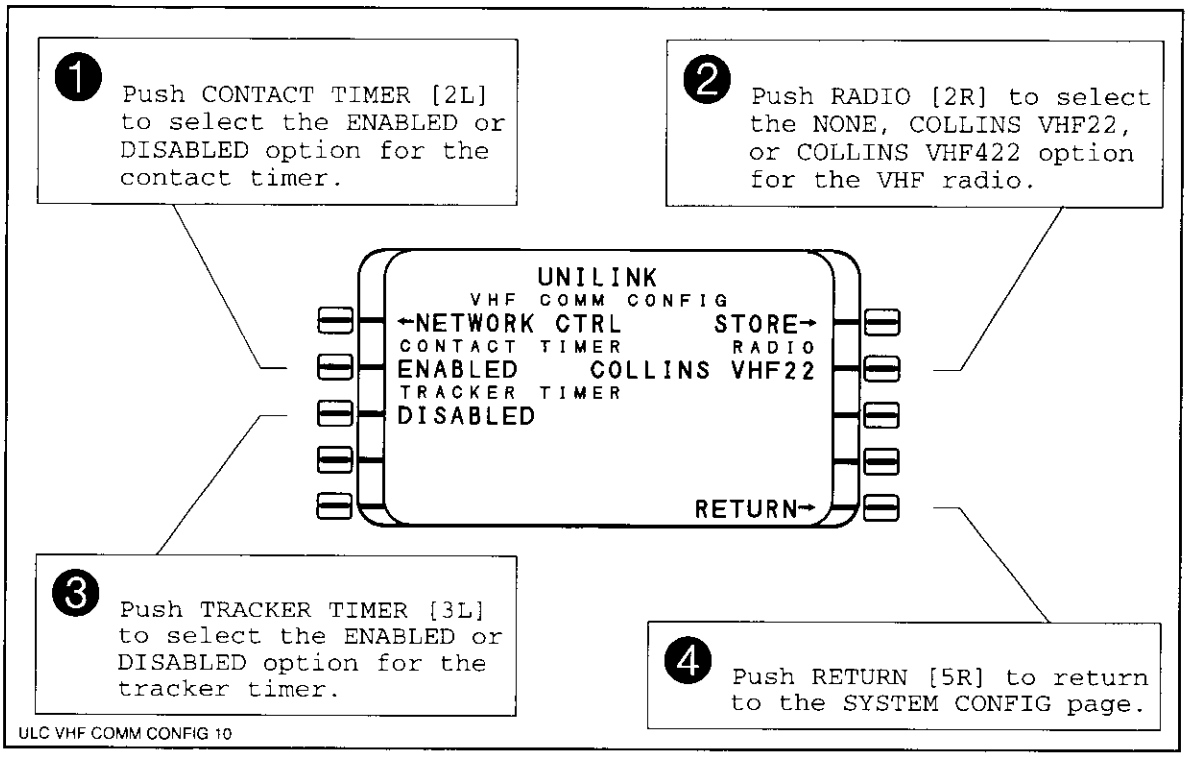


D. VHF Communications Configuration

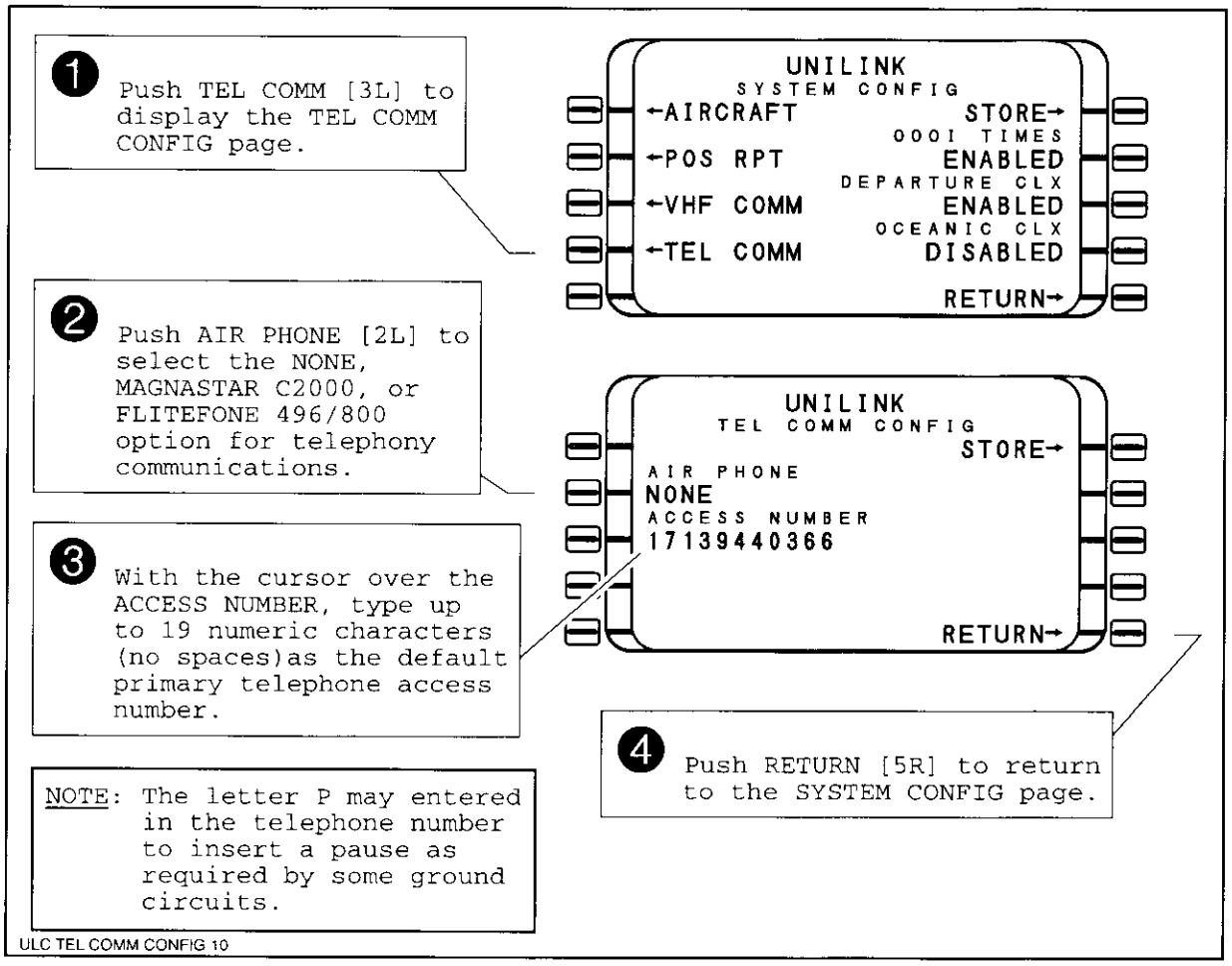
(1) VHF Network Control



(2) VHF Communications



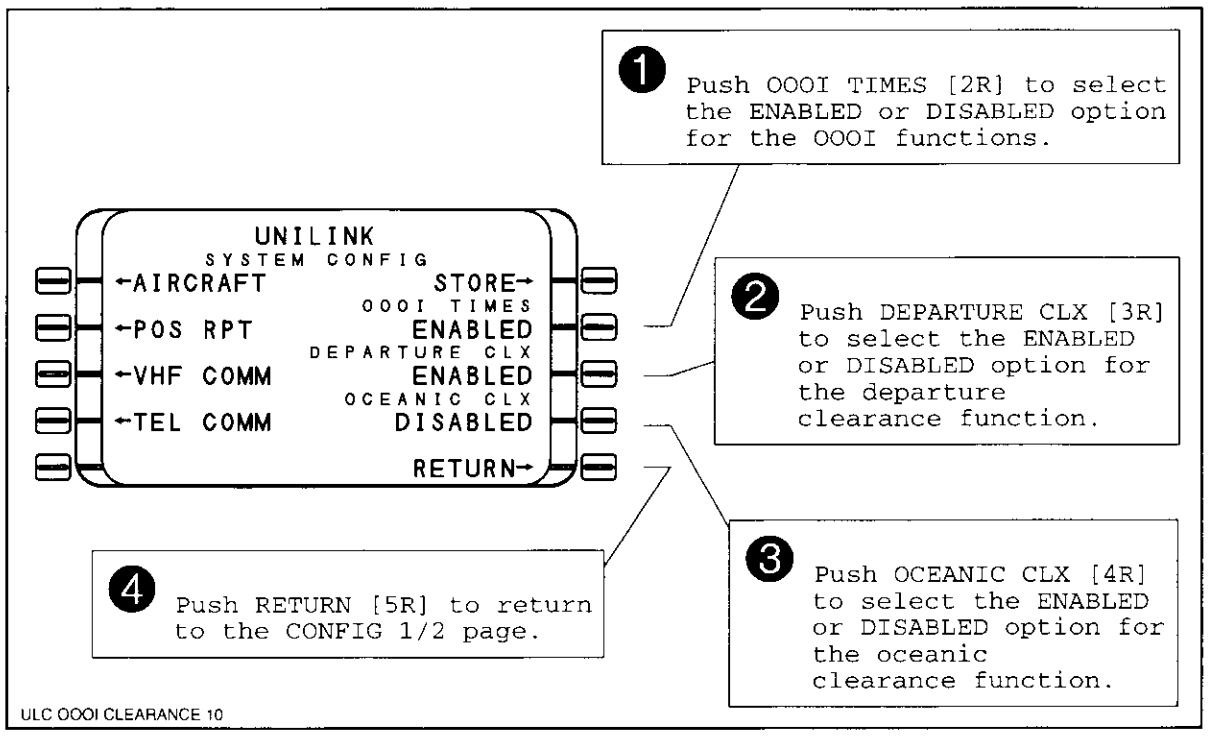
E. Tel Comm Configuration



NOTE: 1. Call Universal Weather and Aviation, Inc. at 1-800-231-5600 to request service for your aircraft. You must provide the aircraft identification (tail number) to be entered into their database for textual weather products.

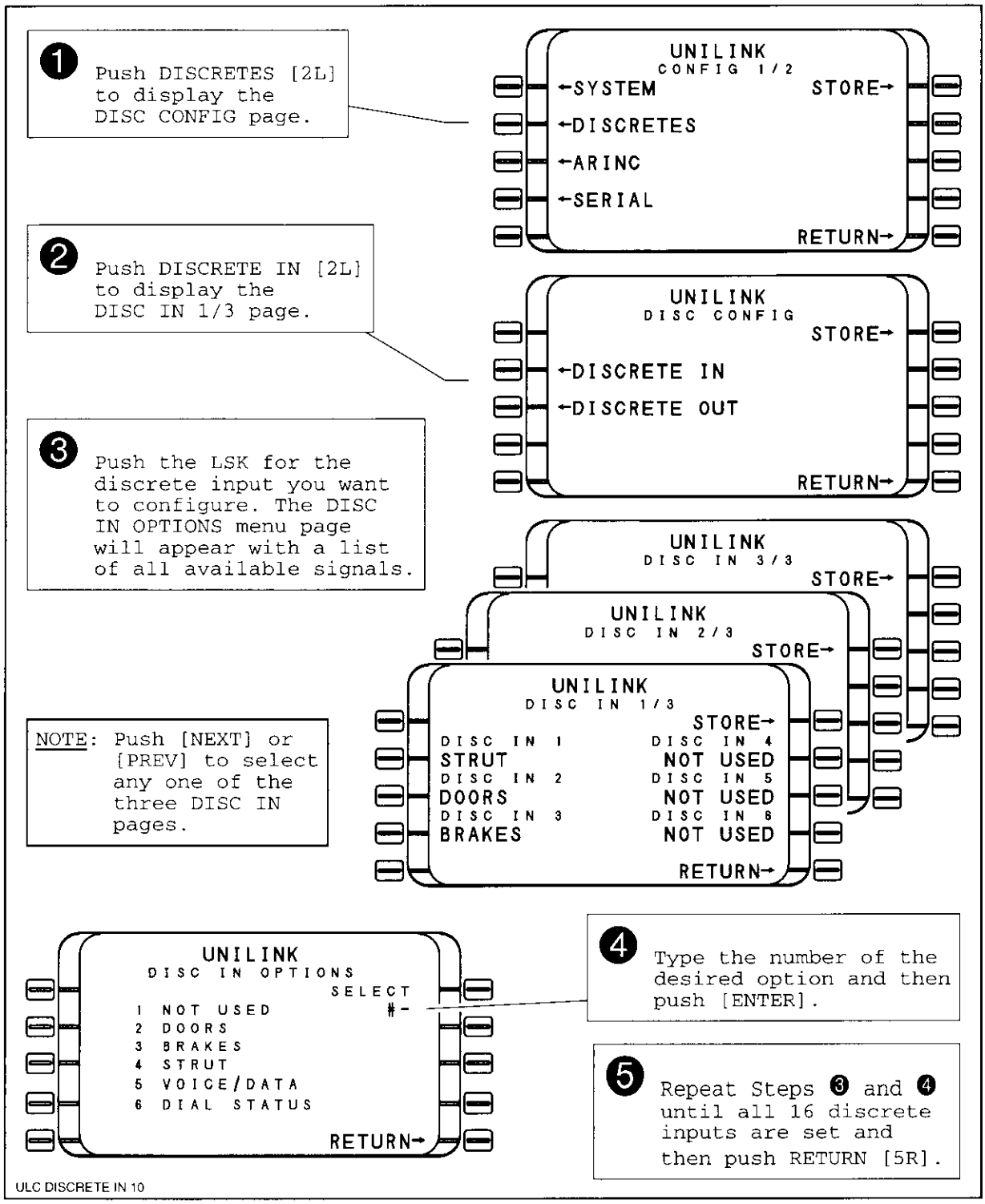
2. When configuring for Universal Weather Graphics, enter this phone number 1 713 944 0366 (Do not enter spaces)

F. OOOI and Clearance Functions

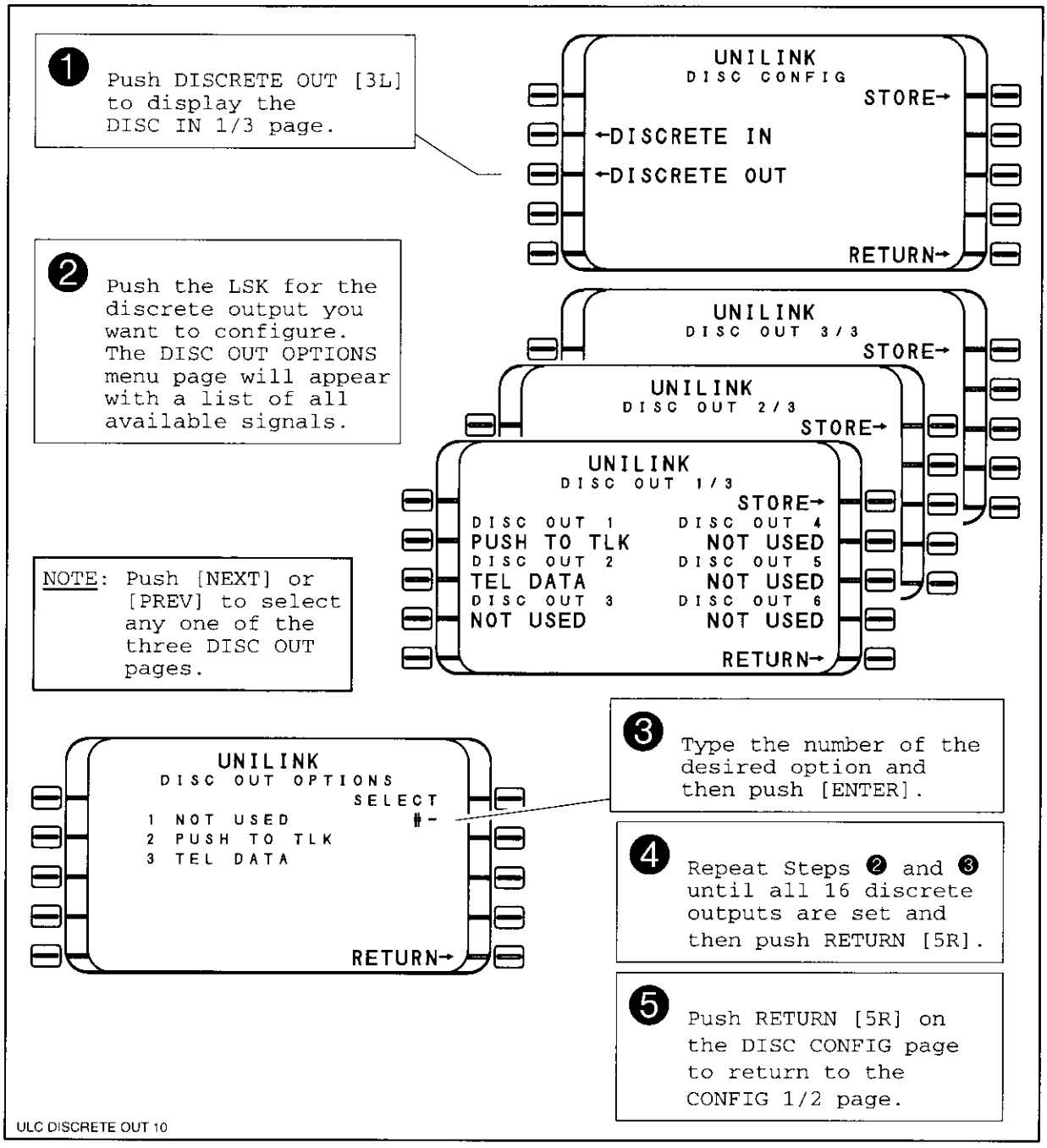


G. Discretes Configuration

(1) Discrete In



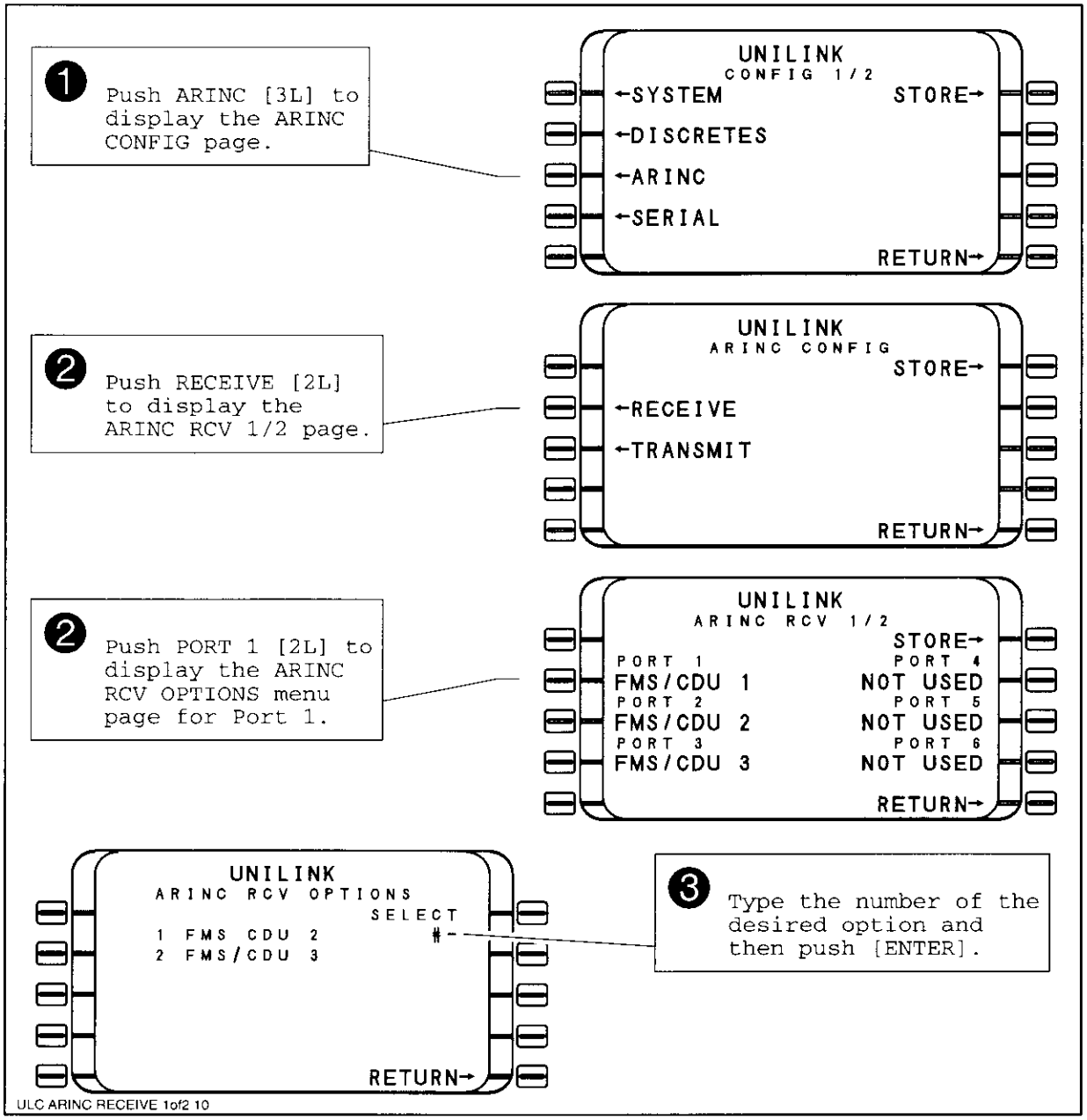
(2) Discrete Out



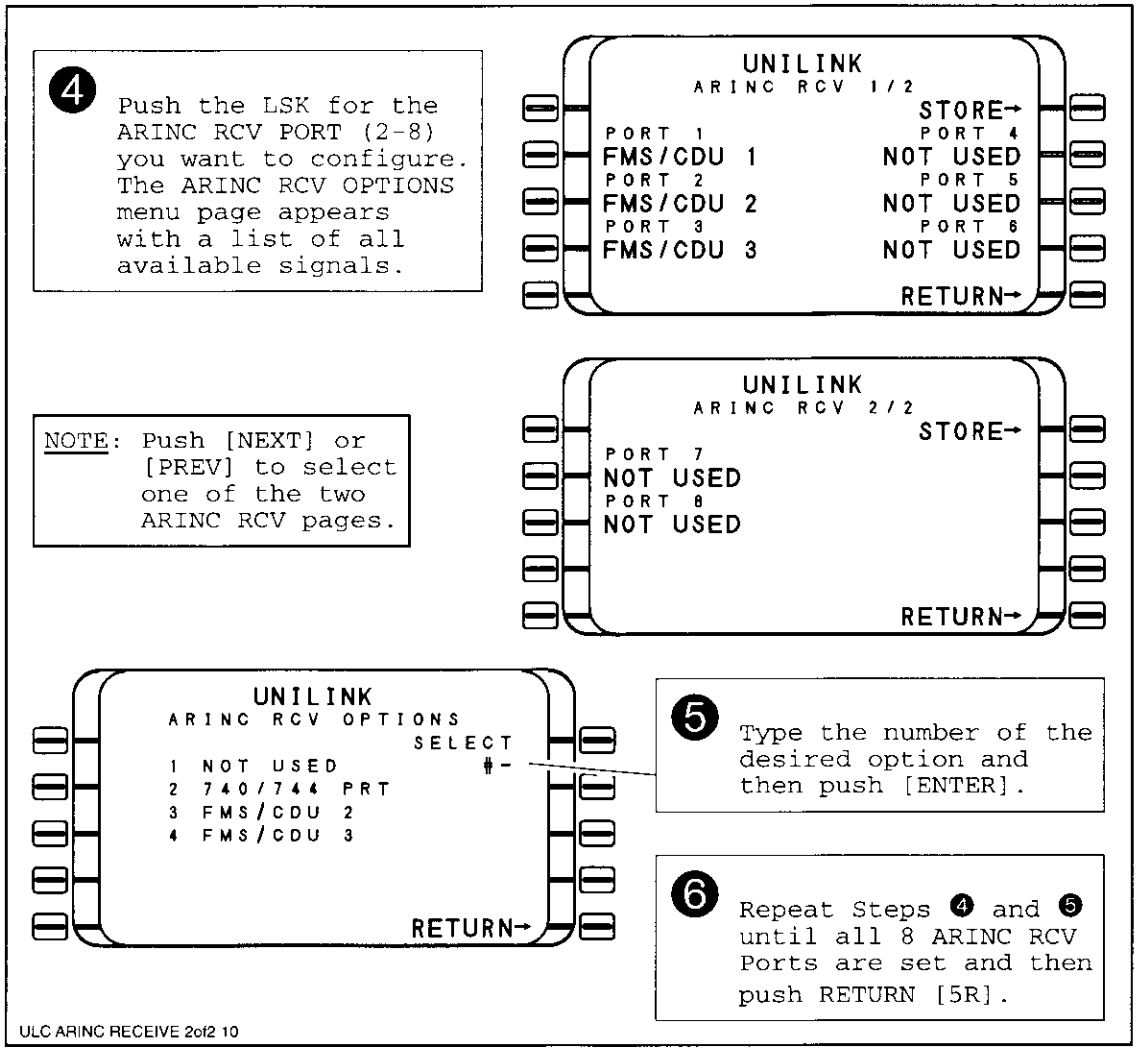
NOTE: For the UL-601 Radio option, use Discrete Out 1 for Push to Talk (PTT).

H. ARINC Ports Configuration

(1) ARINC Receive Ports

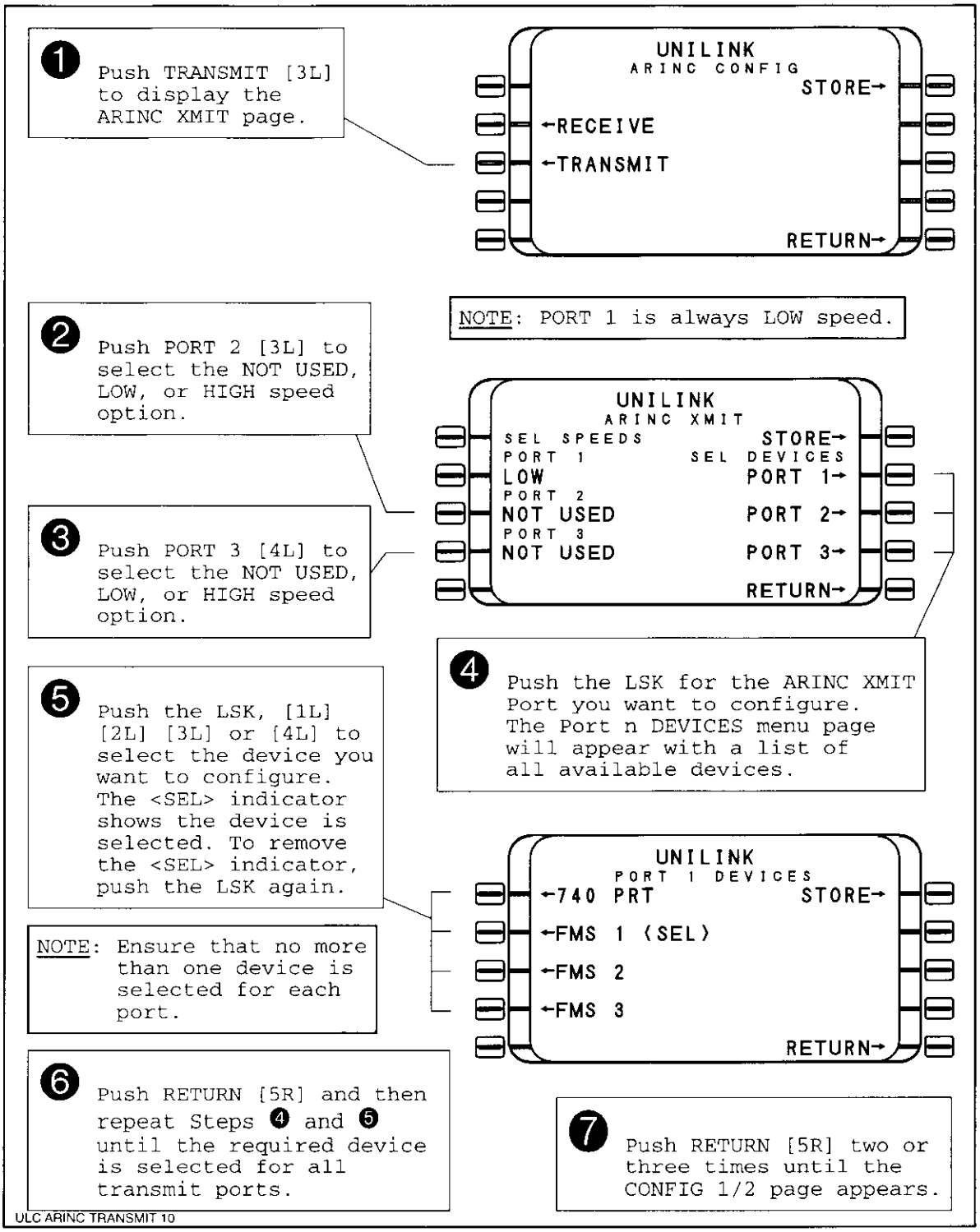


ARINC Receive Port Configuration — Sheet 1 of 2



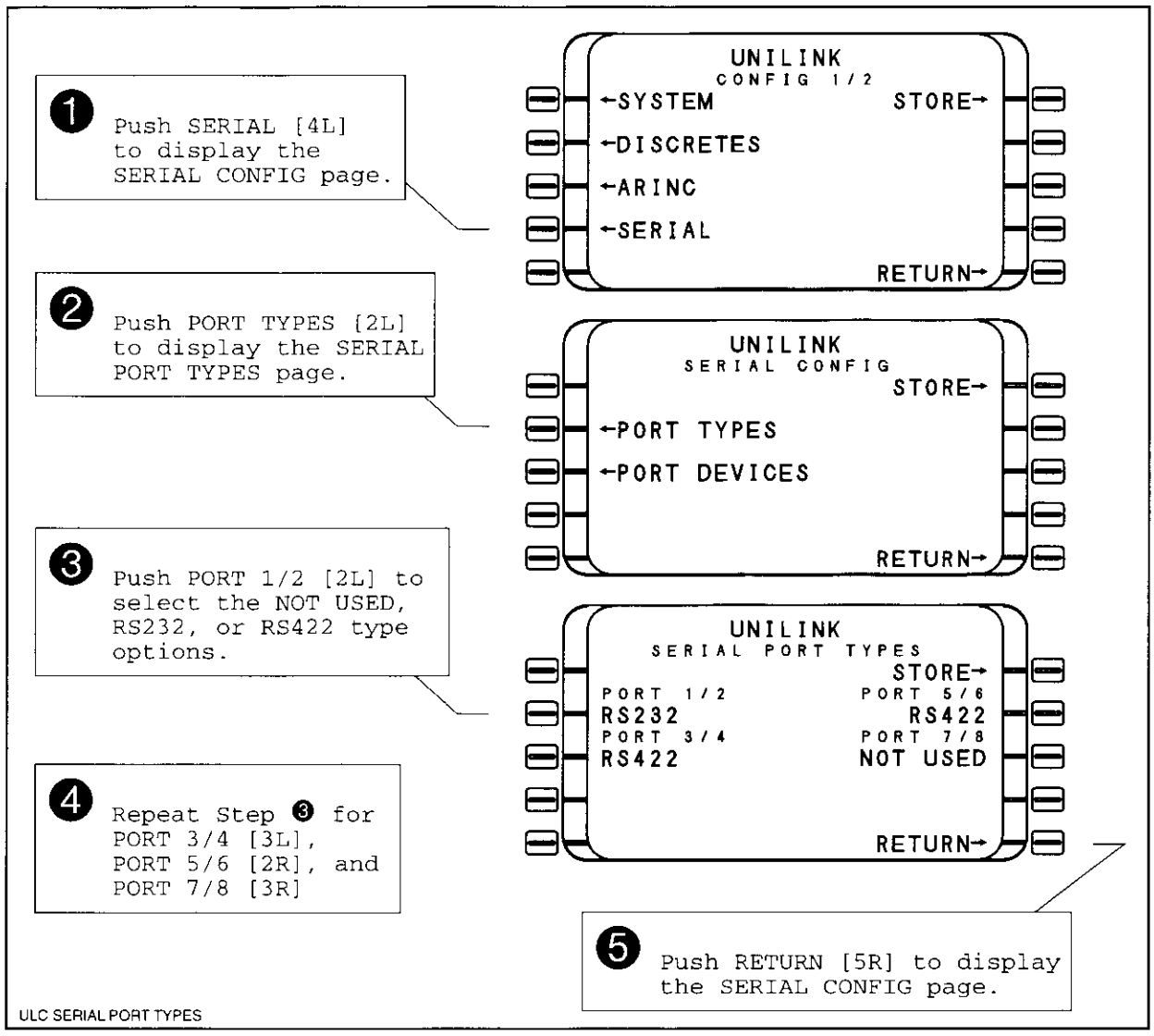
ARINC Receive Port Configuration — Sheet 2 of 2

(2) ARINC Transmit Ports



I. Serial Ports Configuration

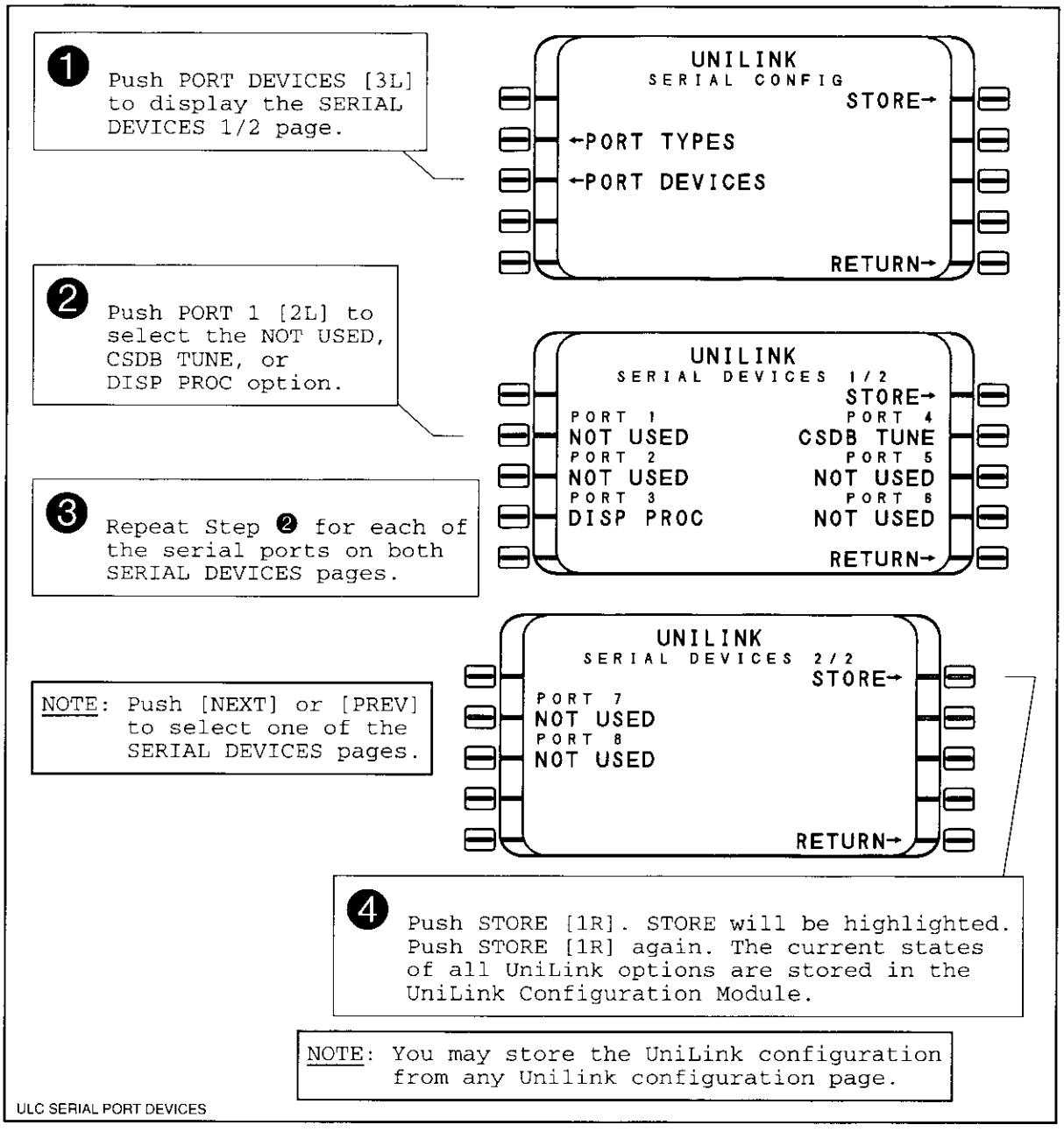
(1) Port Types



ULC SERIAL PORT TYPES

NOTE: For the UL-601 Radio option, select Port 7/8 as RS422.

(2) Port Devices



NOTE: For the UL-601 Radio option, press NEXT and use Port 8 as CSDB Tune.

System Data Installation For SCN 11.X

1. Configuration Worksheets

Universal Avionics Systems Corporation recommends that the following worksheets be completed in order to easily program the UniLink configuration module. One set of worksheets should be filled out. Fill in the blanks and check the appropriate boxes based on the wiring of the aircraft and its set of avionics components. Further, these worksheets may be submitted along with other approval paperwork. A copy of these worksheets should be filed along with the aircraft paper work for future reference.

NOTE: You are hereby authorized to reproduce these worksheets as well as the configuration module programming procedures if desired.

A. Aircraft Information

Date: _____

Company Address: _____

_____

_____

A/C Manufacturer: _____

A/C Model No.: _____

A/C Serial No.: _____

ICAO Aircraft Type: _____ (Not more than four characters)

A/C Registration No.: _____ (Not more than seven characters)

Airline ID _____ / _____ (Two characters and three characters)

NOTE:
1. The last three items above are required to configure the UniLink.
2. Refer to ICAO Doc 8643 for a list of assigned aircraft type designators.
3. If Universal Weather is the ground data service provider (agency), use UV for the two character code and enter UVA for the three character code

B. Position Report

These settings control automatic reporting of aircraft position data to the ground service provider for flight following and reporting. Many service providers recommend disabling automatic reporting. Set the options as recommended by or per agreement with your service provider.

In Air Automatic	☐ ENABLED	☐ DISABLED
In Air Interval	_____	Up to Two digits
On Ground Automatic	☐ ENABLED	☐ DISABLED
On Ground Interval	_____	Up to Two digits

C. VHF Communications

(1) Network Control

These settings determine which ACARS Data Link Service Providers will be accessed automatically by UniLink. These defaults can be overridden by the operator on the Network Control Page.

ARINC	☐ ON	☐ OFF
AIR CAN	☐ ON	☐ OFF
SITA	☐ ON	☐ OFF
AVICOM	☐ ON	☐ OFF

(2) Timers and Radio

The contact timer is used to verify that the current VHF frequency is still usable when the channel has not had any uplink traffic received for a period of time. Enable this option if VHF is the only medium being configured.

If NONE is selected for Radio, then the FLT INFO SRV prompt on the Main Menu is removed and VHF only message functions are no longer accessible.

The tracker timer is used to provide flight following information to the service provider. This setting should be disabled unless your service provider says otherwise.

Contact Timer	☐ ENABLED	☐ DISABLED	
Tracker Timer	☐ ENABLED	☐ DISABLED	
Radio	☐ NONE	☐ Collins VHF22	☐ Collins VHF422
Ident	☐ COMM 1	☐ COMM 2	☐ ALL CALL
Access	☐ SHARED	☐ DEDICATED	

D. Tel Comm

When the Air Phone is set to NONE, the WX MAPS prompt on the Main Menu page disappears.

Air Phone	☐ None	☐ Magnastar C2000	☐ Flitefone 496/800
Access Number			(Not more than 19 digits)
Weather Maps	☐ ENABLED	☐ DISABLED	Flitefone 496/800

NOTE:
1. The access number is the primary telephone number shown on the Telephone Number page.
2. Call Universal Weather and Aviation, Inc. at 1-800-231-5600 to request service for your aircraft. You must provide the aircraft identification (tail number) to be entered into their database for textual weather products.
3. When configuring for Universal Weather Graphics, enter this phone number 1 713 944 0366 (Do not enter spaces).
4. A "P" may be entered to insert a pause as required by some ground circuits.

E. OOOI and Clearance Functions

Departure Clearance	☐ Enabled	☐ Disabled
Oceanic Clearance	☐ Enabled	☐ Disabled
OOOI Times	☐ Enabled	☐ Disabled
Flight Number	☐ Enabled	☐ Disabled

NOTE: By enabling Flight No, you allow the entry and display of flight number data on the UniLink Main Menu.

F. Discretes

(1) Discretes In

UniLink Discrete Inputs

Discrete In 1	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 2	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 3	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 4	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 5	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 6	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 7	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 8	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 9	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 10	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 11	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status

NOTE:
1. Do not configure any UniLink Discrete Input for Strut. Instead, use the strut switch logic provided by the FMS.
2. The Voice / Data option is provisional only, do not select this option for UniLink SCN 11.X.
3. Refer to *UL–601 Connector Pin Identification* above for pin numbers.

UniLink Discrete Input (Continued)

Discrete In 12	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 13	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 14	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 15	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status
Discrete In 16	☐ Not Used	☐ Doors	☐ Brakes
	☐ ~~Strut~~	☐ ~~Voice / Data~~	☐ Dial Status

NOTE:
1. Do not configure any UniLink Discrete Input for Strut. Instead, use the strut switch logic provided by the FMS.
2. The Voice / Data option is provisional only, do not select this option for UniLink SCN 11.X.
3. Refer to *UL–601 Connector Pin Identification* above for pin numbers.

(2) Discrete Out

UniLink Discrete Outputs

Discrete Out 1	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 2	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 3	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 4	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 5	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 6	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 7	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 8	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 9	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 10	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 11	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 12	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 13	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM

UniLink Discrete Outputs (Continued)

Discrete Out 14	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 15	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM
Discrete Out 16	☐ Not Used	☐ Push To Talk	☐ Tel Data
☐ PTT PLS	☐ DFS PRT SEL	☐ VOX ANNUNC	☐ VHF NOCOM

G. ARINC Ports

(1) ARINC Receive Ports

UniLink ARINC Receive Ports

ARINC Receive Port 1	☐ FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
ARINC Receive Port 2	☐ Not Used	☐ 740 / 744 PRT	
	☐ FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
	☐ VHF 422 TUNE	☐ TR 853 TUNE	☐ 741 SATCOM
ARINC Receive Port 3	☐ Not Used	☐ 740 / 744 PRT	
	FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
	☐ VHF 422 TUNE	☐ TR 853 TUNE	☐ 741 SATCOM
ARINC Receive Port 4	☐ Not Used	☐ 740 / 744 PRT	
	FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
	☐ VHF 422 TUNE	☐ TR 853 TUNE	☐ 741 SATCOM
ARINC Receive Port 5	☐ Not Used	☐ 740 / 744 PRT	
	FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
	☐ VHF 422 TUNE	☐ TR 853 TUNE	☐ 741 SATCOM
ARINC Receive Port 6	☐ Not Used	☐ 740 / 744 PRT	
	FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
	☐ VHF 422 TUNE	☐ TR 853 TUNE	☐ 741 SATCOM
ARINC Receive Port 7	☐ Not Used	☐ 740 / 744 PRT	
	FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
	☐ VHF 422 TUNE	☐ TR 853 TUNE	☐ 741 SATCOM
ARINC Receive Port 8	☐ Not Used	☐ 740 / 744 PRT	
	FMS / CDU 1	☐ FMS / CDU 2	☐ FMS / CDU 3
	☐ VHF 422 TUNE	☐ TR 853 TUNE	☐ 741 SATCOM

NOTE: An input source may be configured only once on the ARINC Receivers pages.

(2) ARINC Transmit Ports

UniLink ARINC Transmit Ports

Port 1 Speed	Low (Not configurable)		
Port 2 Speed	☐ Not Used	☐ Low	☐ High
Port 3 Speed	☐ Not Used	☐ Low	☐ High
Port 1 Device	☐ None	☐ 740 PRT	
	☐ FMS 1	☐ FMS 2	☐ FMS 3
	☐ 741 SATCOM	☐ A716 TUNE BUS	
	☐ TR853 TUNE BUS	☐ VHF422 TUNE BUS	
Port 2 Device	☐ None	☐ 740 PRT	
	☐ FMS 1	☐ FMS 2	☐ FMS 3
	☐ 741 SATCOM	☐ A716 TUNE BUS	
	☐ TR853 TUNE BUS	☐ VHF422 TUNE BUS	
Port 3 Device	☐ None	☐ 740 PRT	
	☐ FMS 1	☐ FMS 2	☐ FMS 3
	☐ 741 SATCOM	☐ A716 TUNE BUS	
	☐ TR853 TUNE BUS	☐ VHF422 TUNE BUS	

NOTE: When configuring a UniLink ARINC transmit port for "None," you must remove any <SEL> indicator by pushing the LSK for the selected device.

H. Serial Ports

(1) Port Types

UniLink Serial Port Types

Port 1/2	☐ Not Used	☐ ~~RS232~~	☐ RS422
Port 3/4	☐ Not Used	☐ ~~RS232~~	☐ RS422
Port 5/6	☐ Not Used	☐ ~~RS232~~	☐ RS422
Port 7/8	☐ Not Used	☐ ~~RS232~~	☐ RS422

NOTE: The RS232 option is provisional.
Select RS422 on any port configured for the CSDB Tune or Disp Proc device.

(2) Port Devices

UniLink Serial Port Devices

Port 1	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 2	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 3	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 4	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 5	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 6	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 7	☐ Not Used	☐ CSDB Tune	☐ Disp Proc
Port 8	☐ Not Used	☐ CSDB Tune	☐ Disp Proc

2. Configuration Procedures

The Flight Management System must be configured before you configure the UniLink. Refer to the appropriate technical manual for FMS configuration procedures.

NOTE: The FMS ARINC receiver port that receives data from the UL-601 must be configured for "UNILINK." Only one receiver port on each FMS may be configured for a datalink device. UniLink and AFIS are mutually exclusive. Only one may be configured

The FMS transmitter port that supplies data to the UL-601 must be configured for ARINC 429 HS.

You should perform the steps of each procedure in the order indicated by the large number in the corner of the text box.

Some of the items you may configure are limited to a small number of options that are selectable by pushing a line select key. The options appear one at a time in a set sequence and are included in the text of the step.

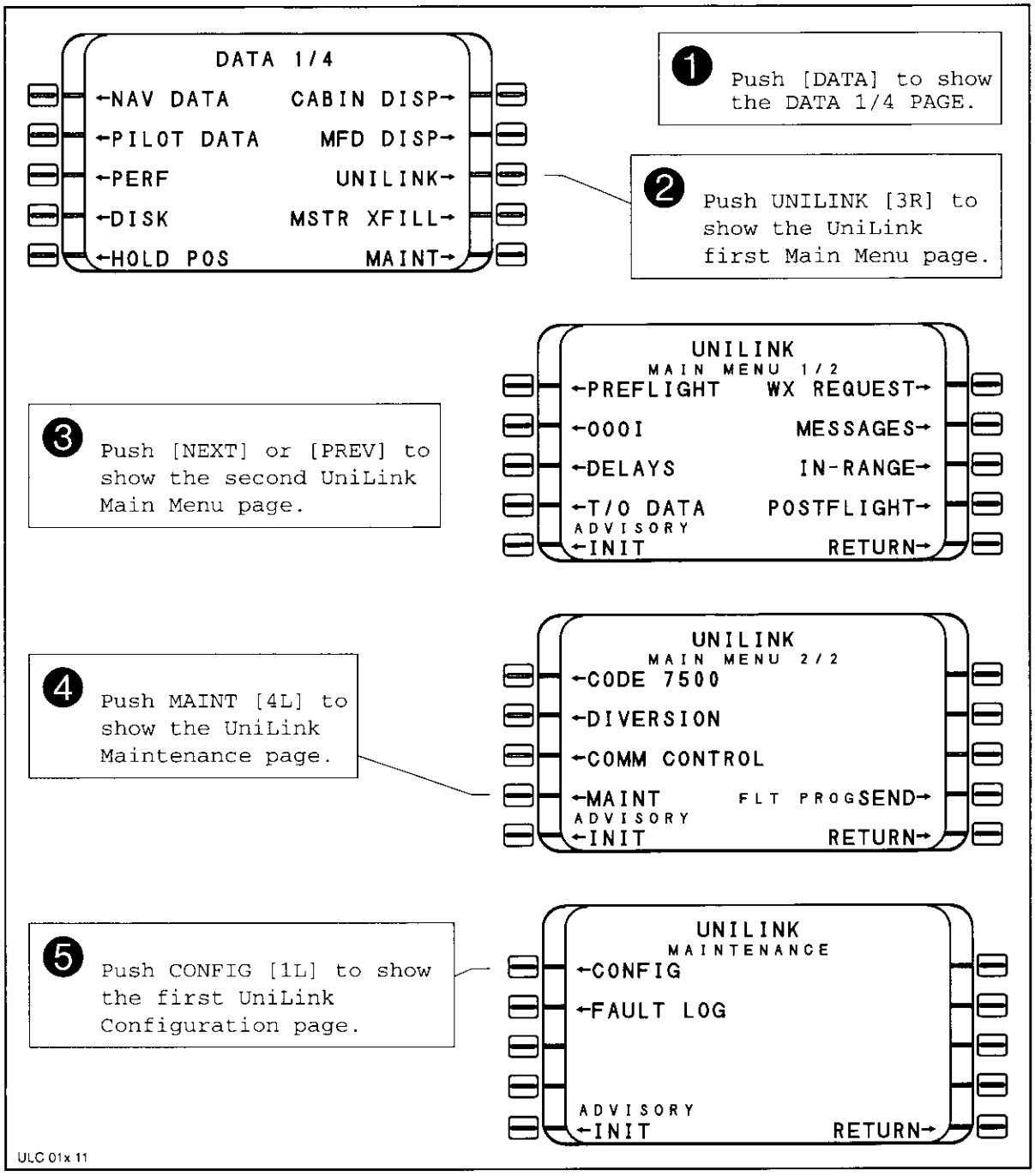
Other items you may configure are limited to more than a few options. These items are selected by typing the number of the option as presented in a numbered list.

For those items that have many possible configurations you will type an entry in a fill-in field. For example, the ICAO has assigned hundreds of aircraft type designators. These type designators consist of not more that four characters. On the Aircraft Configuration page the aircraft type field allows you to enter up to four characters.

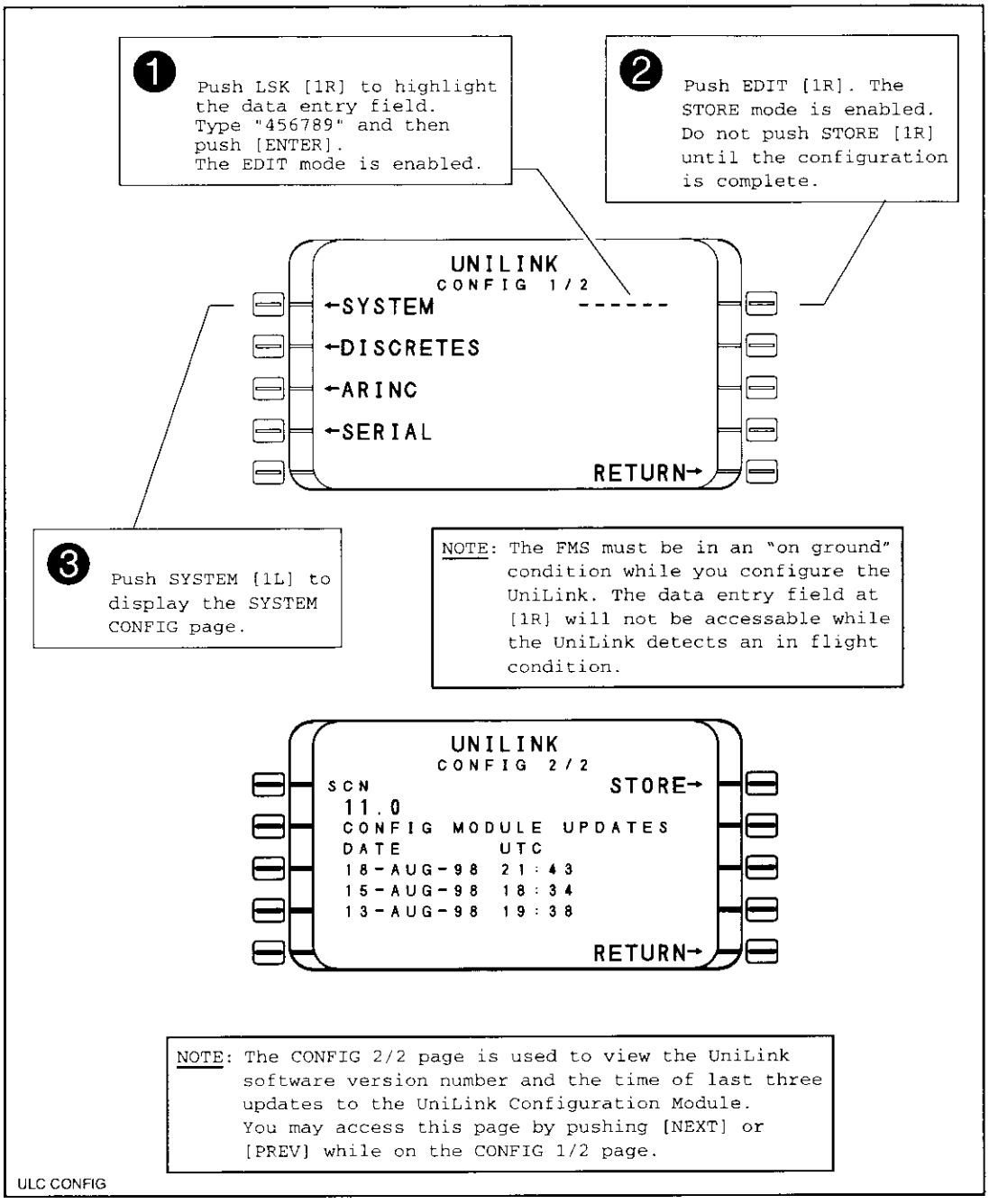
If an entry field is not highlighted, push the corresponding line select key to bring the cursor highlight to the field.

A. Configuration Edit Mode

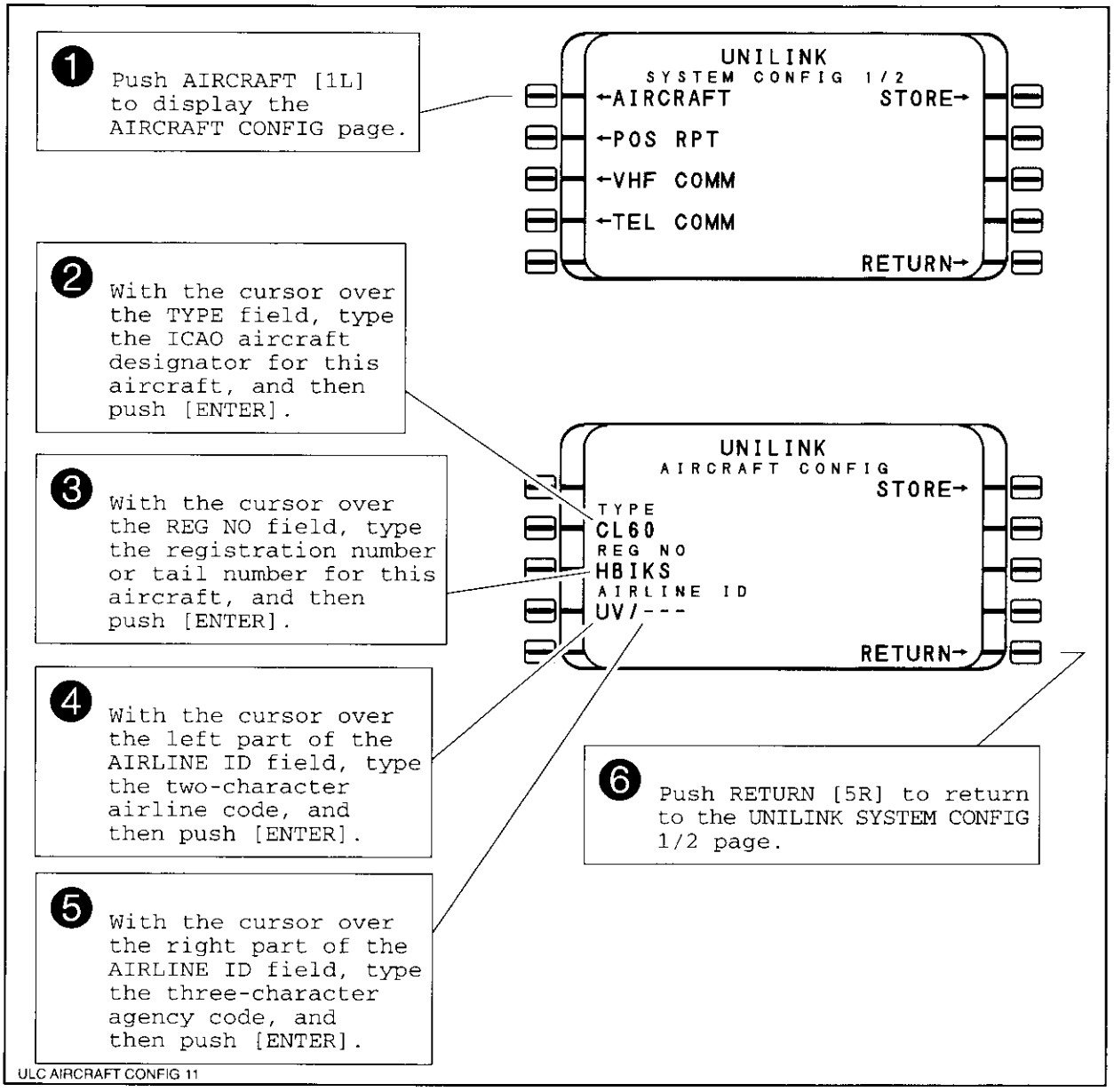
(1) Selecting UniLink Display Page



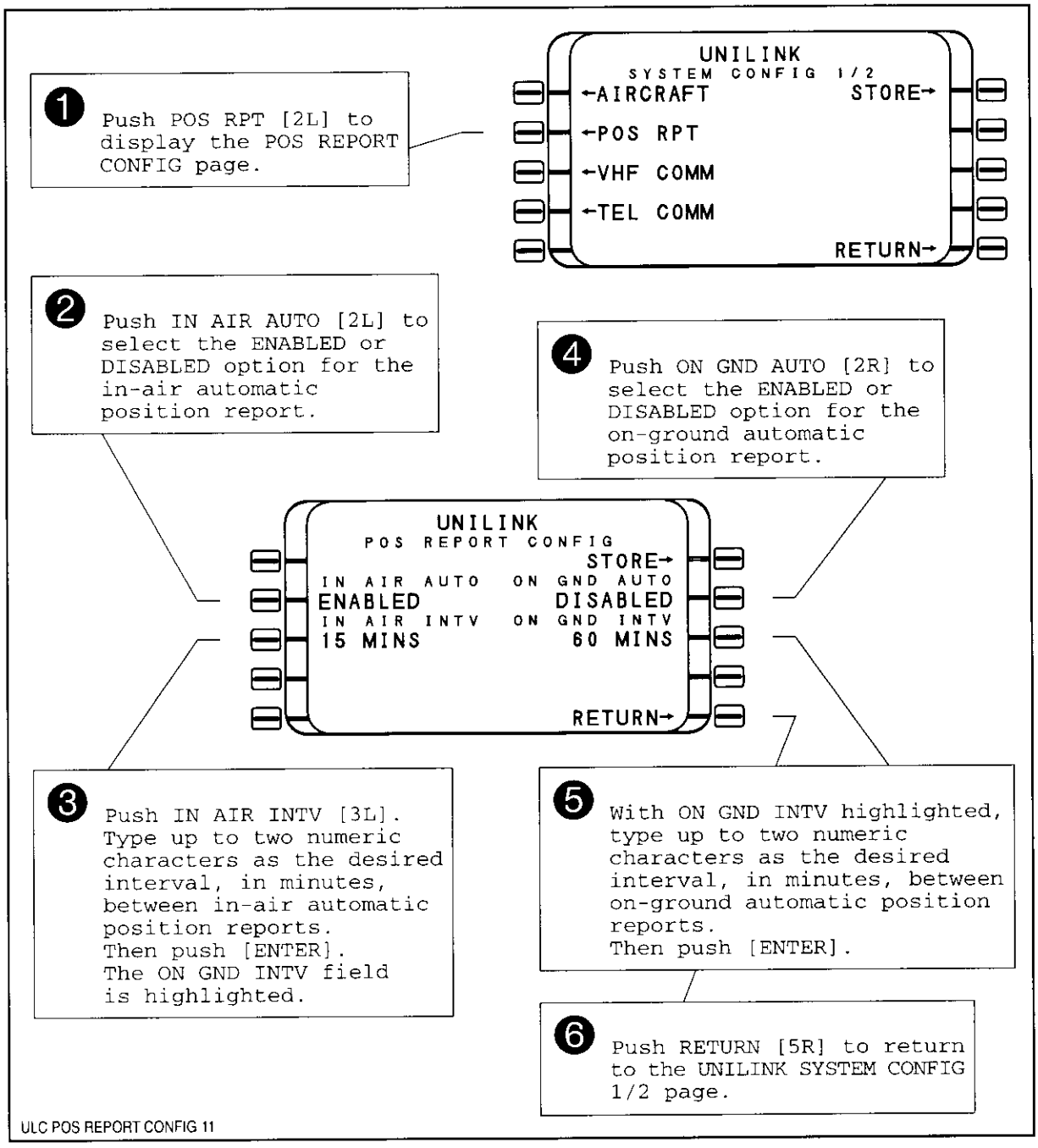
(2) Edit Mode


1 Push LSK [1R] to highlight the data entry field. Type "456789" and then push [ENTER]. The EDIT mode is enabled.
2 Push EDIT [1R]. The STORE mode is enabled. Do not push STORE [1R] until the configuration is complete.
UNILINK
CONFIG 1/2
←SYSTEM ------
←DISCRETES
←ARINC
←SERIAL
RETURN→
3 Push SYSTEM [1L] to display the SYSTEM CONFIG page.
NOTE: The FMS must be in an "on ground" condition while you configure the UniLink. The data entry field at [1R] will not be accessable while the UniLink detects an in flight condition.
UNILINK
CONFIG 2/2
SCN
STORE→
11.0
CONFIG MODULE UPDATES
DATE UTC
18-AUG-98 21:43
15-AUG-98 18:34
13-AUG-98 19:38
RETURN→
NOTE: The CONFIG 2/2 page is used to view the UniLink software version number and the time of last three updates to the UniLink Configuration Module. You may access this page by pushing [NEXT] or [PREV] while on the CONFIG 1/2 page.
ULC CONFIG

B. Aircraft Configuration

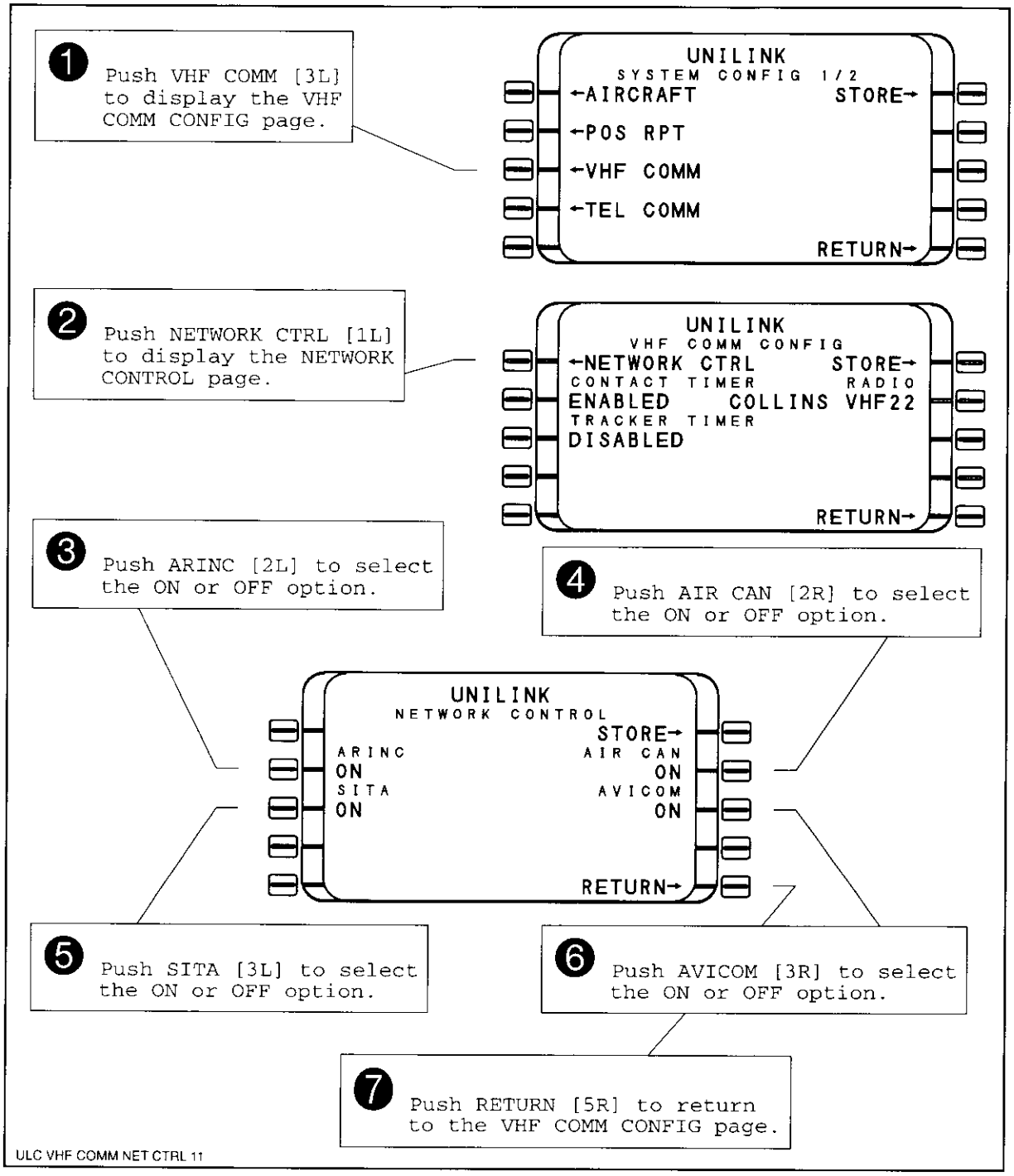


C. Position Report Configuration

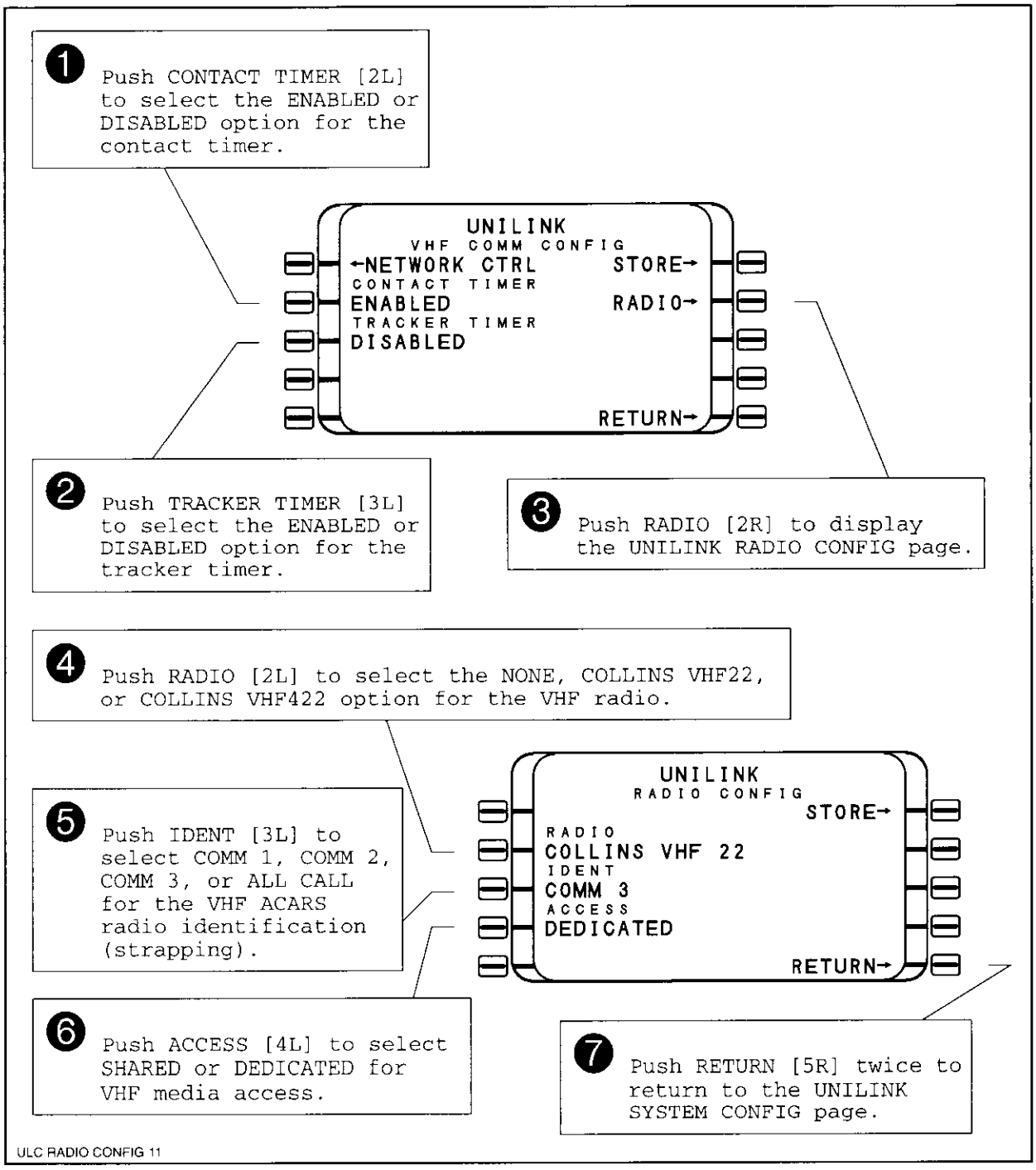


D. VHF Communications Configuration

(1) Network Control

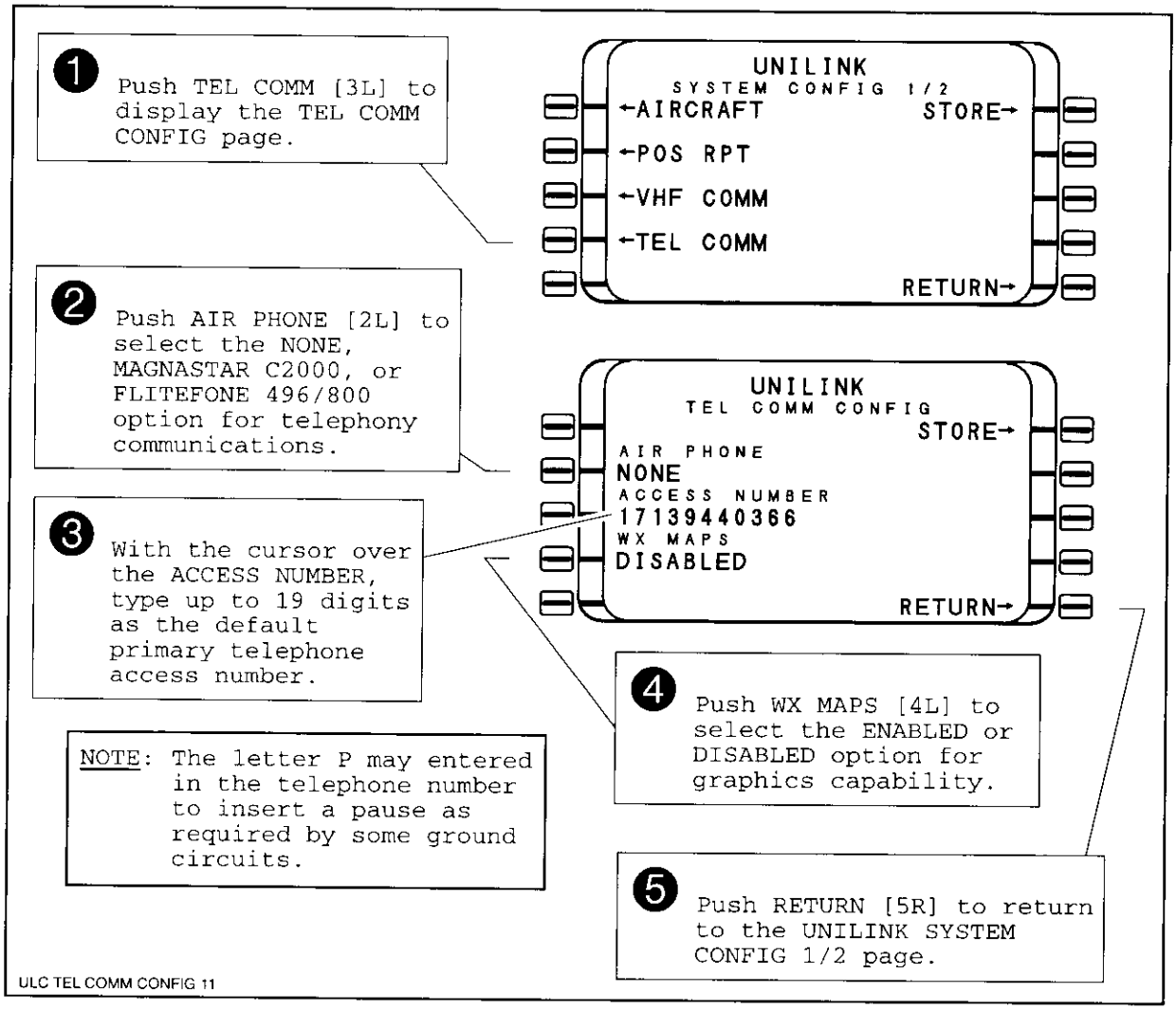


(2) Radio Configuration



NOTE: For the UL-601 Radio option, select Collins VHF422, COM1 and Dedicated.

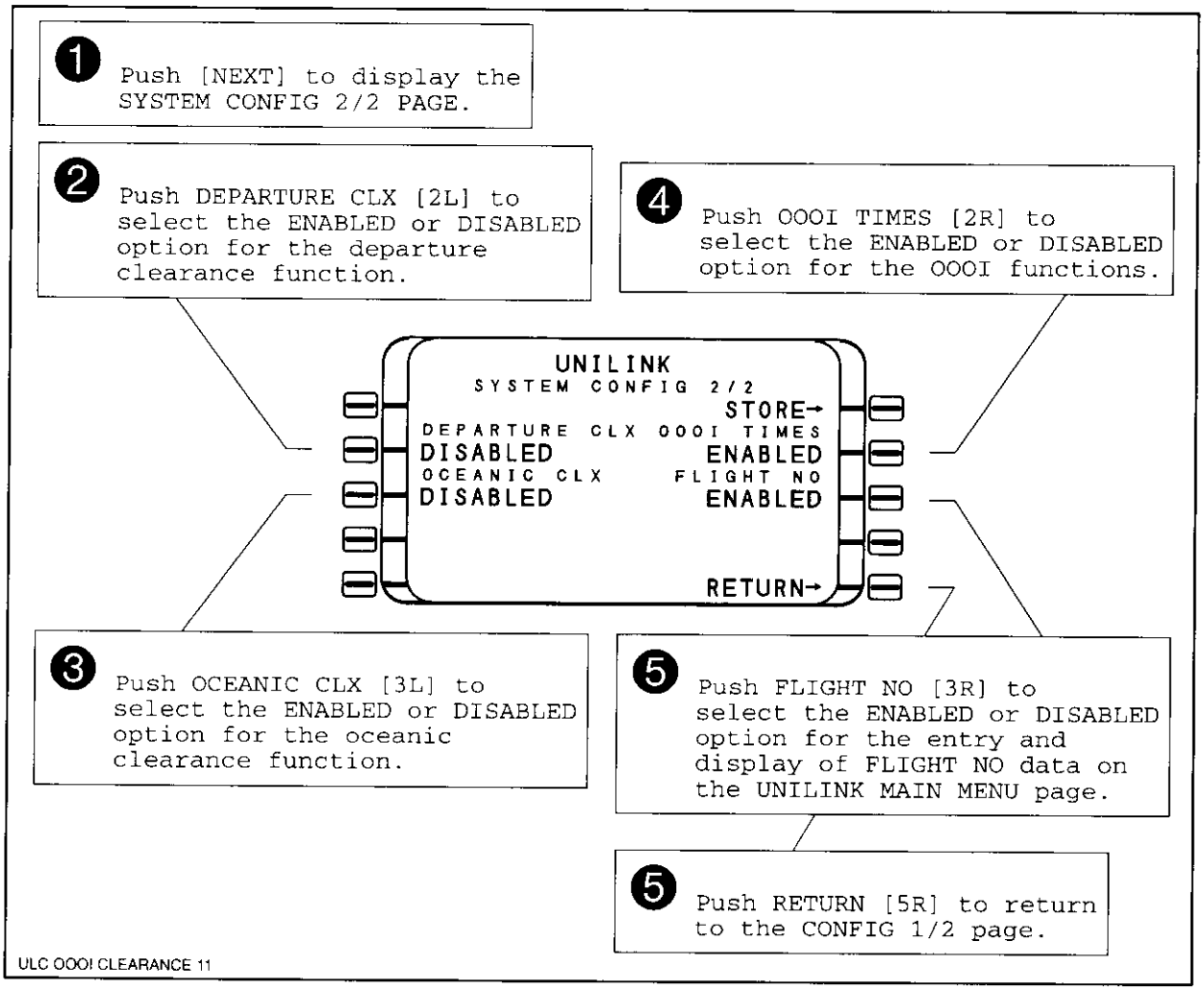
E. Tel Comm Configuration



NOTE:

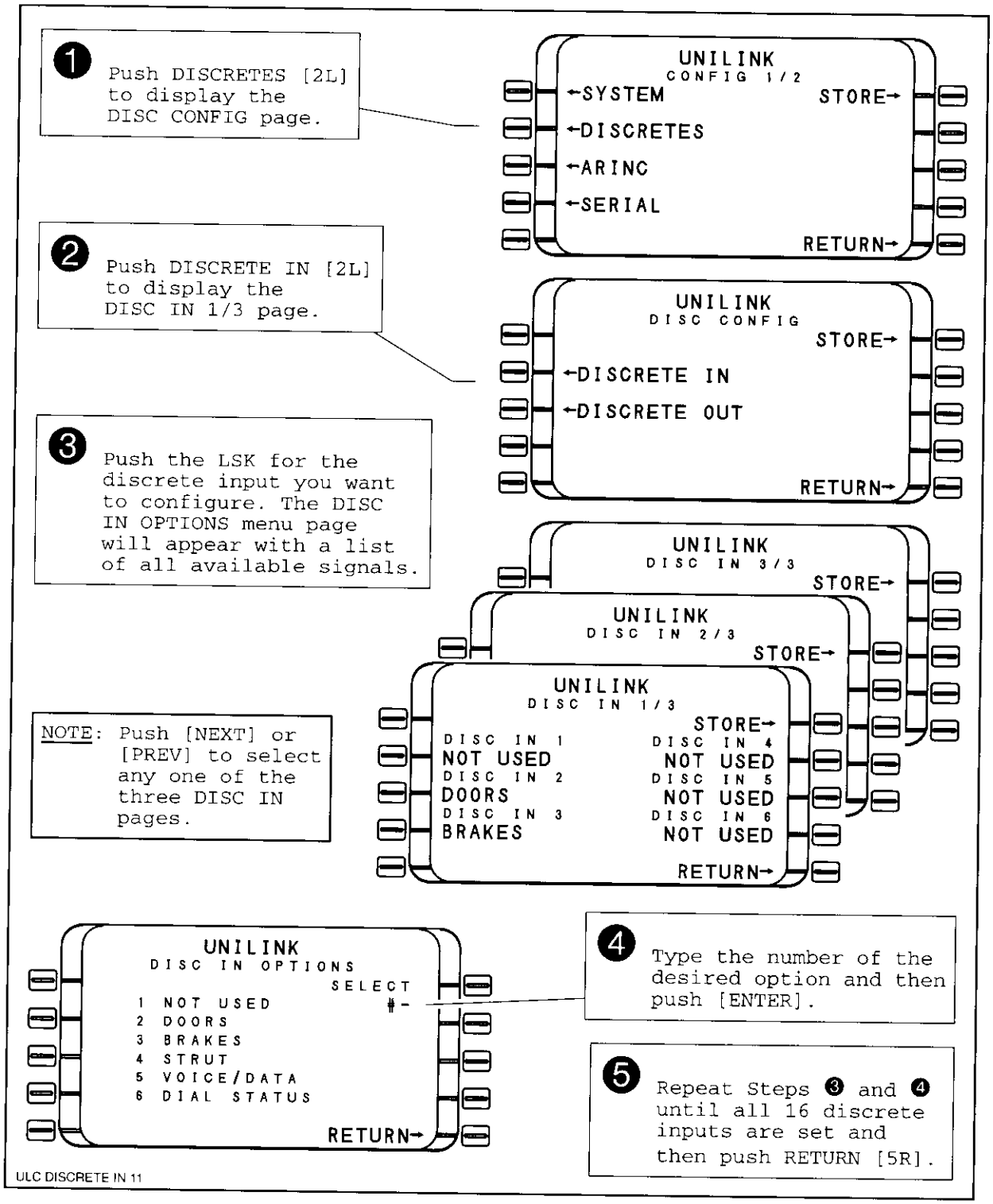
1. Call Universal Weather and Aviation, Inc. at 1-800-231-5600 to request service for your aircraft. You must provide the aircraft identification (tail number) to be entered into their database for textual weather products.
2. When configuring for Universal Weather Graphics, enter this phone number 1 713 944 0366 (Do not enter spaces)

F. OOOI and Clearance Functions

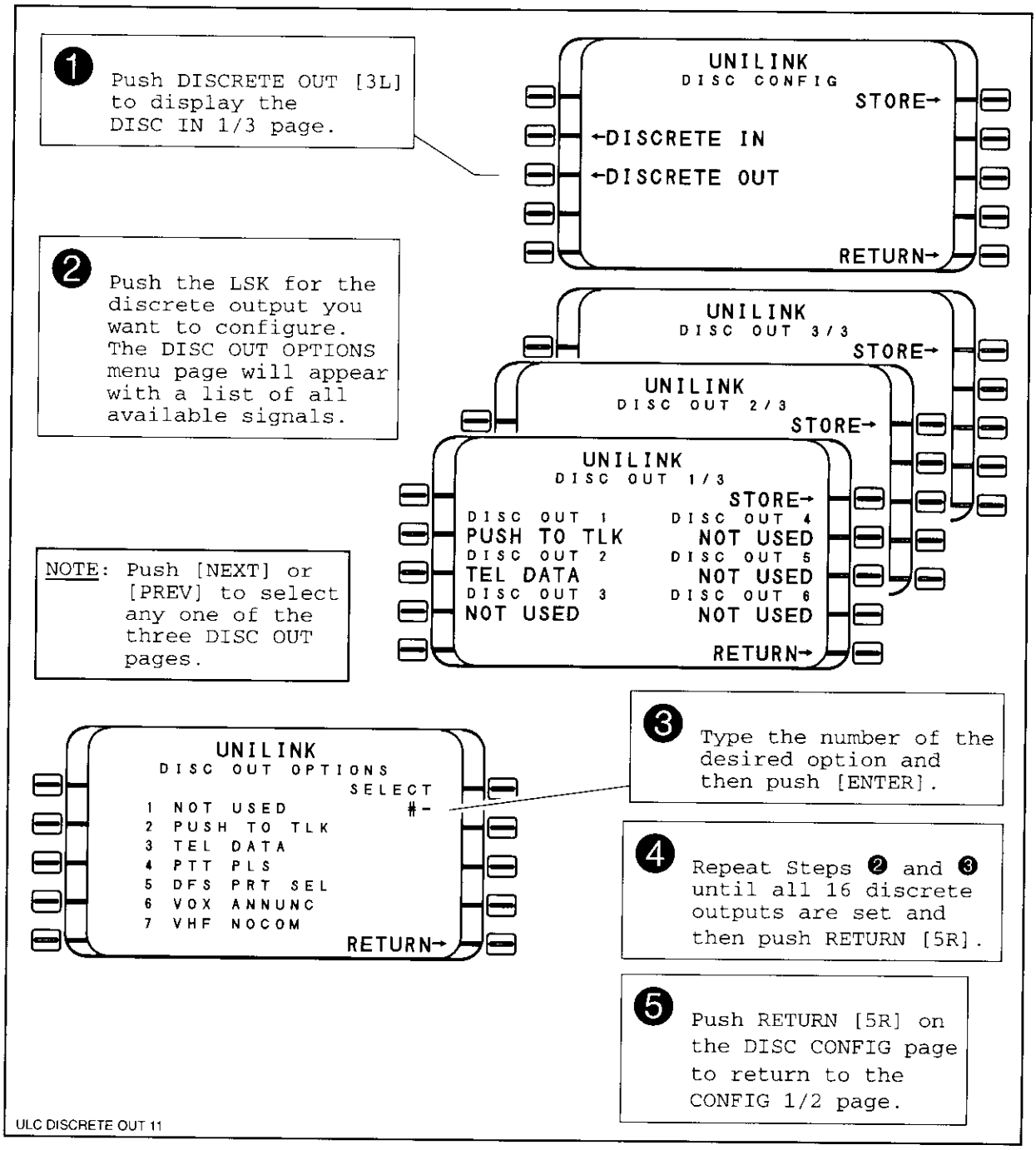


G. Discretes Configuration

(1) Discrete In



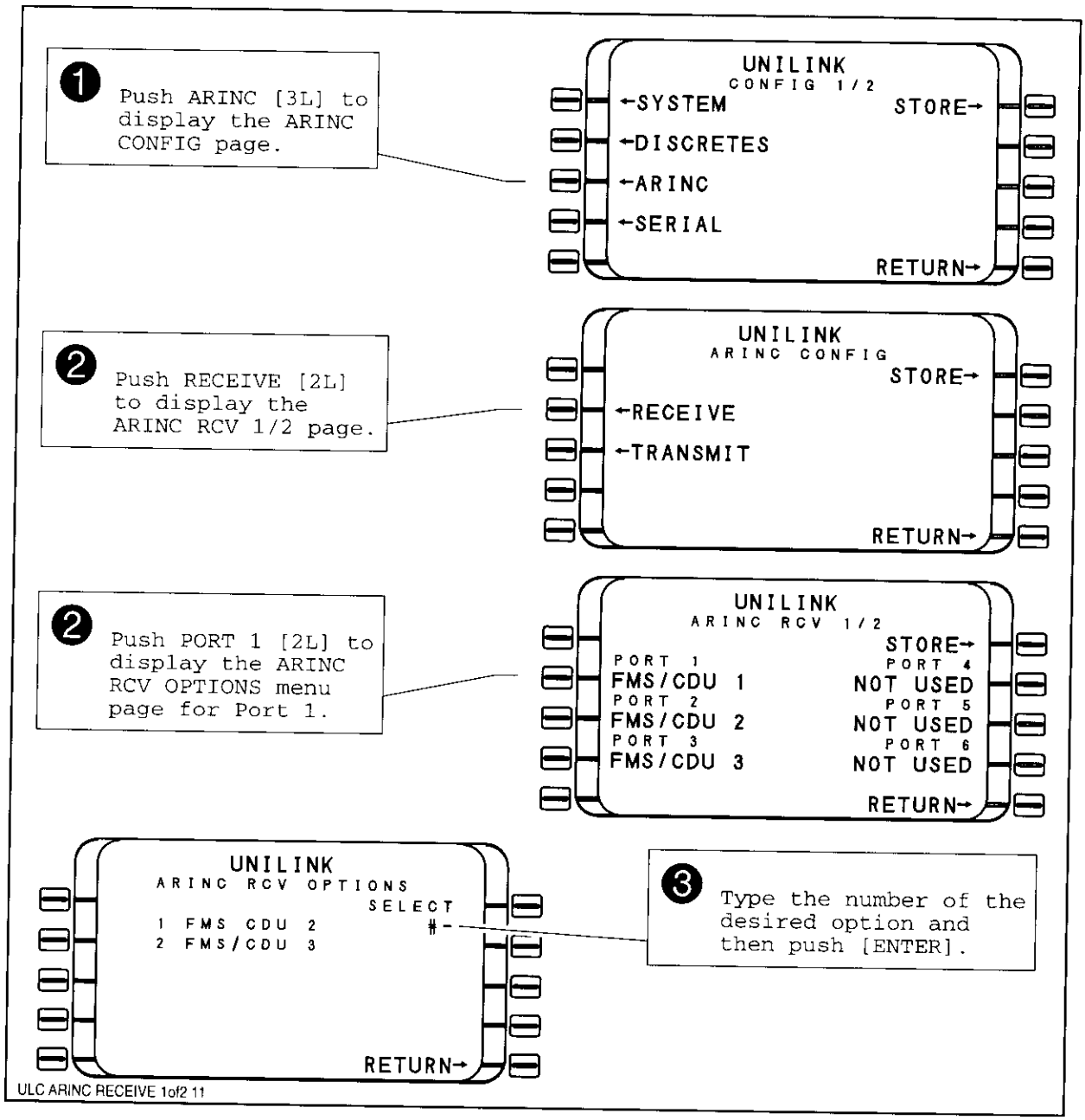
(2) Discrete Out



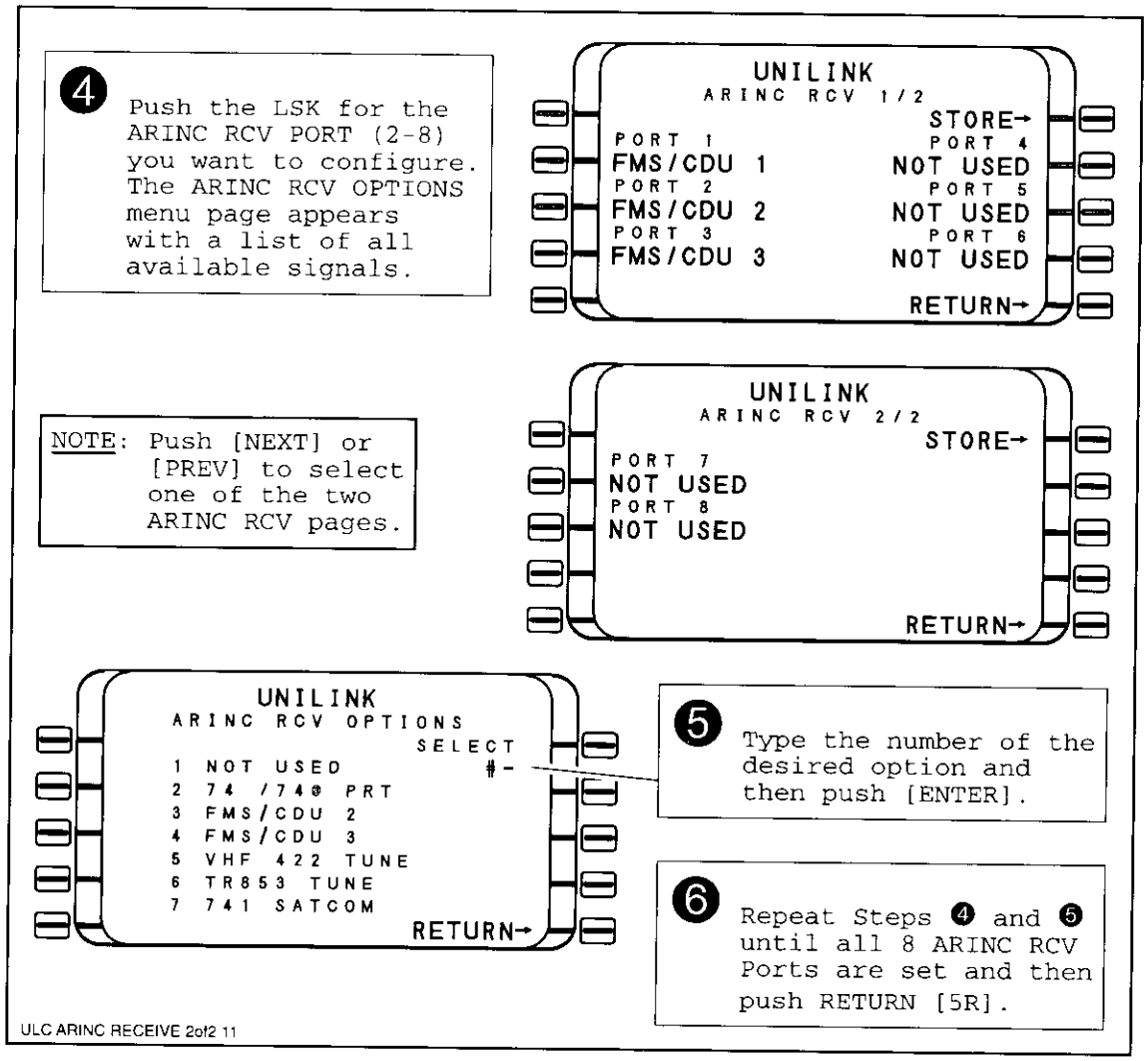
NOTE: For the UL-601 Radio option, use Discrete Out 1 for Push to Talk (PTT).

H. ARINC Ports Configuration

(1) ARINC Receive Ports

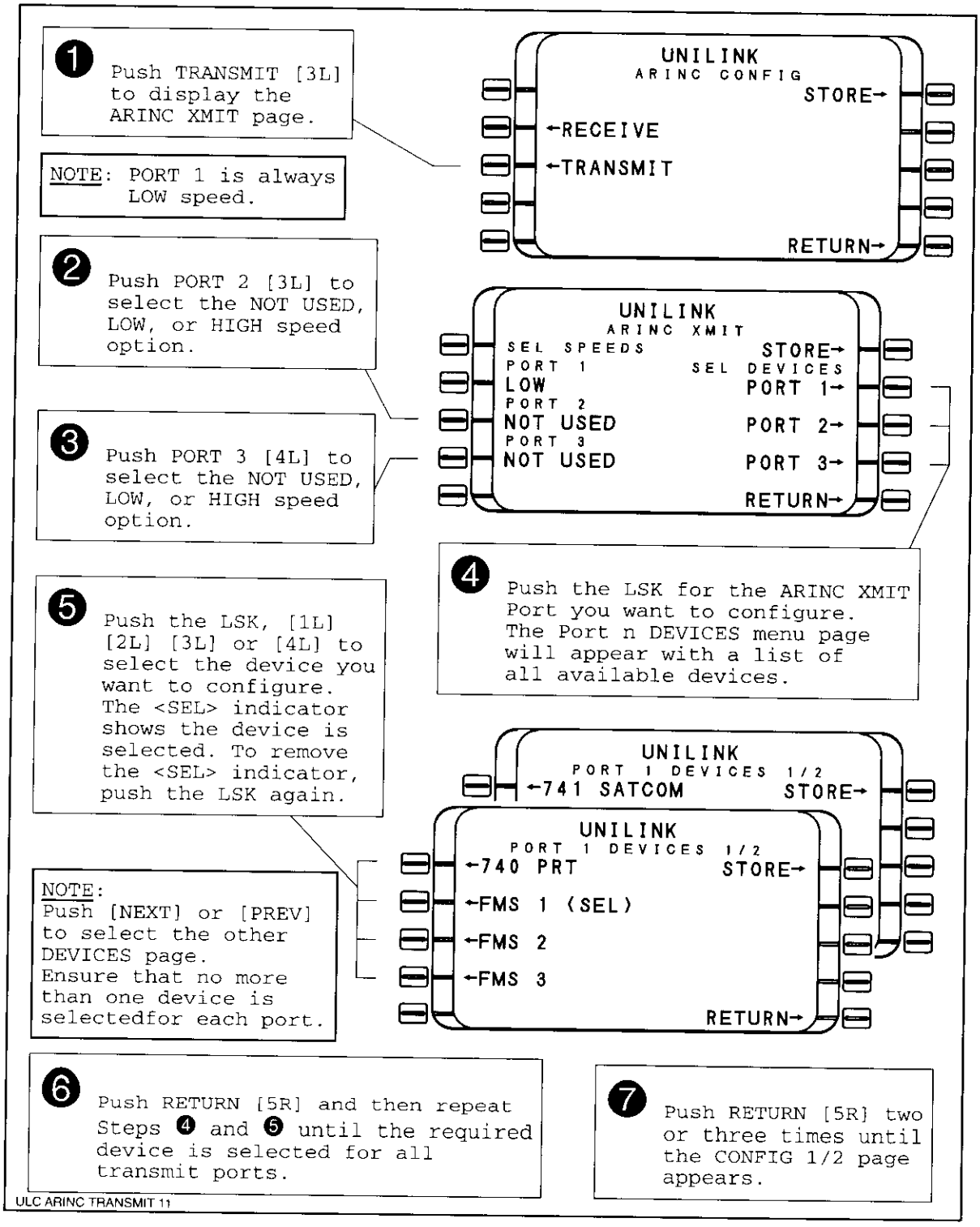


ARINC Receive Port Configuration — Sheet 1 of 2



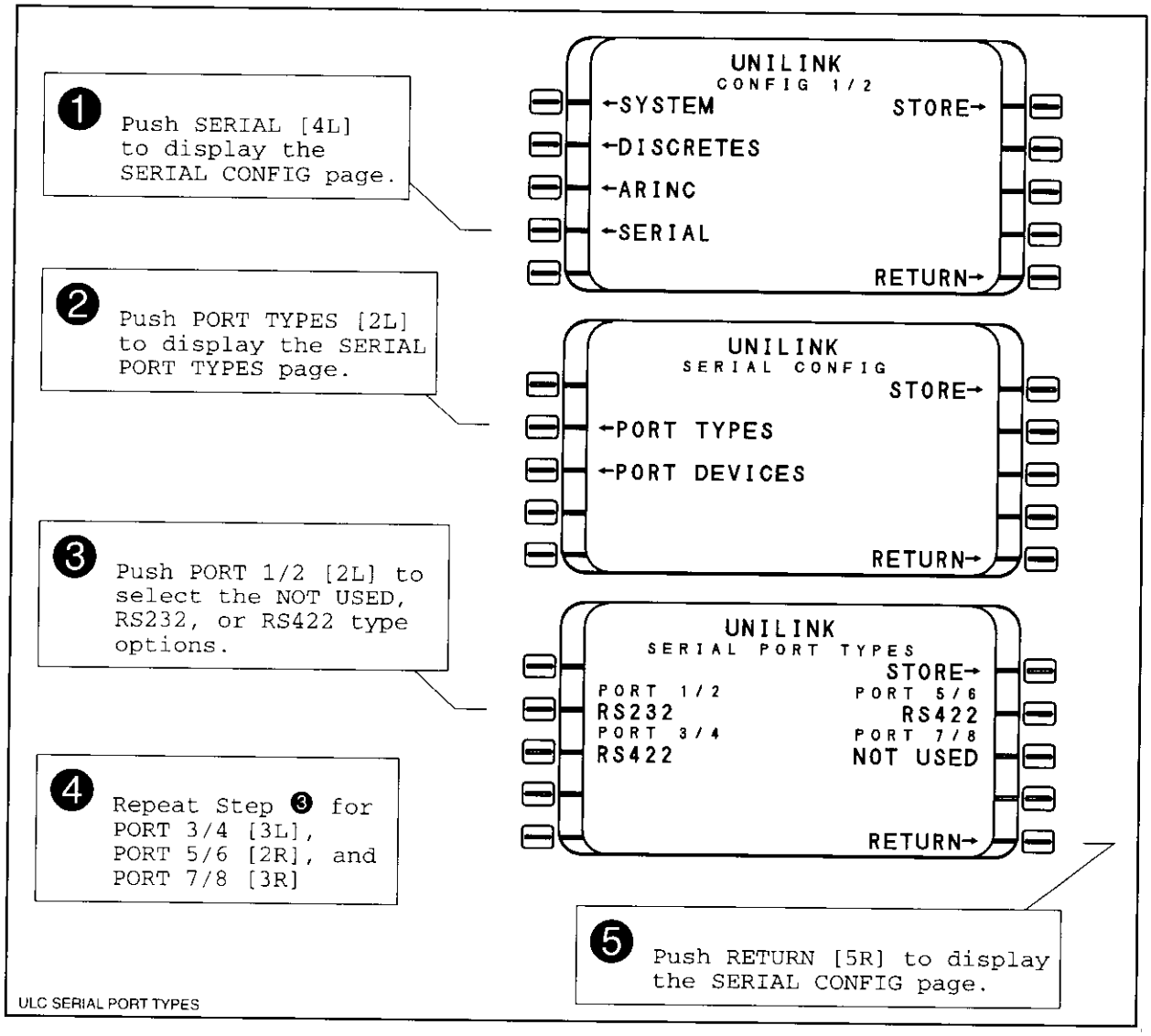
ARINC Receive Port Configuration — Sheet 2 of 2

(2) ARINC Transmit Ports



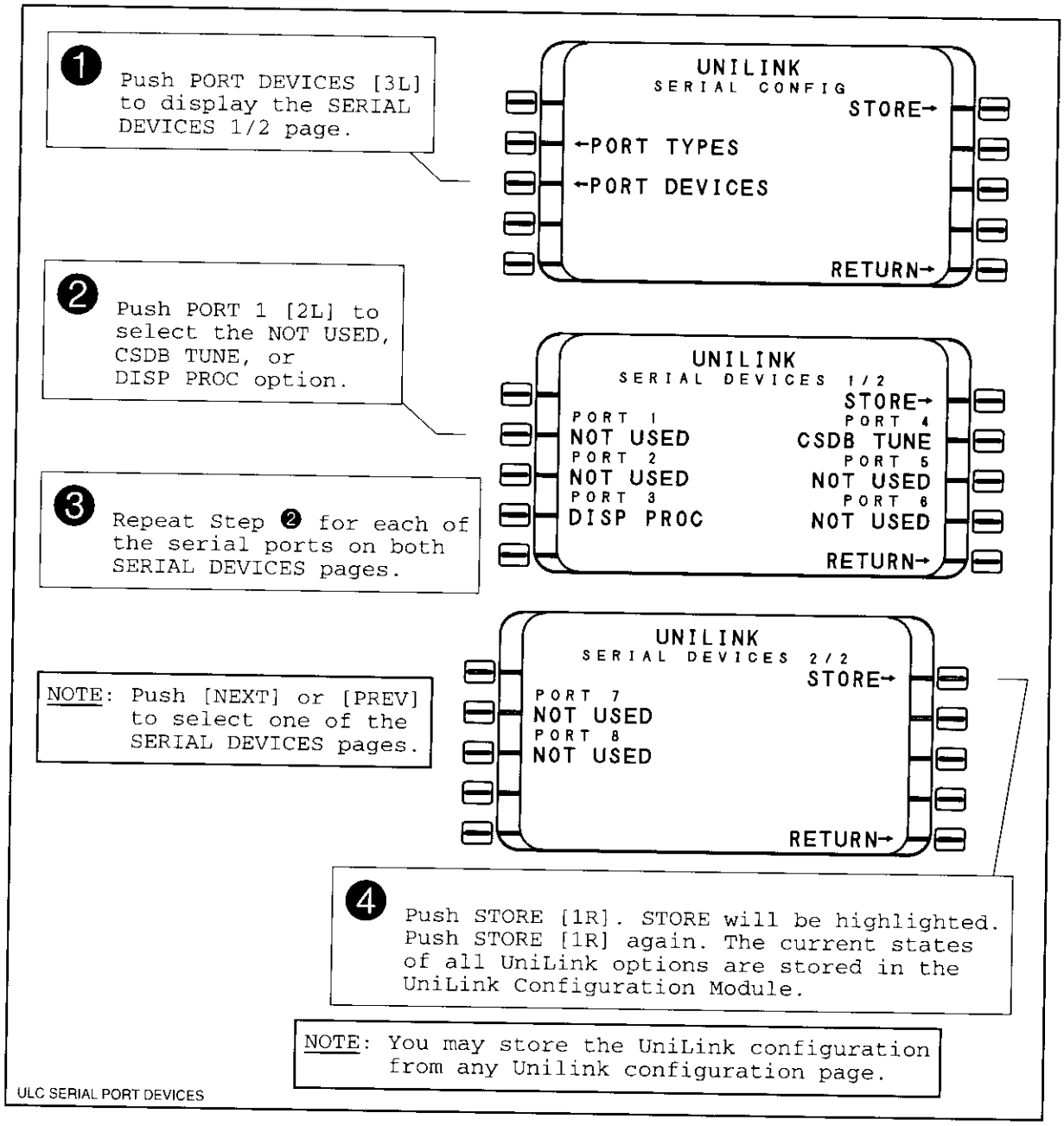
I. Serial Ports Configuration

(1) Port Types



ULC SERIAL PORT TYPES

(2) Port Devices



NOTE: For the UL-601 Radio option, press NEXT and select Port 8 as CSDB Tune.

Checkout Procedures

1. UniLink Ground Checkout Procedures

A. Conditions of Test

The following subparagraphs define conditions under which tests, specified below, shall be conducted.

(1) Safety Precautions

User shall follow all appropriate safety precautions.

(2) Power Input

Unless otherwise specified, tests shall be conducted with the equipment powered by the aircraft's electrical power generating system.

(3) Associated Equipment or Systems

Unless otherwise specified, all aircraft electrically operated equipment and systems shall be turned on before conducting interference tests.

(4) Environment

During tests, the equipment shall not be subjected to environmental conditions that exceed those specified by the equipment manufacturer.

(5) Adjustment of Equipment

Circuits of the equipment under test shall be properly aligned and otherwise adjusted in accordance with the manufacturers recommended practices prior to application of the specified tests.

(6) Warm-up Period

No warm-up period required.

B. UniLink to FMS ARINC 429 Communications

(1) Verify FMS DATA page 1/n shows an active UNILINK prompt.

(2) From FMS DATA page 1/n select UNILINK and verify a UniLink page is displayed.

(3) Verify that after power up at least one non-default UniLink configuration item is displayed as active.

(4) Enter UniLink configuration and make a benign configuration modification. STORE updated configuration.

(5) Following STORE-configuration-reboot of UniLink, verify configuration modification of (4) is retained.

C. UniLink to Display Processor RS-422 Communications

This procedure applies only to the UNS-1C and FMSs using the 5" FPCDU.

(1) From the UniLink MAINTENACE menu select IMAGE TEST.

(2) Verify UniLink annunciates that the Display Processor received the test image.

(3) Verify the Display Processor can display test image.

D. UL-601 VHF Communications Interface Test

VHF datalink service coverage on the ground is limited to airports that participate in digital PDC. Coverage may be affected by ground obstacles and is limited by the location of the VHF ground antenna.

(1) Verify interconnect wiring is per the interface drawings.

(2) Verify that the UniLink discrete output #1 is configured for Push to Talk.

(3) Verify that the VHF COMM radio and tuning bus are properly configured

(4) Ensure that circuit breakers supplying power to the UL-601, RS422, and the FMS are closed.

(5) Turn on and Initialize the FMS system.

(6) Turn on one of the aircraft's VHF Comm transceivers and verify audio from the receiver is available by performing a squelch test.

(7) With the FMS Data Page 1 displayed on the CDU, push UNILINK [3R]. The UniLink Main Menu will appear.

(8) Push MISC [4L]. The UniLink Miscellaneous page will appear.

(9) Push COMM CONTROL [1L]. The Comm Control page will appear.

(10) Push VHF NETWORK [2L]. The VHF Network Control page will appear.

(11) Verify that the appropriate network is ON.

(12) Push FREQ [4R]. The VHF Frequencies page will appear.

(13) Note which VHF frequency has been selected for use by UniLink as indicated by the <SEL> display.

(14) Tune the aircraft's VHF Comm transceiver to the UniLink selected frequency to monitor the UniLink transmission bursts.

(15) On the FMS UniLink VHF FREQUENCY page, push one of the left side line select keys to select a different VHF frequency, then re-select the frequency tuned on the aircraft's VHF Comm transceiver. You should hear an audible chirp received by the VHF Comm when the UniLink transmits a burst. You may also hear other VHF transmissions by other aircraft in the area. The chirp will be an indication that the UniLink has tuned the VHF transceiver and that the push to talk circuit is OK.

(16) If the airport ground location is served by VHF network coverage for digital Pre-Departure Clearance and digital ATIS, a request for ATIS information can be performed on the ground, otherwise, the aircraft will have to be airborne to be within VHF coverage. To request ATIS, from the main UniLink Menu, push the FL INFO SRV line select key, then the ATIS line select key. Push AIRPORT [2L] and type KORD and push [ENTER].

E. Telephony Modem Tip and Ring Communications for Magnastar

NOTE: In order to perform the following tests a telephone line analyzer must be used.

(1) Verify the on-hook tip and ring voltage is greater than -15.0 VDC.

(2) Verify the on-hook tip and ring loop current is zero milliamperes DC.

(3) SEND a weather graphic map uplink request.

(4) Verify weather graphic map uplink request is SENT.

(5) While telephony modem is off-hook verify tip and ring voltage is less than 10.0 VDC.

(6) While telephony modem is off-hook verify tip and ring loop current is greater than or equal to 30.0 milliamperes DC and less than or equal to 80.0 milliamperes DC.

(7) Verify weather graphic is received.

F. Checking the UL-601 to Magnastar Interface.

Airborne telephone service coverage on the ground is limited to a very few airports. In most cases, it will not be possible to establish a telephony connection below 8,000 ft. The following procedure will verify the interface between the UL-600 and the airborne telephone system only.

(1) Verify the Aircraft wiring per the interface drawings.

(2) Ensure that circuit breakers supplying power to the UL-601, Magnastar, and the FMS are closed.

(3) Turn on and Initialize the FMS system.

(4) On the Magnastar hand set select "nine" for "setup." If the main menu is not displayed push [+].

(5) Select "seven" for "Remote program." The message "Flash hook the station you wish to setup" will be displayed.

(6) With the FMS Data Page 1 displayed on the CDU, push UNILINK [3R]. The UniLink Main Menu will appear.

(7) Push WX MAPS [1R]. The Weather Maps Page will appear.

(8) Push WX DPCT [2R]. The Weather Depiction Page will appear.

(9) Push SEND [4R].

(10) When the request is received at the Magnastar the message "Remote station has been assigned" will be displayed on the hand set. This indicates correct connectivity between the UL-601 and the CDBR-2. A TEL NOCOMM advisory on the FMS is normal.

G. Telephony Modem Tip and Ring Communications for Flitefone 800

NOTE: In order to perform the following tests a telephone line analyzer must be used.

(1) Verify the on-hook tip and ring voltage is greater than -15.0 VDC.

(2) Verify the on-hook tip and ring loop current is zero milliamperes DC.

(3) SEND a weather graphic map uplink request.

(4) Verify that the configured TEL DATA discrete output goes to less than 1.0 milliseconds, +1-10%.

(5) Within 30 seconds of Step (4), ground the configured DIAL NOW discrete input.

(6) Verify weather graphic map uplink request is SENT.

(7) While telephony modem is off-hook verify tip and ring voltage is less than 10.0 VDC.

(8) While telephony modem is off-hook verify tip and ring loop current is greater than or equal to 30.0 milliamperes DC and less than or equal to 80.0 milliamperes DC.

(9) Verify weather graphic is received.

(10) Remove the configured DIAL NOW ground applied to the discrete input in Step(5) above.

(11) Verify received graphic can be displayed.

2. UniLink Flight Checkout Procedures

(1) Displayed Data Readability

Determine that normal conditions of flight do not significantly affect the readability of displayed data.

(2) Interference Effects

For aircraft equipment and systems that can be checked only in flight, determine that operationally significant conducted or radiated interference does not exist. Evaluate all reasonable combinations of control settings and operating modes. Operate communications and navigation equipment on the low, high and at least one but preferably four mid-band frequencies.

(3) Flight Tests

NOTE: Execution of the following tests are dependent on the installation of ACARS VHF Comm radio and the installation of an airborne telephone system. Tests relying on a particular communication system should not be performed when that system is not installed. Also note that a Data Service Provider service arrangement must be in place in order to receive data uplinks.

Test Condition	Expected Result	Pass	Fail
ATS MESSAGING (VHF ACARS ONLY)			
Request a TWIP report for KORD.	Verify TWIP is received and available for display.		
GRAPHICAL WX (Telephony only)			
Select and send a COMP RADAR.	Verify COMP RADAR request is sent.		
Verify COMP RADAR image is received, annunciated And displayed.			
Select and send multiple weather map requests; TOPS & MVMT, SIG WX, WX DPCT and WINDS.	Verify request is SENT.		
Verify requested images are received annunciated and displayed.			
Select and send a text weather TERMINAL WX request.	Verify request is SENT.		
Verify TERMINAL WX is received, annunciated and displayed.			
Select and send multiple text weather	Verify request is SENT.		
Requests; SIGMETS, PIREPS and WINDS ALOFT	Verify requested reports are received, annunciated and displayed.		