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AVIONIC SYSTEMS

NSCM: D2356

Control Unit

CU 6401-1-(XX)

(for Mode S transponder BXP 6402-XR)

INSTALLATION AND OPERATION

Manual DV 69803.03 PN 0584.096-071

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RECORD OF REVISIONS

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INTRODUCTION

1. General

The Control Unit CU 6401-1-(XX) for the remote controlled Mode S transponder BXP 6402-XR-(XX) is described in this manual “Installation and Operation”.

2. Manufacturer

The Control Unit was developed and is manufactured by :

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DE.21G.0075	Approval as manufacturer to EASA PART 21
DE.145.0166	Approval as maintenance organization to EASA PART 145

3. Safety information

- The installation of the transponder control unit into an aircraft may be carried out only by an authorized installation company. The country regulations always have to be observed.
- Do not connect the unit to AC sources.
- Make sure that the unit is connected to a DC source ≤ 33 V DC.
- The unit should be protected from the aircraft power supply by a dedicated 1 A circuit breaker.
- Do not connect the unit with reversed polarity to the DC source.
- Do not switch on the unit before the aircraft engines are started. Switch off the unit before the engines are shut down.

- Do not operate the unit under ambient temperatures below -20° C and above + 70° C.

- The programming of the transponder address module AM 6400-1 with the ICAO 24-bit address of the aircraft must be carried out only at an installation company or in the manfacturer factory.

4. Layout of manual

The manual is divided into three chapters:

- GENERAL DESCRIPTION

- INSTALLATION

- OPERATION

5. Revisions of the manual

All changes to the manual are recorded consecutively on the pre-page “Record of Revisions”.

6. List of abbreviations

AA	Aircraft Address (24-bit ICAO)
ADLP	Avionics Data Link Processor
AI	Aircraft Identifier (tail number)
ALT	Altitude or transponder ALT mode
ATC	Air Traffic Control
BIT	Built-In Test
CBIT	Continuous Built-In Test
CCS	Company Call Sign
CU	Control Unit
CS	Call Sign
DV	Manual identification number
EASA	European Aviation Safety Agency
ELS	Elementary Surveillance
EHS	Enhanced Surveillance
es	e = Extended squitter and s = SI capability
FAA	Federal Aviation Administration
FL	Flight Level
FN	Flight Number
GND	Ground
ICAO	International Civil Aviation Organization
IBIT	Initiated Built-In Test
ID	Identifier
IDT	Ident (Identification)
NSCM	Nato Supply Code of Manufacturers
ON	Transponder ON mode (without altitude transmission)
PBIT	Power-on Built-In Test
PN	Part Number
R	Reply

RX	Receiver
SBY	Standby mode
SEL	Selection
SI	Surveillance Identifier
STO	Store
SUPP	Supply voltage DC
TX	Transmitter
VFR	Visual Flight Rules
XPDR	Transponder

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GENERAL DESCRIPTION

1. Application

Together with the Mode S remote transponder BXP 6402-XR-(XX) the Control Unit CU 6401-1-(XX) forms the aircraft part of the air traffic control system.

2. General description

A. The CU 6401-1-(XX) control unit is designed for installation in the instrument panel of aircraft. The dimensions correspond to the standard instrument size with a 58 mm (2¼ inch) diameter.

B. All controls are located on the front panel of the unit. The 15-pole unit connector is located at the rear side of the control unit.

C. A serial interface RS-422 for connection of the remote controlled transponder BXP 6402-XR-(XX) is available at the unit connector.

D. The CU 6401-1-(XX) control unit in conjunction with the BXP 6402-XR-(XX) remote transponder provides the following features:

(1) In the selective mode (Mode S), the controller on the ground can interrogate the transponder individually using an ICAO-24-bit address, which is unique to the particular aircraft.

(2) Support of the SI code (Surveillance Identifier)

(3) Register capability for elementary surveillance (ELS) and enhanced surveillance (EHS)

(4) Extended squitters transmission

(5) Data link capability

E. Inherent features:

(1) Mode A - in this mode, the 4096 character code set on the control head is sent as a reply to interrogation from a ground station.

(2) Mode C - in this mode, the encoded altitude is sent in addition to the mode A reply. The altitude information must be delivered from an external device.

(3) A special identifier pulse (SPI) can be activated by pressing the IDT button in Mode A/C and Mode S.

(4) Selftests (BITs). The Initiated Built-In Test (IBIT), the Continuous Built-In Test (CBIT) and the Power-on Built-In Test (PBIT) are integrated in the transponder.

3. Technical data

A. General data

Supply voltage	10.0 to 33.0 V DC
Typical consumption	0.045 A at 14 V (illum. off) 0.034 A at 28 V (illum. off) 0.138 A at 14 V (illum. max.) 0.080 A at 28 V (illum. max.)
Panel illumination	control input
Illumination control current	max. 1 mA at 28 V
Illumination color (display and buttons)	white
Control interface	RS-422
Power-up time	2 s (including internal self-test)
Internal fuse protection	F 1 A
External fuse protection	1 A
Operating altitude	50000 ft. max.
Operating temperature range	- 20° C to + 55° C (short-time + 70° C)
Storage temperature range	- 55° C to + 85° C
Environmental conditions	in accordance with EUROCAE/RTCA ED-14D/DO-160D
Mechanical dimensions:	
- Front panel	61.3 x 61.3 (H x W) (2.413 x 2.413 inch)
- Instrument size diameter	58 mm (2¼ inch)
- Case depth	65 mm (2.559 inch)
Weight	0.22 kg (0.485 lb)

B. Environmental qualification

EUROCAE/RTCA ED-14D/DO-160D

Condition	Section	Cat.	Description
Temperature and Altitude	4.0	D1	Equipment tested to Category D1
Low Ground Survival Temperature	4.5.1	D1	-55 deg C
Low Operating Temperature	4.5.1	D1	-20 deg C,
High Ground Survival Temp	4.5.2	D1	+85 deg C
High Short-Time Operating Temp.	4.5.2	D1	+70 deg C
High Operating Temp.	4.5.2	D1	+55 deg C
In-flight Loss of Cooling	4.5.4	Z	No forced cooling required – No test required
Altitude	4.6.1	D1	50000 ft
Decompression	4.6.2		Not applicable
Overpressure	4.6.3		Not applicable
Temperature Variation	5.0	B	Equipment tested to Category B
Humidity	6.0	A	Equipment tested to Category A
Shock and Crash Safety	7.0	B	Equipment tested to Category B
Vibration	8.0	S U	Cat. S, vibration test curve M Cat. U, vibration test curve G
Explosion Proofness	9.0	X	No test required, Equipment identified as Category X
Waterproofness	10.0	X	No test required, Equipment identified as Category X
Fluids Susceptibility	11.0	X	No test required, Equipment identified as Category X
Sand and Dust	12.0	X	No test required, Equipment identified as Category X
Fungus Resistance	13.0	X	No test required, Equipment identified as Category X
Salt Spray	14.0	X	No test required, Equipment identified as Category X
Magnetic Effect	15.0	Z	Equipment is Class Z
Power Input	16.0	B	Equipment tested to Category B
Voltage Spike	17.0	A	Equipment tested to Category A
Audio Freq. Conducted Susceptibility	18.0	B	Equipment tested to Category B
Induced Signal Susceptibility	19.0	A	Equipment tested to Category A
Radio Frequency Susceptibility	20.0	WW	Equipment tested to Category WW
Spurious RF Emission	21.0	B	Equipment tested to Category B
Lightning Induced Transients Susceptibility	22.0	A3E3X	Equipment tested to Category A3E3X
Lightning Direct Effects	23.0	X	No test required, Equipment identified as Category X
Icing	24.0	X	No test required, Equipment identified as Category X
Electrostatic Discharge	25.0	A	Equipment tested to Category A

4. Software

The control unit CU 6401-1-(XX) is controlled by a microcontroller in the control head. The software criticality is determined to be **Level C** in accordance with EUROCAE/RTCA document ED12B/DO-178B.

5. System approvals

EASA.210.322	ETSO-2C112a
FAA	TSO-C112

6. Equipment

CU 6401-1-(01)	Control Unit	Article-No. 0572.896-915

7. Accessories

CK5000-C	Connector kit (crimp) 1 D-Sub jack, 15-pin	Article-No. 0511.781-954
CK5000-S	Connector kit (soldering) 1 D-Sub jack, 15-pin	Article-No. 0511.791-954

Manuals:

Installation and Operation CU 6401-1-(XX)	Article-No. 0584.096-071
Maintenance and Repair CU 6401-1-(XX)	Article-No. 0584.101-071
Control Interface Protocol BXP 6402-XR-(XX)	Article-No. 0590.241-071

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INSTALLATION

1. General

Installation of the control unit CU 6401-1-(XX) is depending on the aircraft type and its classification as well as requirements. Therefore, only general information can be provided in this section.

2. Inspection before installation

Before the control unit is installed on an aircraft, a visual inspection for possible transport damages shall be done.

Please look out for the following defects:

(1) Dirt, dents, scratches, corrosion, broken fastening elements on housing and housing parts.

(2) Dirt and scratches on nameplate, front plate and inscriptions.

(3) Dirt, bent or broken pins and cracked insert of unit connector.

(4) Dirt, stiffness and mechanical damage to the pushbuttons, rotary switches and LC displays.

(5) Missing screws.

3. Mechanical installation

The control unit is designed for installation in the instrument panel of an aircraft. It is constructed for mounting behind the panel. The circular cut out and the mounting holes are to be drilled in accordance with the small instrument size. The mounting place shall be at least 30 cm from the magnetic aircraft compass, to avoid any interference to the magnetic compass by the transponder.

The necessary dimensions are given in Fig. 2-1. Attachment is by means of four screws M3x12, which are included in the delivery.

4. Aircraft wiring

A. The aircraft wiring of the control unit is shown in Fig. 2-2.

CAUTION :

For installations in a more severe electromagnetical environment use shielded cable connectors and a common shielding for the control unit interwiring.

B. Pin connections of the unit connector P1

The unit connector type is D-SUB 15-pole male.

Pin	Pin Name	Pin Description	Source	Destination	Recommended cable type
1 2	TX+ TX-	RS-422 data interface	CU 6401-1-(XX)	BXP 6402-XR-(XX)	2xAWG26, shielded and twisted
3	GND	DC supply Ground, additional connected to Pin 9 and 10	DC supply voltage Ground	CU 6401-1-(XX)	AWG20
4 5	RX+ RX-	RS-422 data interface	BXP 6402-XR-(XX)	CU 6401-1-(XX)	2xAWG26, shielded and twisted
6	ILL A	Illumination control	Illum. voltage	Illum. input	AWG26
7	Not connected				
8	ILL B	Illumination GND	Illum. ground	Illum. input	AWG 20
9 10	GND	Ground, additionally connected to Pin 3	DC supply voltage Ground	CU 6401-1-(XX)	2xAWG20
11 12	SUPP	Supply voltage input, external 1 A fuse for current protection	DC supply voltage source 10 to 33 V	CU 6401-1-(XX)	2xAWG20
13	ON	ON/OFF signal	CU 6401-1-(XX)	BXP 6402-XR-(XX)	AWG26
14	Not connected				
15	Ext. ID	External Ident	Ident button ext.	CU 6401-1-(XX)	AWG 26

C. Illumination

Connect the illumination voltage to pin 6 of P 1 and attach pin 8 to the illumination ground. Set illumination intensity manually in the configuration menu.

5. Settings after installation

Installation mode is available from SBY mode only. To get into installation mode press button SEL (G, see Fig. 3-1), turn with rotary encoder (B) until “INS” appears in the bottom line of the display. Select by pressing push-button (C). The installation setup is protected by password “6435”. Enter password and press store button (F). See table on the next page.

Select with button (C)	Select with rotary encoder (B)		Store button (F)
ALTM SELECT	GARMIN / TRIMBLE NORTHSTAR UPS AT (BECKER BE6400) LORAN MAGELLAN SHADIN ARNAV GILHAM / PARALLEL	 default	store store store store store store store store
DIMMING INPUT	None (set illumination intensity manually in the configuration menu) +5V DC +14V DC +28V DC	default	store store store store
SQUITTER	Short ACQ SQU *	default on	off/on
REPLY RATE LIMIT	RPL RATE LMT 500-1200 replies/sec. in Mode A/C (setting in steps of 50)		store
SPECIALS	DATA LINK ** DEFAULT CONFIG *** ALT HIGH RESOL		store store store
Error Latch	LOW VOLT HIGH TEMP ANTENNA RF POWER DME ERR SQRT ERR CORE EE RECEIVER FIX DATA ALTIMETER DATA LINK Clear latch		view only view only view only view only view only view only view only view only view only view only view only store

* Transponders equipped for extended squitter operation should have a means to disable acquisition squitters to facilitate the suppression of acquisition squitters when all TCAS units have been converted to receive extended squitter.

** Shall be disabled if no ADLP or similar device is connected.

*** Default config.: Dimming input → none
Brightness → 50%
Altitude displayed in ALT mode
AI in SBY
AI in ON
IIlumin. characteristics → max. range
Code → 0000
VFR → 0000
Flight number → eight blanks
Flight number → not active

NOTE: If no type is available, this field indicates nothing.

6. Checking after installation

A. General

After the installation, check the control unit in conjunction with the remote controlled transponder to ensure satisfactory operation of the unit.

B. Pre-flight check using selftest

Switch-on test:

Switch the transponder operating mode switch from OFF to SBY. A power-on built-in test (PBIT) then follows automatically for 1 second. During the test “WAIT is indicated. If the test was successful, the unit switches then to the mode set on the mode switch.

Test triggered (IBIT):

Press the SEL button and STO button at the same time in mode ON or ALT. A test of all available test routines then follows for 1 second. During the test, “IBIT” is indicated on the display. If the IBIT was successful, the transponder switches immediately into the normal operating mode.

In case of a fault appears the report “FAILURE” in the display. Switch OFF the transponder at the fault indication.

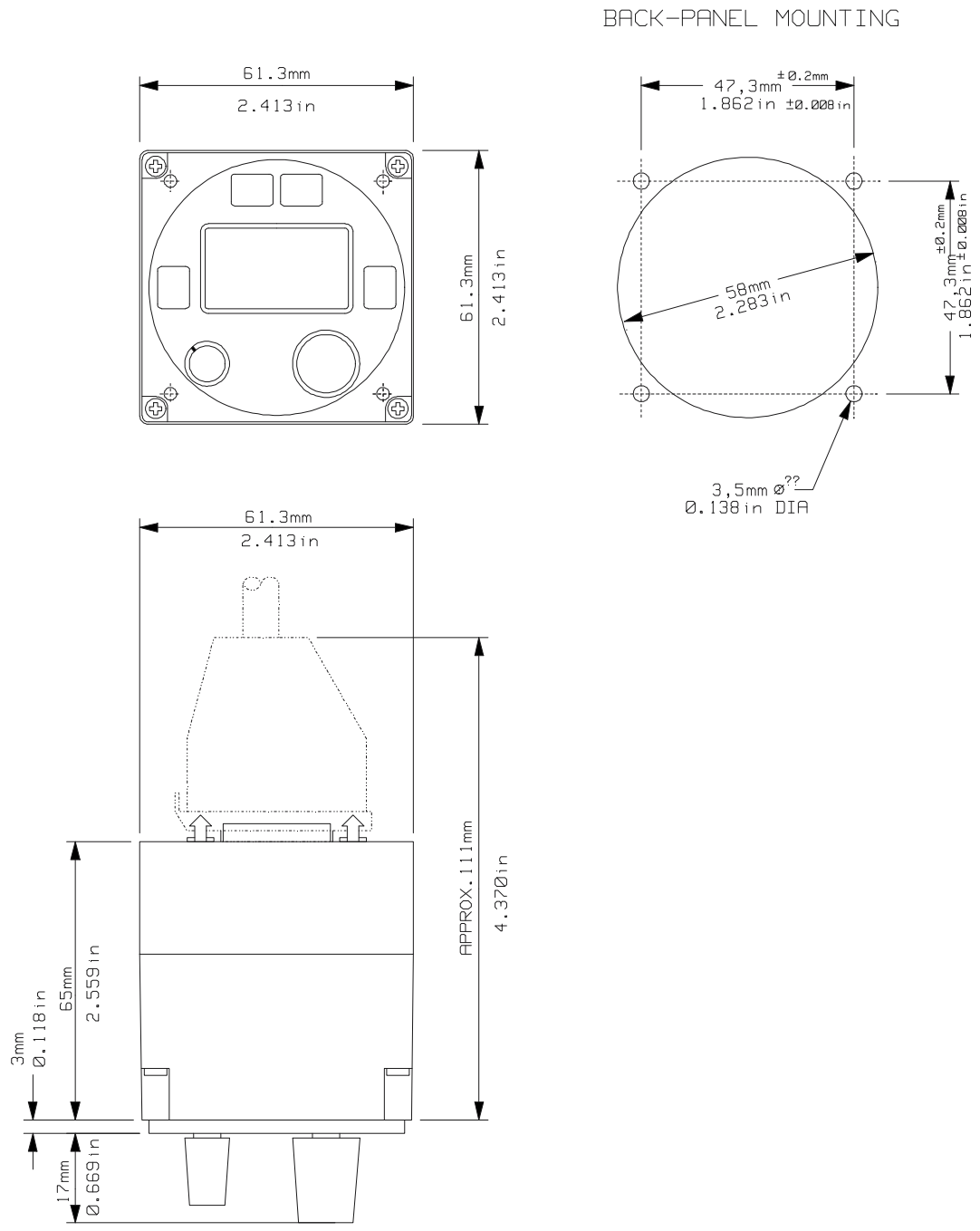

Fig. 2-1 Installation dimensions CU 6401-1-(XX)

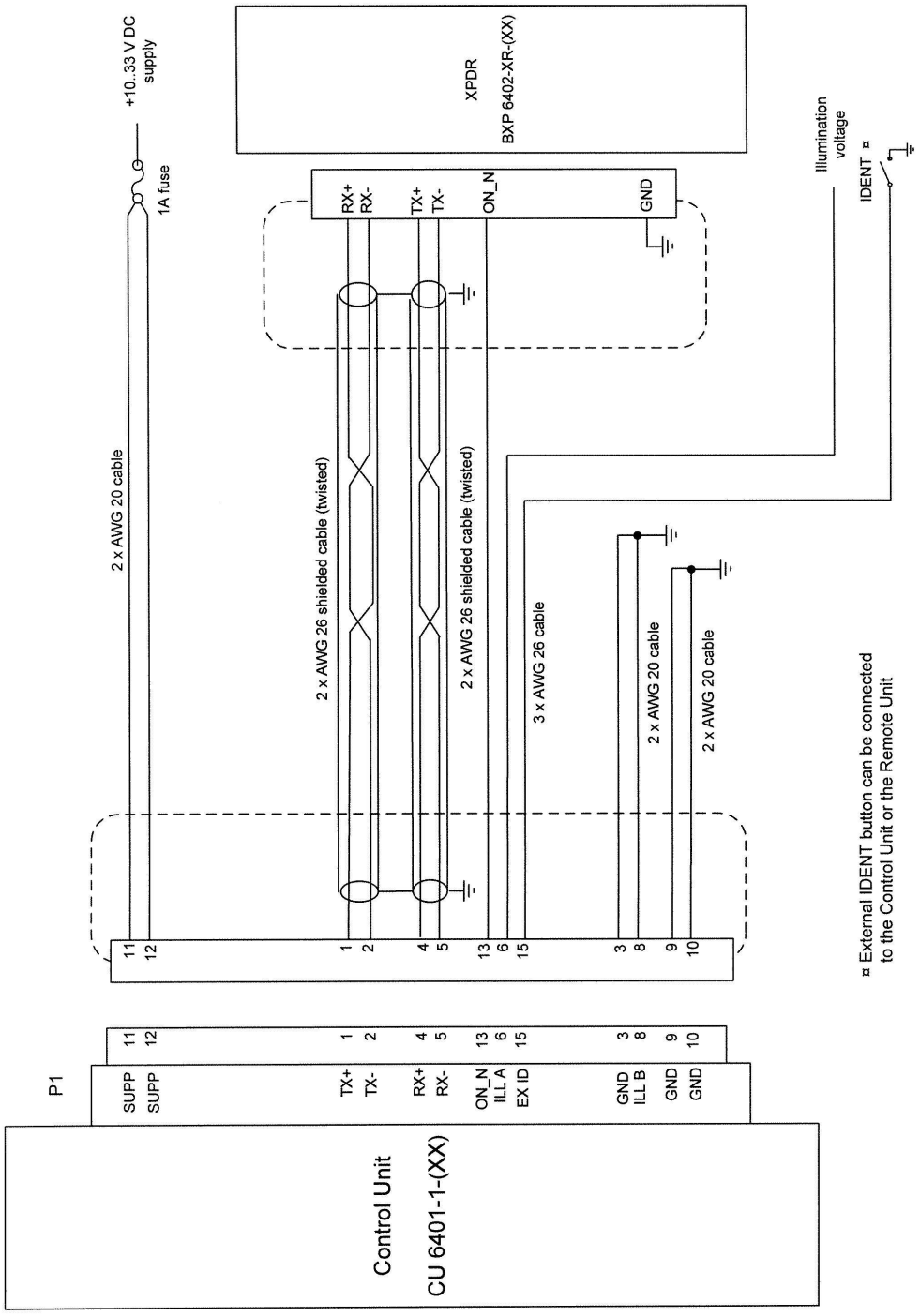

Fig. 2-2 Proposal for aircraft wiring CU 6401-1-(XX)

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OPERATION

1. Controls and indicators

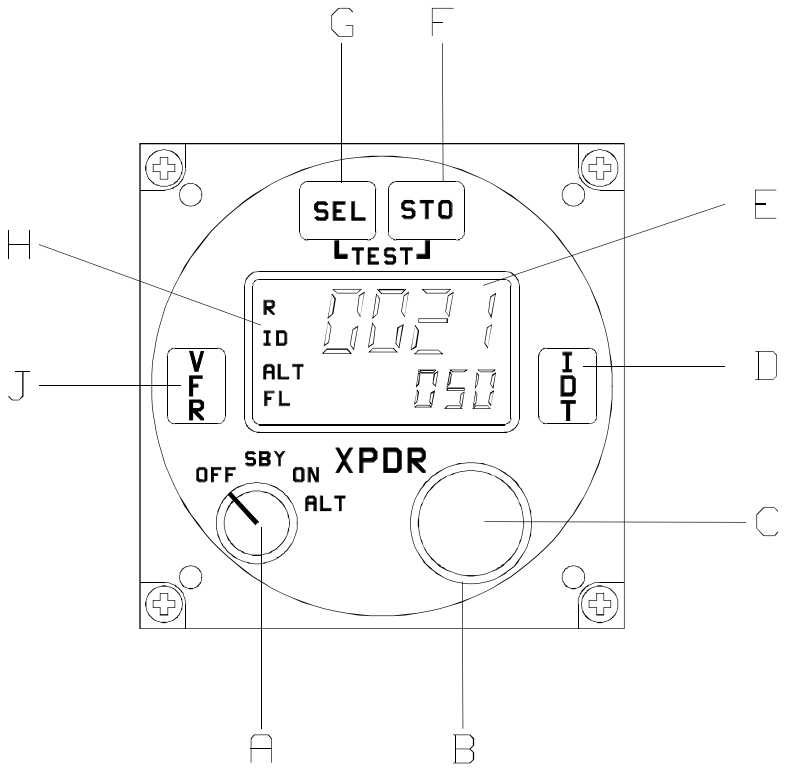

Fig. 3-1 Front view of the CU 6401-1-(XX)

2. Function of controls and indicators

Ref. to Fig. 3-1	Controls and Indicators	Description	Function
A	Mode selector	Rotary switch with 4 positions	OFF position: Transponder is switched off SBY position: Standby mode is switched on ON position: Mode A/S is switched on. Transmission of altitude information is suppressed. ALT position: Mode A/C/S is switched on and the altitude information is transmitted.
B	Rotary switch	Rotary optical encoder (rotary mode of C)	Rotary switch to change settings (16 steps per turn)

Ref. to Fig. 3-1	Controls and indicators	Description	Function
C	Button	Push-button (mode of B)	Push to jump from digit to digit for settings or from one menu to the next; generally used as an enter key
D	IDT	Push-button	Activates the Special Identifier (SPI) in addition to the reply code for approx. 18 seconds; during this time “ID” appears in the LC display
E	Display, part 1	2-line LCD display	Displays the following informations: - code indication in the top row - flight level in the bottom row - various informations in the bottom row - additional indicators on the left side (see Ref. H)
F	STO	Push-button	Stores the selected values to the settings
G	SEL	Push-button	Opens and selects the menu
H	Display, part 2	LCD indicators	Displays additional indicators, (R for reply, ID for Ident, ALT for XPDR ALT mode or ON for XPDR ON mode, FL for flight level)
J	VFR	Push-button	Activates VFR code in the upper row of the display

3. Operating instructions

A. Switching on the unit (pre-flight check)

(1) Check that the circuit breaker is set and switch on the aircraft power supply.

CAUTION: Do not switch on the transponder before the aircraft engines are started. Switch off the transponder before the engines are shut down.

(2) Using mode switch (A), switch the transponder from OFF to SBY. A Power-on Built-In Test (PBIT) then follows automatically for 1 second. Start-up see also section B.

B. Start-up

On power-up, the device starts. The software initiates circuits and performs PBIT. During that time the display looks as follows.

Fig. 3-2 Start-up indication

After the PBIT has elapsed and no error-message is shown in the display, the transponder switches to the mode set by the mode switch (A).

C. CODE display

Transponder's code is displayed in the top line using high readability font, at all times in modes SBY, ON, ALT.

D. Aircraft identification / Flight number

Depending on the configuration settings, the Aircraft Identification (AI) or Flight Number (FN) is displayed in the bottom line as follows:

Fig. 3-3 AI indication

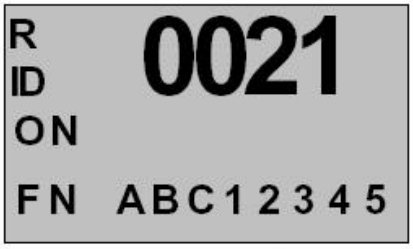

Fig. 3-4 FN indication

E. Flight level

Flight level is displayed in ALT mode in the bottom line of the display (altitude = FL x 100 in ft):

Fig. 3-5 Flight level indication

F. Selftests of the unit (BITs)

The following different tests are integrated in the transponder or can be triggered at the transponder:

(1) The IBIT (Initiated Built-in Test) can be activated in any mode (excluding the configuration mode) with the push of (F) and (G) at the same time. The action starts with the leading edge of the second pushed button.

The IBIT works as follows in all modes:

The test starts with all available test routines including the transmitter test routine. During the test, “IBIT” is indicated on the display.The test takes not longer than 1 second. If the IBIT was successful, the XPDR switches immediately into the normal operating mode. During the IBIT any action from other switches is not recognized.

Negative results of the IBIT are indicated on the display with “FAILURE”. The transponder may be not switched into ON or ALT mode if any failure was found.

(2) The CBIT (Continuous Built-in Test) works as follows:

The continuous BIT acts as a kind of watchdog during operation. Negative results of the CBIT are indicated on the display with “FAILURE”. In this case the transponder may be not switched into ON or ALT mode (display indication of operating mode set to SBY) if any failure was found.

(3) The PBIT (Power-on Built-in Test) works as follows:

The XPDR has a power-on BIT after switching on. During the PBIT any actions from other switches are not accepted.

During the PBIT the XPDR is in the SBY mode but this is not indicated on the display. The operating mode indication on the display starts immediately after finalisation of the PBIT.

Negative results are indicated on the display with “FAILURE”. The transponder may be not switched into ON or ALT mode if any failure was found.

The PBIT takes not longer than 1 second. If the test was successful, the XPDR switches immediately into the normal operating mode.

Fig. 3-6 Error indication and Warning indication

G. Selection mode

Press SEL button (G) and rotate encoder (B) for selection. In selection mode additional information is displayed in the bottom line of the display. Some of the data are editable, some are read only:

VFR	4096 code presetting	editable; see section G.2
AI	Aircraft Identifier (Tail Number)	fixed; read only from address module (can be replaced by FN) If no valid AI is stored, “--------” is displayed.
FN	Flight Number or Company Call Sign	editable; see section G.1, can be replaced by AI (fixed) by selecting “AI DEF”
AA	Aircraft Address (24-bit ICAO)	fixed; read only from address module (unique number for each aircraft)
MA	Maximum Airspeed	fixed; read only from address module
AT	Aircraft Type	fixed; read only from address module
CFG	Configuration	available in SBY mode only, see section L
INS	Installation setup	available in SBY mode only; protected by password, see chapter 2, section 8

G.1 Aircraft Identification (AI or FN)

With flight plan: The definition out of the flight plan:
e.g. Flight Number or Company Call Sign

Without flight plan (VFR): Tail Number (Call Sign)

The indication of AI in the bottom line of the display is in mode SBY and ON only if selected in configuration menu. The Aircraft Identifier (fixed) is available in any mode after pressing SEL button (G) and turning the rotary encoder (B). The default value for AI is the Tail Number of the aircraft and is stored in the Address Module.

If a flight plan exists, it has to be checked, which AI has to be used. If a Flight Number is assigned it has to be entered. If a Company Call Sign is mentioned, this has to be entered. To enter it see below. It will be stored in the EEPROM of the control head. In this case the indication on the display changes to FN (Flight Number). If the Call Sign (Tail Number) is mentioned, no change, as it is the default setting from the Address Module.

Setting the flight number:

(1) Press SEL button (G) to enter the select mode.

(2) Rotate (B) until AI is displayed.

(3) Push (C) to switch to FN. The cursor is set on the first character.

(4) Rotate (B) to change this character.

(5) Push (C) to set the cursor to the next character.

(6) Repeat steps 4 and 5 until the flight number is entered.

(7) If the flight number consists of less than 7 characters, put a space at the end to fill the remaining characters with spaces.

(8) Store the changes with STO button (F). For leaving the setting procedure without storing, push the SEL button (G).

NOTE:

Aircraft Identifier / Flight Number consists of max. 7 characters (on the left-hand side oriented). No dashes or spaces shall be included. If the FN consists of less than 7 characters, the remaining characters on the right side shall be filled with spaces.

Switching back to default AI:

(1) Press SEL button (G) to enter the select mode.

(2) Rotate (B) to the indication FN=XXXXXXXX.

(3) First push on (C) indicates”FN=AI DEF” (inverted).

(4) Can be set to AI=DEF with STO button (F).

Changing the flight number:

(1) Press SEL button (G).

(2) Rotate (B) until FN is displayed.

(3) Push (C) twice to enter the FN editing mode.

(4) Change the FN as described above.

G.2 VFR code presetting

Press the SEL button (G) to get into configuration mode (selection is indicated in the left bottom corner of the display under the operating mode indication).

(1) Rotate (B) to the indication VFR=XXXX.

(2) First push to button (C) ⇒ left digit of the code is inverted.

(3) Now the digit can be changed with (B).

(4) Second push to button (C) ⇒ next left digit of the code is inverted.

(5) The next digit can be changed with (B)

(6) and the same for next digits.

(7) Fifth push to button (C) ⇒ again first digit is inverted.

(8) Changes can be stored with STO button (F) at any time, inversion stops in this case.

(9) A VFR code that was preset in this way can be activated as described in chapter I.

(10) A timeout for inversion (10 sec) is introduced if no action happens. Nothing stored, as long as (F) is not pressed.

NOTE:

It is possible to leave the setting procedure with SEL button (G) at any time and normal mode is available then. Indication SEL on the display changes back to mode indication. If STO button (F) was not used, no change has been stored.

H. Flight operation in Mode A/C/S (reply code and altitude code)

(1) When ATC requests the transmission “squawk”, switch the transponder to ALT using mode switch (A).

NOTES: This only makes sense if the transponder is connected to a coding altimeter. If not, tell ATC that you do not have mode C (“mode charlie not available”).

In exceptions the altitude has to be turned off, i.e. switch the transponder to ON using mode switch (A).

(2) The transponder replies using the selected Code and in response to mode C interrogation it transmits the altitude of the aircraft to ATC. A “R” on the left next to the Code on the display signals the transponder replies.

NOTE : Switch the transponder to Stand-by (SBY), if the Code has to be changed. Otherwise if could happen that a Code with a special meaning (see chapter K, e.g. highjack) will be transmitted and unwanted actions could take place.

(3) After a “squawk ident” request from ATC, press Ident button IDT (D) briefly. This transmits an additional special pulse (SPI) for approx. 18 seconds, which enables the aircraft to be clearly identified on the radar screen of the controller. “ID” appears on the left side in the LC display during this time.

(4) In a normal installation the blind encoder is only powered if the transponder is not switched OFF (at least SBY).

A blind encoder needs a warm-up time (sometimes several minutes).

Therefore, although the solid state transponder needs no warm-up time, turn the transponder to SBY immediately after starting the engine.

I. VFR code activation

(1) Press the VFR push-button (J). The preselected code is then displayed. After 3 seconds, the displayed code gets active and overwrites the previously-set reply code.

(2) Pressing push-button (J) again within 3 seconds reactivates the previously-set reply code.

NOTE :

When the unit is delivered, the VFR button is not assigned a code. This means that if this button is pressed for 0.5 seconds, “----” is shown in the code display and the transponder then switches back to the previously-active code.

J. Internal and external Ident

The special identifier pulse (SPI) can be triggered by pressing “IDT” button on the control panel or from external input located on the transponder.

If special identifier pulse has been triggered, then “IDT is displayed on the display as long as SPI is active.

K. Special codings for air emergencies

(1) Special codings, which depend on the type of incident, are stipulated for certain air emergencies:

- 7500 Hijacking
- 7600 Loss of communications
- 7700 Emergency on board which constitutes an immediate danger to the aircraft

(2) The code evaluation devices of the radar systems automatically alarm the controllers at the radar screens immediately if one of these special codes is received.

L. Configuration mode

The configuration mode is available from SBY mode only. To get into configuration mode press button SEL (G), turn rotary encoder (B) until “CFG” appears in the bottom row of the display. Available options are defined in the following table.

Select with push-button (C)	Select with rotary switch (B)		Store button (F)
BRIGHTNESS (only if dimming input is set to “none” in installation menu)	0 % ... 50% ... 100 %	 default 	store store store store store
ILLUM CURVE (only if external illumination control is set in the installation menu)	Characteristics		store to change
VIEW CONFIG	AI IN SBY AI IN ON FL IN ALT	default default default	ON OFF ON OFF ON OFF
DEVICE INFO	CU VER CORE VER FPGA VER DEV TYPE SERIAL NB		view only view only view only view only not supported

NOTE: If no type is available, this field indicates nothing.