PILOT'S GUIDE

KT 74

ADS-B OUT ENABLED MODE S TRANSPONDER

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KT 74 ADS-B OUT ENABLED MODE S TRANSPONDER

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Revision History and Instructions

Manual KT 74 ADS-B Out Enabled Mode S Transponder Pilot's Guide

Revision 0

Summary This is a new release.

Record of Revisions

REVISION NUMBER	REVISION DATE
0	DEC, 2013

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1. OPERATION

1.1 INTRODUCTION

Congratulations on choosing the KT 74 ADS-B Out Enabled Mode S Transponder. At BendixKing we are committed to providing you with the most reliable and advanced technology that will meet your transponder needs. The KT 74 meets the Global Mandates for Automatic Dependent Surveillance – Broadcast (ADS-B) out* and more.

**When coupled with approved GPS source, STC and install kit required.*

Additional KT 74 Benefits:

- Push button operation
- New sleek design
- Most affordable Mode S Transponder with ADS-B Out
- Low power consumption
- Stopwatch and timer
- Altitude monitor
- Built-in altitude repeater instead of a second altitude encoder
- TIS-A Traffic output

The feature-rich KT 74 brings the value, simplicity, reliability and affordability into the cockpit that BendixKing has been trusted for since 1959.

The KT 74 is certified to ETSO C112d Class 1 Mode S level 2els, ETSO C166b Class B1S, FAA TSO C112D and TSO C166B.

1.2 FRONT PANEL CONTROLS AND FUNCTIONS

Figure 1-1: Front Panel Controls and Functions

The KT 74 has the following front panel controls and functions:

- **Display:** See section 1.3.
- **Mode Knob:** See section 1.4.
- **Push Buttons:** See section 1.5.
- **Functions:** See section 1.6.

1.3 DISPLAY

Figure 1-2: Display

The display shows the following indications:

- **Active Mode:** the Active Mode indicator shows the mode that is currently set on the Mode Knob. See section 1.4.
- **Pressure Altitude:** The reported pressure altitude is displayed as a Flight Level (FL), which is the pressure altitude in hundreds of feet. When non-standard atmospheric conditions apply, this may not match the altimeter indicated altitude, but will be correctly displayed by the Air Traffic Control (ATC) radar.
- **Squawk Code:** The current squawk code selected by the Numeric Buttons. See Squawk Code Entry in section 1.5
- **Flight ID:** The aircraft call sign entered on your flight plan. See Flight ID Entry in section 1.6
- **IDENT Indicator:** The IDENT Indicator shows when IDENT mode is active. See section 1.5.
- **Reply Indicator**: The Reply Indicator is active when the transponder replies to interrogations.
- **Deviation Pointer:** When altitude monitoring is in use, a small deviation pointer appears adjacent to the altitude display on the transponder. See Altitude Monitor in section 1.6.
- **Warning message:** See section 1.7
- **Fault Annunciation:** See section 1.8.

Light Sensor

If connected to a lighting bus, the KT 74 will adjust the brightness of the front panel lighting based upon the lighting bus input. If no lighting bus input is detected, the KT 74 will automatically control the front panel lighting based on the ambient light sensor. The dim point for the Liquid Crystal Display (LCD) backlight illumination can be adjusted by using the configuration mode as described in section 1.9 of this guide.

1.4 MODE KNOB

Figure 1-3: Mode Knob

The mode knob to the right of the display controls the power to the transponder and the operating mode. The mode knob has the selections that follow:

OFF Power is removed from the transponder.

SBY The transponder is on, but will not reply to any interrogations.

ON The transponder will respond to all interrogations, but altitude reporting is suppressed.

ALT The transponder will respond to all interrogations.

When airborne, the transponder should always be set to ALT unless otherwise directed by Air Traffic Control. Aircraft installations that include a gear squat switch or other method of air/ground determination will automatically select surface reporting mode on landing or when taxiing. The mode indicator will read GND.

1.5 PUSH BUTTONS

Figure 1-4: Push Buttons

IDENT Press the **IDENT** button when ATC instructs you to "Ident" or "Squawk Ident". This activates the SPI pulse in the transponder replies for 18 seconds. **IDENT** will appear in the display.

VFR Pressing the **VFR** button sets the transponder to the pre-programmed VFR code. Pressing the button again restores the previous squawk code.

Pressing the **VFR** button while in Flight ID editing mode changes the Flight ID to the pre-programmed ID set up during configuration of the transponder.

FUNC Pressing the **FUNC** button provides access to the flight timer, stopwatch, Flight ID entry, ADS-B monitor (depending on installation) and altitude monitor function. See section 1.6 below.

ENT The ENT button confirms selection or presented options.

0-7 The numeric buttons are used to change the squawk code and as part of the data entry selections.

Squawk Code Entry

Press any of the numeric buttons (0 through 7) to change the squawk code. A new squawk code is set when the fourth digit is entered. If the code entry is not completed within 7 seconds, the changes are ignored and the previous code restored.

Some standard squawk codes are listed below:

- 1200 VFR code in the USA
- 7000 VFR code commonly used in Europe
- 7500 Hijack code
- 7600 Loss of communications
- 7700 Emergency code

1.6 FUNCTIONS

Figure 1-5: Functions

The different KT 74 functions are accessed using the **FUNC** button.

The functions displayed vary depending on whether the aircraft is airborne or is on the ground (squat switch or other method of air/ground determination installed) and has the GPS input enabled or not as shown in the following tables.

Table 1-1: FUNC Sequence with Squat Switch Input Enabled

Airborne/ Ground	GPS INPUT	SEQUENCE
Airborne	Yes	PWR ON (Squawk) -> Flight Time -> Timer -> ADS POS -> Edit Flight ID -> Alt Monitor -> Squawk
Airborne	No	PWR ON (Squawk) -> Flight Time -> Timer -> Edit Flight ID -> Alt Monitor -> Squawk
On Ground	Yes	PWR ON (Squawk) -> Flight Time -> Timer -> ADS POS -> Edit Flight ID -> Squawk
On Ground	No	PWR ON (Squawk) -> Flight Time -> Timer -> Edit Flight ID -> Squawk

Table 1-2: FUNC Sequence without Squat Switch Input Enabled

GPS INPUT	SEQUENCE
Yes	PWR ON (Squawk) -> Flight Time -> Timer -> ADS POS -> Edit Flight ID -> Alt Monitor -> Squawk
No	PWR ON (Squawk) -> Flight Time -> Timer -> Edit Flight ID -> Alt Monitor -> Squawk

Each function is described in more detail below:

Flight Timer

Press the **FUNC** button once to display the Flight Timer. The Flight Timer records the time for which the transponder has been powered on and operating in flight mode – either **ON** or **ALT**.

Stopwatch

Press the **FUNC** button twice to display the stopwatch. The stopwatch can be used as a convenient timer. Pressing **ENT** will reset and start the timer. Pressing **ENT** again will stop the timer.

Flight ID Entry

Press the **FUNC** button three times to display the Flight ID entry screen. The edit the Flight ID using the numeric buttons. The lower portion of the display shows the alpha numeric characters selected through multiple presses of the numeric buttons. When the correct character is shown in the flight ID section of the screen, press the **ENT** button to accept and advance to the next digit. The flight ID is terminated with a “space” character located on the **7** button. When **ENT** is pressed on the end space, the new Flight ID will replace the previous value. If a button is not pressed for 7 seconds, the changes are ignored and the previous code restored.

The Flight ID should correspond to the aircraft call sign entered on your flight plan. If no flight plan is active, the aircraft registration should be used as your Flight ID. Use only letters and digits. If the Flight ID is less than 8 characters long, enter the “space” character (**7** button) to end it.

Altitude Monitor

Press the **FUNC** button four times to display the Altitude Monitor enable screen. The Altitude Monitor activates an audio annunciator or annunciator light (depending on installation) when the aircraft pressure altitude differs from the selected altitude by more than 200 feet. Pressing **ENT** toggles the altitude monitor at the current altitude.

When altitude monitoring is in use, a small deviation pointer appears adjacent to the altitude display on the transponder.

ADS-B Monitor

Press the **FUNC** button five times to display the Altitude Monitor screen The ADS-B Monitor is only available on installations that include an ADS-B position source. The ADS-B Monitor provides a display of the position information that is being transmitted in ADS-B position reports. This can provide confirmation that the correct information is being transmitted, particularly where the Global Positioning System (GPS) source is remote from the transponder.

In the event that valid position information is NOT available from the GPS, the latitude and longitude display will be replaced by dashes. If no valid latitude and longitude is shown, then ADS-B position information is NOT being transmitted.

Loss of ADS-B position information will also result in a WARNING message being displayed.

1.7 WARNING MESSAGES

If the transponder detects a problem, the screen will indicate **WARNING** and a brief statement of the problem. Depending on the nature of the problem, your transponder may not be replying to interrogations. Note the message on the screen and pass that information to your avionics maintenance organization. The WARNING message should clear when the event has cleared. Press **ENT** to clear the message at any time; if the fault is still present the message may reappear.

1.8 FAULT ANNUNCIATION

If the transponder detects an internal failure, the screen will indicate **FAULT** and a brief statement of the problem. No replies will be made to interrogations when a fault is detected.

Some FAULT indications can be recovered by switching the transponder off and back on again, although in all cases a FAULT code implies that there is a fault with the transponder or the installation. Note the FAULT message at the bottom of the screen and pass that information to your avionics maintenance organization.

1.9 CONFIGURATION MODE

The system is configured when it is first installed by your avionics installer. Configuration items include the Mode S aircraft address, the interface to the other aircraft systems, the aircraft category, and the pre-programmed values for VFR squawk code. To view or change these settings you must use Configuration Mode.

Do not use Configuration Mode in flight. Check with your avionics installer before changing the configuration.

To enter configuration mode, hold down the **FUNC** button while switching on the transponder. Configuration items can be changed using the numeric buttons (**6** for down, **7** for up) and the **ENT** button to accept the selection. Pressing the **2** button will move back to the last menu item. Pressing **FUNC** advances to the next configuration item.

When configuration is complete; switch the transponder off. When it is switched back on the transponder will use the new configuration.

1.10 LOW TEMPERATURE OPERATION

The KT 74 is certified to operate down to -25°C; however under cold operating conditions, the display update rate may be slowed but functional. The KT 74 incorporates an integral heating element in the front panel to automatically raise the temperature around the display. During cold operating conditions, a warm up period of 5 minutes minimum is suggested.

2. APPENDIX

2.1 ACRONYMS AND ABBREVIATIONS

Acronyms and abbreviations used in this manual are defined as follows:

TERMS	DEFINITION
ADS-B	Automatic Dependent Surveillance-Broadcast
ALT	Altitude
ATC	Air Traffic Control
ENT	Enter
FAA	Federal Aviation Administration
FL	Flight Level
FUNC	Function
GPS	Global Positioning System
ID	Identification
IDENT	Identify
LCD	Liquid Crystal Display
SBY	Standby
VFR	Visual Flight Rules