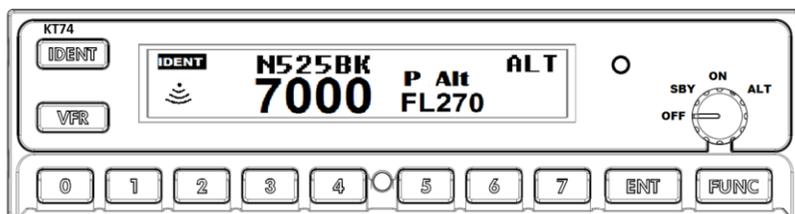




KT74 Mode S Transponder Operating Manual

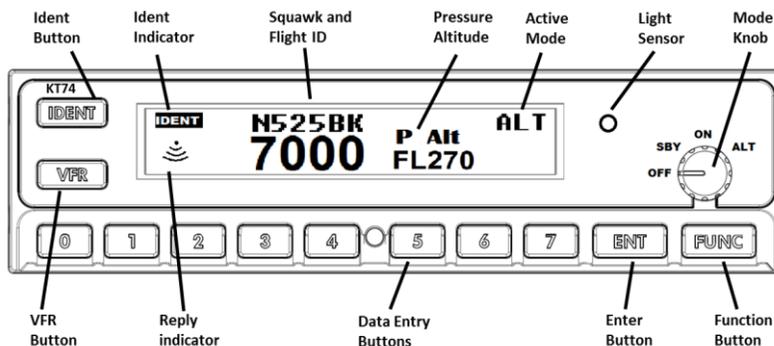


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Front Panel



Display

The display shows the operating mode of the transponder, the reported pressure altitude, and the current squawk code and Flight ID. The reply indicator is active when the transponder replies to interrogations.

The pressure altitude is displayed as a Flight Level, 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 ATC radar.

Mode Selector Knob

The right hand knob controls the power to the transponder and the operating mode.

- 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 will automatically switch the transponder to Ground Mode on landing or whilst taxiing. GND will be indicated on the display.

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 conspicuity code. Pressing the button again restores the previous squawk code.
- Pressing the VFR button whilst in Flight ID edit 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 editing, ADS-B monitor (depending on installation) and altitude monitor function.
- ENT The ENT button confirms selection or presented options.

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

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. Press the FUNC button to display the Flight Timer.

Stopwatch

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

Flight ID entry

Select the Flight ID screen using the FUNC button and then 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 an "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, entering the "space" character will end it.

Altitude Monitor

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. Press the FUNC button to display the altitude monitor enable screen. 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

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 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.

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 organisation. 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.

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 organisation.

Configuration Mode

The system is configured when it is first installed by your avionics supplier. 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 whilst 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.

Low Temperature Operation

The KT74 is certified to operate correctly down to -25C, but at low temperatures the display may be impaired. On a cold day you may need to wait for the cockpit to warm up to ensure normal operation. A heating element is built into the front panel to automatically raise the temperature around the display under extreme cold conditions and reduce the time before the display is fully functional. This heater may several minutes to become effective after initial power on.

Warnings

The following warnings may appear on the transponder display.

Message	Issue Description	Action to resolve
Antenna Fault	The transponder has detected that there is a fault in the antenna cabling or antenna connection.	Check transmitter cabling and connection to antenna.
Output Power Low	The transponder has detected that it transmitted at a lower power level than expected. This may be caused by a) poor antenna connection in the transponder tray, b) poor antenna cable connections or c) a transponder hardware fault.	Check connection at the transponder tray and transmitter cabling.
No ADSB Position	Valid ADSB position data has not been received for either a) 180 seconds from system startup or b) 2 seconds once a GPS position data has been received by the transponder.	Check cabling to GPS and GPS antenna position and connection.

Faults

The Transponder will not continue to operate when a fault condition is present and one of the following messages appears on the display.

Message	Action to resolve
FPGA Fault	Call Service center
ROM checksum failed XXXX	Call Service center
Receiver fault or no signal	Call Service center
Transmitter failed	Call Service center
Squitter failure	Call Service center
Data Timer	Call Service center
EEROM Read Data	Call Service center
FlightID []	Call Service center
StrToNum	Call Service center
Too many tasks	Call Service center
Task bit	Call Service center
Timer Pool	Call Service center
No runnable tasks	Call Service center
I2C Write Data	Call Service center
QPut claimed message	Call Service center
Destroy pooled message	Call Service center
Free non-pooled message	Call Service center
Comm write before open	Call Service center
Two clients on one Comm port	Call Service center
ttywrch called	Call Service center
__rt_raise called	Call Service center
__raise called	Call Service center
__sys_exit called	Call Service center

