



USER GUIDE

KT76C Transponder

Operating instructions for the RHSimTech replica Bendix/King KT76C ATCRBS transponder — squawk entry, mode selection, IDENT, VFR, and the self-test display.

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Hand-built avionics for X-Plane & MSFS

SIMTECH KT76C

A replica Bendix/King KT76C ATCRBS transponder for X-Plane / MSFS. This guide covers day-to-day operation once the panel is wired up and connected to SimLink.

SECTION 01

Display Layout

The display is divided into three zones:

- **Left zone** — altitude in flight levels (**FL** + 3 digits), visible in ALT mode only
- **Centre zone** — mode annunciator grid showing the active mode: **ALT**, **ON**, **STBY**
- **Right zone** — 4-digit squawk code, with a small **R** reply indicator to its left when the transponder is replying to radar interrogation

On first power-up, before any code has been entered or received from the simulator, the squawk code zone shows **----**. In TST mode, all three zones show a full-segments test pattern (8888, FL 888, all annunciators lit, R lit).

SECTION 02

Function Selector

The rotary switch on the right of the panel selects the operating mode:

POSITION	BEHAVIOUR
OFF	Display blanks. The transponder does not reply to interrogation.
SBY	Standby. Display active, squawk code shown, but no replies sent.
TST	Self-test. All display segments and annunciators illuminate. No replies sent.
ON	Active. Transponder replies to Mode A interrogation (code only, no altitude).
ALT	Altitude reporting. Transponder replies to Mode A and Mode C interrogation. Altitude is shown in the left zone.

Squawk code entry is available in **SBY**, **ON**, and **ALT** only. The digit buttons and CLR have no effect in OFF or TST.

SECTION 03

Entering a Squawk Code

Squawk codes use digits **0–7** only (octal). Entry works the same as the real KT76C:

1. Press the first digit button. The display fills that position and shows dashes in the remaining three — the dashes are the only entry-in-progress indicator, there is no cursor or underline.
2. Press the remaining three digits in order left to right.
3. When the fourth digit is entered, the code commits automatically and is sent to SimLink — no separate confirm press is needed.

Made a mistake? Press **CLR** to step back one digit at a time — that position reverts to a dash and you can re-enter it. You can also start CLR-ing from an idle, fully-displayed code to work backwards through it digit by digit.

If you don't finish entering all four digits, the display reverts to the last confirmed code after about four seconds of inactivity.

The squawk code is not stored between power cycles. Each time the panel powers up it will show `----` until it receives a code from SimLink or you enter one manually.

SECTION 04

IDENT

Press **IDT** to send an identification pulse to ATC. The button is available in **SBY**, **ON**, and **ALT** modes only.

The IDT button sends a single event to SimLink. All IDENT timing and the SPI indicator on the display are handled by the simulator, not the panel itself — what you see on screen after pressing IDT depends on your aircraft model.

SECTION 05

VFR

Press **VFR** to recall the standard VFR squawk code without manually entering it. Available in **SBY**, **ON**, and **ALT** modes only.

The VFR button sends a single event to SimLink. The VFR code itself (which varies by country and airspace) is set in the SimLink plugin, not on the panel.

SECTION 06

Reply Indicator

A small **R** appears to the left of the squawk code when the transponder is actively replying to a radar interrogation sweep. The indicator is driven by the simulator and will flicker in a pattern that mimics real radar sweep timing. In TST mode the R is lit as part of the test pattern regardless of radar state.

SECTION 07

Altitude Display

In **ALT** mode, the left zone shows **FL** followed by the current pressure altitude in hundreds of feet (e.g. **FL065** for 6,500 ft). The altitude is provided by SimLink and updates continuously in flight.

If SimLink is not connected, the altitude zone shows dashes rather than a number. Switching out of ALT mode blanks the altitude zone entirely.

SECTION 08

Backlight

The button backlight brightness is set automatically by SimLink, combining the aircraft's unit dimmer level with the panel lighting bus voltage — the same two-stage scheme as the real interconnect. No manual brightness adjustment is available on the panel itself.

Troubleshooting Quick Reference

SYMPTOM	LIKELY CAUSE
Display blank	Check power; or switch is in OFF position; or avionics master is off in the sim
Code shows ---- after power-up	Normal — the panel shows dashes until a code is received from SimLink or entered manually
Code doesn't change with sim	SimLink not connected
Digit buttons have no effect	Switch is in OFF or TST — entry only works in SBY / ON / ALT
Entry reverts before finishing	Four-second idle timeout — enter all four digits without pausing
Altitude shows dashes in ALT mode	SimLink not connected — altitude requires a host connection

Covers the current SimTech KT76C build.

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