

# FFS FDL-978 ADS-B EQUIPMENT (P/N 87098-XX-XXXX)

## Quick Reference Guide Publication: 87352 Rev B

This document covers the FreeFlight Systems (FFS) FDL-978 ADS-B Transmitter and Transceivers.



The TC978 Controller (right) displays the operating mode of the FDL-978 ADS-B equipment, reported pressure altitude, current Squawk Code, and Flight ID. The Reply Indicator (left) is displayed and active when the FDL-978 ADS-B equipment transmits or receives ADS-B messages. The pressure altitude is displayed as a Flight Level which is the pressure altitude in hundreds of feet. The Flight Level shown may not match the indicated altitude on the altimeter due to non-standard atmospheric conditions. The display (right) shows the FDL-978 ADS-B Transceiver equipment powered on, in Airborne Transmission Mode, and with a pressure altitude of flight level 400.



Control inputs, such as Squawk Code, Call Sign/Flight ID, and mode control (IDENT, Altitude Inhibit, transmit Standby), are needed by the FDL-978 ADS-B equipment. The TC978 can provide control input or an external controller (e.g. transponder, display, etc.) can be configured for use. If an external controller is configured and functional with the TC978 installed, it displays status, but locks out user control inputs from the TC978. When in external control mode the TC978 will display the Squawk Code and/or Call Sign in reverse video (Left).

The Mode Selection knob controls the power to the FDL-978 ADS-B equipment, and the operating mode. The knob rotates between the different operating modes as listed below.



OFF	Power is removed from the FDL-978 ADS-B equipment.
SBY	The FDL-978 ADS-B equipment is on, but will not transmit any ADS-B messages.
ALT	The FDL-978 ADS-B equipment automatically switches between Airborne and Ground Modes. Pressure altitude is reported when Airborne.
ON	The FDL-978 ADS-B equipment automatically switches between Airborne and Ground. Pressure altitude reporting is suppressed.
ALT	There is no functional difference between the two ALT knob positions.

### Push Buttons

IDT	Press the IDT button when ATC instructs you to "Ident" or "Squawk Ident."
FN	<ul style="list-style-type: none"><li>- Pressing the FN button provides access to changing the Call Sign/Flight ID. You may either directly rotate the CODE knob or press the ENT button and the first character of the Flight ID will be highlighted. Use the CODE knob to select your choice of alpha-numeric characters. Press ENT button again and the cursor moves to the next character. You must press ENT button each time all the way through the eight characters to save your Call Sign/Flight ID change.</li><li>- Pressing the FN button again allows the user to view the FDL-978 ADS-B equipment present position being transmitted.</li><li>- Pressing the FN button again allows the user to adjust the brightness. Rotate the CODE knob to adjust the brightness to desired level. When the desired brightness is reached, press the FN button to lock the brightness setting.</li><li>- If there are any errors, the fourth press of the FN button allows the user to view the FDL-978 ADS-B equipment WARNINGS.</li></ul>
VFR	When the Squawk Code is displayed on the top of the screen, pressing the VFR button sets the ADS-B to the pre-programmed VFR Squawk Code. Pressing the VFR button again restores the previous Squawk Code. When the Call Sign is displayed on the top of the screen, pressing the VFR button sets the ADS-B to the pre-programmed VFR Call Sign. Pressing the VFR button again restores the previous Call Sign.
ENT	The ENT button enters a digit in the code selector.

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The CODE knob is used to set the Squawk Code and Call Sign/Flight ID. Press the FN button until either the Squawk Code or Call Sign/Flight ID are highlighted at the top of the display. Rotating the CODE knob will highlight the first digit on the display and the digit can be changed as required. Press the ENT button to advance to the next digit. When the ENT button is pressed on the last digit, the new Squawk Code or Call Sign/Flight ID will replace the previous value. If the code entry is not completed within 7 seconds, the changes are ignored and the previous code restored.

## Common VFR Squawk Codes

1200	VFR Code in the USA
7500	Hijack Code
7600	Loss of communications
7700	Emergency Code



Warning Messages Present

The Call Sign/Flight ID should correspond to the aircraft Call Sign/Flight ID entered on a flight plan. If no flight plan is active, the aircraft registration should be used as the Call Sign/Flight ID. Use only letters and digits. If the Call Sign/Flight ID is less than eight characters long, entering a blank character will end it.



Cycle power on the FDL-978 ADS-B equipment. If the problem persists, contact an Authorized Service Center.

### Warning Message Troubleshooting

Message	Potential Cause
Synth Unlock	Transceiver can't lock to carrier frequency.
TX Fault	Generic Transceiver Fault – POST, transmit, address, broadcast, or nominal rate failure.
Tx Power Low	Transceiver power too low.
Tx PSU High	Transceiver power supply voltage too high.
Tx PSU Low	Transceiver power supply voltage too low.
Squitter Fail	Transceiver modulation fault.
Remote Hot	FDL-978 ADS-B equipment internal temperature too high.
No ADS-B Pos	The unit is not receiving digital serial communication from the GPS.
GPS Fault	GPS has reported unavailable position or a fault.
Top Ant Fault	Top antenna disconnected.
Bot Ant Fault	Bottom antenna disconnected.
PSU Fail	Internal DC Power Supply failure.
ADC Fault	ADC or Altitude encoder fault or not responding.