FreeFlight FDL-978-TX Transmitter (P/N 85595-00)
Quick Reference Guide Publication #86963 Rev B

The display shows the operating mode of the FDL-978-TX, the reported pressure altitude, and the current squawk code and Flight ID.

The reply indicator is active when the FDL-978-TX transmits ADS-B messages and is displayed on the screen as shown.

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 reported by the ATC radar. The figure below shows the FDL-978-TX powered on in its Airborne Transmission mode with a pressure altitude of flight level 0 being displayed.

The left hand Mode knob controls the power to the FDL-978-TX and the operating mode. The knob rotates between the different operating modes as defined in the table below.

OFF	Power is removed from the FDL-978-TX.
SBY	The FDL-978-TX is on but will not transmit any ADS-B messages.
GND	The FDL-978-TX is placed in Airborne Transmission Mode or automatically switches between Airborne and Ground Mode if an Air/Grnd Squat switch is configured and the aircraft velocity meets the criteria described in DO-282B for the specific aircraft configuration. Pressure altitude is reported.
ON	The FDL-978-TX is placed in Airborne Transmission Mode or automatically switches between Airborne and Ground Mode if an Air/Grnd Squat switch is configured and the aircraft velocity meets the criteria described in DO-282B for the specific aircraft configuration. Pressure altitude reporting is suppressed.
ALT	The FDL-978-TX is placed in Airborne Transmission Mode or automatically switches between Airborne and Ground Mode if an Air/Grnd Squat switch is configured and the aircraft velocity meets the criteria described in DO-282B for the specific aircraft configuration. Pressure altitude is reported.

There is no functional difference between the ALT and GND mode. Aircraft installations that include a gear squat switch will automatically select GND on landing.

Push Buttons

IDT	Press the IDT button when ATC instructs you to "Ident" or "Squawk Ident".
FN	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 key and the first character of the flight ID will be highlighted. Use the rotary code knob to select your choice of alpha-numeric characters. Press ENT again and the cursor moves to the next character. You must present ENT each time all the way through the 8 characters to save your Call Sign/ Flight ID change. Pressing the FN button again allows the pilot to view the FDL-978-TX present position being transmitted. Pressing the FN button again allows the pilot to view the Warning messages.
VFR	Pressing the VFR button sets the ADS-B to the pre-programmed conspicuity code and VFR Flight ID. Pressing the button again restores the previous squawk code and Flight ID.
ENT	The ENT button enters a digit in the code selector.

The right hand knob is used to set squawk codes and the Flight ID. Press the FN button until the rotate the screen to display either the squawk code or Flight ID at the top of the screen. Turning the 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 ENT is pressed on the last digit, the new squawk code or 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.

List of Common VFR Squawk Codes

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

The Call Sign/ Flight ID should correspond to the aircraft call sign entered on 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 8 characters long entering a blank character will end it.

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Warning Messages Present

TC-978 Warning Message Troubleshooting

WARNING	POTENTIAL CAUSE	TROUBLESHOOTING
Synth Unlock	Transmitter can't lock to carrier frequency	
TX Fault	Generic Transmitter Fault – POST, transmit, address, broadcast, or nominal rate failure.	
Tx Power Low	Transmitter power too low	
Tx PSU High	Transmitter power supply voltage too high.	
Tx PSU Low	Transmitter power supply voltage too low.	
Squitter Fail	Transmitter modulation fault	Cycle Power on the FDL-978-TX If Problem Persists, Contact Authorized Service Center
Remote Hot	FDL-978-TX internal temperature too high.	
No ADS-B Pos	GPS position not acquired, satellite tracking lost, or GPS not communicating	
GPS Fault		
Top ant Fault	Top antenna disconnected.	
Bot ant Fault	Bottom antenna disconnected.	
PSU Fail	Internal DC Power Supply failure.	
ADC Fault	Air Data Computer or Altitude encoder fault or not responding.	

Warning Display Messages

TC978 Display Msg	Description
Synth Unlock	Transmitter Diagnostic – Timing fault
Tx Fault	UAT transmitter fault
Tx Power Low	UAT transmitter power low during transmit
Tx PSU High	UAT transmitter power supply output too high
Tx PSU Low	UAT transmitter power supply output too low
Squitter Fail	System Diagnostic
Remote Hot	FDL-978-TX internal temperature too high
No ADS-B Pos	GPS position not acquired or satellite tracking lost
GPS Fault	GPS has reported a fault or not responding
Top ant Fault	Top antenna disconnected
Bot ant Fault	Bottom antenna disconnected
PSU Fail	Internal DC power supply failure
ADC Fault	ADC or Altitude sensor fault or not responding

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