

## 4 T837 Functional Testing



**Caution:** This equipment contains CMOS devices which are susceptible to damage from static charges. Refer to Section 1.2 in Part A for more information on anti-static procedures when handling these devices.

The following test procedures will confirm that the T837 has been tuned and adjusted correctly and is fully operational.

**Note:** Unless otherwise specified, the term "PGM800Win" used in this and following sections refers to version 2.00 and later of the software.

Refer to Figure 4.2 for the location of the main tuning and adjustment controls, and to Section 3.3 for the test equipment set-up. Refer also to Section 6 where the parts lists, grid reference index and diagrams will provide detailed information on identifying and locating components and test points on the main PCB. The parts list and diagrams for the VCO PCB are in Part E.

The following topics are covered in this section.

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## 4.1 Current Consumption

Connect the T837 to a 13.8V power supply.

Connect an RF power meter to the T837 output socket.

Check that the current in the 13.8V power cable is less than:

T837-2X-1020 - 150mA  
T837-2X-1021 - 200mA.

Key the T837 by earthing the Tx-Key line (the carrier "On" LED should light).

Check that the current is less than 650mA.

## 4.2 Output Power

Connect an RF power meter to the T837 output socket.

Key the T837 by earthing the Tx-Key line.

Check that the output power is 800mW  $\pm$ 200mW.

## 4.3 Output Frequency

Connect the T837 output to a frequency counter via a 20dB attenuator pad.

Apply +5V DC to pin 11 of D-range 1 (PL100) - this changes the mode of operation to PLL so that the carrier frequency can be observed - and measure the output frequency.

Adjust the TCXO (X100) (if required) to trim to the nominal frequency ( $\pm$ 100Hz).

## 4.4 External Reference Frequency (T837-2X-1021 Only)

Connect the external reference frequency at a level of 0dBm to +10dBm/50 $\Omega$  into the external reference input and check that green LED \*D116 lights.

**Note:** Ensure that the onboard synthesiser's reference frequency has been set according to the frequency of the external reference (see Section 3.6).

Check the Lock-Detect signal level on pin 8 of D-range 1 (PL100) is as follows:

external reference frequency applied - 0V (approx.)  
no external reference frequency applied - 4.5V (approx.).

## 4.5 Timers

The transmit tail timer, transmit timeout timer and transmit lockout timer can all be set from PGM800Win. The fields for setting these are found on the system information page. These three timers operate as follows (refer also to Figure 4.1):

Timer	Function	Adjustment
Transmit Tail	Sets the tail time during which the transmitter stays keyed after the external key source has been removed.	0-5 seconds in 100ms steps <sup>a</sup>
Transmit Timeout	Sets the maximum continuous transmission time. Once the timer has timed out, the transmitter must be keyed again, unless prevented by the transmit lockout timer.	0-300 seconds <sup>b</sup> in 10 second steps
Transmit Lockout	Sets the period of time that must elapse after a timeout before the transmitter can re-transmit. Once the timer has timed out, the transmitter can be keyed again.	0-60 seconds in 10 second steps

- a. Adjustable in 20ms steps in PGM800Win version 2.12 and later.
- b. Adjustable from 0 to 600 seconds in PGM800Win version 2.12 and later.

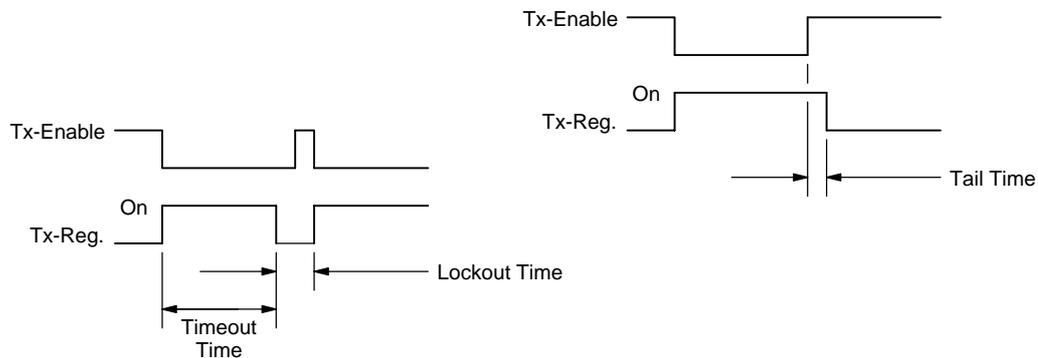


Figure 4.1 T837 Transmit Timers