



Tait Electronics

Technical Instruction 396A

Refers to T856

7 July 1995

To Convert to Low Power Operation

Introduction

This TI describes how to convert a T856 transmitter to operate between 1 and 7W. The conversion consists of removing Q402 and connecting Q401 to the output, thus changing the circuit to the layout shown in Figure 5.

Any enquiries regarding this TI should be addressed in the first instance to your nearest approved Tait Dealer or Service Centre. Further assistance may be obtained from the Product Support Group, Tait Electronics, Christchurch, New Zealand.

Parts Required

Common Parts

2 x IPN 030-02820-20 82 Ohm, SRF16 resistors

2 x precut 0.1mm brass or copper strips, 30mm x 5mm (refer to Figure 1)

1 x precut 0.1mm brass or copper strip, 40mm x 4 mm (refer to Figure 2)

1 x radio type label

1 x Type Approval label

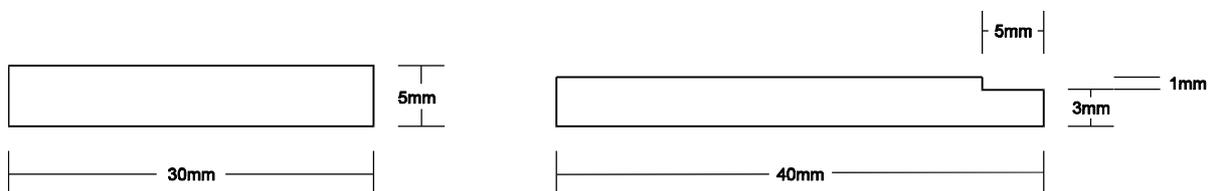


Figure 2

Figure 1

Low Band (400-440MHz)

2 x IPN 015-02220-03 22pF, GRH-111 capacitors

2 x IPN 030-52100-20 10 Ohm, 5%, 0.4W, 4 x 1.6mm resistors

2 x IPN 030-53820-20 820 Ohm, 5%, 0.4W, 4 x 1.6mm resistors

Medium Band (440-480MHz)

2 x IPN 015-02180-06 18pF, GRM 42.2 capacitors

High Band (480-520MHz)

1 x IPN 015-01470-06 4p7pF, GRM 42.2, 500V capacitor

2 x IPN 015-02180-06 18pF, GRM 42.2 capacitors

Method

1. Remove the following components:

- C404
- #C408
- #C409
- #C410
- #C411
- #C434 (440-480MHz version only)
- F8 bead from L405 (crush)
- L409
- L406
- L410
- Q402

2. Fit two 82 Ohm SRF16 resistors across #C402 and C403 as illustrated in Figure 3:

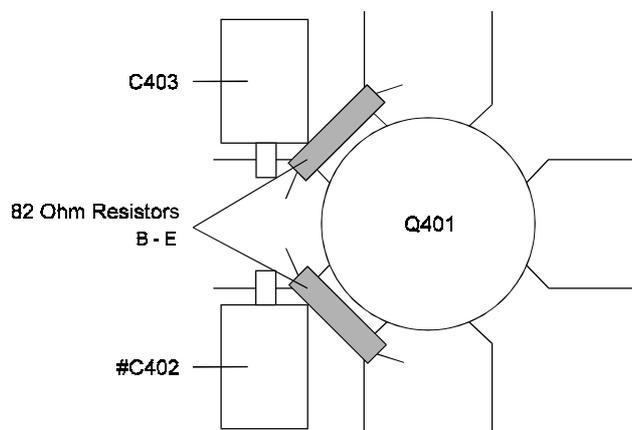


Figure 3

Keep the leads as short as possible, and ensure that the resistors do not cause a short circuit.

3. Tin the prepared brass or copper strips.

Remove excess solder from the strips and from the T856 PCB where the components have been removed.

On versions earlier than PCB IPN 220-01171-04, remove the solder resist mask.

Position the strips as shown in Figure 4 and solder them in place.

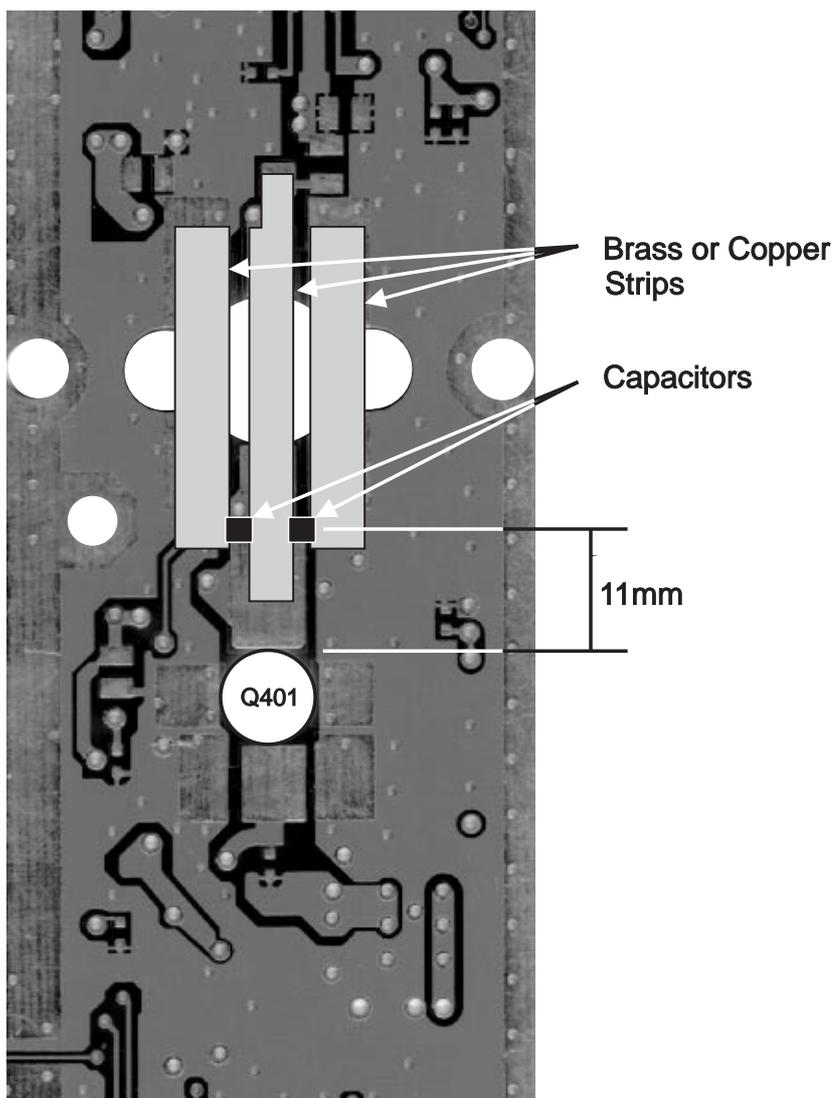


Figure 4 (03 board shown)

4. Select two capacitors according to the variant chart below:

Frequency	Value	Spacing	IPN
400-440MHz	22pF	11mm	015-02220-03
440-480MHz	18pF	11mm	015-02180-06
480-520MHz	18pF	11mm	015-02180-06

Fit the capacitors to the brass or copper strips as indicated in Figure 4 (11mm from Q401 to the centres of the capacitors).

Note: The capacitor C435 first appeared on PCB 220-01171-04, and will need to be fitted when converting any 480-520MHz models of earlier versions. Cut the PCB track just before the directional coupler to allow this. There is no need for C435 in low or medium band models.

5. Make the following changes to the 480-520MHz and 400-440MHz versions:

480-520MHz Version

Change C435 from 100pF to 4p7.

400-440 MHz Version

Change #R401 and #R404 from 470 Ohms to 820 Ohms.

Change #R402 and #R403 from 22 Ohms to 10 Ohms.

These values will now be the same in each version. Figure 5 illustrates the altered circuit:

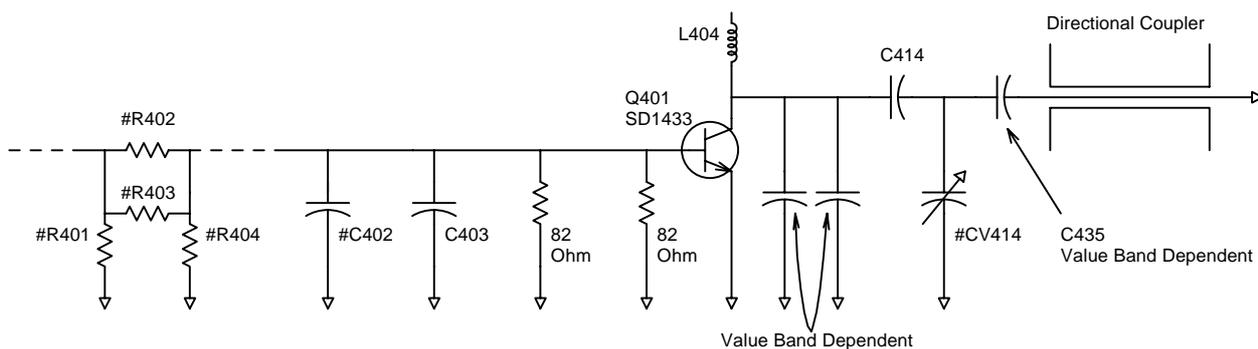


Figure 5

6. Remove and replace the radio type and Type Approval labels.

Test Results

	Frequency (MHz)	Maximum Power (W)	Supply Current at 5W
Low Band	400	11.5	1.8A
	420	11.5	1.8A
	440	11.5	1.8A
Medium Band	440	12.5	1.8A
	460	13.0	1.8A
	480	12.5	1.8A
High Band	480	10.5	1.7A
	500	10.0	1.7A
	520	9.0	1.7A