



T889 Recommended Modification: Replacing Q15/Q135

26th January 2000

For Internal Use Only: This Technical Note must not be distributed beyond Tait Customer Service Organisations without prior approval from Radio Systems Division Customer Support.

Applicability

This Technical Note (TN) applies to T889 power amplifiers.

Introduction

The BC817 transistor used to drive the 2N6107 power control transistor has proven to be underrated under certain operating conditions. We recommend that you replace the BC817 with a transistor with a higher power rating, e.g. a BD139 or equivalent.

The following table gives the circuit references of these components on the two production issues of T889 PCB:

Transistor	PCB 220-01326-01	PCB 220-01326-04
BC817	Q15	Q135
2N6107	Q16	Q137

If you have any questions about this TN or the procedures it describes, please contact your nearest Tait Dealer or Customer Service Organisation. If necessary, you can get additional technical help from Customer Support, Radio Systems Division, Tait Electronics Ltd, Christchurch, New Zealand.

Parts Required

1 x BD139 transistor (IPN 000-00011-91) or equivalent

Method

PCB IPN 220-01326-01

Refer to [Figure 1](#), [Figure 2](#), [Figure 3](#) and [Figure 4](#).

1. Remove Q15.

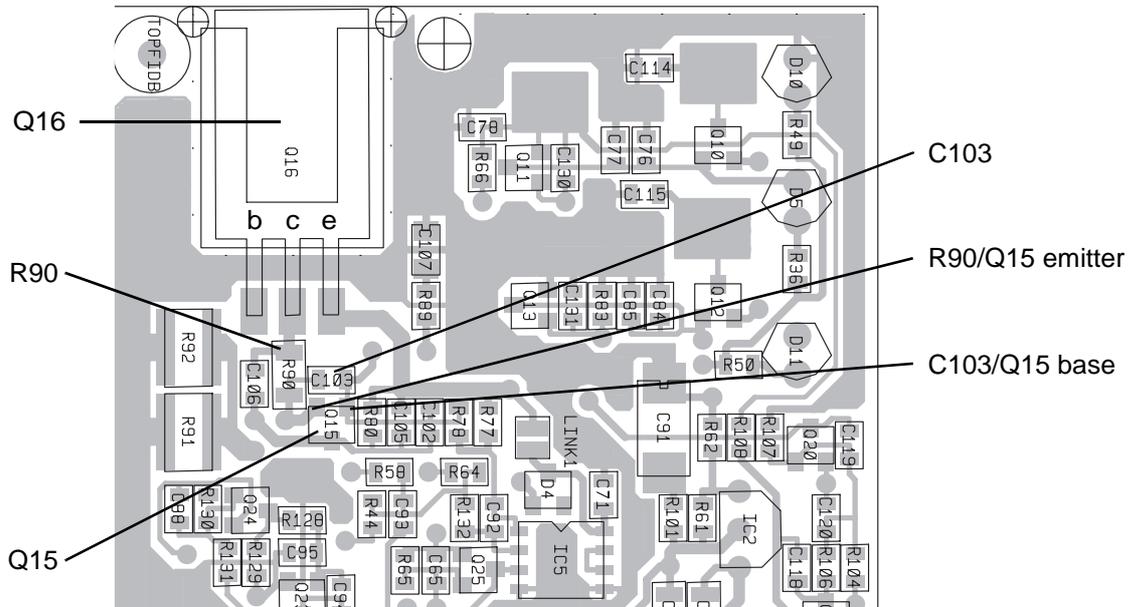


Figure 1 Location Of Components

2. Position the BD139 transistor upside down on top of Q16.
Bend and trim the collector lead of the BD139 so that it sits against the base lead of Q16, then trim the other two leads to the same overall length.
Solder the BD139 collector in place on the base lead of Q16.

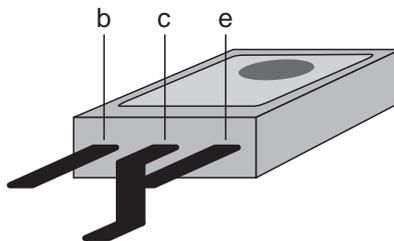


Figure 2 BD139 Transistor Leg Modifications

3. Use a short length of insulated wire to connect the BD139 emitter to the end of R90/Q15 emitter pad on the T889 PCB.
4. Use a short length of insulated wire to connect the BD139 base to the end of C103/Q15 base pad on the T889 PCB.

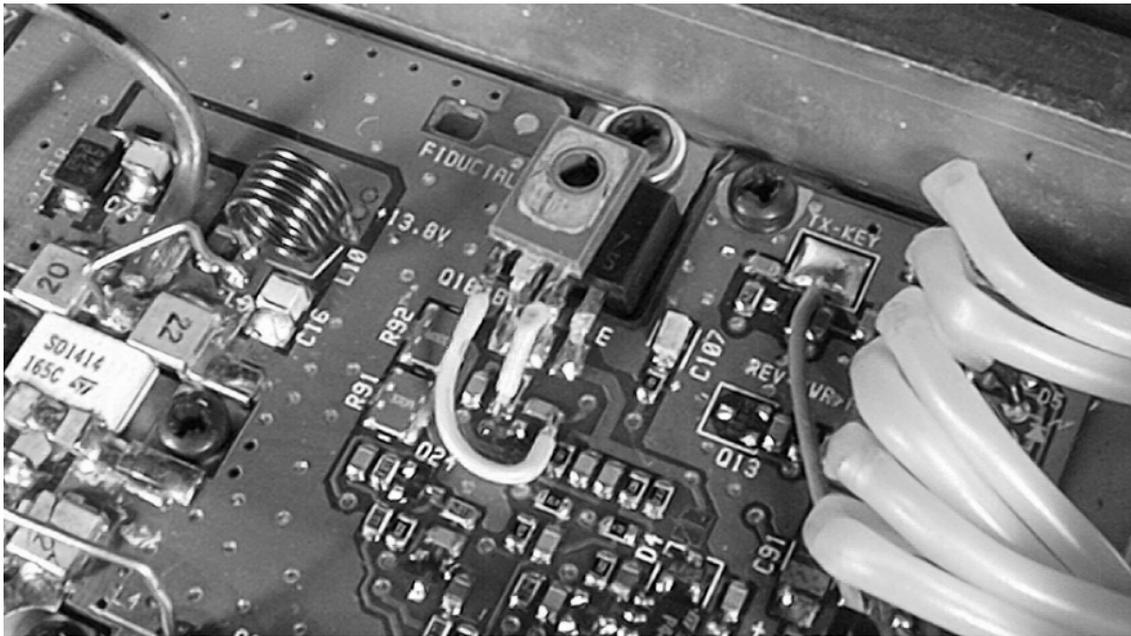


Figure 3 BD139 Transistor Mounted On Top Of Q16

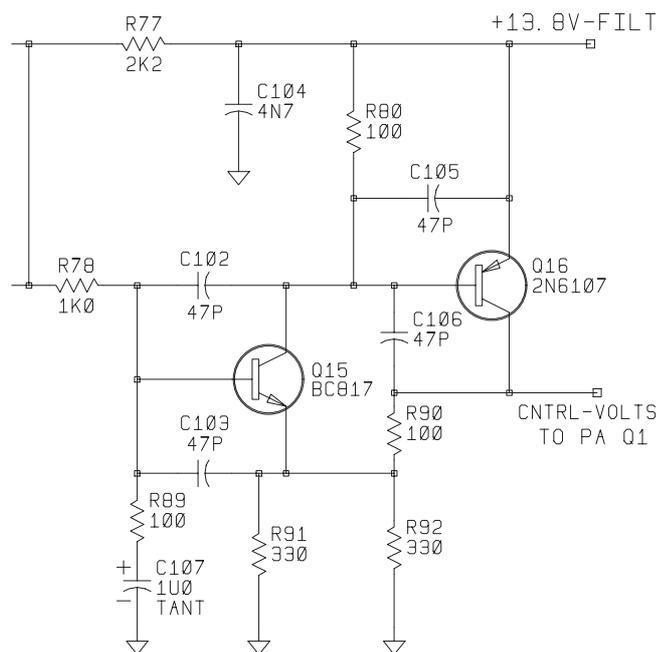


Figure 4 Part Of The T889 Control Circuit Showing Q15 & Q16

PCB IPN 220-01326-04

Refer to [Figure 5](#), [Figure 6](#), [Figure 7](#) and [Figure 8](#).

1. Remove Q135.

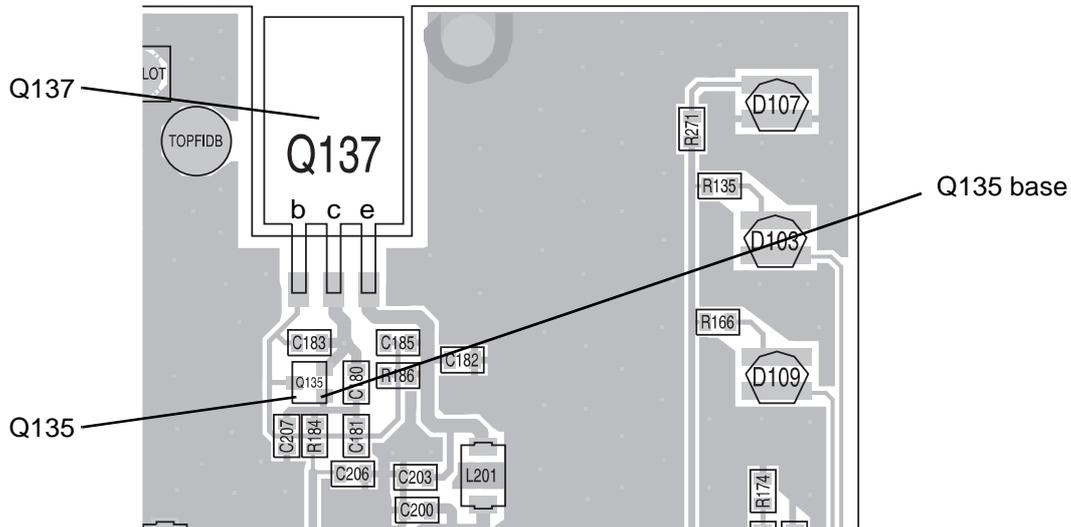


Figure 5 Location Of Components

2. Position the BD139 transistor upside down on top of Q137.
Bend and trim the emitter and collector leads of the BD139 so that they sit against the collector and base leads respectively of Q137, then trim the base lead to the same overall length.
Solder the BD139 emitter to the Q137 collector, and the BD139 collector to the Q137 base.
3. Use a short length of insulated wire to connect the BD139 base to the base pad of Q135 on the T889 PCB.

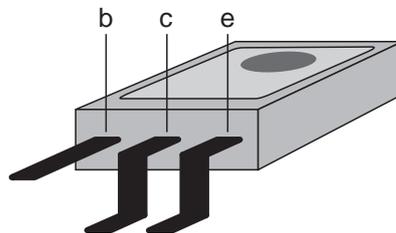


Figure 6 BD139 Transistor Leg Modifications

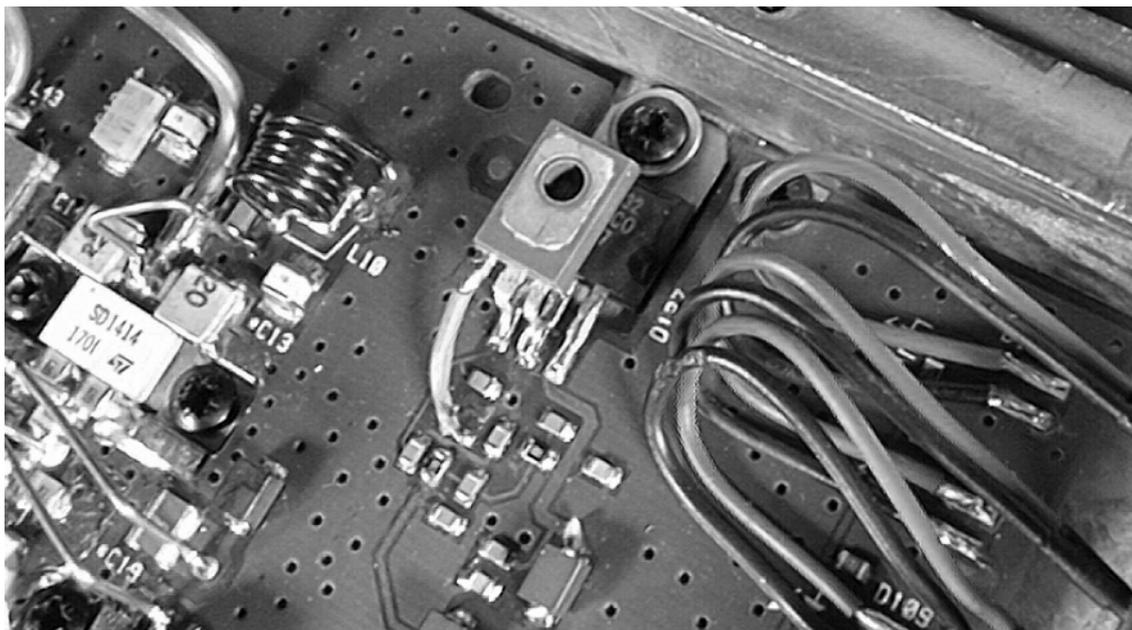


Figure 7 BD139 Transistor Mounted On Top Of Q137

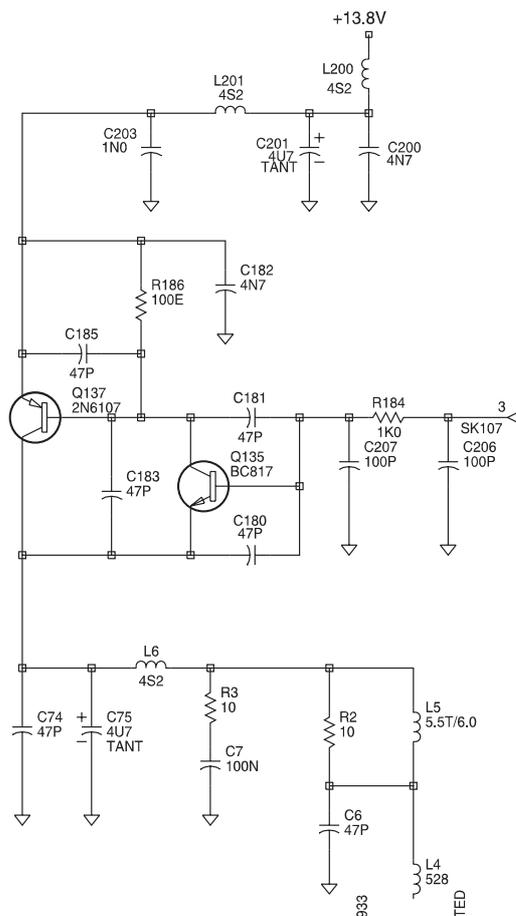


Figure 8 Part Of The T889 RF Circuit Showing Q135 & Q137

Issuing Authority

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Publication History

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