

56 kilobaud modem bug report (1-10-88)

TRANSMITTER ENCODER BOARD (110386):

Some of the 110386 transmitter encoder boards have a missing trace between U10 pin 21 and pin 24. This problem exists only in the second batch of boards and was due to tape falling off the artwork. To fix it just solder a wire between U10 pin 21 and 24.

RECEIVER DECODER BOARD (021987 rev A):

There have been reports that various brands of 555 timer chips don't work well (or at all) in socket U7. I have discovered the cause of this problem. The ground side of capacitor C1 needs to be DIRECTLY connected to pin 1 of U7. You need to cut the trace that goes between component carrier N1 pin 9 and ground. Solder a wire from N1, pin 9 to U7 pin 1. All non-CMOS 555 chips should work with this mod. The next release (rev B) will have this fixed.

from Dale A. Heatherington WA4DSY

9-24-87

MODIFICATION OF THE TRANSMITTER ENCODER BOARD

The first wave of beta test boards have revealed two problems with the transmitter encoder board. The first problem involves the 27C16 EPROM. The part specified is too slow. There is no 2716 CMOS or NMOS part that is fast enough for 56 kilobaud. The access time of the part must be 280 ns or less. The solution is to use a NMOS 2732A with a 250 ns access time. The state machine code must be programmed into the part starting at address 0800 hex instead of 0000 as for the 2716. For speeds less than 32 kilobaud the slow 450 ns 27C16 will work fine while cutting the power consumption by 100 ma.

The second problem is more difficult to correct. Many of the 74HC163 counter chips have small timing skews in their Q outputs. This results in glitches on the outputs of U3 (74HC30) and U9 (74HC139). These glitches cause the latches U6, U11, and U12 to be loaded at the wrong times, thus wreaking havoc on the output waveforms. The fix for these troubles involves gating these strobes with the clock. The unused half of U9 is used for this purpose. The following is a step by step description of the trace cuts and jumper wire installation.

1. Cut the traces indicated on Fig. 1
2. Connect the following pins with jumper wires

U3-8 to U7-1

U3-8 to U9-13

U6-8 to U9-8

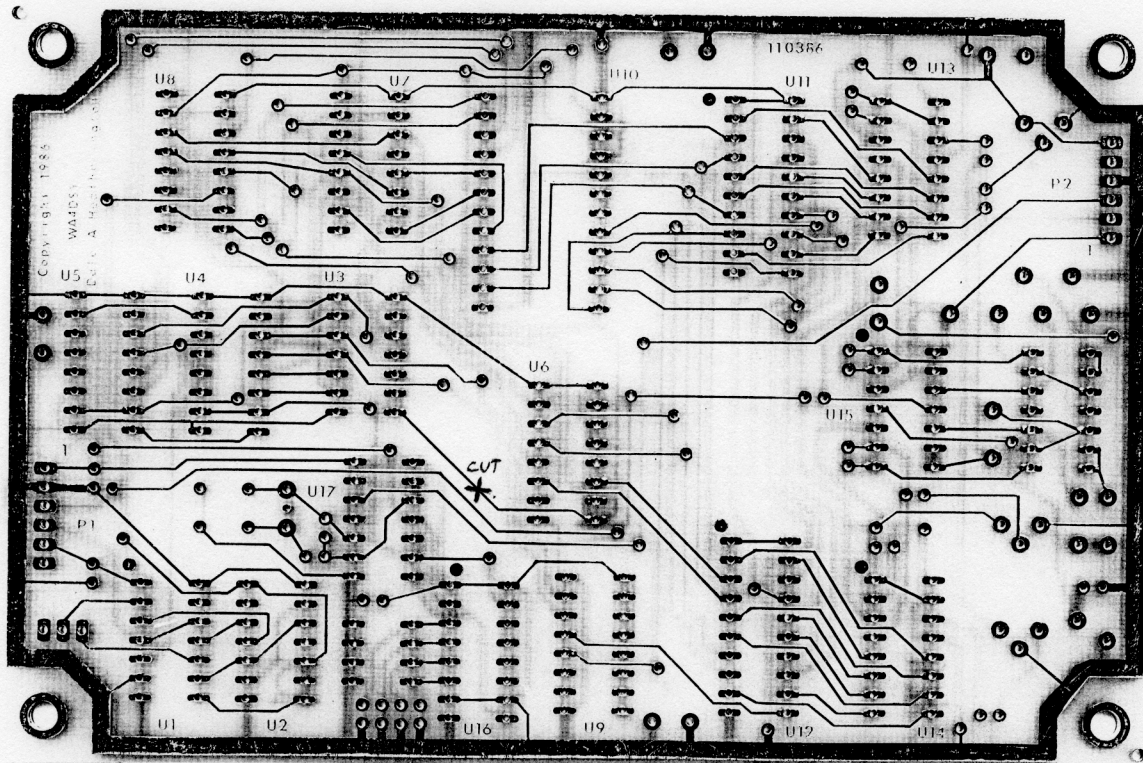
U9-9 to U9-1

U9-11 to U6-9

U9-14 to U16-15

U9-15 to U17-11

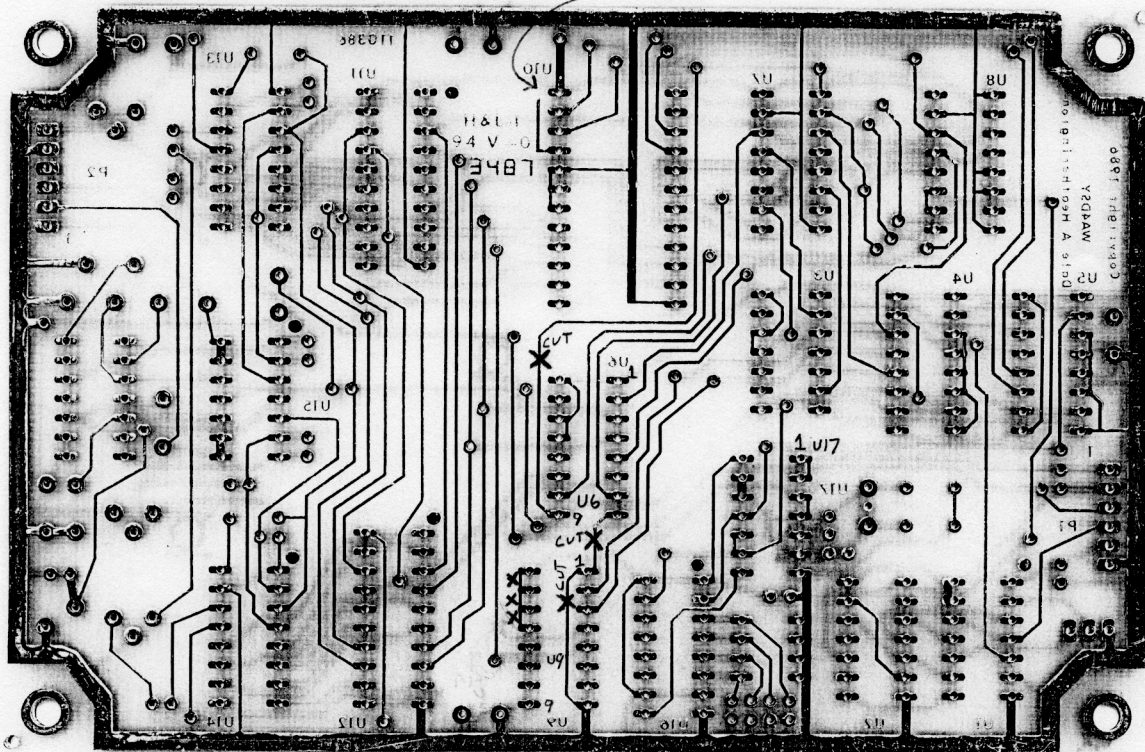
FIG. 1



Comp. Side

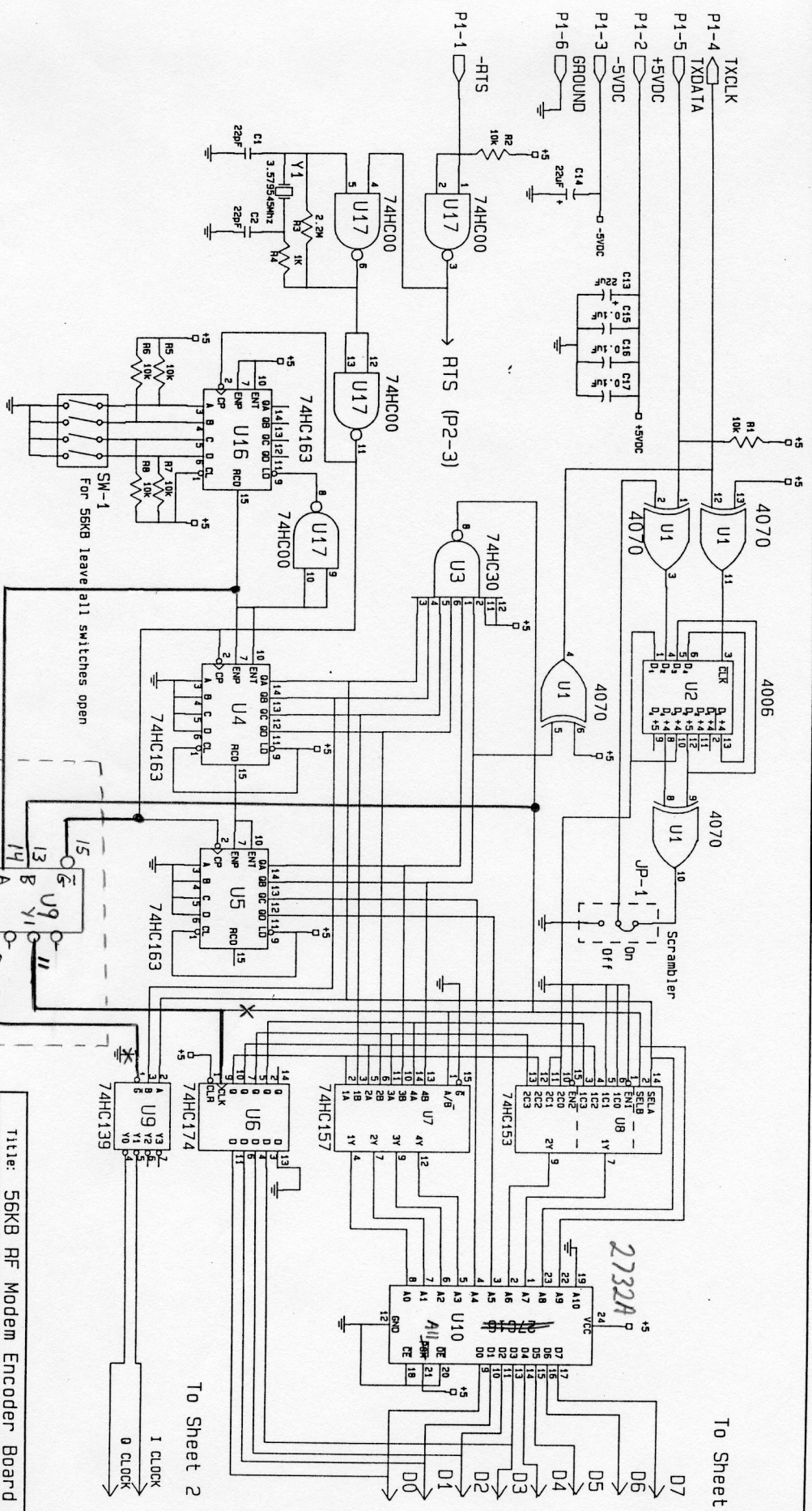
1 Trace cut

1-10-88 bug report: Add missing Trace here



Solder Side

6 Traces cut



GLITCH FIX MOD. 9-24-87

Title: 56KB RF Modem Encoder Board
Copyright (c) 1987 Dale Heatherington WA4DSY
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Checked by: KDANC
Drawn by: Charles D'Engle
Approved by: WA4DSY
Board Version: 110386
Sheet 1 of 2