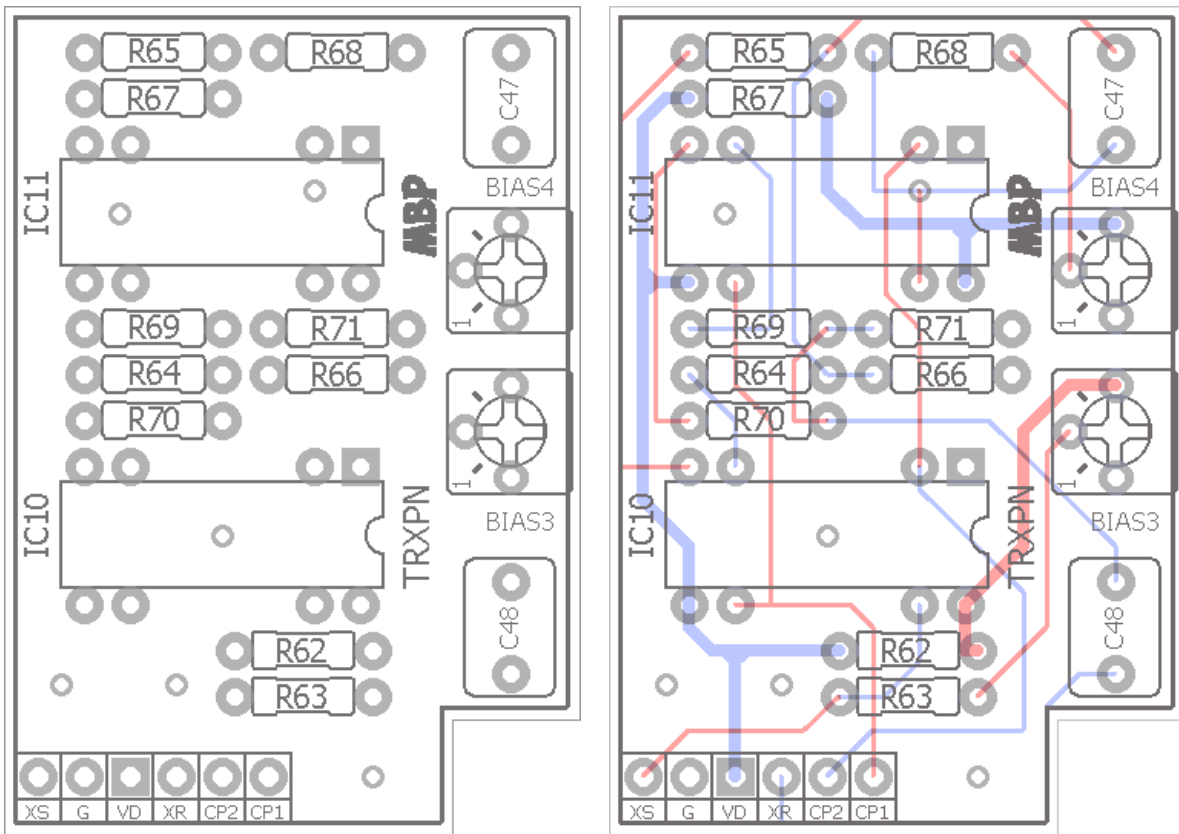


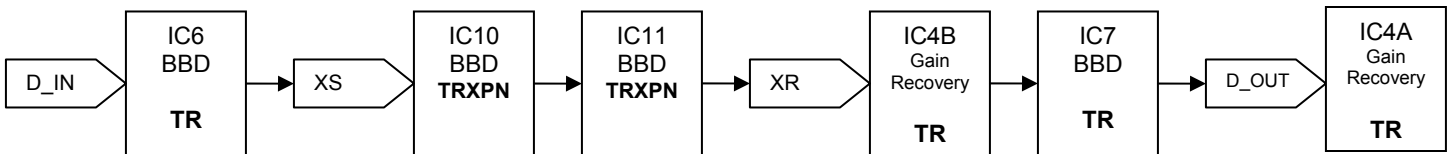
TRXPN

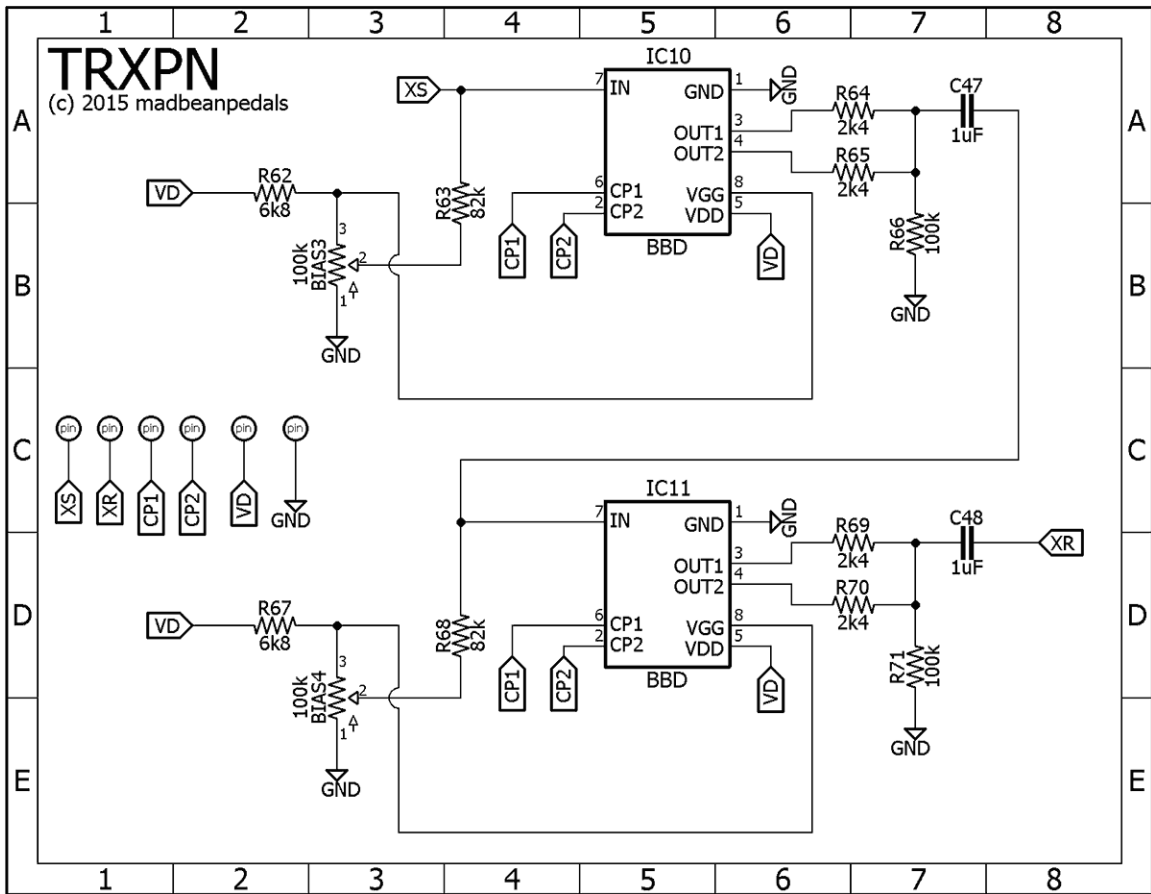
Total Recall Expansion Board
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1.8" H x 1.25" W



The **TRXPN** is an expansion board for the Total Recall project. It allows one to use four MN3008 BBDs in place of two MN3005 (both totaling about 550ms of delay). The TRXPN has its own bias trimmers for the two added BBD stages and when wired to the TR main board, they are inserted as stages 2 and 3 of the delay. This makes the exact sequence of BBD stages as follows (referring to both the TR and TRXPN schematics):





B.O.M.

Resistors

R62	6k8
R63	82k
R64	2k4
R65	2k4
R66	100k
R67	6k8
R68	82k
R69	2k4
R70	2k4
R71	100k

Caps

C47	1uF
C48	1uF

IC

IC10	BBD
IC11	BBD

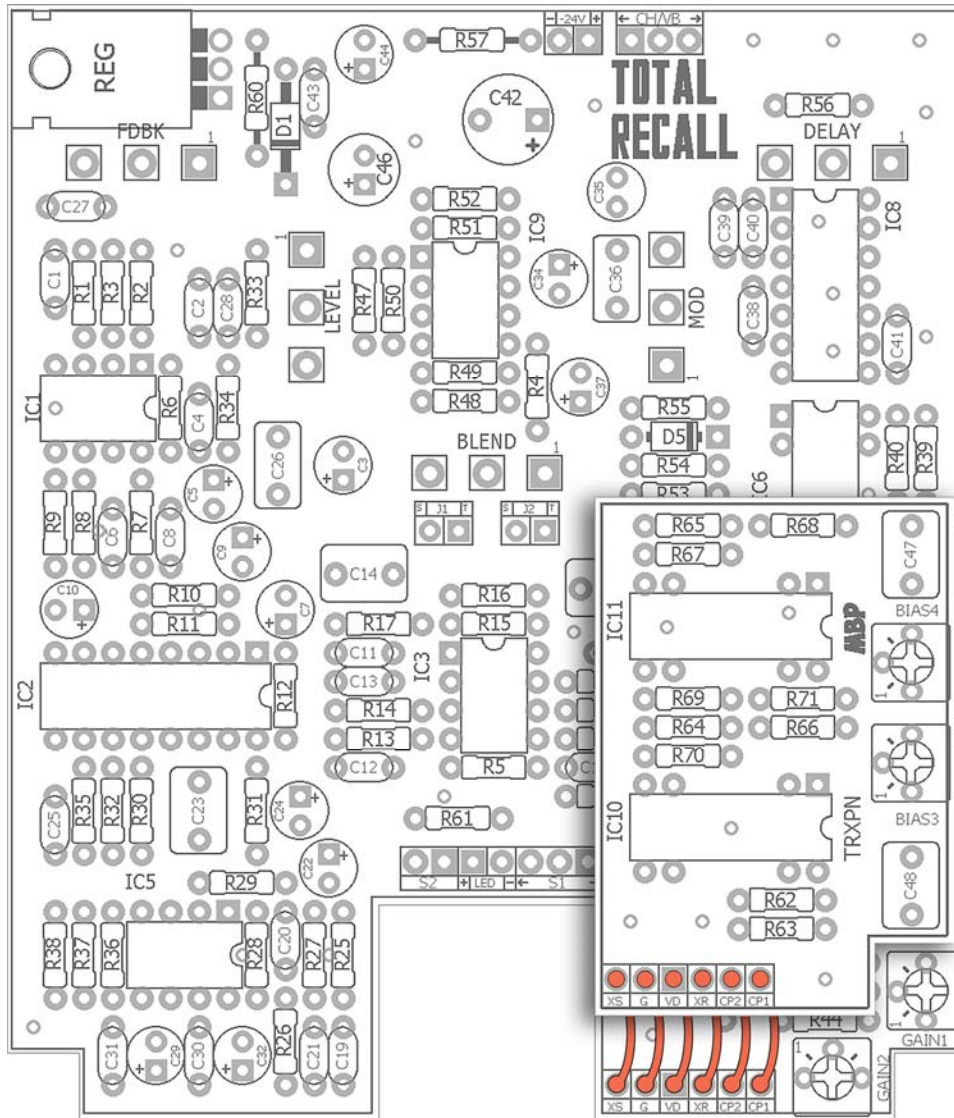
Trimmers

BIAS3	100k
BIAS4	100k

Shopping List

Value	QTY	Type	Rating
2k4	4	Metal / Carbon Film	1/4W
6k8	2	Metal / Carbon Film	1/4W
82k	2	Metal / Carbon Film	1/4W
100k	2	Metal / Carbon Film	1/4W
1uF	2	Film	25v min.
BBD	2	MN3008	
100k	2	Bourns 3362P	

Wiring



You should use wires to connect the boards rather than straight-pin connectors. This will allow access to the trimmers underneath the TRXPN board when it is attached to the main board. To keep everything locked down, use a small blob of Blue Tac or double-sided foam tape under the TRXPN when you have it all boxed up.

Biassing and Calibration

The calibration procedure for the TRXPN is the same as the one used for the Total Recall. It just requires a few added steps. This is the procedure in its entirety for both the TR and TRXPN boards. If you are using a scope for calibrating the Total Recall, refer to the link included in the Total Recall document. This method is "ear calibration" only, which is what most builders will likely use.

Procedure

Tools required: audio source, audio probe.

To begin, make sure you have wired the TRXPN board to the Total Recall board. Install all ICs except IC7, IC10 and IC11. We will bias one BBD at a time. Set your controls as follows:

DELAY - full up

FDBK - a little less than halfway up

MOD - all the way down

LEVEL - about 1/3rd up

BLEND - doesn't matter (you should leave the circuit output disconnected since we will be audio probing)

CH/VB switch - doesn't matter

Leave all the trimmers in their halfway position to start.

- Connect the TR PCB to your power supply. Use an audio source at the input of the circuit (J1). While you can just strum your guitar it might be difficult to make trimmer adjustments at the same time. If you have a looper, record a few single notes a few seconds apart and feed that into the circuit. Or, improvise with something else.
- Connect your audio probe to either pin3 or pin4 of IC6. Now adjust BIAS1 until you hear delay output. Adjust BIAS1 further until you find the min and max settings where you have clean delay output. Set BIAS1 to approximately the middle point of this range. Now make very small adjustments left and right until you find the spot where the delay output is cleanest and strongest.
- Disconnect the power and install IC10 to the TRXPN board. Reconnect power and repeat the same biasing procedure done above using the BIAS3 trimmer on the TRXPN board and pins 3/4 of IC10.
- Disconnect the power again and install IC11. Repeat the same procedure with BIAS4 and pins 3/4 of IC11.
- Now connect your audio probe to pin7 of IC4_B. Adjust GAIN1 until the volume output is approximately the same as the volume input on pin7 of IC6 (this balances the signal volumes between the two BBDs).
- Disconnect the power supply from the circuit and install IC7. Reconnect the power supply.
- Connect your audio probe to pin3 or 4 of IC7. Do the same type of adjustment to BIAS2 to get clean delay output.
- Re-connect your audio probe to pin7 of IC4_B. Make any adjustments needed to GAIN1 to reach the same volume output you had before. This part is a bit of fine tuning between GAIN1 and BIAS2 to get the optimal result.
- Leave the BAL trimmer in the middle position. Connect your audio probe to pin1 of IC4_A. Adjust the GAIN2 trimmer until the output is the same or slightly above the volume input of pin7 on IC6.
- You are done!

For voltages, refer to the list in the Total Recall build document. You should have about the same readings on IC10 and IC11 as you have for IC6/7.