Tascam DX-2D & DX-4D Noise Reduction Unit Modifications

Tascam's DX-2D and DX-4D Type I dbx-licensed noise units can be modified to work with any tape machine that accomodates -10dBV (0.316V) nominal signal level.

First some background information:

Tascam tape decks that are designed to work with these noiser reduction units have a dbx control signal jack on them, such as the 30, 40 and 50 series machines, as well as others. "Control signal" is not technically a correct term for the signal; the signal activates the noise reduction circuitry, and is, therefore, technically and activation signal. The "control" element is really about controlling with what equipment the end-user can interface the DX-2D and DX-4D.

On the the schematic for the Control PCB, there are three connections from the tape deck via the six-pin CONTROL SIGNAL cable and connector that are of interest to us:

Terminal 1 +5V (yellow)
Terminal 2 Ground (black)
Terminal 3 1Hz (white)

The other three pins of the CONTROL SIGNAL connector are duplicates, and are there to allow for cascade expansion to a second noise reduction unit connected to a single machine (such as two four-channel DX-4Ds to an eight-track 38).

Terminal 3 has a 1Hz square wave signal on it. On a Tascam 34 this is +5 volts for about 400ms and 0 volts for about 600ms. The actual time interval is not important. This square wave is AC coupled through C001 and C002, is then rectified and activates U001, which drives the LED opto-isolator U002. This activates the opto-isolator's output photo transistor which pulls the power at Terminal 1 down through Q001.

All this is done in order to ensure these units only work with appropriately equipped Tascam machines, because dbx made their own noise reduction units, and licensed the DX-2D and DX-4D specifically to Teac to interface with only certain machine rather than be a consumer alternative to dbx's own branded units. It is likely almost any signal would work to activate these units, but there is a relatively simple method to bypass the activation which involves soldering a jumper across the emitter and collector of the photo transistor Q001.

How do you know if your unit is already modified? That is quite easy. Turn the unit on with the control cable unplugged. I the channel LEDs illuminate with the db engaged (i.e. channel switches not bypassed; unlatched or in the out position) then your unit is already modified and can be used with any Type I appropriate machine. If the LEDs do not illuminate, then you need the modify the unit to use it with any Type I appropriate machine.

The modification is easy for those with even basic soldering skills, and involves installing jumper wire (or just a solder blob) across the two pads on the Control

PCB for the emitter and collector of Q001. There are other ways of executing the modification, but this method offers the advantage of easy access.

1) Ensure the unit is unplugged from power.
2) Place the unit upside-down so you can access the bottom cover.
3) Remove the bottom cover by unscrewing four screws.
4) Locate the two solder pads in the upper left of the control PCB for the emitter and collector of Q001.
5) Solder a jumper wire across these pads.
6) Replace the bottom cover.
7) Connect the device to power and test as per the preceding paragraph related to testing if your unit is already modified.

Option: some end-users prefer to further modify the unit by removing the CONTROL SIGNAL cable:

1) Ensure the unit is unplugged from power.
2) Place the unit right-side-up (normal position) so you can access the top cover.
3) Remove the top cover by unscrewing the four screws on the sides (two screws each side).
4) Locate the Control PCB.
5) Locate the SIGNAL CONTROL cable.
6) Cut the six wires of the SIGNAL CONTROL cable that terminate on the Control PCB.
7) Squeeze the Heyco connector on the rear of the chassis through which the CONTROL SIGNAL cable passes, and pull the cable out.
8) Cover the hole in the rear panel if desired.
9) Replace the top cover, connect to power and test.