# Link Bypass Adapter Module

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# Description

This module is actually a slightly modified H313 U-Port Adapter with a special front panel. The modifications consist of jumpering out the “Bypass” switch, changing the pigtail male “D” connector to a panel mount female “D” connector, interchanging the data and clock input lines with the data and clock output lines in this “D” connector and then reversing the “D” connector clock output wires. The old style (non-BiRa) U-Ports were used in order to preserve the highest number of spare BiRa models. These have a different board layout with different chip numbers, but are otherwise nearly identical in functionality to the BiRa U-Port module. This different layout makes it obvious that it differs from the BiRa U-Port.

The purpose of this module is to provide a means to bypass an entire section (branch) of a CAMAC link. To do this, it is installed in conjunction with a standard H313 module. The Bypass Adapter module transmits and receives the data and clock signals of the branch through its front panel LEMO’s. The H313 module’s pigtail is connected to the front panel “D” connector of the Bypass Adapter module and the data and clock signals of the main body of the link are transmitted and received through the H313’s front panel LEMO’s. Both modules are set as Master U-Ports.

Once these modules are properly tuned, placing the H313’s “Bypass” switch in the bypass position will cause the main body of the link to loop through the H313’s bypass relays. This will effectively bypass the branch connected to the Link Bypass Adapter module.

The automatic bypass modification adds a feature that automatically bypasses the U-Port when the data drops out for 1 second. This prevents the link from going down when the branch loses power. The LED on the bypass module also turns off when the module bypasses the U-Port.

# Turning U-Port Module into a Link Bypass Adapter

The following modification turns an old-style (Non-BiRa) 313 U-Port Module into a Link Bypass Adapter Module:

1. Verify that R24 is removed.

2. Verify that R23 is 100Ω.

3. Add a 510Ω resistor between TP1 and +5V. This can most easily be accomplished using the feed-through hole just above U15.

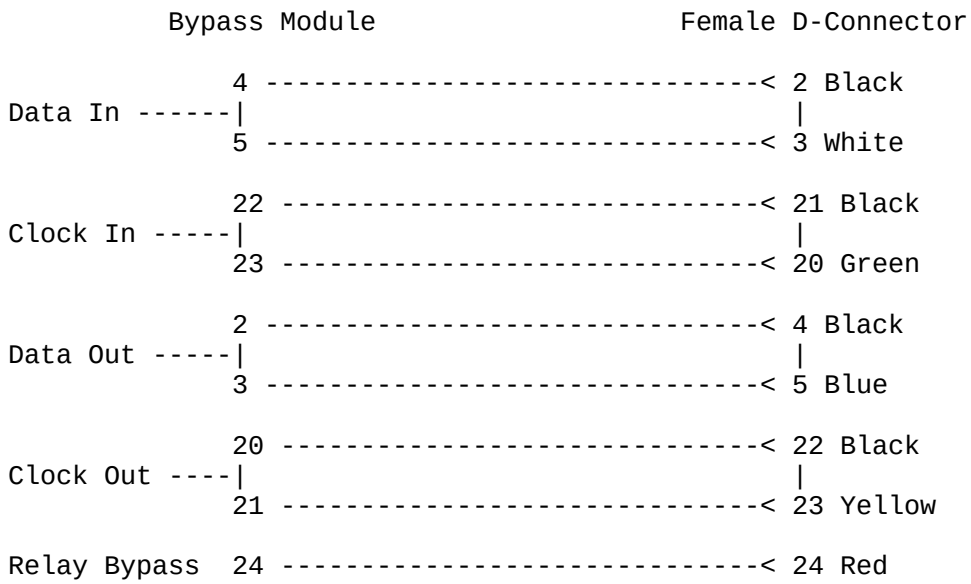
4. Add a 510Ω resistor between TP2 and +5V. This can most easily be accomplished using the feed-through hole just above U15.

5. Remove the “Bypass” switch and solder a jumper on the board in its place.

6. Place a label with the words “Link Bypass Adapter Mod” over the hole where the switch was.

7. Remove the male 25-pin D connector from the pigtail, making a note of which wires go to which pin numbers

8. Replace this connector with a female 25-pin D connector, with the following pin-out:




Please note that the polarity reversal on the “Clock In” pair is intentional. Also note that there are some Bypass modules that have been made by using a specially built panel that houses the 25-pin D connector. While this is a nicer way of doing it, it is not necessary, and the pigtail works just fine.

9. The Master/Slave switch (second from the top) must be switched to the left (Master) position.

10. The Facility Clock Master/Slave switch (bottom) must be switched to the right (Master) position.

# Automatic Bypass Modification

The following modification adds the automatic bypass feature to a Link Bypass Adapter Module:

1. Replace C7 with a 22µf capacitor. The + lead faces the top of the board.

2. On the solder side of the board, cut the trace from U5 pin 14 to R18.

3. Remove R18.

4. Before replacing R18 with a 100KΩ resistor, jumper U5 pin 15 to the lower side of R18. Solder the 100KΩ R18 at the same time as the jumper. This cut and jumper fixes a defect in the artwork of the board.

5. Install a 75452B on the top pads of the blank 16-pin space just to the left of U5.

6. Jumper the 75452B pins 1 and 2 to U5 pin 4.

7. Cut the trace that connects U5 pin 1 to U6 pin 10 and U7 pin 3. This runs just between C7 and R18 on the component side of the board.

8. Jumper U5 pin 1 to TP4. A connection to TP4 is available as a feed-through just below and to the left of U8 without using the actual TP4 hole.

9. Install a Teledyne 712D-5 Relay in the 8 empty pads just below the 75452B, with the tab facing the top of the board. If the version with the internal diode is not available, a 712-5 can be used.

10. Jumper Pin 8 of the 712D-5 to Pin 8 of the 75452B, and to +5V. Note: Even though the 712D-5 is considered a 10-pin device, this procedure treats it as if it were an 8-pin DIP.

11. Jumper the 712D-5 pin 1 to the 75452B pin 3.

12. Install a 1N4005, or equivalent, diode between pins 1 and 8 of the 712-5, with the cathode on pin 8. (+5V) Skip this step if the relay has an internal diode.

13. Jumper the 712D-5 pins 2 and 7 to ground. Also, jumper the 75452B pin 4 to ground.

14. Jumper the 712D-5 pin 3 to the empty top pad of R24.

15. Cut the trace leading to the bottom lead of the LED.

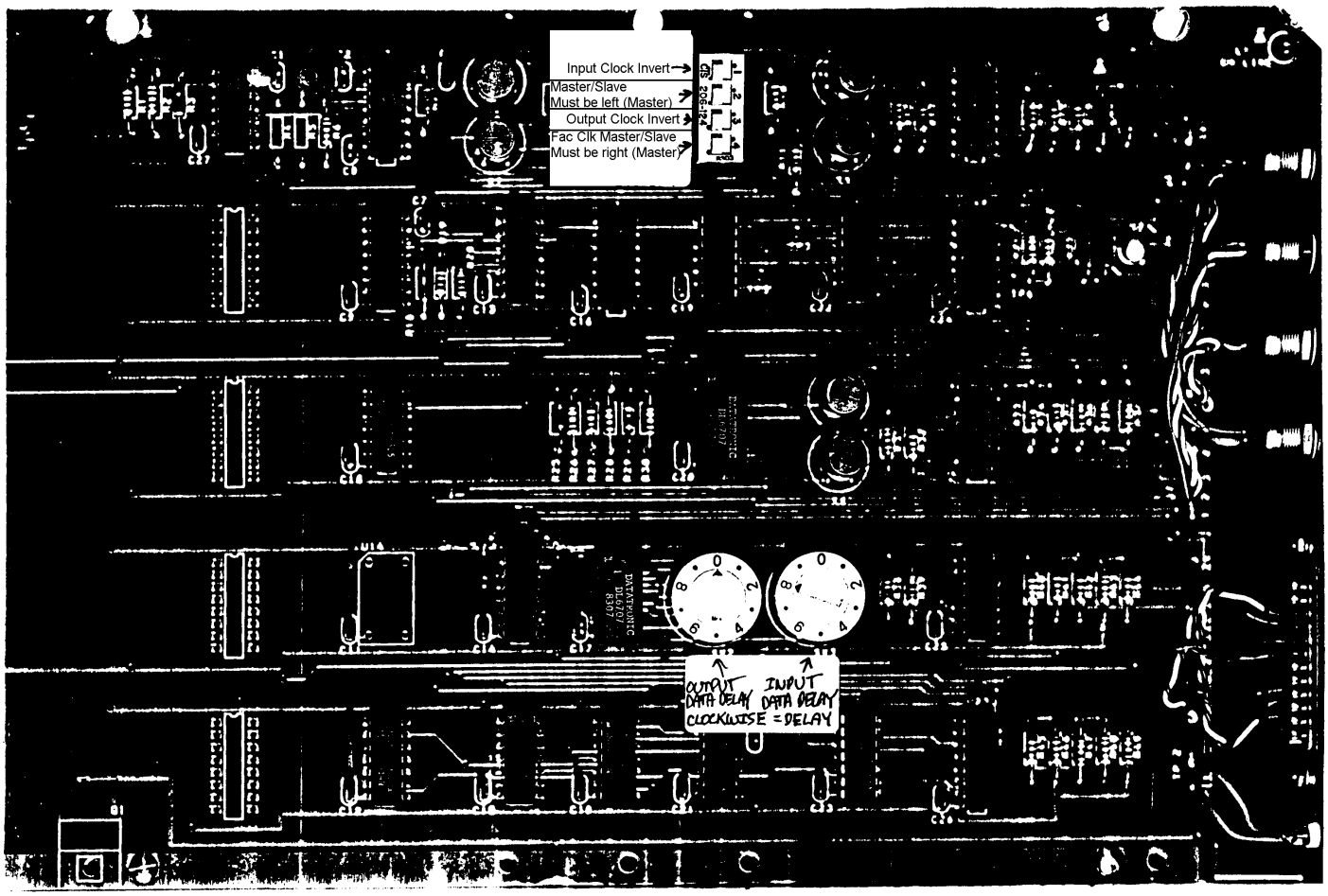
16. Jumper the 712D-5 pin 5 to the bottom lead of the LED.

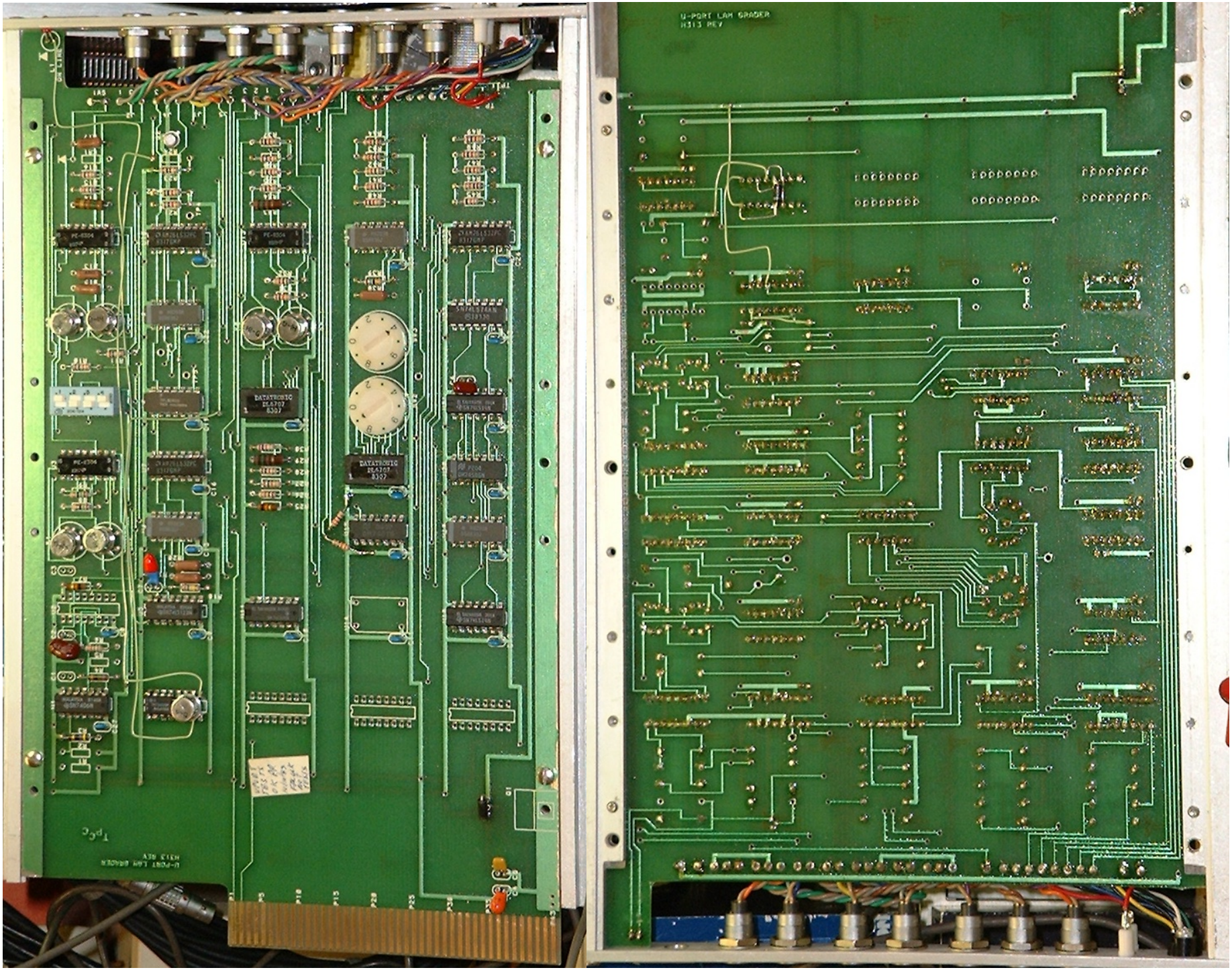
17. Verify that pin 24 of the 25-pin D-connector is connected to the pin 24 pad on

# Testing The Modification

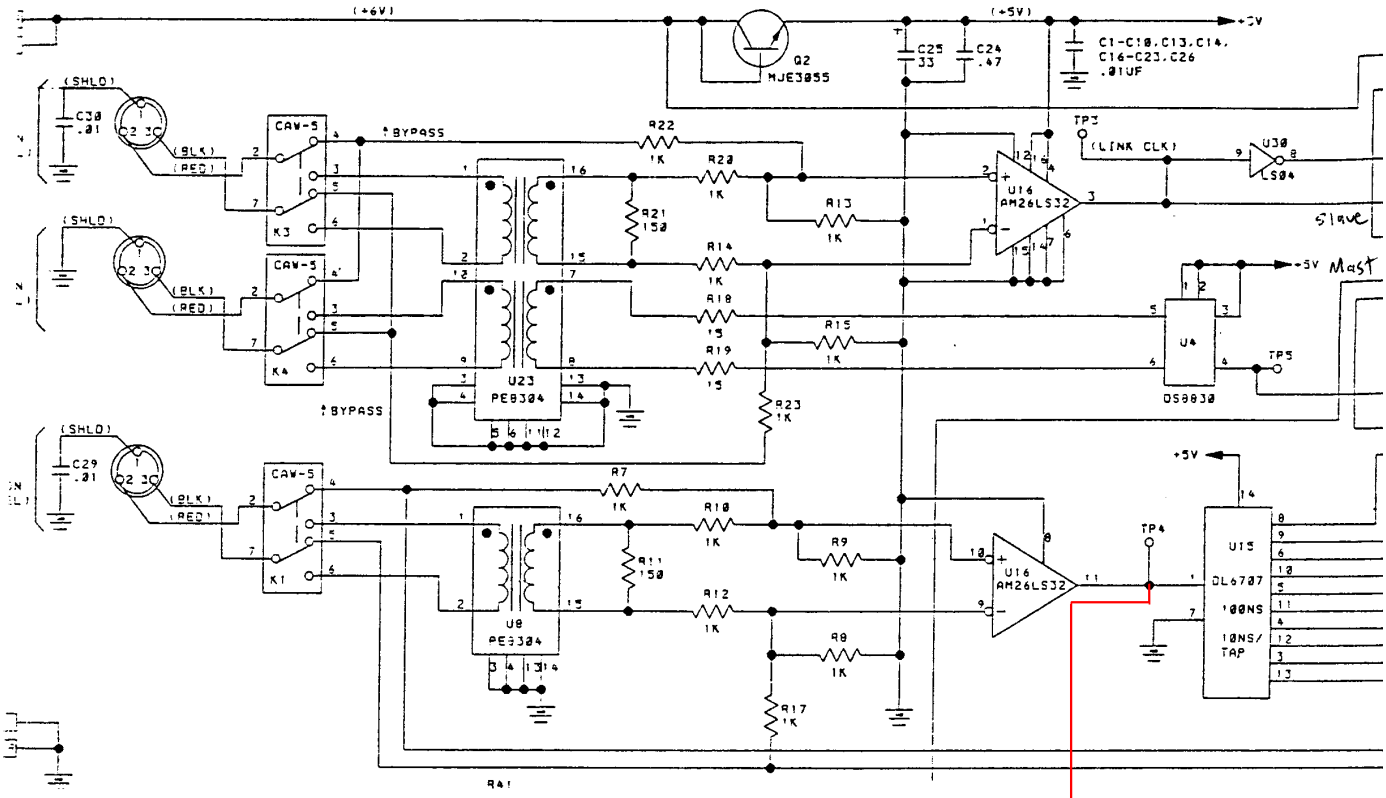
Both the U-Port and Bypass Module need to be tuned after installation. The procedure for tuning is described in section 4.5 of the CAMAC Link Operations Manual, number TFTR-10A2-H67.

Once the module is installed and tuned, the automatic bypass feature can be tested by unplugging the “DATA IN” Lemo connector and observing that the module and U-Port bypass after 1 second. Link tuning should be checked in the next crate downstream of these modules, just to make sure the switch settings have not changed during the modification.

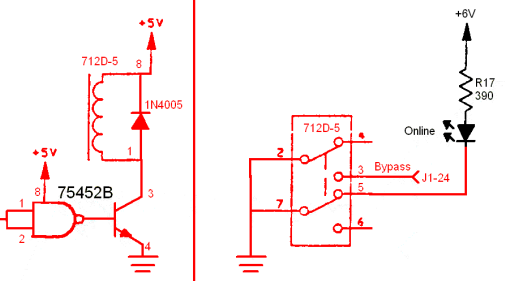


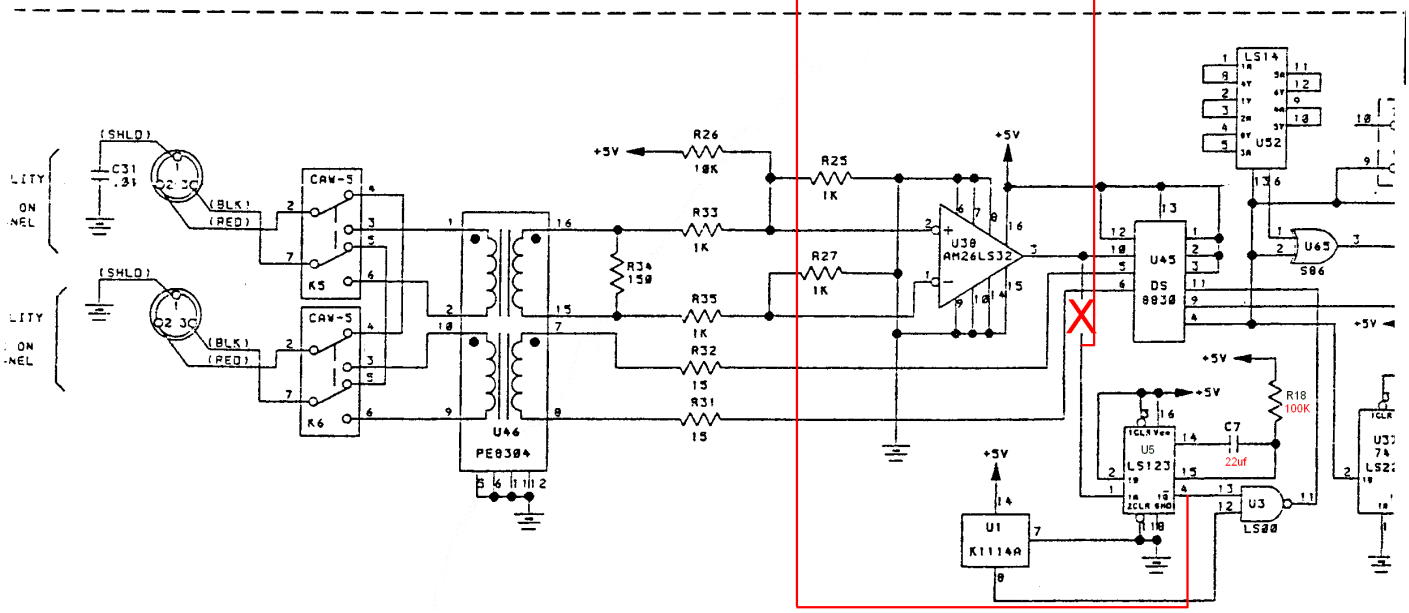

4-PORT LAN GRABBER
H313 REV
DATATRONIC
DT4707
8307

# Link Bypass Adapter Modification




**Note: This schematic is based on the BiRa version. Most of the chip numbers are wrong as a result. The pertinent ones have been corrected.**



# BYPASS MODULE CONFIGURATION EXAMPLE