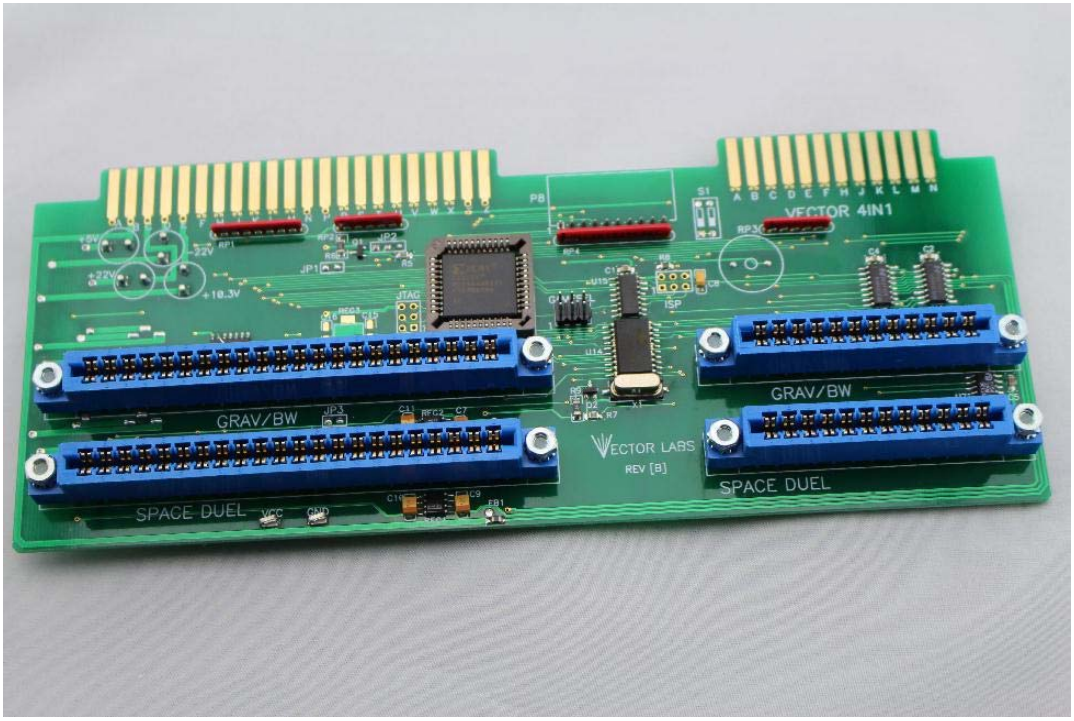
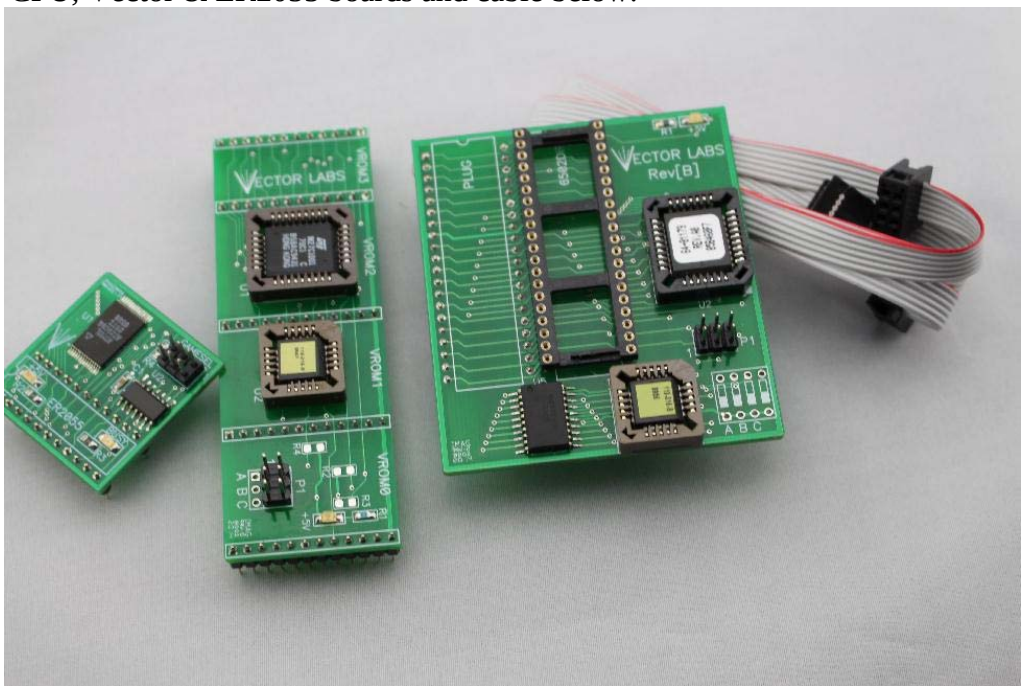
Space Duel 4 in 1
MultiVector
INSTALL GUIDE



The Space Duel 4 in1 MultiVector kit includes four boards, the main board is pictured above and the CPU, Vector & ER2055 boards and cable below.



As you can see each connector set on the main board is labeled with the name of the PCB. The Space Duel PCB requires no modifications and is simply plugged into the lower set of connectors. You can use a Gravitar or Black Widow board in the upper set of connectors as marked. The CPU & Vector boards has ROM images of the Gravitar, Lunar Battle & Black Widow games. The ER2055 board allows for seperate game saves for these three games. The Space Duel board has its own ER2055 chip for games saves.

Make sure you install the PCB's in the correct set of connectors.

IMPORTANT INFORMATION PLEASE READ AND UNDERSTAND FULLY

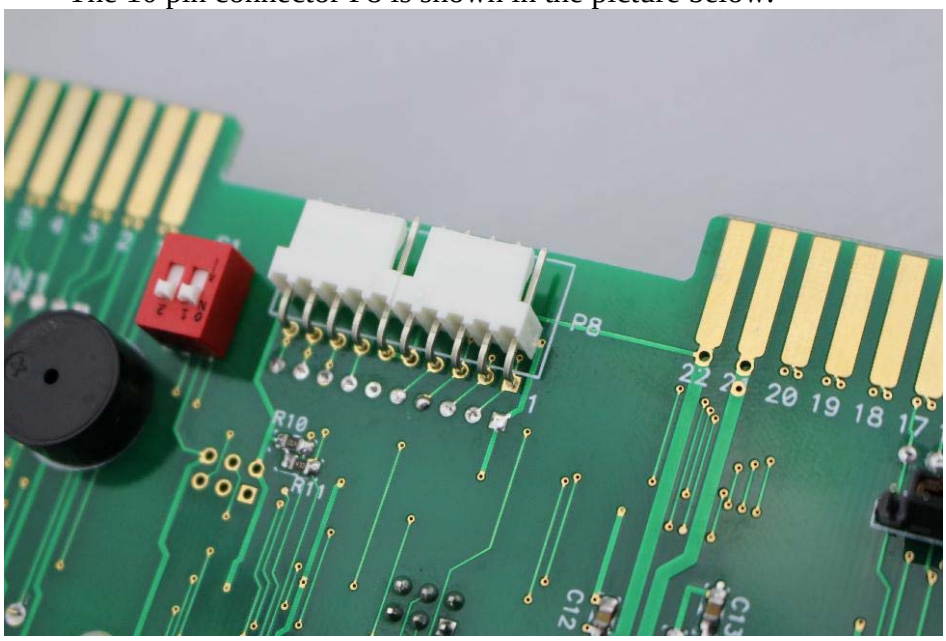
The MultiVector kit is a power & video switching backplane developed for Atari full size vector game boards. A Microcontroller & CPLD handle all control functions. The kit is designed for owners of Space Duel standup & cocktail games to allow for the addition of Gravitar or Black Widow PCB's to form a 2 board "stack". Only one board is powered at any given time and is selectable through the control panel.

Space Duel ,Gravitar & Lunar Battle have similar controls so no additional buttons are required. However Black Widow has move & fire joysticks similar to Robotron so those two joysticks will need to be added to the Space Duel control panel. There is a 10 pin connector on the MultiVector main board so the joysticks can be wired into the control panel.

** Note that the "select" button in Space Duel is Player 2 in Gravitar & Lunar Battle*

Some of the recommend tools for the install are pictured above.

The 10 pin connector P8 is shown in the picture below.



The following is the pinout for the 10 pin connector.

FIRE JOYSTICK

1. Fire up
2. Fire down
3. Fire left
4. Fire right
5. Ground

MOVE JOYSTICK

6. Ground
7. Move up
8. Move down
9. Move left
10. Move right

Two 5pin connector shells & ten pins are included in the kit for joystick wiring.

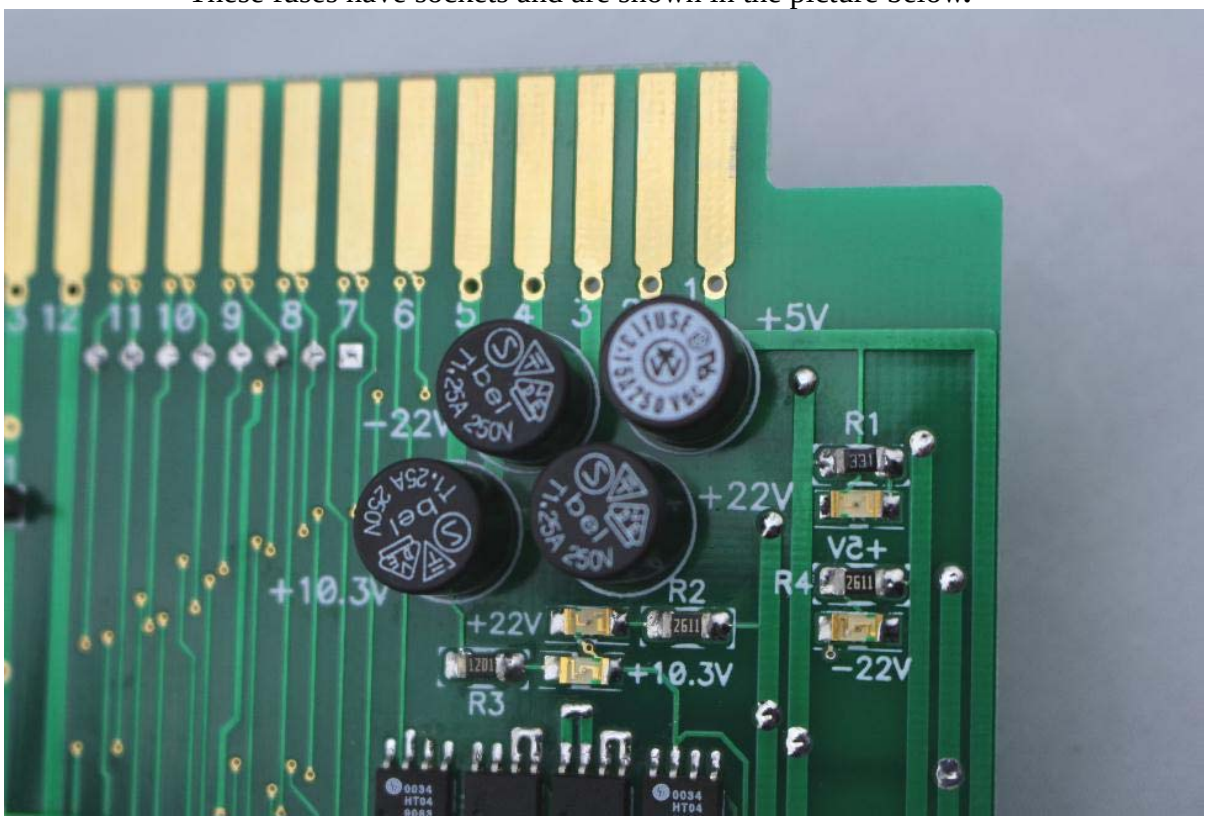
Note that the Move left & Move right function on the Move joystick can also be used as well as the Rotate left & Rotate right buttons on Space Duel, Gravitar & Lunar Battle.

Also in the picture above there is a two position dip switch for game default on power up.

The settings are as follows.
1-ON 2-ON = SPACE DUEL
1-ON 2-OFF = GRAVITAR
1-OFF 2-ON = LUNAR BATTLE
1-OFF 2-OFF = BLACK WIDOW

The MultiVector kit controls the power source to each of the PWB's through MOSFET transistors. These power sources are +5v, +10v, +22v & -22v and are fuse protected against short circuits which would damage the MOSFET's.

These fuses have sockets and are shown in the picture below**.**



It is essential that any PWB's that are plugged into the MultiVector kit are working 100%. If there are any power issues with the boards you WILL blow one of these fuses.

Take note of the current ratings for each power source 1.25 Amps for +10v,+22v & -22v. And 3.15 Amps for +5v, DO NOT mix these values into the wrong locations when replacing.

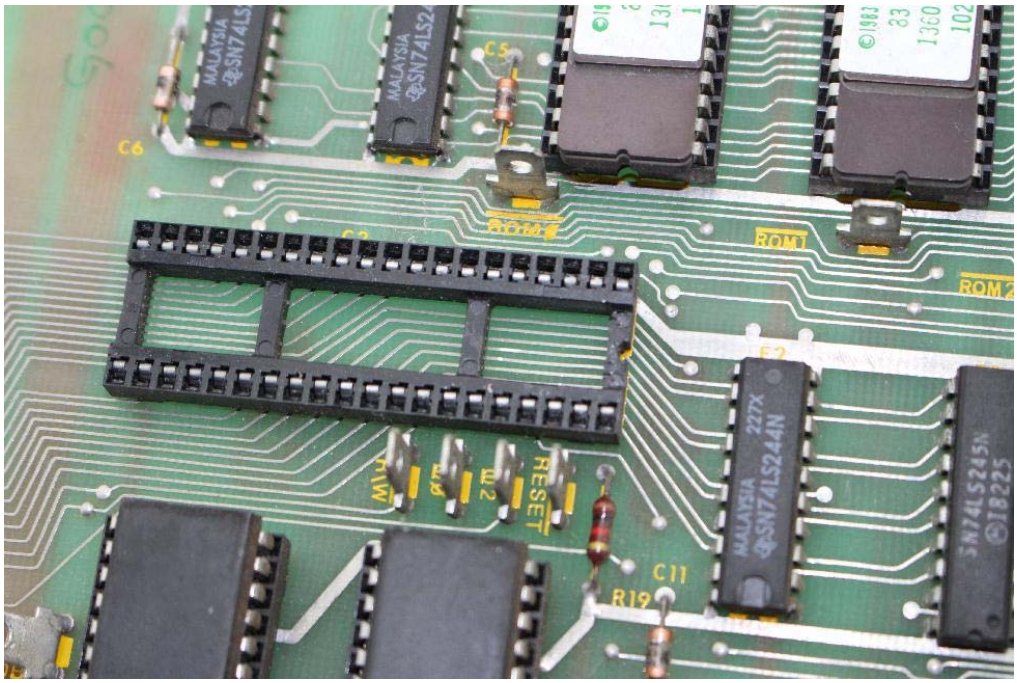
The MultiVector kit has been tested for many hours to select the proper current ratings for these fuses, and are there to protect both the kit and your PWB's.

The LED's are provided to monitor all power sources and indicate if any of the fuses are blown when the LED is not lit.

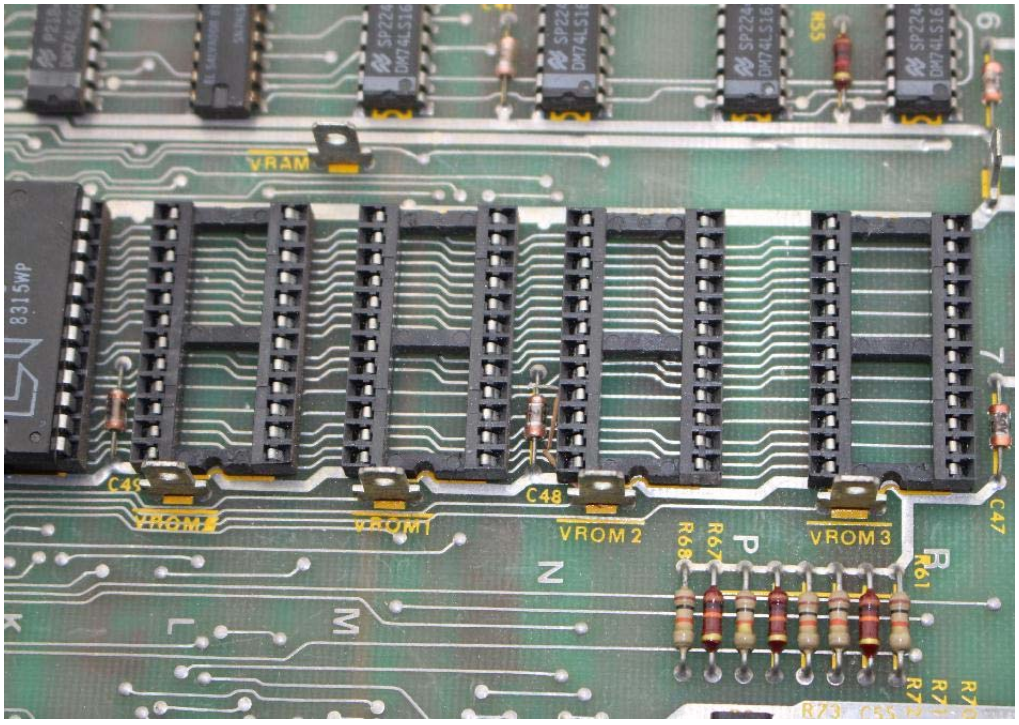
If all 4 are lit then the power is good.

Gravitar or Black Widow board preparation.

Remove 6502 CPU from socket



Remove four vector ROM's from their sockets



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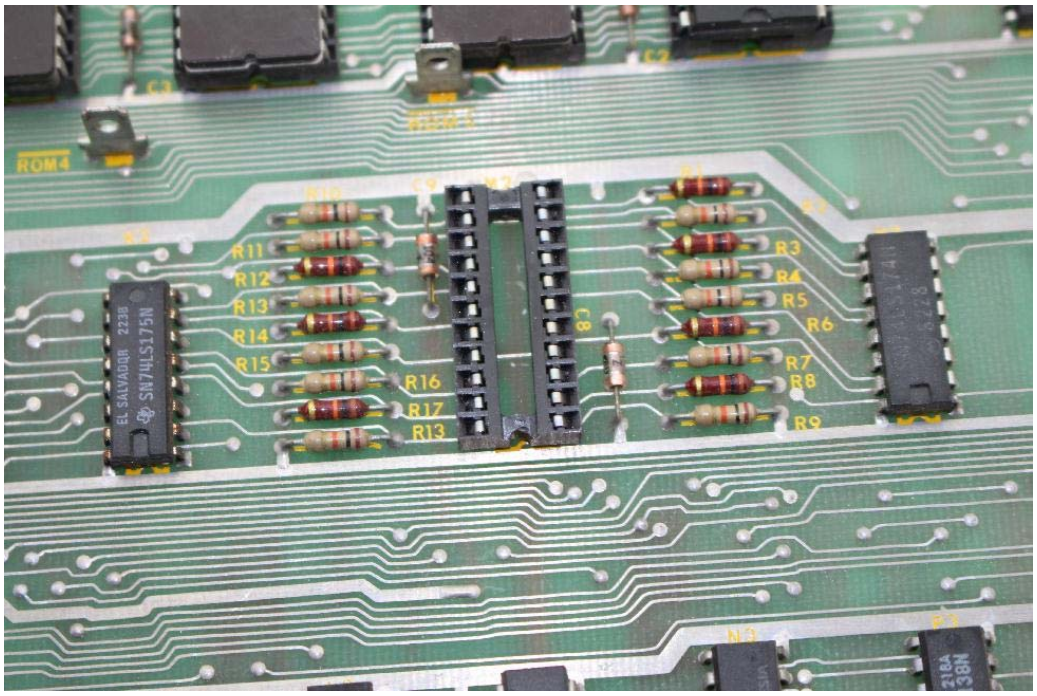
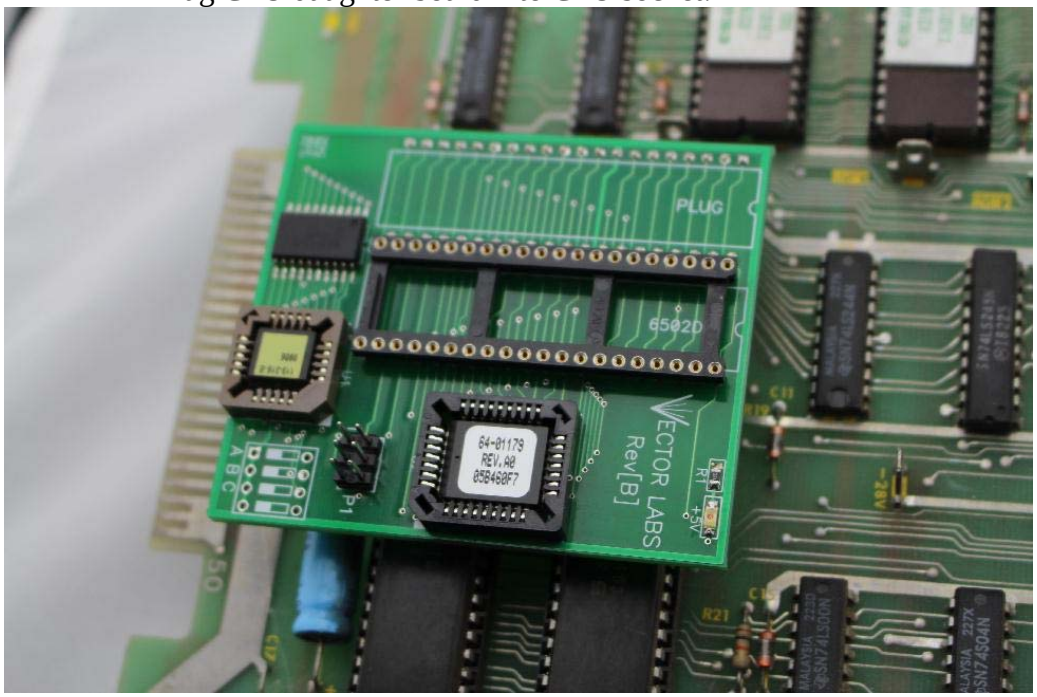
**note: There is no need to remove the six game ROM's
as the Cpu daughter board disables them.**

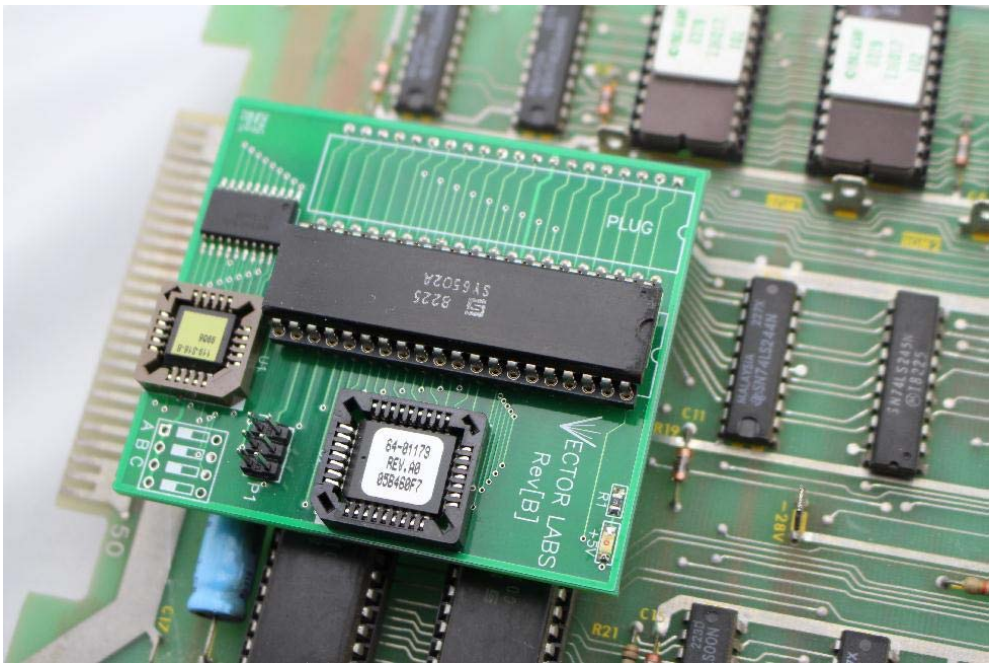
Remove the ER2055 from its socket.



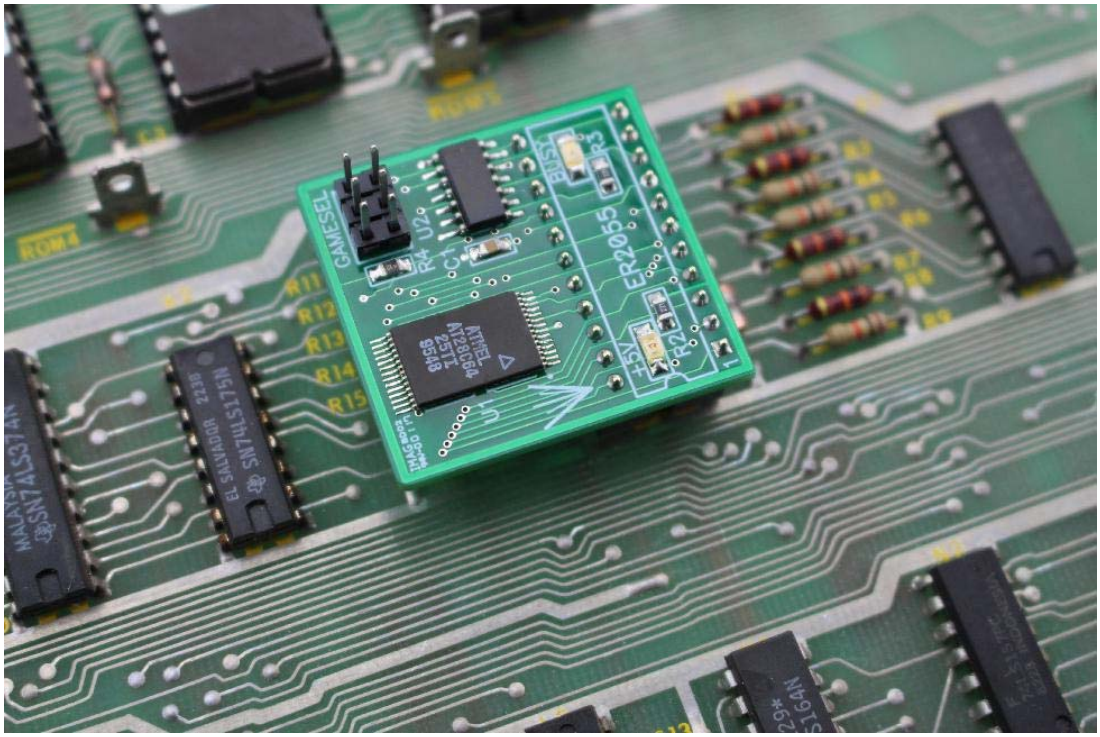
Plug CPU daughter board into CPU socket.



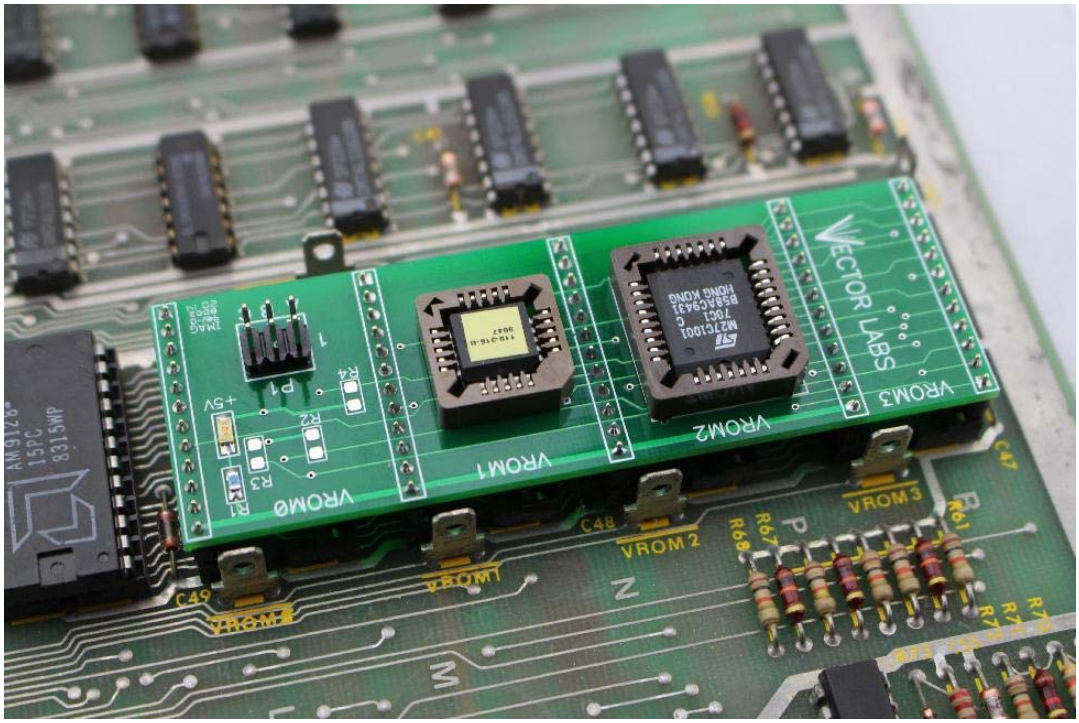
Plug 6502 processor back into socked on daughter board as shown below.



Plug ER2055 daughter board into socket as shown below.

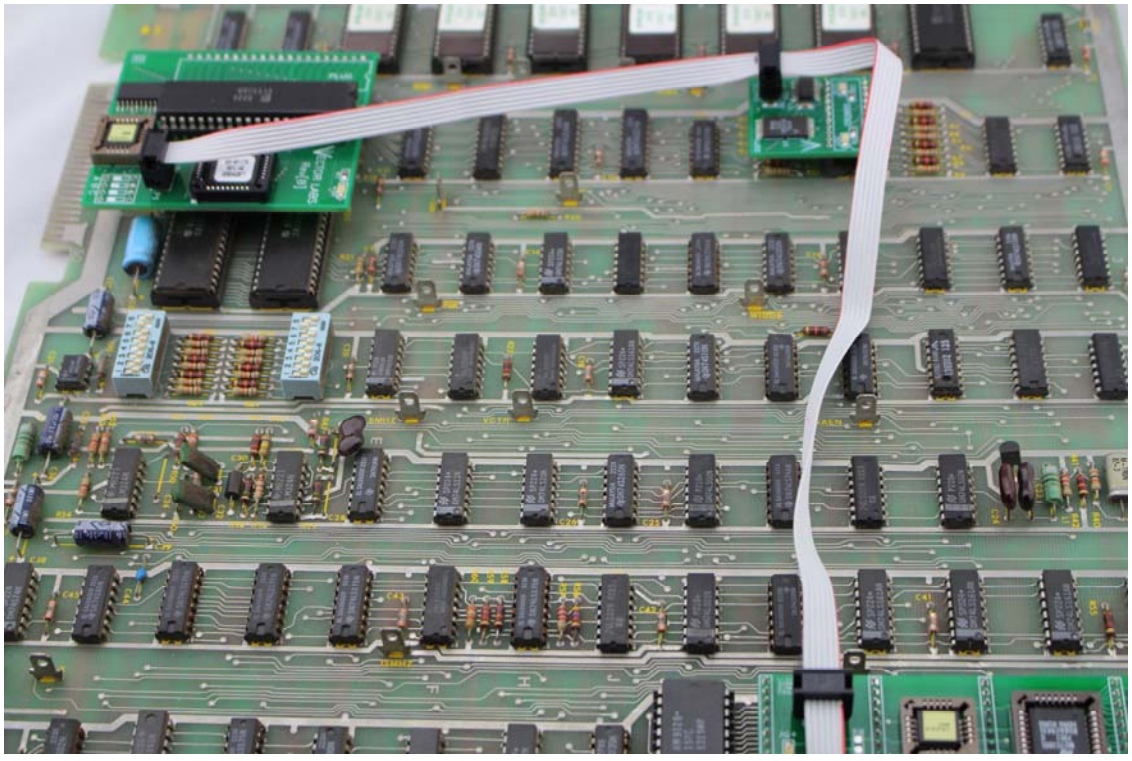


Plug vector daughter board into vector ROM sockets as shown below.



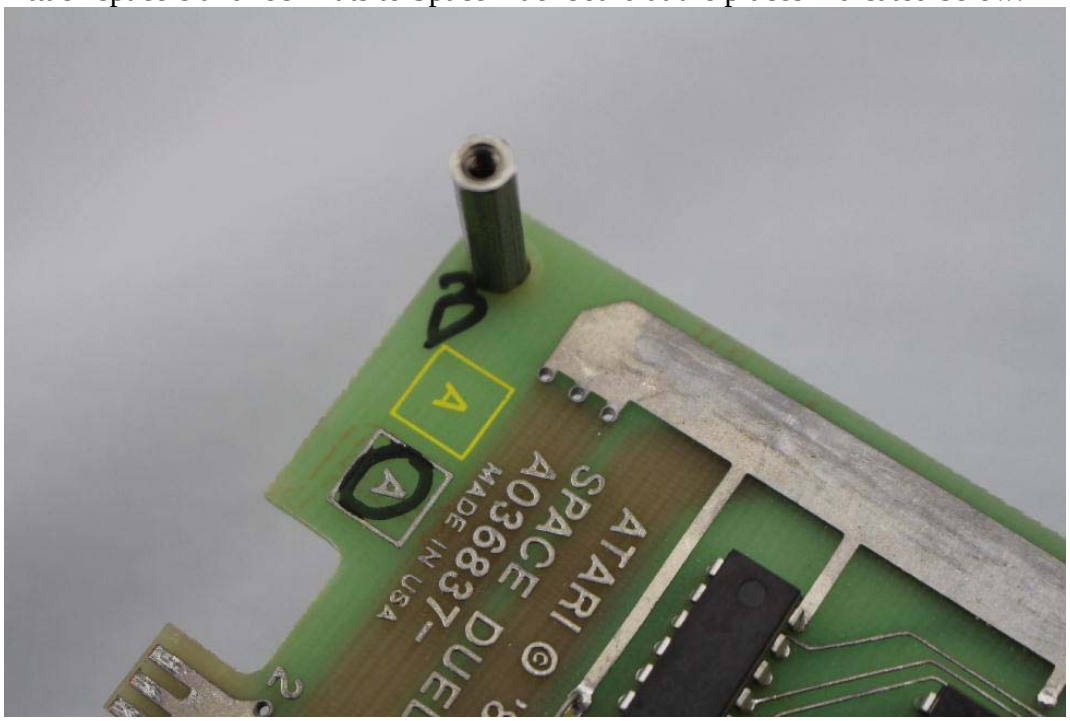
Plug supplied ribbon cable into the three daughter boards as shown in the picture below.

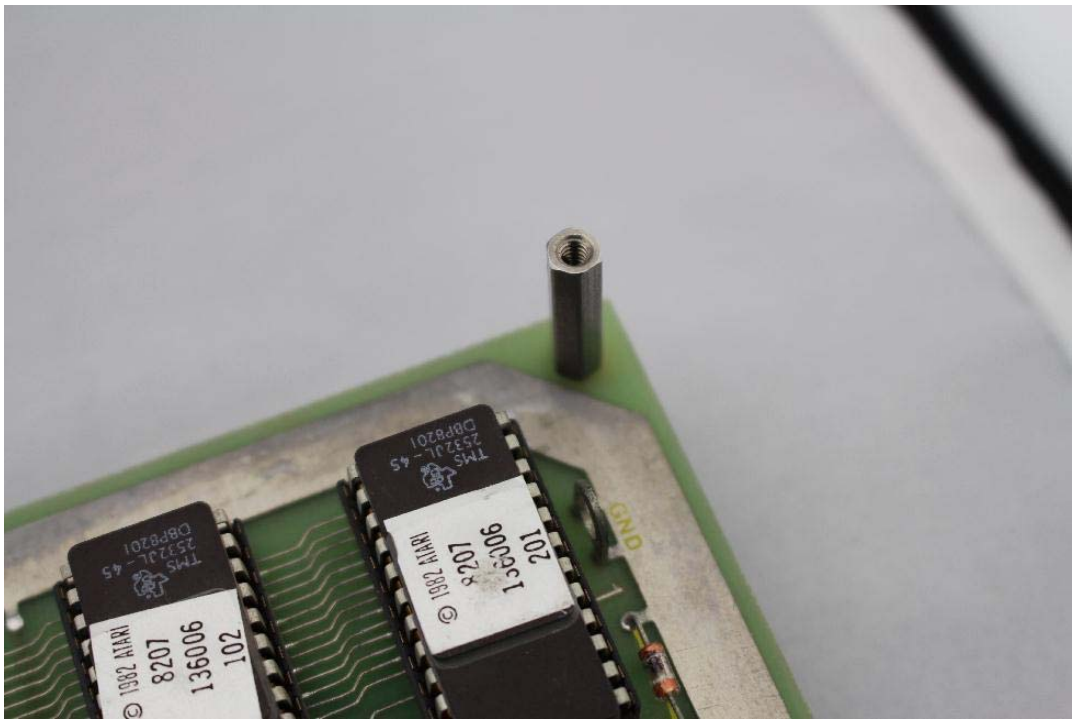
Take note of position of red stripe (pin1) when plugging cable in.



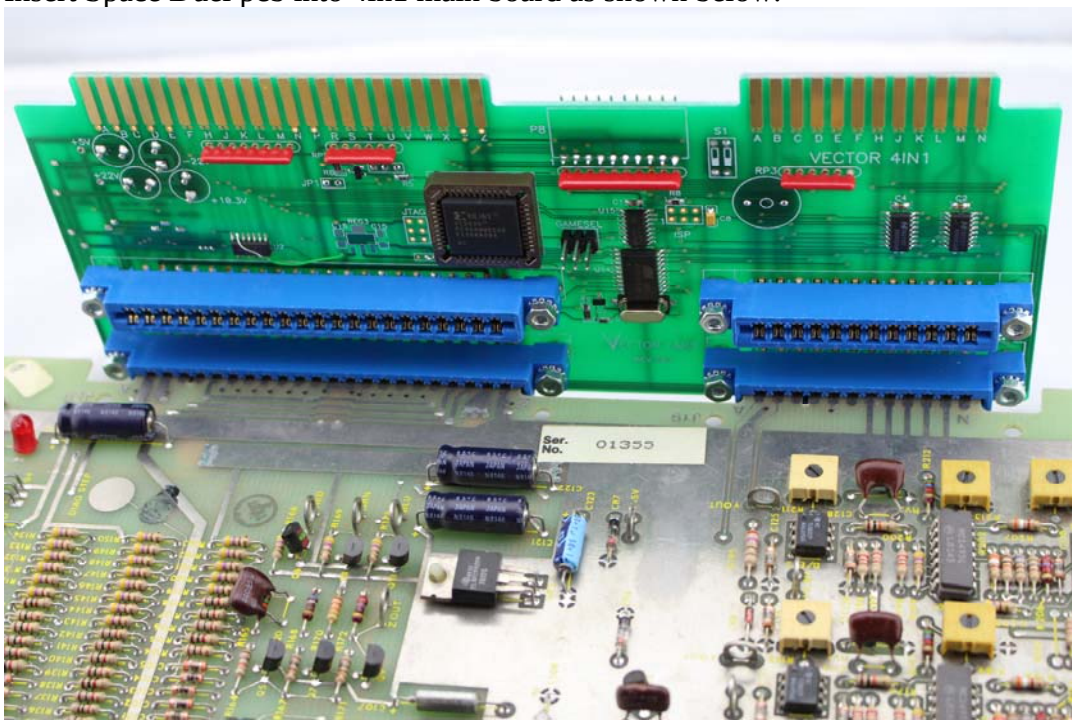
Set board aside and open package of hardware as shown below.
Remove spacers, lock washers and locking nuts from package.

Attach spacers and lock nuts to Space Duel board at the places indicated below.

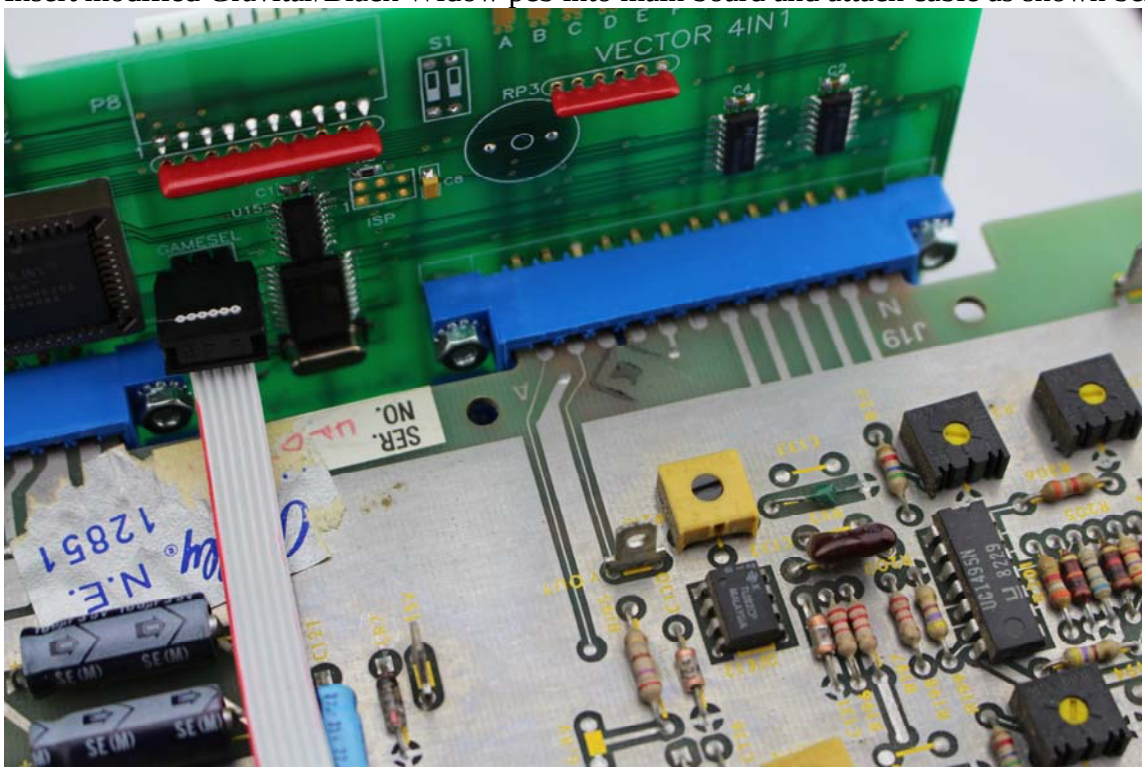




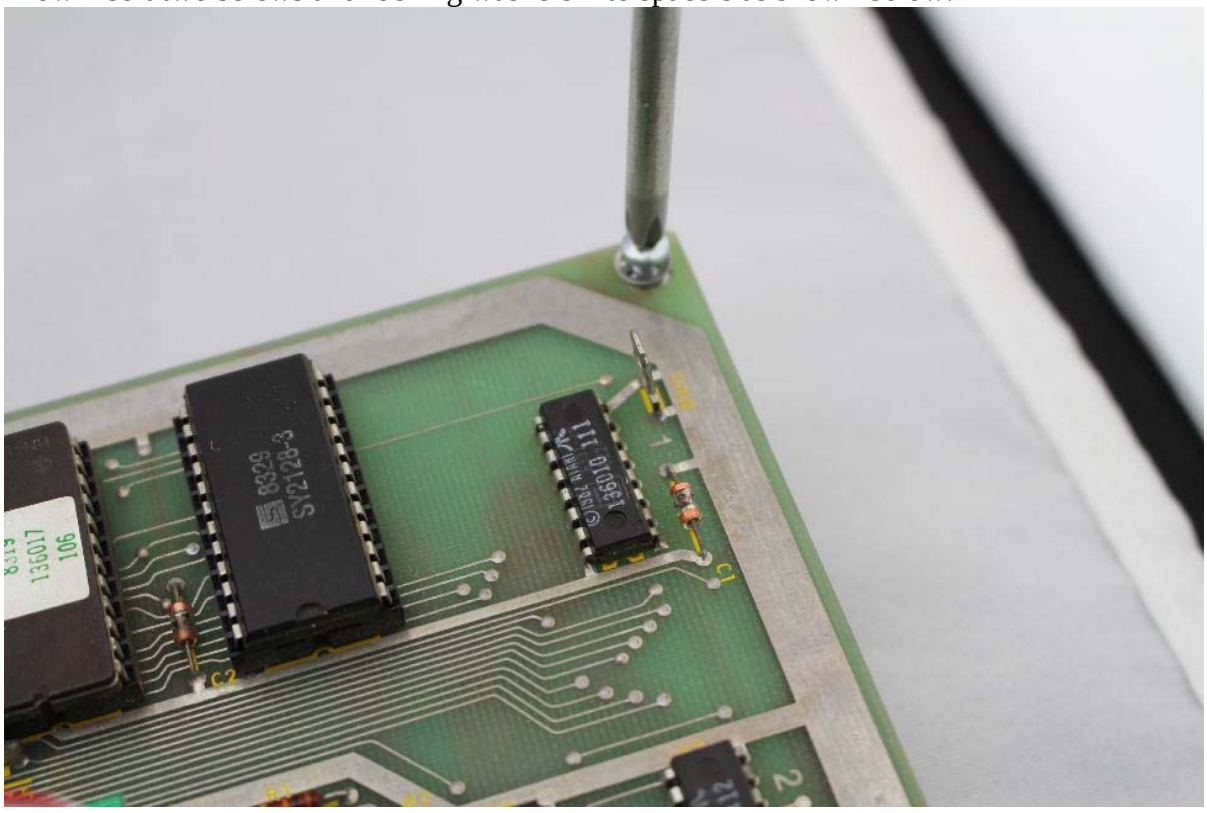
Insert Space Duel pcb into 4in1 main board as shown below.



Insert modified Gravitar/Black Widow pcb into main board and attach cable as shown below.

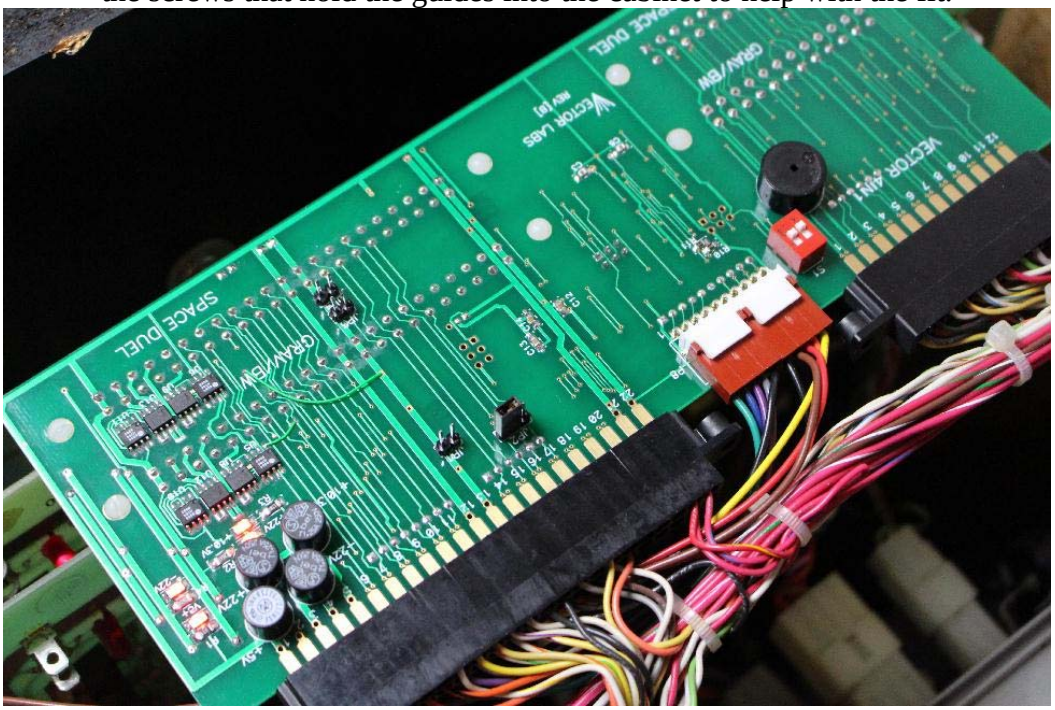


Now insert two screws and locking washers into spacers as shown below.

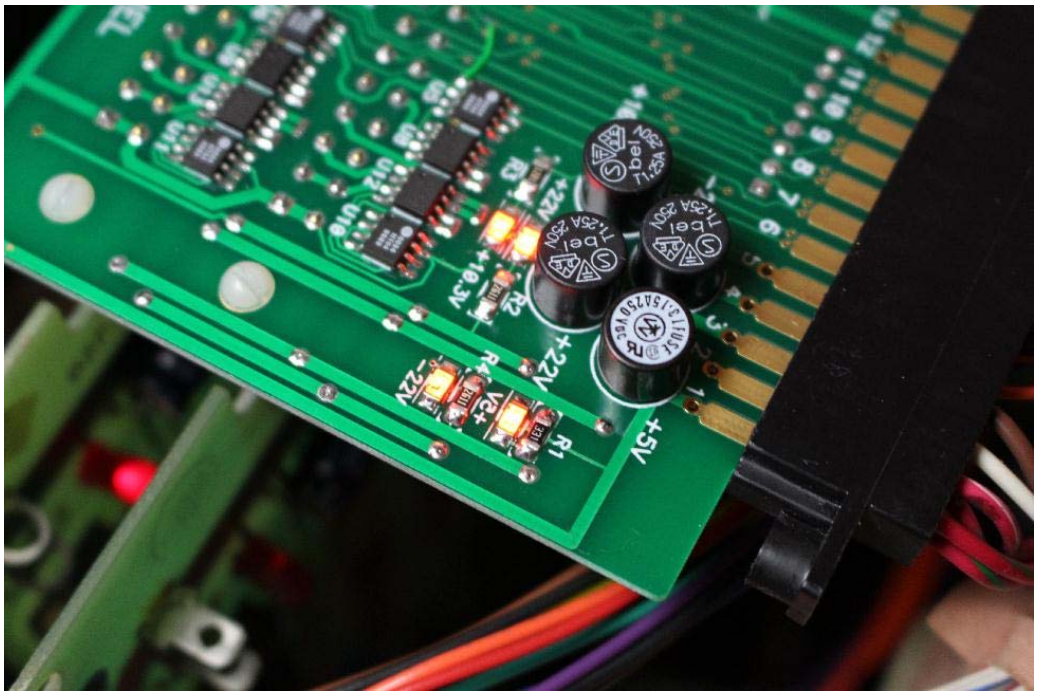


THE INSTALL IS NOW COMPLETE!!!

On both the Standup & cocktail versions of Space Duel there are plastic card guides/holders that are mounted to the cabinet. Use these to slide the rear board of the stack (which is the Space Duel PWB) back into, you may have to loosen the screws that hold the guides into the cabinet to help with the fit.



Take note that all four LED’s should be lit.



To switch games merely hold down
the (P2) button and then use the (P1) to
select the next game (Gravitar) and then again to select (Lunar Battle)
and again to selecto(Black Widow), then the sequence repeats.

There are also four jumper headers
JP1 = Atari self test
JP2 = Cabinet type for Grav/Bwidow PCB
ON = Cocktail OFF = Stand Up
JP3 Cabinet type for Space Duel PCB
ON = Cocktail OFF = Stand Up
JP4 = 1&2 Coin mech 1
JP4 = 3&4 Coin mech2

IF YOU HAVE AND PROBLEMS OR SUGGESTIONS ON HOW TO IMPROVE THIS INSTALL GUIDE PLEASE CONTACT VECTOR-LABS@TX.RR.COM

THANK YOU FOR YOUR PURCHASE