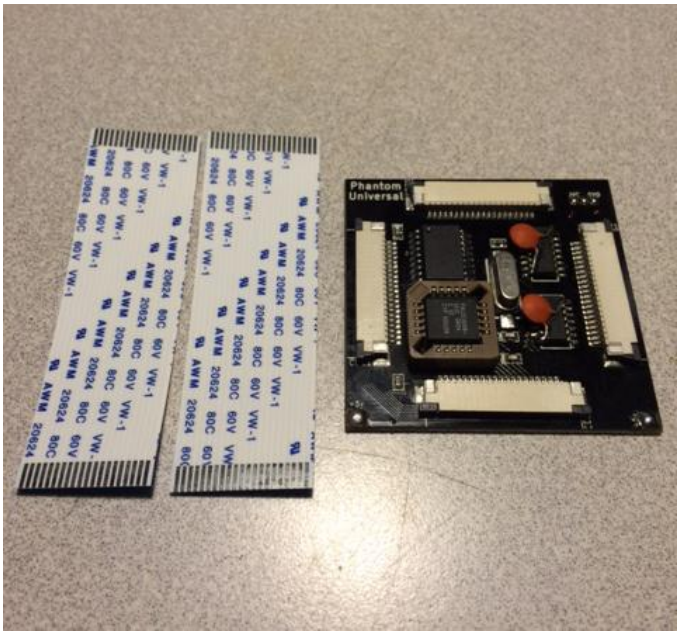
PHANTOM UNIVERSAL

Thank you for purchasing the Ultimate Sega Saturn Mod Chip!



Installation Guide

For Use on all Model 2 Consoles with SANYO Drives ONLY

<u>*NOTE*</u>

<u>When attempting to play a backup after installation is done, make sure to have the lid *CLOSED* before powering on the console.</u>

<u>When the lid is open, it disables the chip, just like with many PS1 modchips.</u>

Getting Started

At this point you should already know what type of console you have and what type of drive is in your console. If you do not, stop reading here as you might be reading the wrong installation guide.

We have put together a simple guide that will help you determine your consoles Model, as well as your consoles drive type. You should download and read that guide first to ensure you are using the proper installation guide.

Download:
SegaSaturn_Disassembly_ModelIdentification.pdf

Assuming you have selected the correct installation guide to this point, let's get started with the installation.

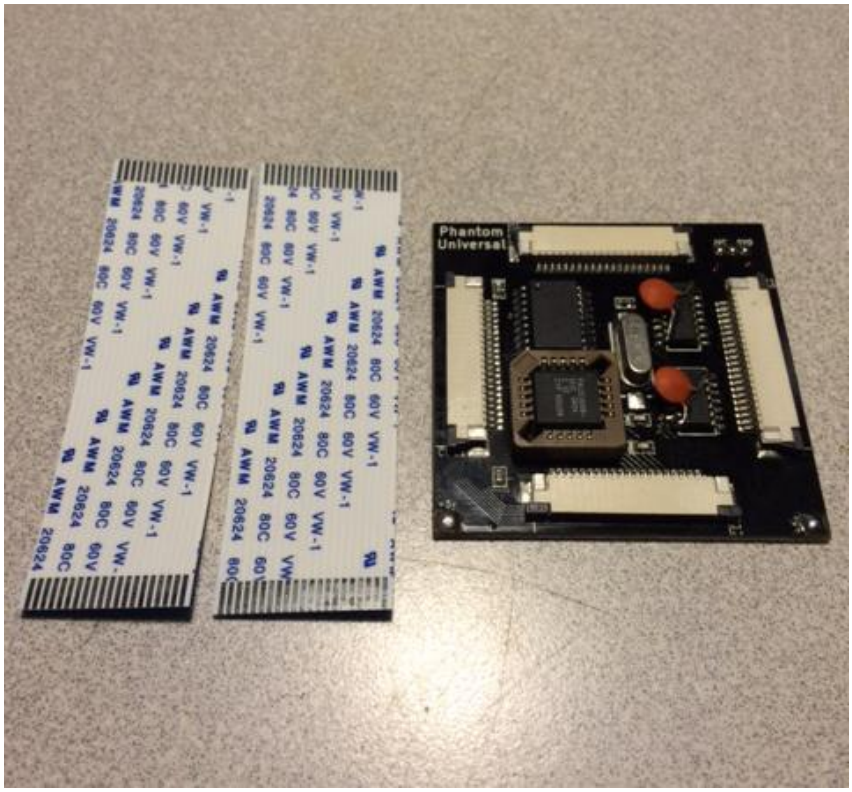
UN BOXING YOUR CHIP

The Contents Should Include:

1 – Phantom Universal Mod Chip.
1 – 20 Pin Ribbon Cable
(Used on Model 1 Consoles Only)
1 – 21 Pin Ribbon Cable
(Used on Model 2 Consoles Only)

*Optionally your kit may ship with a strand of 26 or 30 Gauge Kynar wire. Some chip suppliers supply the wire, others do not.

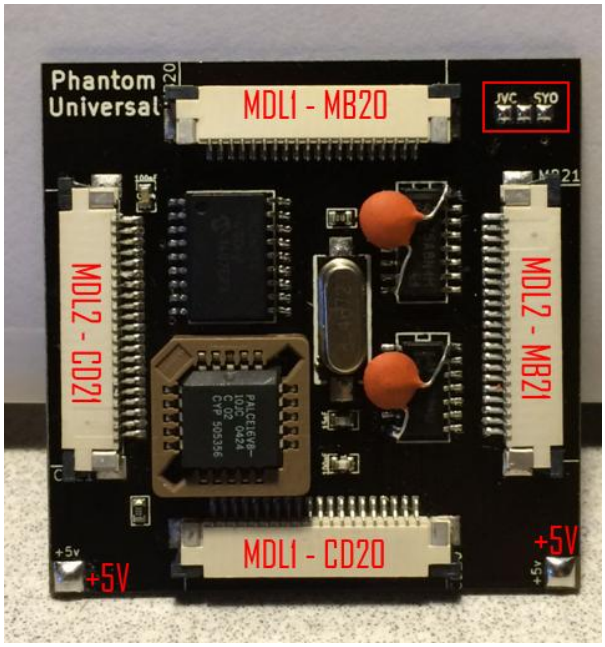
If your kit does not ship with this wire, you will need to get one, or you can substitute in a strand of Ethernet cable wire, or pretty much any other small gauge wire you might have handy around the house.



Optionally Provided 26 or 30 Gauge Kynar Wire

Step 1 – Understanding the chips design.

Let's examine the chip.



The Phantom Universal chip has 3 sections that you will need to make yourself comfortable with.

1) The JVC / SYO Solder connections.
    a. This will be used to configure the chip on all Model 2 consoles.
2) The 2 – 20 pin ribbon connectors you need. There are 4 total.
    a. MDL2 – MB21 (MB21) & MDL2 – CD21 (CD21)
    b. Note MB20 and CD20 will not be used for this installation.
    c. The chip has 4 connectors to support 20 and 21 pin ribbon cable connections. The Model 2 console uses a 21 pin ribbon cable so the 20 pin connections are not used.
3) The 2 - +5V connections.
    a. This is where power is provided to the chip.
    b. They are located in the bottom corners of the chip.
    c. Only 1 of these connections is required.
    d. 2 connections are provided, so that you can choose which once is closest to your +5v location of choice once the chip is installed.

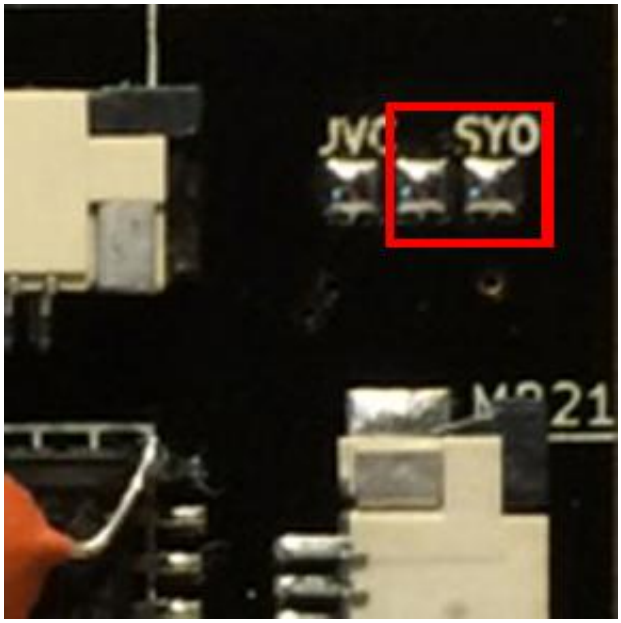
Step 2 – Wiring the Chip for Model 2 Consoles.

If you're installing the Phantom into a Model 2 Saturn you need to configure the chip.

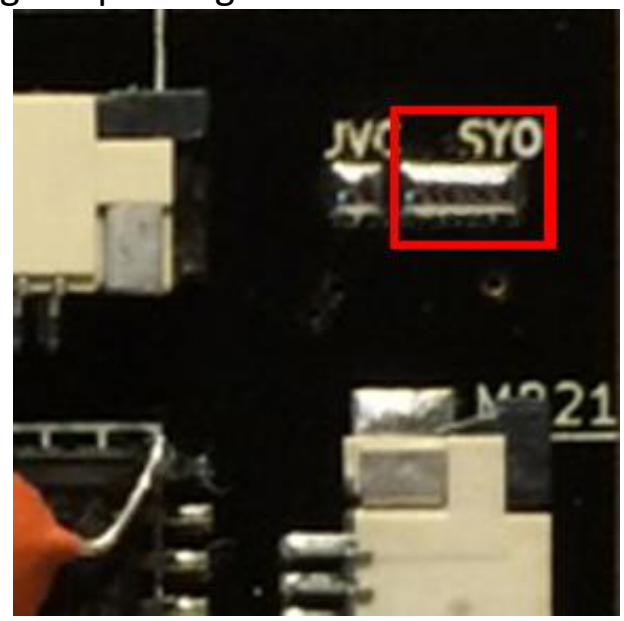
The chips ship ready to be installed into Model 1 consoles, so alterations to the chip are required for all Model 2 consoles.

A simple solder bridge connecting 2 points on the chip is all that is required.
All you need to do is to connect the SYO pin to the middle pin on the chip.

Just be careful to not bridge the JVC pin in as well.



Simply add a little bit of solder to each pin, and then drag your solder from the middle pin to the right, connecting the pins together.

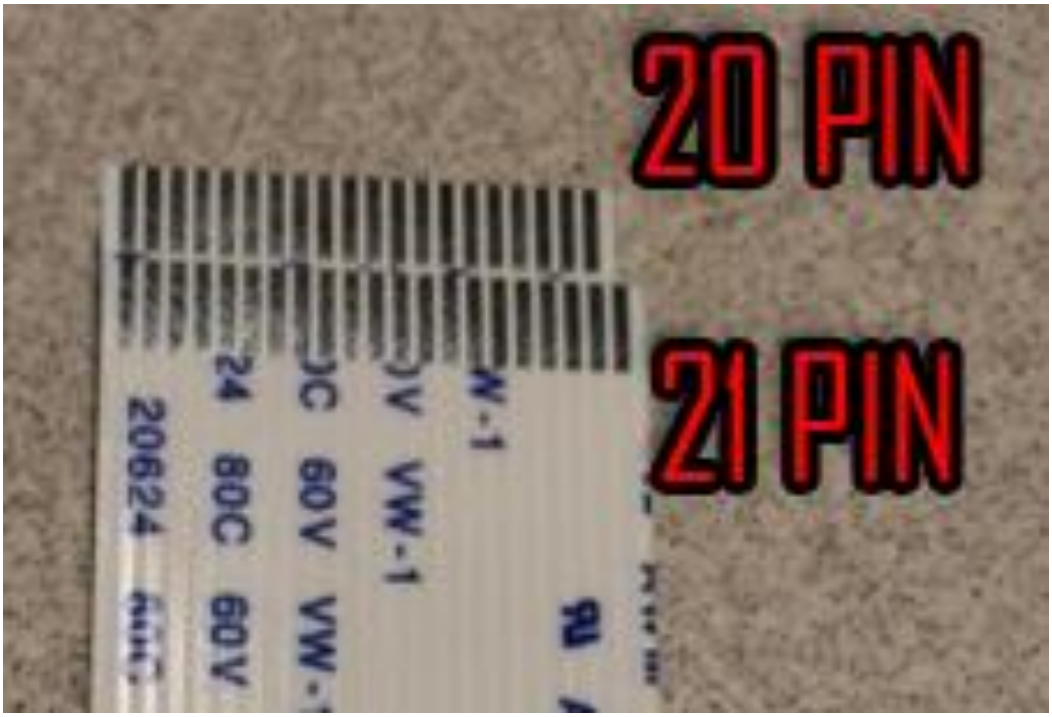


Step 3 – Selecting Ribbon Cable

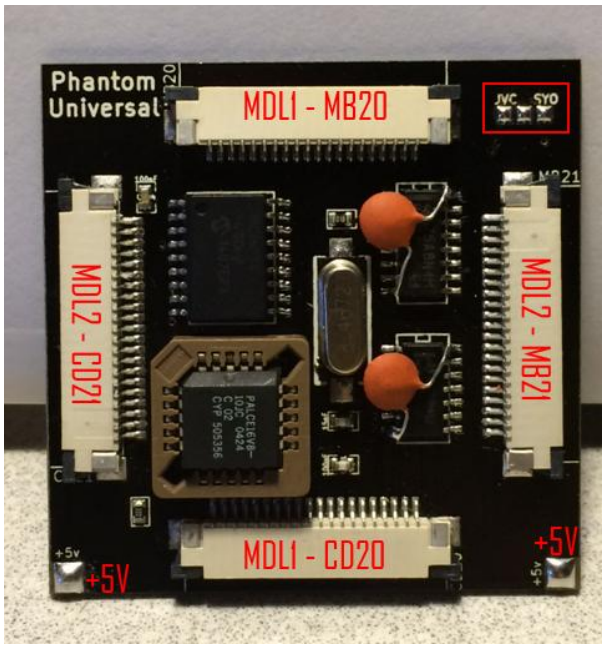
Your Phantom Universal ships with 2 ribbon cables. (A 20 pin, and a 21 pin cable.)
For the Model 2 install you need the 21 pin cable.

The 20 pin cable can be set aside and discarded later as you will not need it.

The easiest way to determine which is which is to stack them on top of one another.
Line up the pins, and the cable that has less pins in the 20 pin cable. (Set it aside.)
The cable with 1 extra pin is the 21 pin cable.



Step 4 – Soldering up +5V power to your chip.



The chip comes with 2 connections for +5V power.
Both connections are located in the lower corners of the chip.
This is where power will be supplied to the chip.

At this time, we will want to solder our wire to the chip as it will be easiest to do while the chip is still loose.

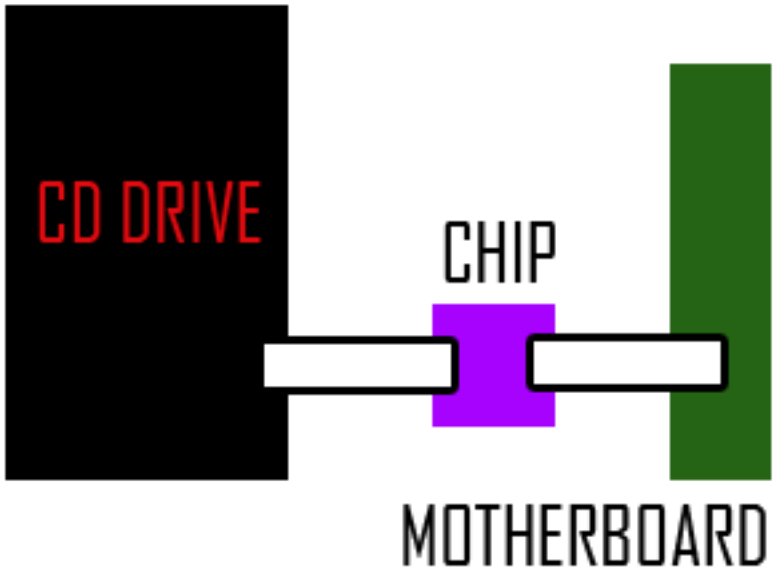
1) Pick either of the 2 +5V solder pads provided.
2) Start by tinning one of the +5v pads on the Phantom Universal Chip.
3) Solder one end of a piece of 30 Knyar wire, or whatever wire you have selected, to the location you tinned.
4) The other end of the wire leave loose, as we will wire it up toward the end of the installation process.

Multiple connections are provided on the chip as it can install oriented in a few different ways.

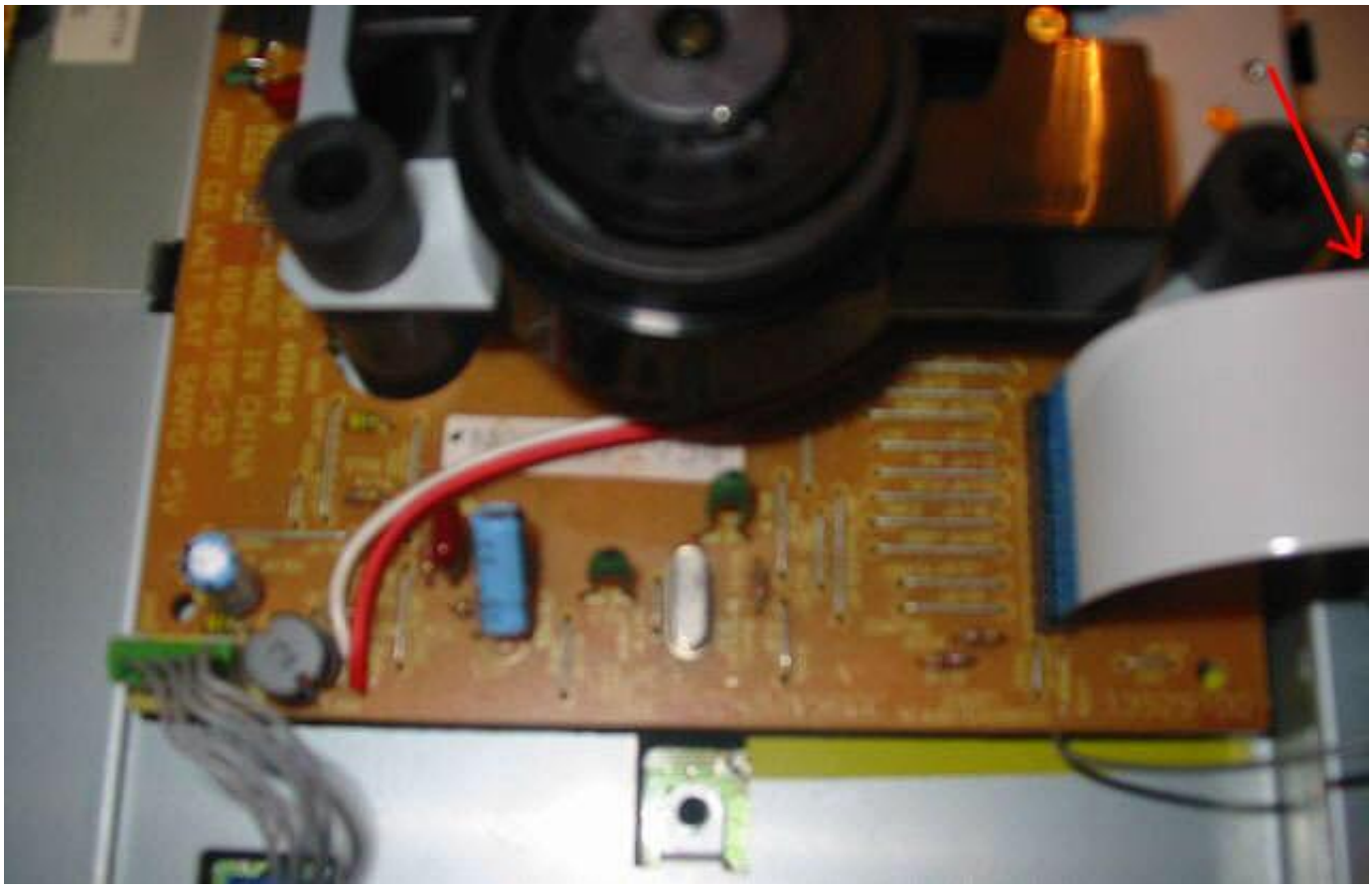
DO NOT WIRE CONNECTIONS TO BOTH +5V POINTS.
ONE CONNECTION IS ALL THAT IS NEEDED.

Step 5 – Plugging up the Ribbon Cables.

It's time to install the mod chip "in-line" with the console. Before doing so, make sure to lay down multiple strips of electrical tape on the metal chassis to where the chip will sit. This is just to make sure the chip won't short anything out. To do this we will need to attach our ribbon cables. In general this is what it should look like when we are complete:



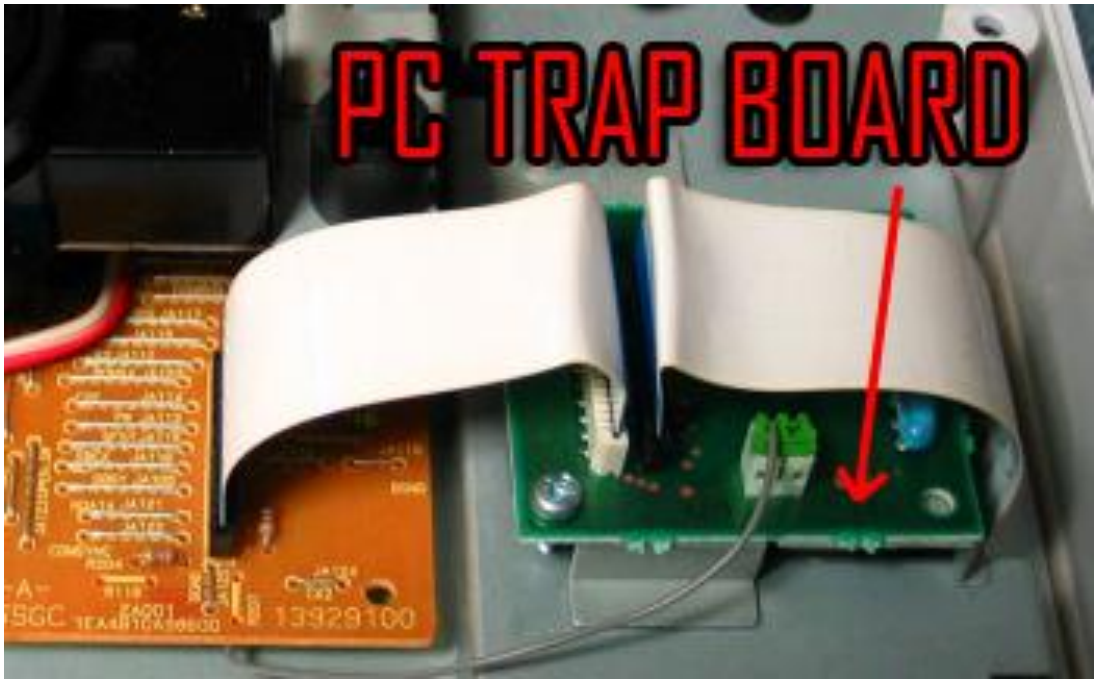
1) Unplug the existing ribbon cable from the motherboard.
    a. Make note of which way the pins are facing when the cable comes out.
    b. We want to make sure they go back in the same way later.



Step 5 – Remove the PC Trap Board

The Sanyo board is special in that it's the only CD drive model that will have a trap board installed.

The trap board will be installed between the CD-Rom drive and the motherboard connections. This board need to be removed and set to the side as it will not be needed.



1) Remove the ribbon cables from the PC Trap Board.
2) Remove the small green 3 prong power connector from the board.
3) Using a Phillips head screw drive, loosen the screws holding the PC trap board to the console.

At this point the PC Trap Board can easily be removed and set to the side.

If you desire, you can use the existing ribbon cables in your console in the next step, or you can use the cable provided with your Phantom Universal in the packaging that was provided.

The Phantom Universal will install very similarly to how the PC trap board was installed, except the Phantom Universal does not screw to the case.

Step 6 – Plugging up the Ribbon Cables.

2) Insert 1 end of the 21 Pin cable into the MB21 connector on the chip.
    a. These connectors have a small lock that needs to be opened before the ribbon cable will slide in. We recommend using your fingernails and some gentle even pressure on the left and right side of the connector to push/pull the lock out.

They are not separate locks. Both sides must be pulled out at the same time.

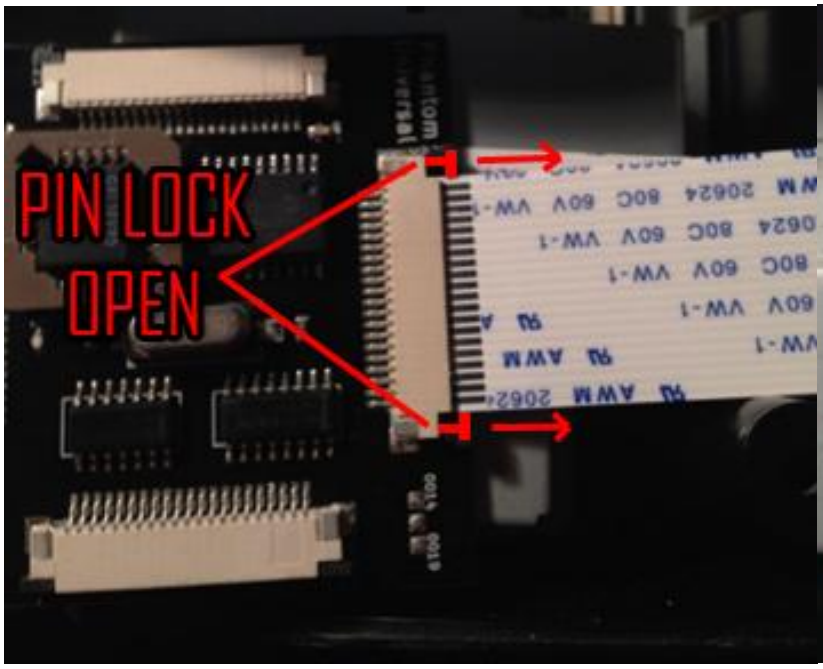
    b. The PINS on the cable should be **facing up** when inserted.
    c. When inserting the ribbon cable into the connector, try to wiggle the ribbon cables in to make sure it's in there all the way. Sometimes the contacts in the ribbon cable connectors can be a bit tough.

Make sure the ribbon goes in straight, and all the way to the back of the connector.

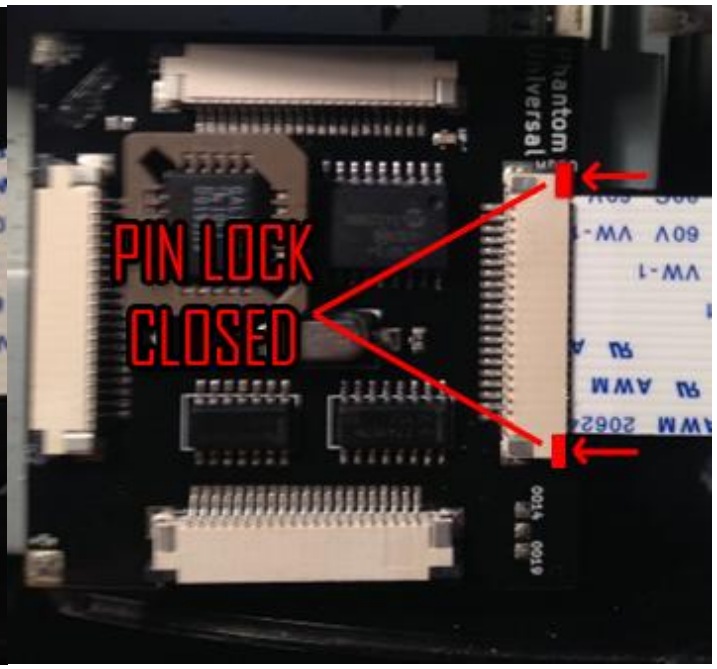
    d. Once the ribbon cable is fully inserted, using gentle even pressure on the sides of the connector again to close the lock. Once connected, the ribbon cable should be tight and will not pull out with a gentle tug.

They are not separate locks. Both sides must be pushed in at the same time.

These connectors are very fragile and can easily be broken if force is applied in correctly.



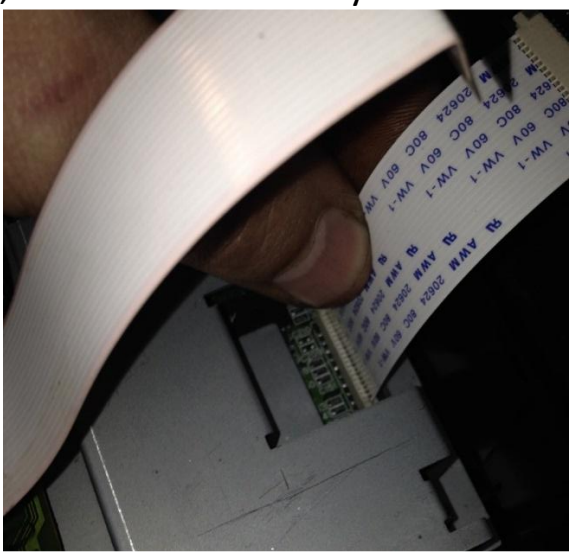
Before: Ribbon Being Inserted.



After: Ribbon Inserted Correctly.

Step 6 – Plugging up the Ribbon Cables.

3) Insert the opposite end of the 21 Pin cable that is connected to the chip into the open slot on the consoles motherboard.
   a. **Make sure that the pins on the cable are facing the same direction they were on the original cable.**
   b. You should still be able to reference the original cable if need be.
   c. Most of the time, this will be the left hand side of the connector when facing the console, but this is not always the case.



4) Connect the end of the original ribbon cable that's still connected to the CD-ROM drive into the CD21 side of the phantom universal chip.
    a. These connectors have a small lock that needs to be opened before the ribbon cable will slide in. We recommend using your fingernails and some gentle even pressure on the left and right side of the connector to push/pull the lock out.

They are not separate locks. Both sides must be pulled out at the same time.

    b. The PINS on the cable should be **facing up** when inserted.
    c. When inserting the ribbon cable into the connector, try to wiggle the ribbon cables in to make sure it's in there all the way. Sometimes the contacts in the ribbon cable connectors can be a bit tough.

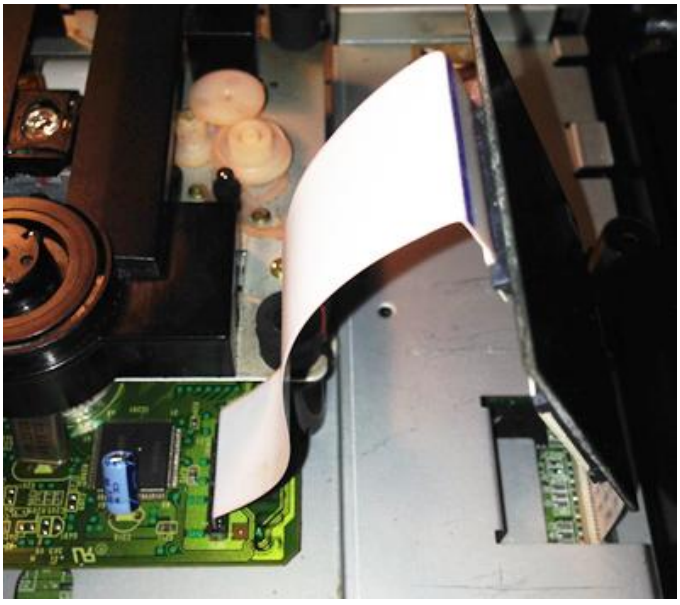
Make sure the ribbon goes in straight, and all the way to the back of the connector.

    d. Once the ribbon cable is fully inserted, using gentle even pressure on the sides of the connector again to close the lock. Once connected, the ribbon cable should be tight and will not pull out with a gentle tug.

They are not separate locks. Both sides must be pushed in at the same time.

Congratulations, the ribbon cables are all connected up!

Step 7 - Installation orientation: (Do things look right?)



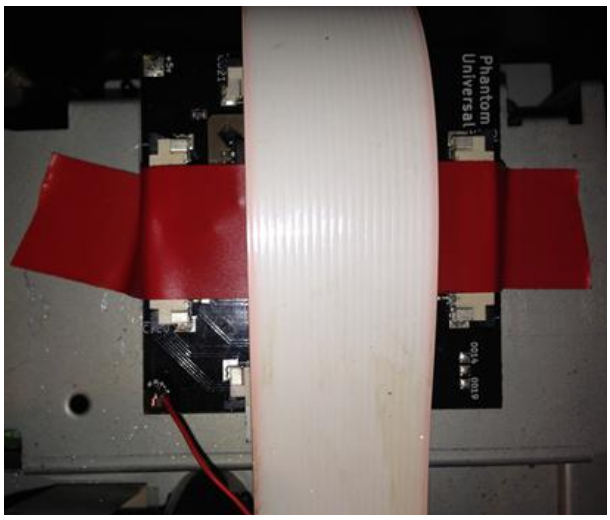
For Model 2 consoles with a 64 pin IC Chip, your chip should be facing upwards.
For Model 2 consoles with a 32 pin IC Chip, your chip should be facing downwards.

This is not an exact science. The important thing is that the ribbon cables are connected the correct way, and that the chip will lay flat when installed.

Step 8 – Securing the chip in place.

At this point we can start to secure the phantom universal chip into place.

We suggest you use a small amount of electrical tape to hold the chip down and in place as we have shown in the image below.



Hot Glue, or any other more permanent securing method is completely un-necessary.

At this point we just want to secure the chip so that it's not moving around, and so that we can easily get the top back on the console.

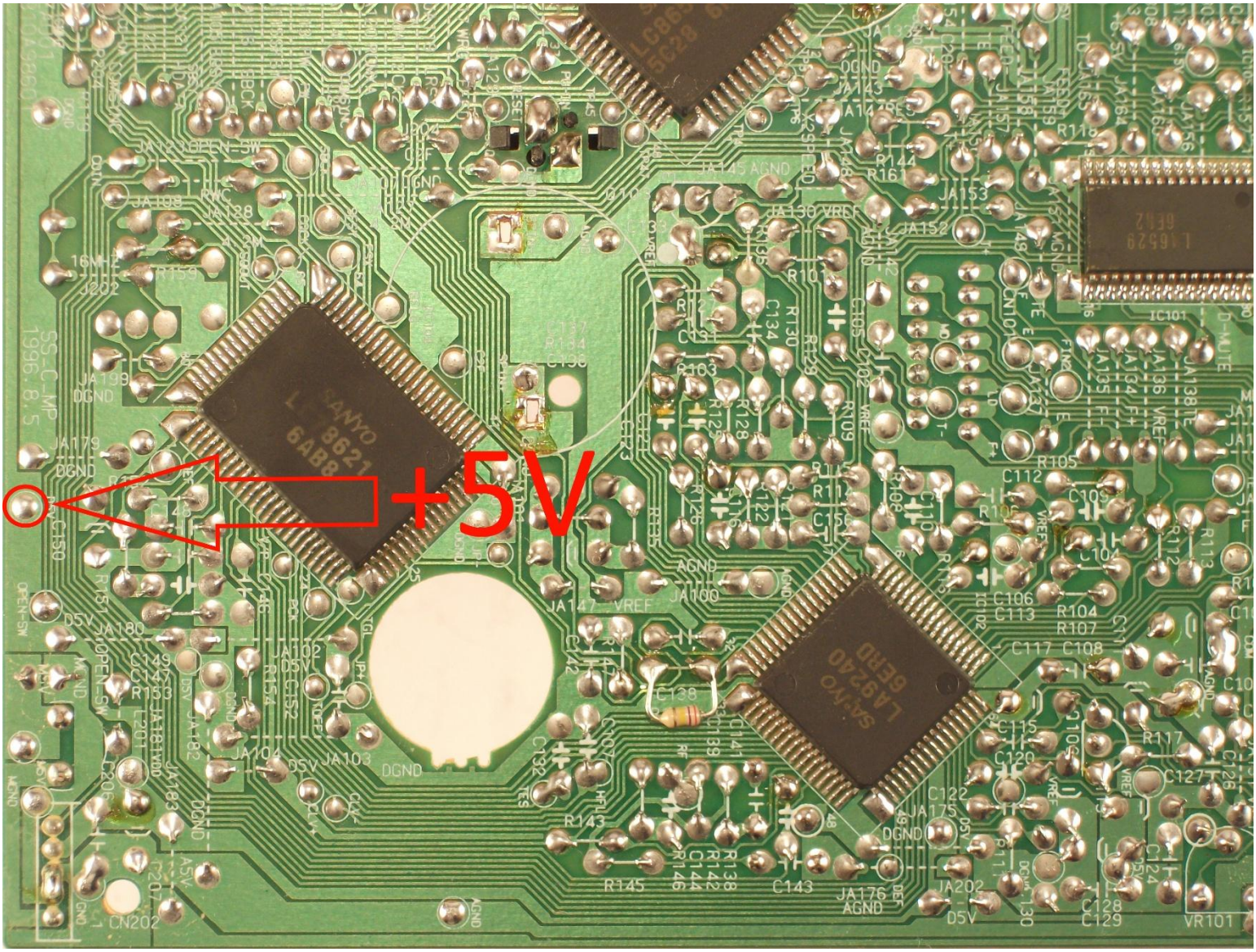
Overkill on this step might come back to haunt you as we have not tested the installation yet.

DO NOT FULLY SECURE THE CHIP UNTIL YOU HAVE TESTED IT FIRST!

Step 9 – Supplying Power to the Chip:

Now we will need to solder the other end of our +5V wire to the +5v location. There are a few locations where you can get +5V from. The best place to get +5V from is getting it from the underside of the CD Drive. Getting +5v directly from the PSU can, in some cases have noise and cause the chip to not function correctly (It is also better because if you ever need to fully disassemble the Saturn, just unplug the ribbon cable going to the motherboard and take out the CD Drive with it, no need to get out the soldering iron and desolder the wire from the PSU to fully dissemble). If you don't feel comfortable with grabbing +5V from the CD drive, you can still grab it from the PSU, most of the time it's fine.

Sanyo Drive (Model 2 – NO IC – Orange Colored PCB) (Underside) +5V Location:

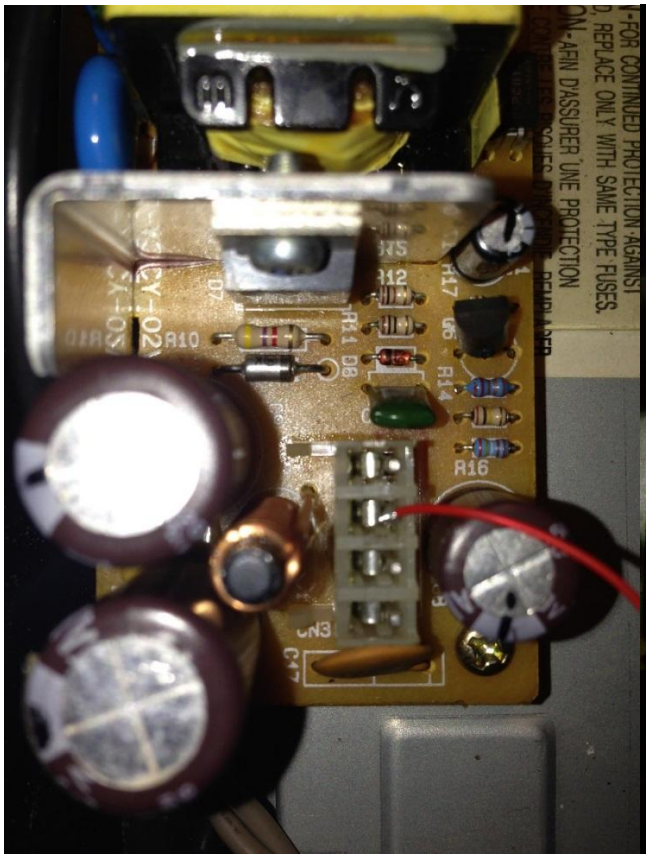


PSU location:

Note: Your Saturn power supply might have 4 pins or 5pins.

Always solder your +5v wire to the 2nd pin from the top.

Later Model 1's and All Model 2's



4PIN

5PIN

Step 10 – Reassemble / Test / Troubleshoot:

Reassemble your Saturn and give it a test.
You do not need to put the screws back in just yet.

If it works then you are finished!

Troubleshooting Steps:

1) Reseat the ribbon cables
2) Make sure your ribbon cables are inserted correctly,
    a. Check that they are not installed upside down.
    b. Make sure you don't have the MB21 connected to the CD drive and CD21 connected to the motherboard.
3) Make sure your +5v connection is soldered in the right place on the power.

If any of these troubleshooting steps do not work afterwards, please feel free to contact one of us for further help.

Zer0-2k11 via PM @ Assemblergames, TheIsoZone or EPForums.
Bad_Ad84 via PM @ Assemblergames

Guide made by: Zer0-2k11

DESIGN TEAM:

Major kudos needs to be expressed to the development team of this chip. Because of their hard work and investment, we are ensured to have a quality mod chip around for the Sega Saturn for a long time to come.

Phantom Universal Development:
Bad_Ad84
Zer0-2k11

Partial Testing:
Bad_Ad84
Zer0-2k11

Full Testing, Setting and Fix Findings:
Druid II

Special thanks to APE for helping getting production rolling.

Once again, thank you for your purchase!
We hope you enjoy this product and all of the features that it bring to your Sega Saturn!

:)