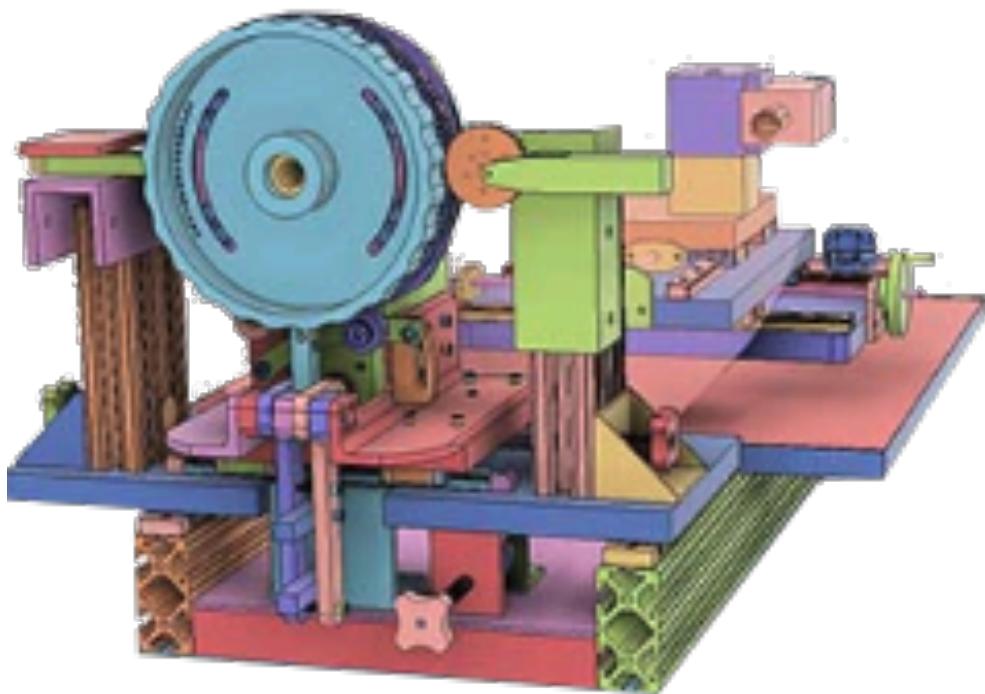


MDF Rose Engine Lathe 2.0 with Stepper Motor Drive



Instructions for Building ELFOS

Part 3 – Electronics

**Version 4.2
17 March 2024**

MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Permission is not granted to manufacture these for sale.

MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

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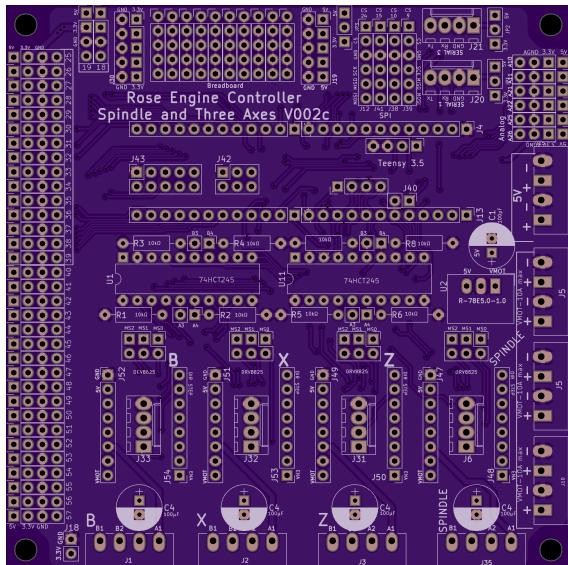
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MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Section 1 – Printed Circuit Board

Attach the parts to the printed circuit board (PCB). These instructions reference the **Rose Engine Controller** PCB. Use of the older PCBs is not recommended.

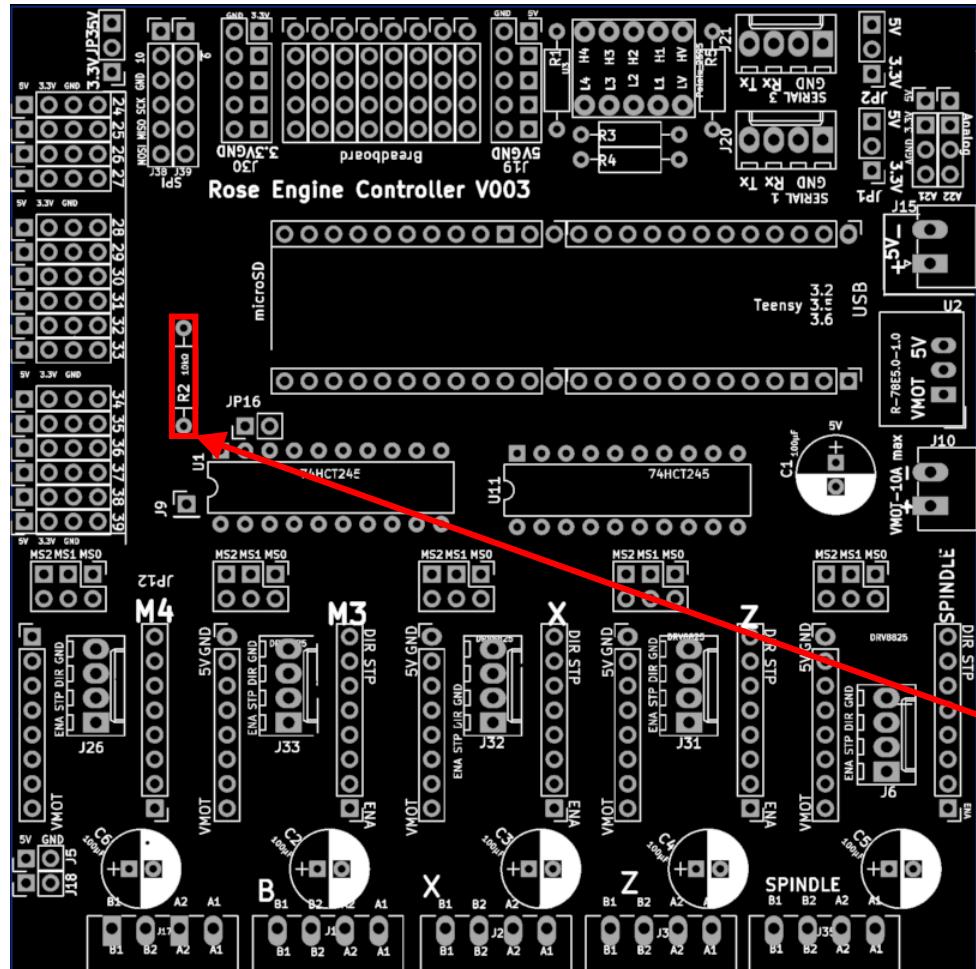


MDF Rose Engine Lathe 2.0

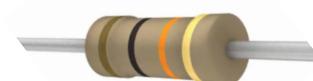
Build Instructions – ELFOS

Through-Hole Components, part 1

Solder in the resistors as noted below.



NOTE: the direction in which the resistor is installed is not critical, but when I solder more than one into place, I try to solder them the same for each side. Makes it look more dress-right-dress. (My SGT would be happy.)



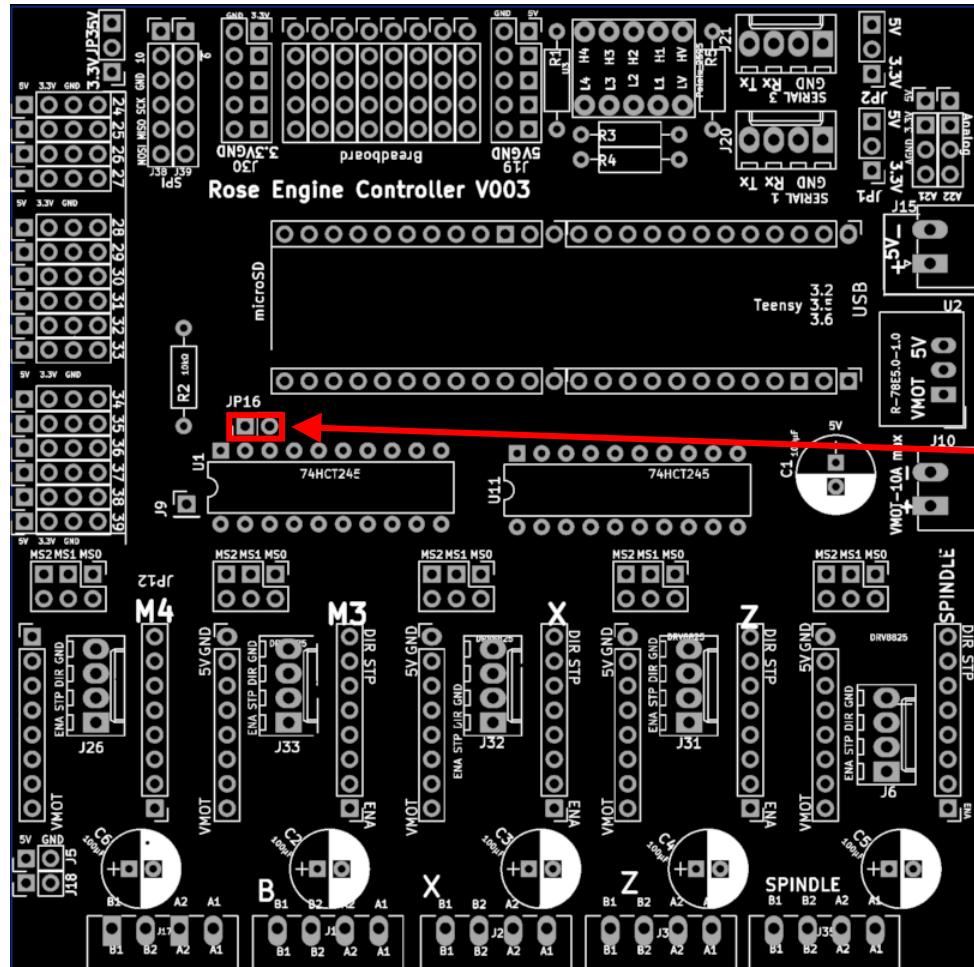
10 KΩ resistor



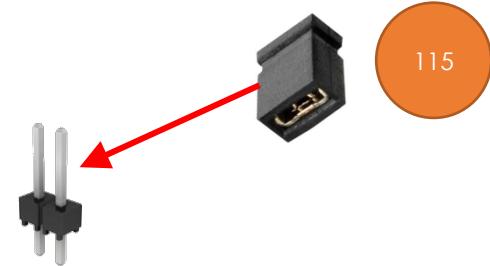
MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Solder in a header for bypassing the resistor. Add a mini-jumper.



Mini Jumper – Installed across pins in header connector #114.



Header Connector,
vertical, 2 pins (1x2),
2.54mm pin spacing

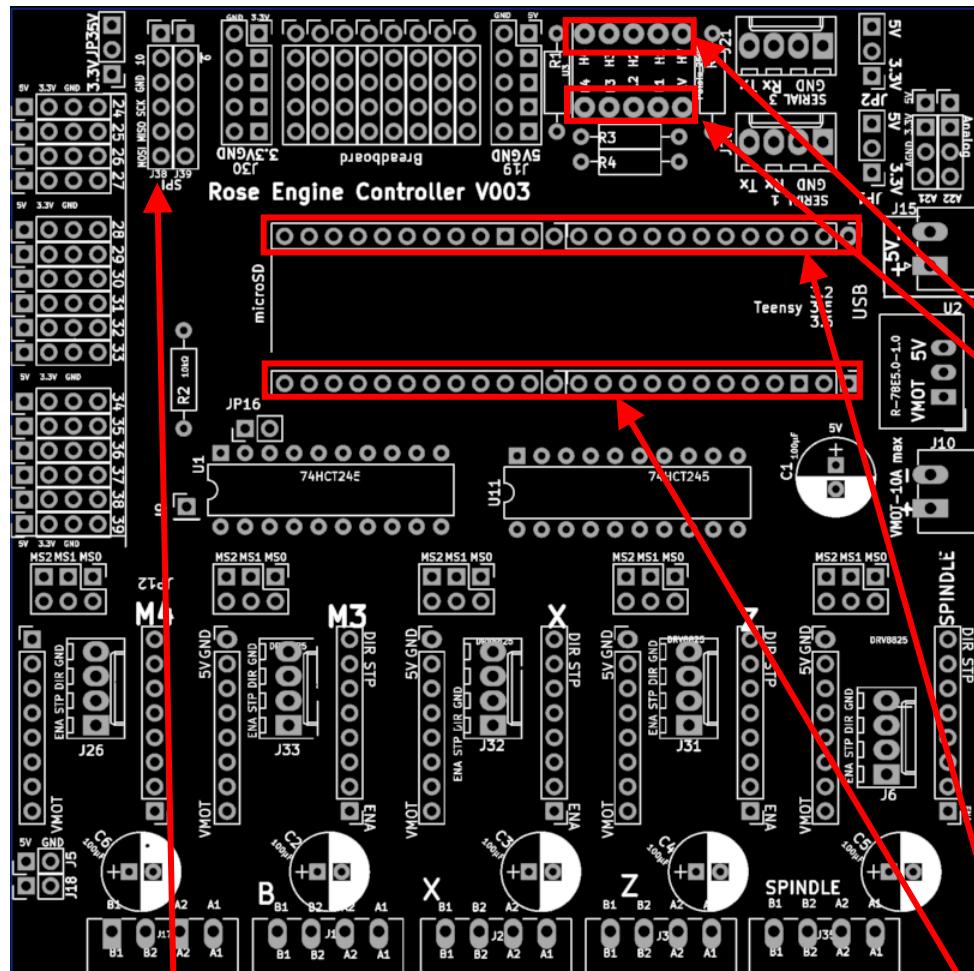
114

MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Headers for Integrated Circuits

Solder in the 2 headers for the Pololu 2595 and 2 headers for the Teensy.

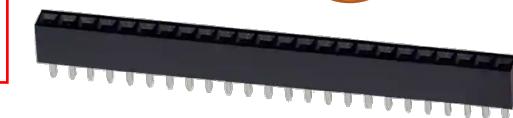


Header on J38 for SPI. This is useful if you are using a Teensy 3.2 as you will need an external microSD card reader. This is a 6-pin header.

121

Headers (2) for
Teensy 3.5

102



NOTE 1 : The headers must be at 90° to the circuit board. It is necessary to ensure that they remain perpendicular or the chip's pins will not fit into the header pin holes.

I have used a piece of $\frac{3}{4}$ " MDF (2" x 3") and taped the header to the edge. Then the MDF can be taped to the PCB, holding it vertically whilst the PCB is flipped over to solder the header into place.

NOTE 2 : Recommend you start with the header at the edge of the board, and work down from there (down being as shown in the picture to the left). This gives you room to tape the MDF block to the PCB as you go.

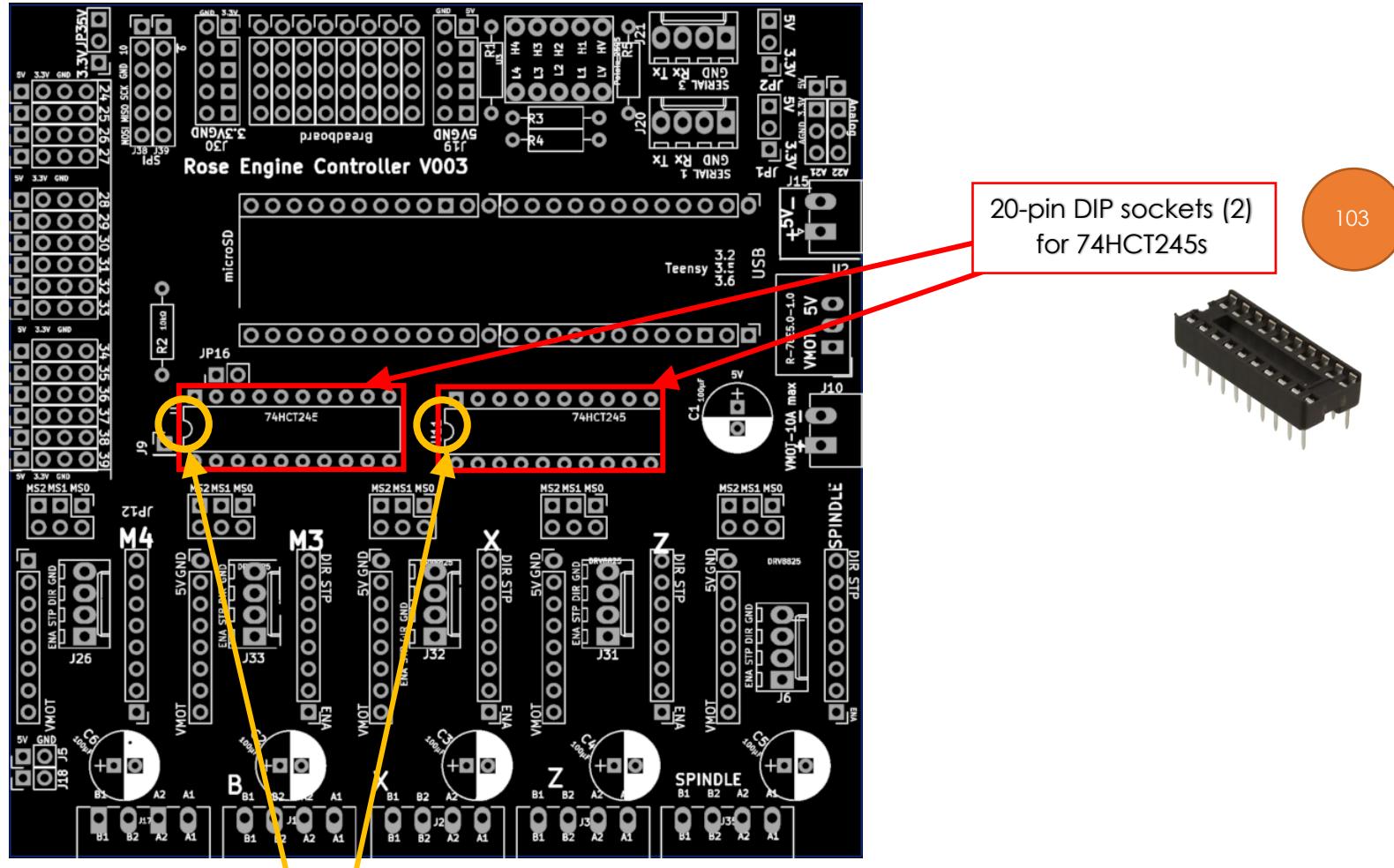


MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Headers for Integrated Circuits

Solder in the 2 DIP sockets for the 74HCT245s.



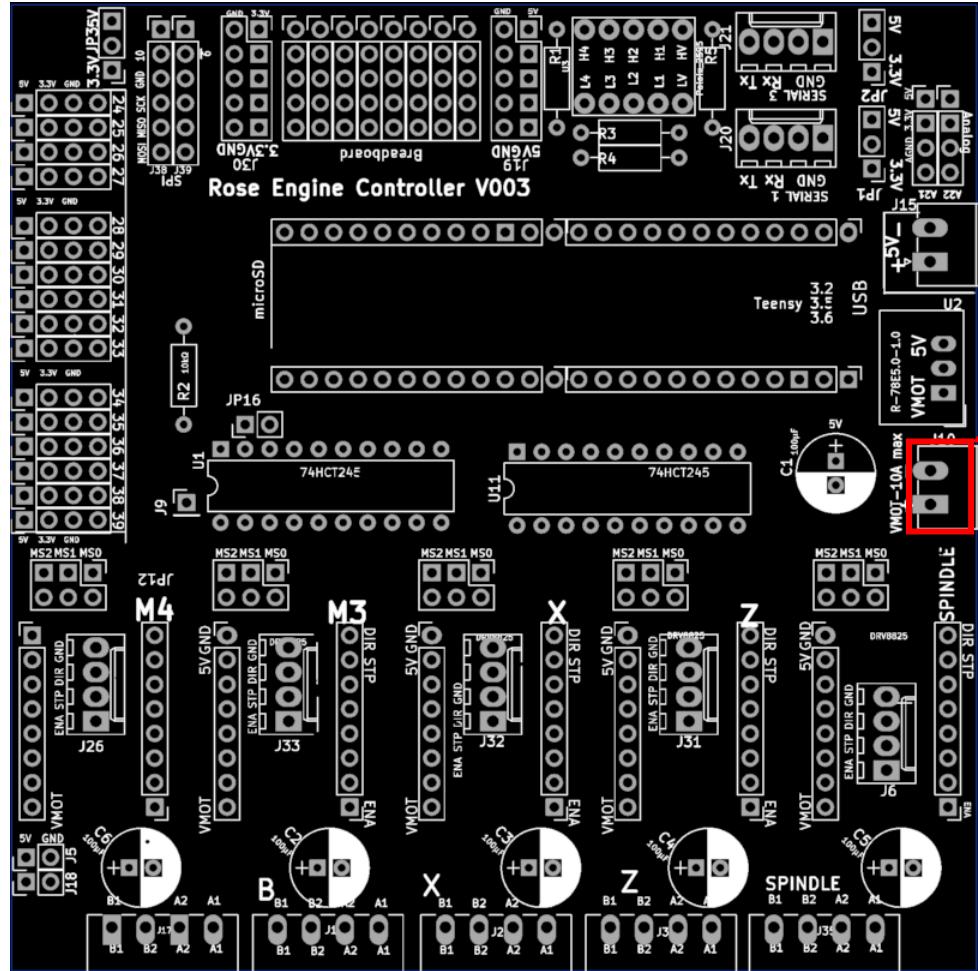
NOTE: Both sockets have direction indicators on them. Ensure they match the direction indicators on the board (the little curved part of the marking on the board). This is to ensure the 74HCT245s are inserted correctly.

MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Power Header Connector

Solder in the power connector as noted below.



NOTE: Be sure the openings are facing out from the PCB. The plug for the power will overhang the PCB.

Header Connector,
90 degree, 2 pins,
3.50mm pin spacing

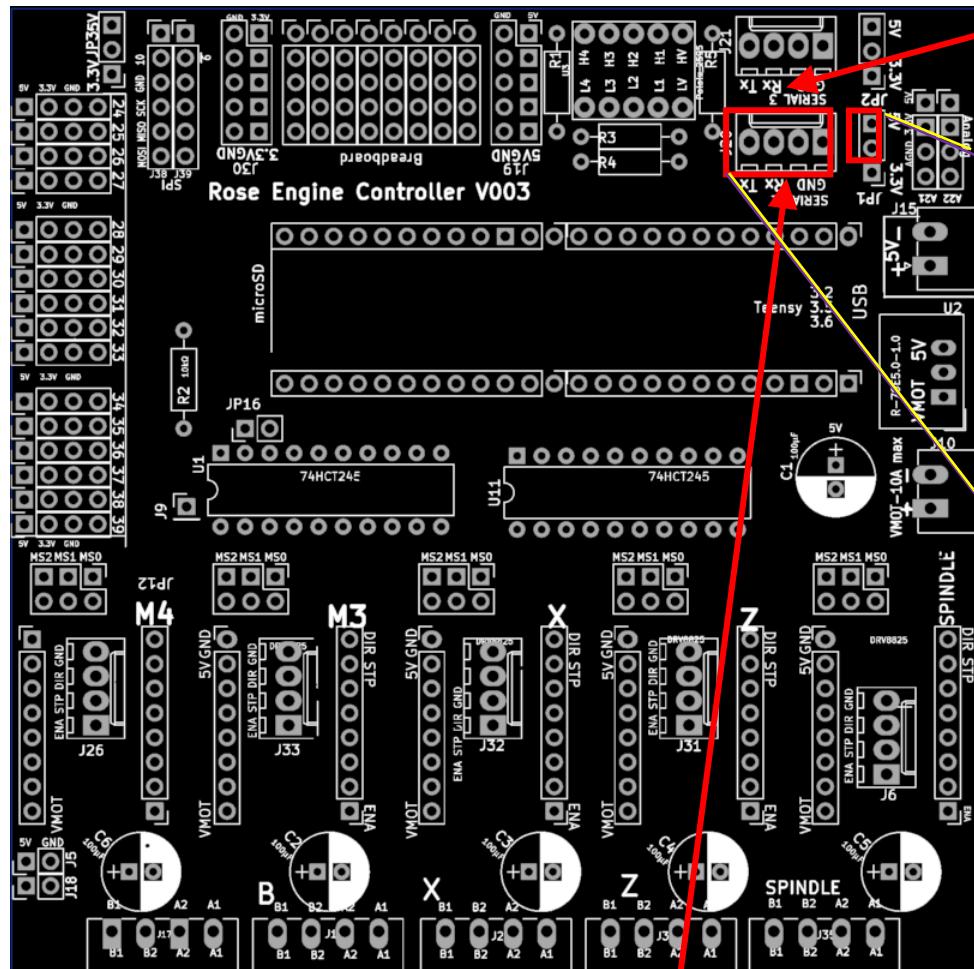


MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Nextion Display Header Connectors

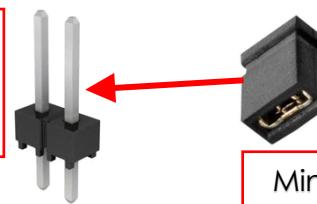
Solder in the power and signal connector for Serial 1 as noted below.



Header Connector,
vertical, 2 pins,
2.54mm pin spacing

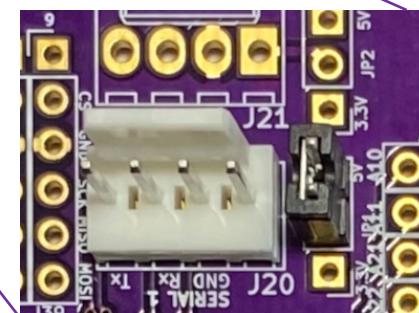
111

10



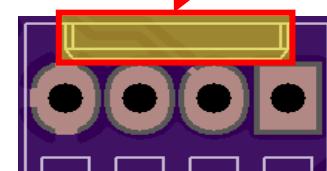
115

Mini Jumper –
Installed across
pins in header
connector
#114.



As Installed

NOTE 1: The plastic tab projecting up from the connector should be aligned with this marking on the PCB.

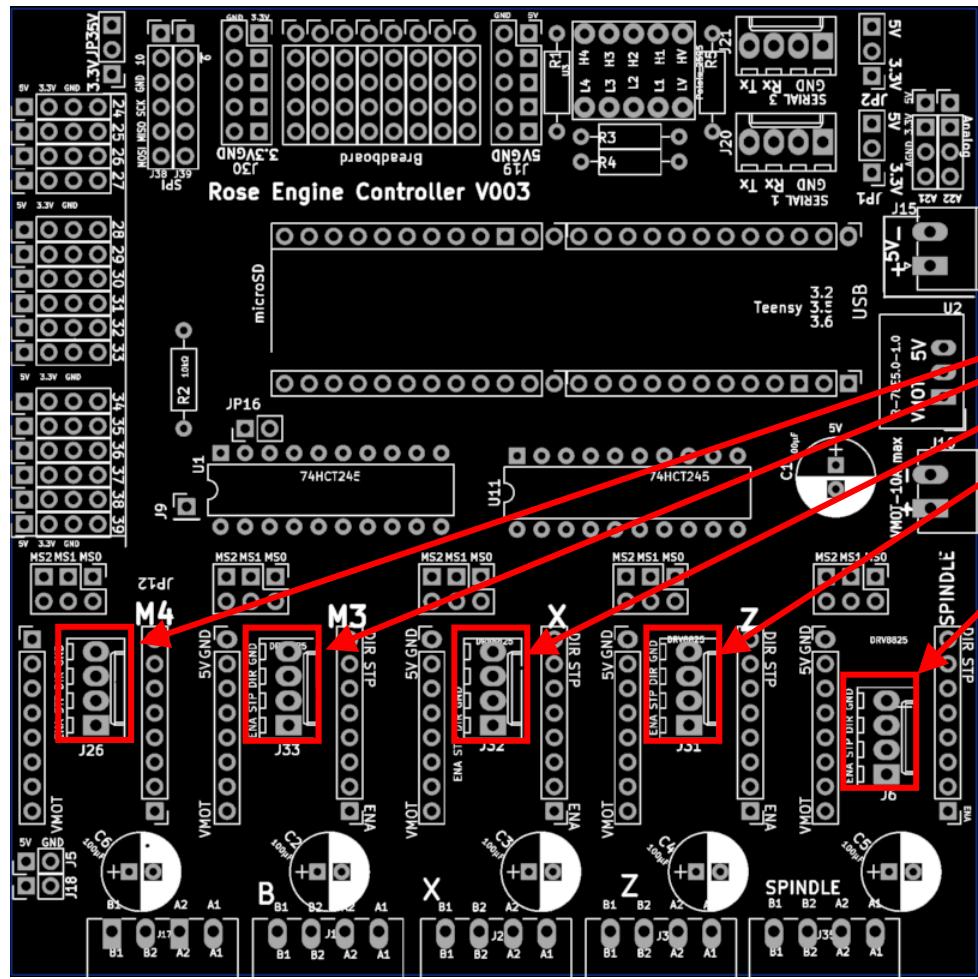


MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Stepper Motor Driver Header Connectors

Solder in the stepper motor driver connectors as noted below.

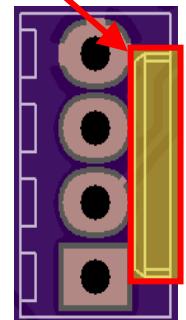


Header Connector,
vertical, 4 pins,
2.54mm pin spacing



111

NOTE: The plastic tab projecting up from the connector should be aligned with this marking on the PCB.



MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Limit Switch Header Connectors

Solder in the limit switch connector pins as noted below.

113

Header Connector,
vertical, 12 pins (6x2),
2.54mm pin spacing



Optional: These will probably be used if you later implement the overhead drives control circuit.

Each cost less than \$1, and much easier to add them now.

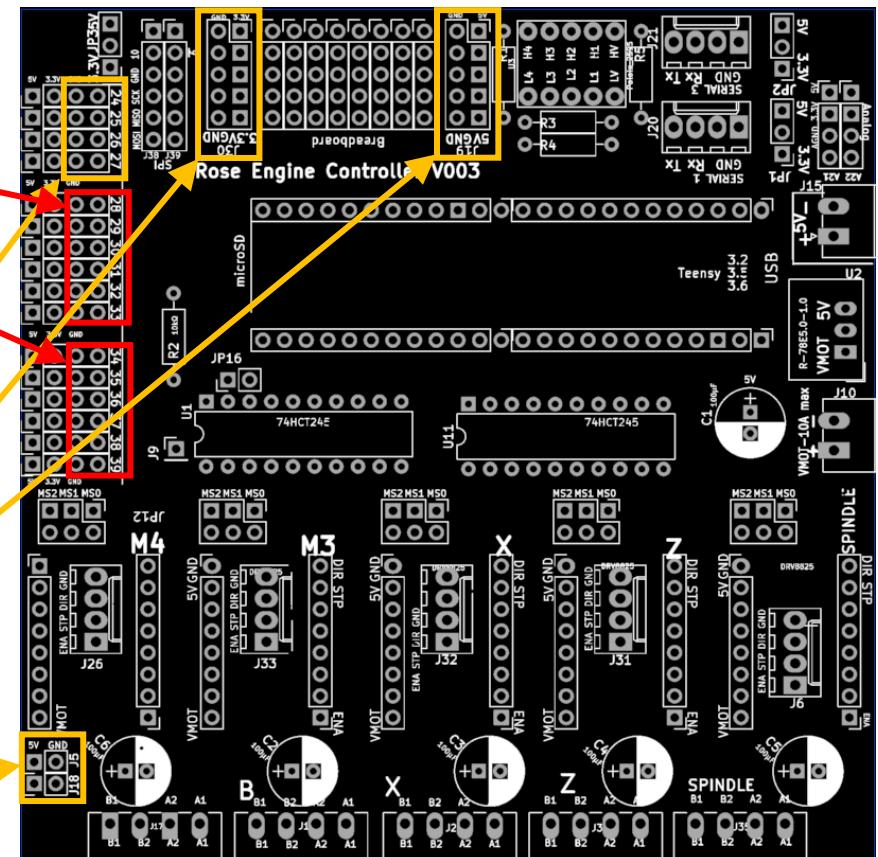
Header Connector, vertical, 8 pins (4x2), 2.54mm pin spacing

Header Connectors, vertical, 10 pins (5x2), 2.54mm pin spacing

Header Connector, vertical, 4 pins (2x2), 2.54mm pin spacing

NOTE1 : One connector is used on pins 28-33.

NOTE 2: A second connector is used on pins 34-39.



Amphenol ICC part number to use

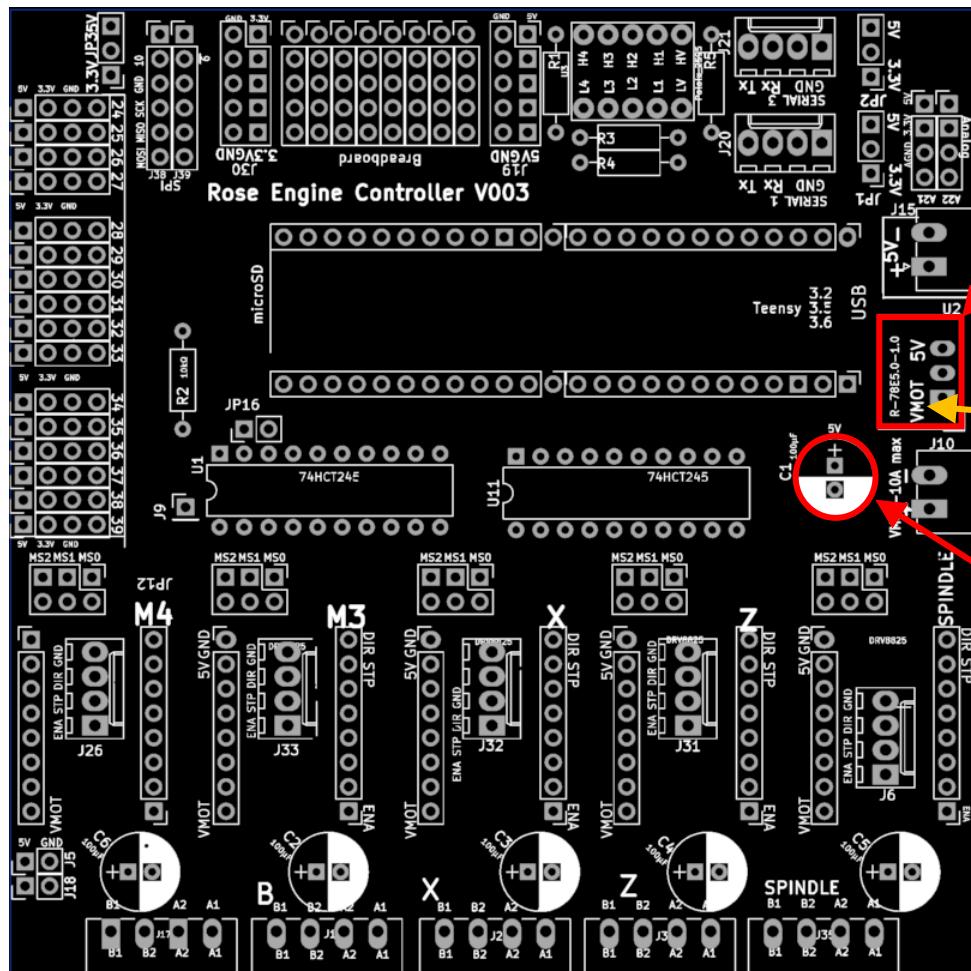
Pins	Amphenol P/N
24 – 27	77313-101-08LF
28 – 33	77313-101-12LF
34 – 39	77313-101-12LF
J5/J18	77313-101-04LF
J19/J30	77313-101-10LF

MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Through-Hole Components, part 2

Solder in the components noted below.



R-78E5.0-1.0 DC
DC Converter

107

NOTE 1: The DC converter
should fit over the box
printed for it on the board.

NOTE 2: This dot indicates the
side which should be over the
pin labeled VMOT.

100 µF Capacitor

105

White stripe on the negative (-)
side (generally).



NOTE 3: Be sure the capacitor is installed
correctly. The negative (-) side goes in
the area shaded white.

Longer lead on the positive (+) side.

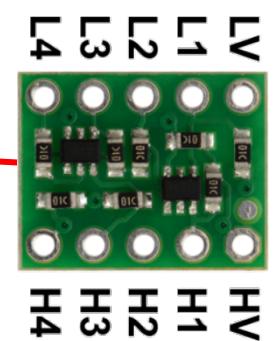
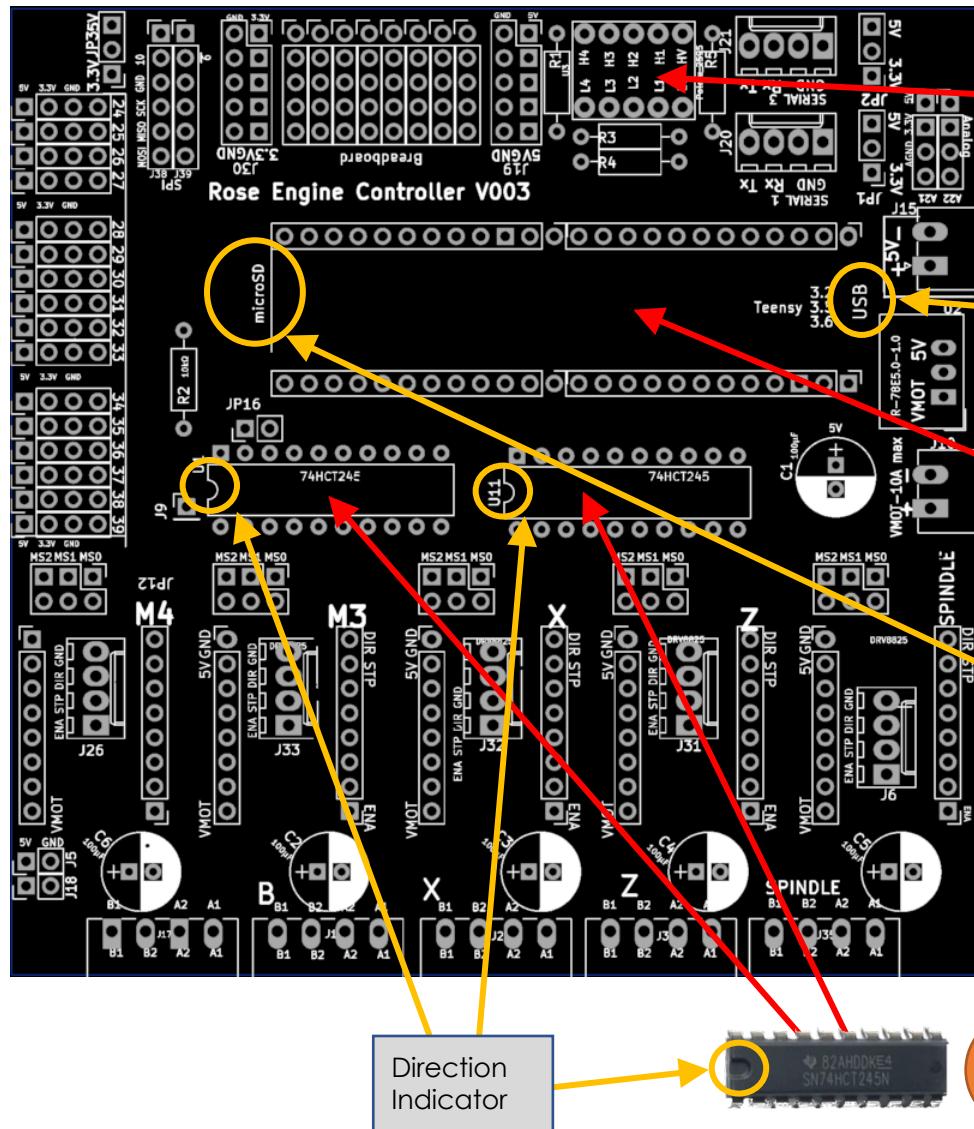
KEY NOTE: Great care must be taken when soldering these components into place. Be sure to not overheat them.

MDF Rose Engine Lathe 2.0

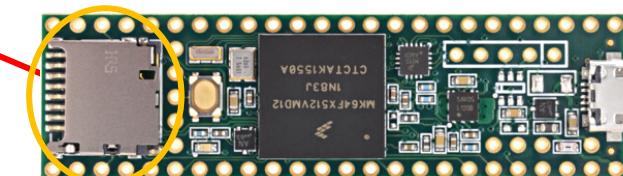
Build Instructions – ELFOS

Install Components

Install the components as noted below.



Pololu 2595: This picture is the bottom of the Pololu 2595. It needs to be installed so that the labels on the Pololu 2595 match the PCB.



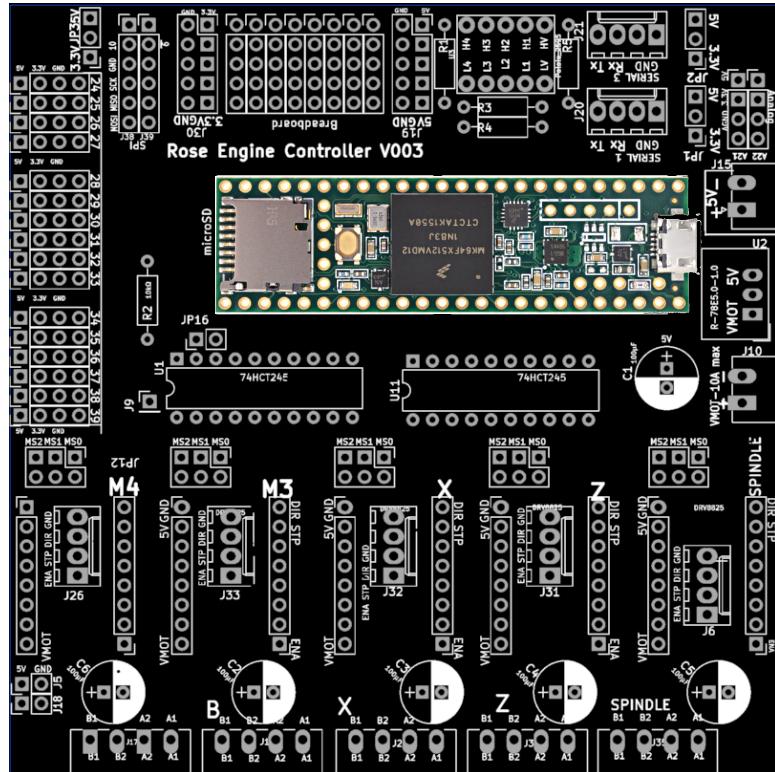
Teensy 3.5 or 3.6: This needs to be installed as shown. The microSD card slot (on the left above) goes to the left when installed.

Teensy 3.2: This needs to be installed with the microUSB connector aligned to the right side.

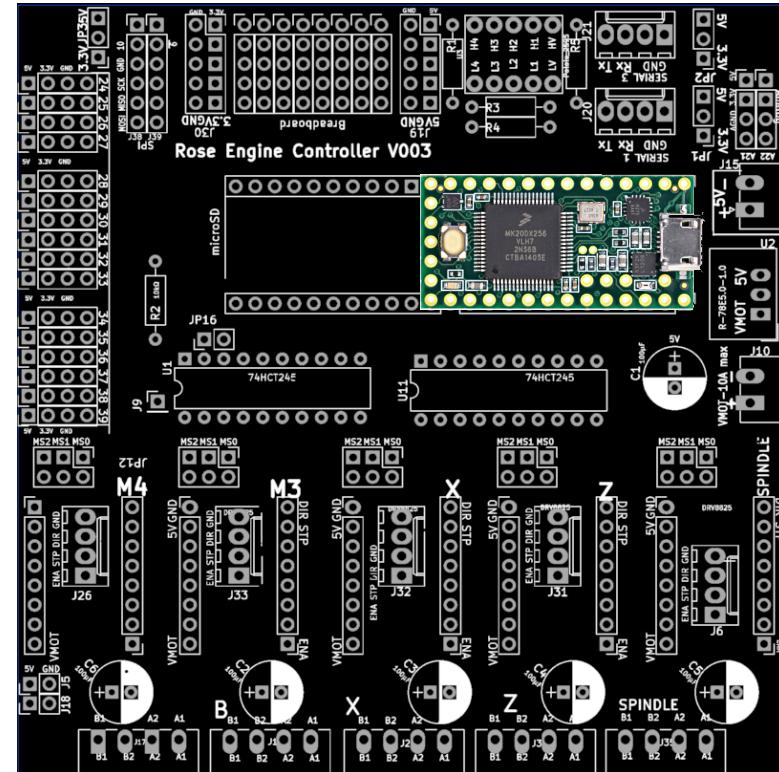
74HCT245 Octal Bus Transceiver: This needs to be installed as shown. The direction indicator goes to the left when installed.

MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS



Teensy 3.5 or 3.6 Installed



Teensy 3.2 Installed

MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Section 2 – Power Cables

Wiring – Power Supply (LRS-100-24)

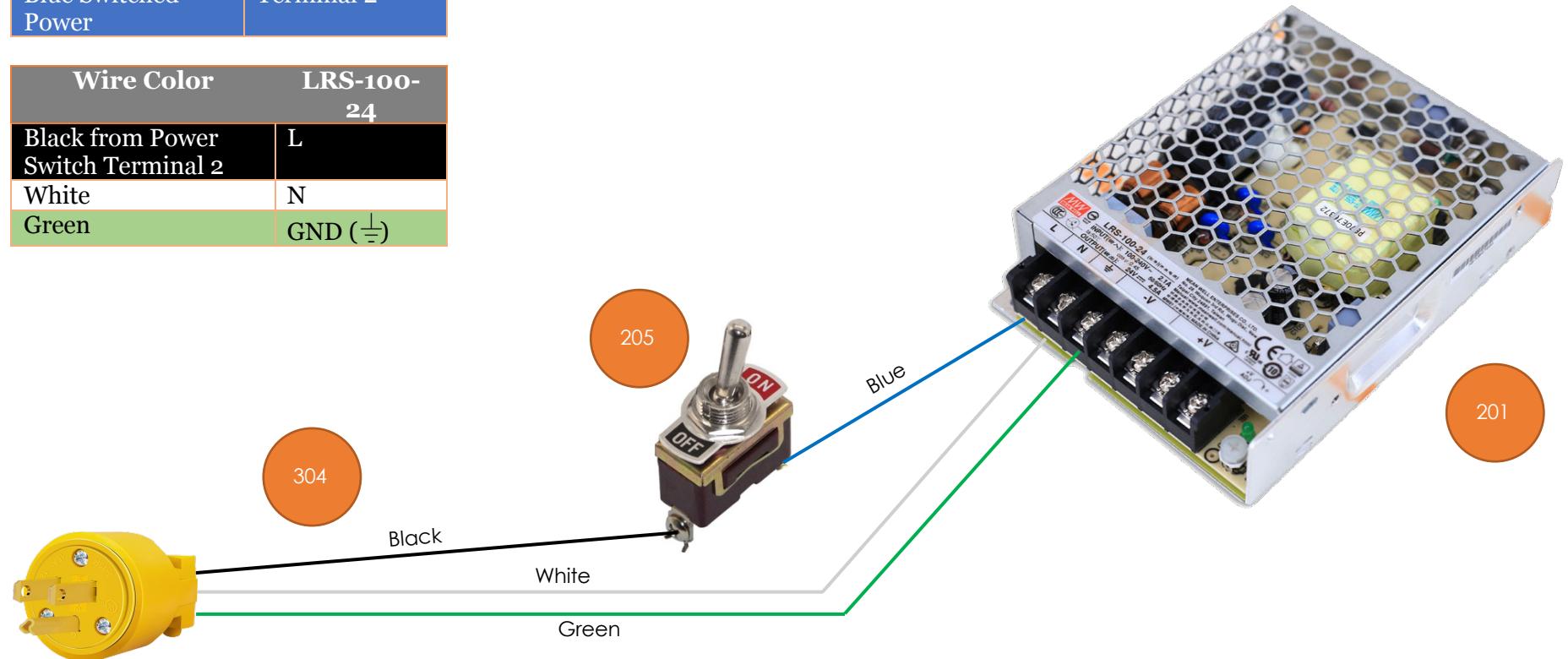
Power Infeed

The power infeed is connected as:

Wire Color	Power Switch
Black Incoming Power	Terminal 1
Blue Switched Power	Terminal 2

Conductor Type	Stranded copper
Conductor Size	16 AWG (min)
Cable Size	3 conductors / cable

Wire Color	LRS-100-24
Black from Power Switch Terminal 2	L
White	N
Green	GND ($\frac{1}{-}$)

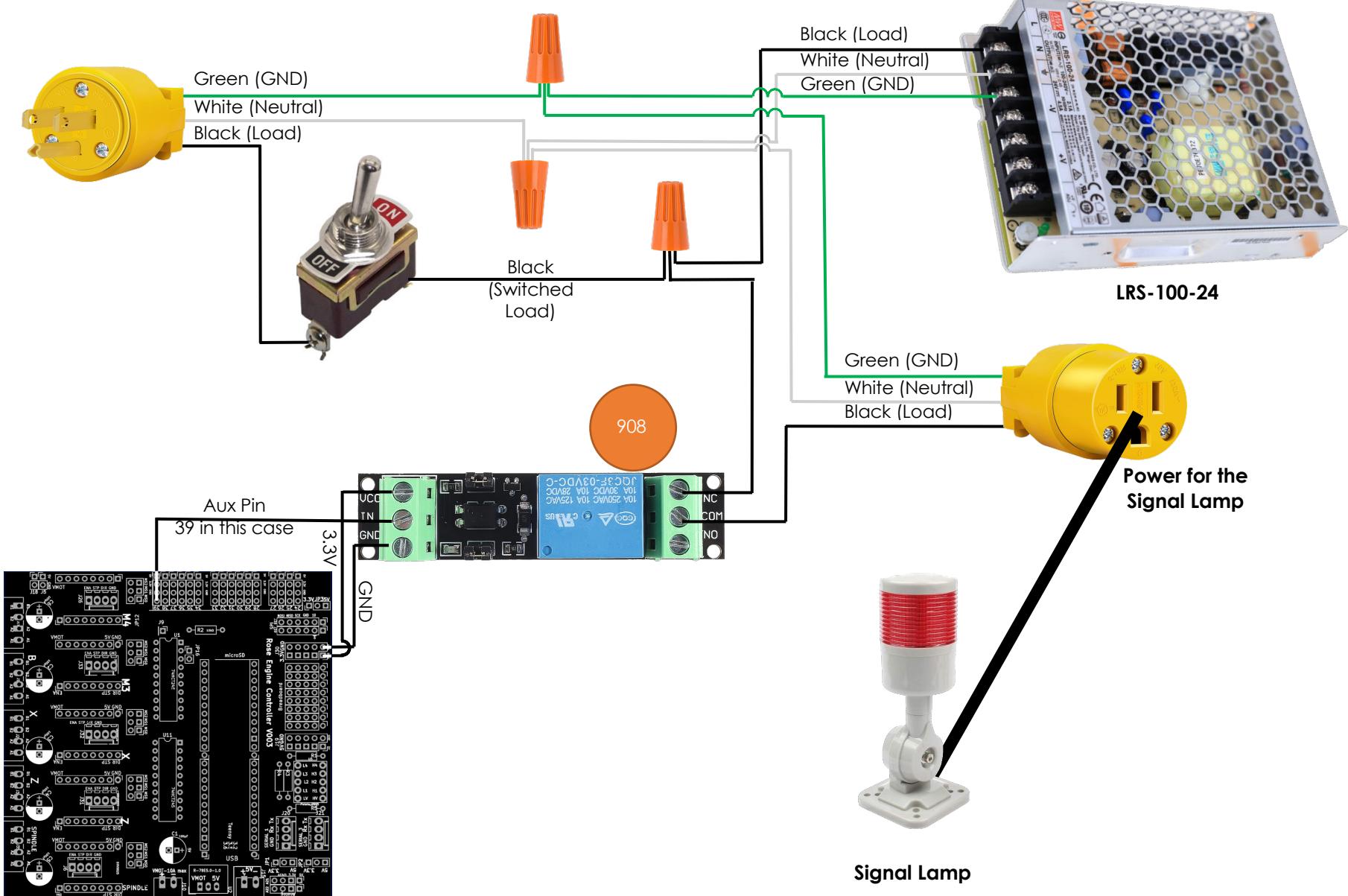


MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

When Planning to Implement the Signal Wire

The power infeed for the signal lamp is connected as shown.



MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Power Outfeed

terminal block is used to make the installation and maintenance of the system's components easier. Using a terminal block allows connections to be added, changed, or removed without the risk of any other connections loosening.

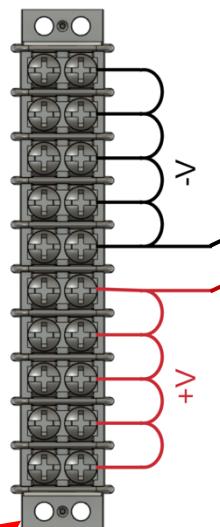
Conductor Type	Stranded or solid copper
Conductor Size	20 or 22 AWG
Cable Size	2 conductors / cable

304

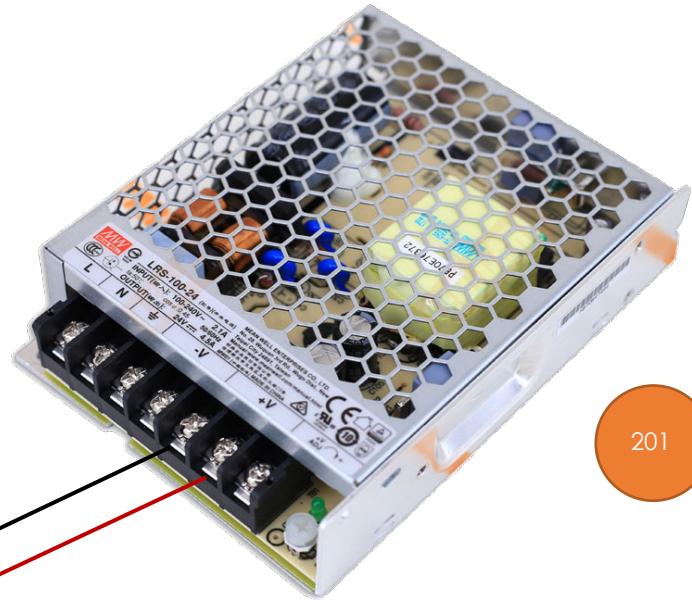
One of the power supply's +V outfeeds, and one of the -V outfeeds is connected up to the terminal block where the power will be distributed.

- V is connected to the other side of the terminal block using a white or black wire. That same colour wire is then used to cascade the -V side of the power to the next 4 terminals.
- +V is connected to one side of the terminal block using a red wire, and then that same colour wire is used to then cascade the +V side of the power to the next 4 terminals.

Terminal Block
24 VDC Power



204



201

MDF Rose Engine Lathe 2.0

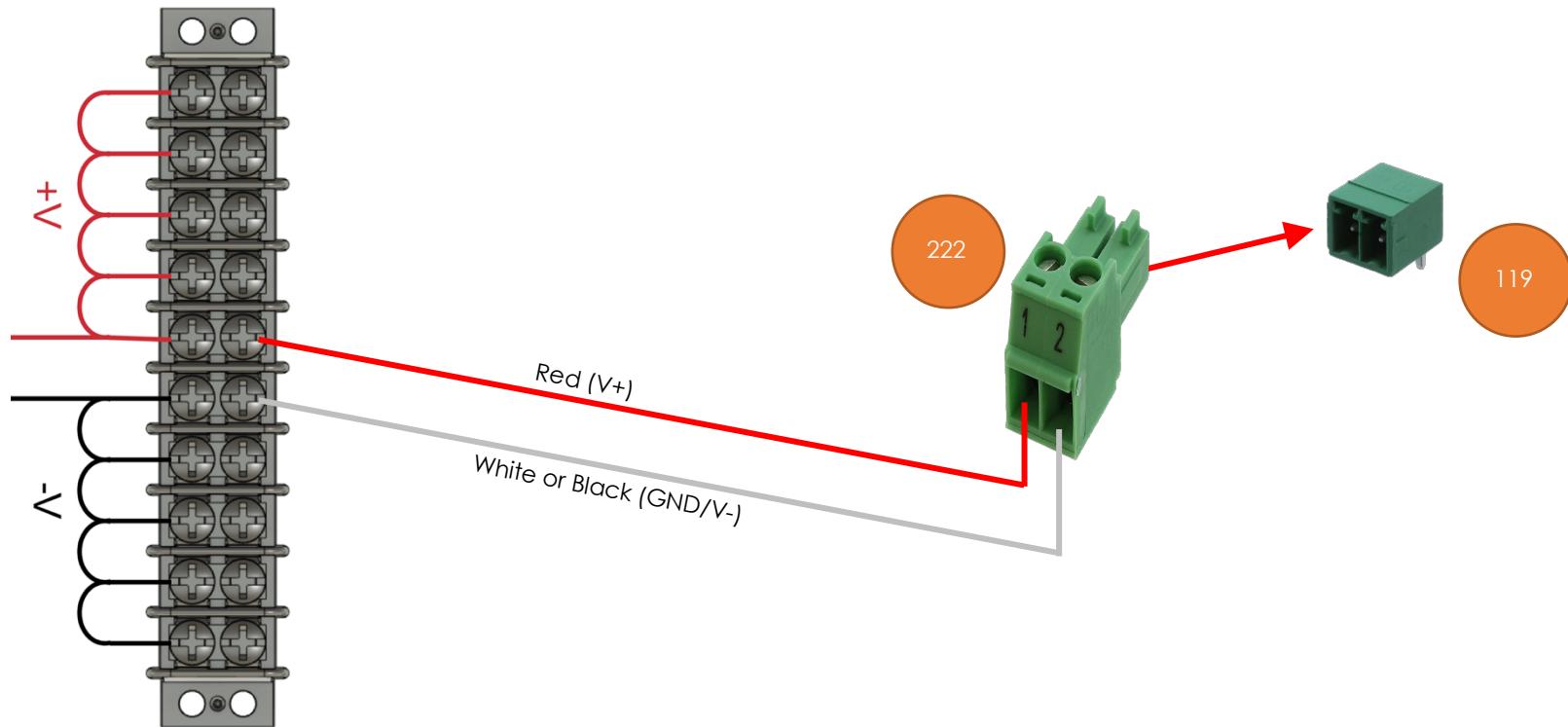
Build Instructions – ELFOS

Power Cable – 24V Power Supply to PCB

Screw the power cable wires into the terminal block plug as noted below.
Ensure the wire is long enough to reach the PCB when installed.

This is plugged into the power header connector (#119) installed on the PCB (above).

Terminal Block	Wire Color	PCB
+V terminal	Red	○ +24V
-V terminal	White	○ -24V



MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Power Wiring – DM542T Stepper Motor Drivers (4)

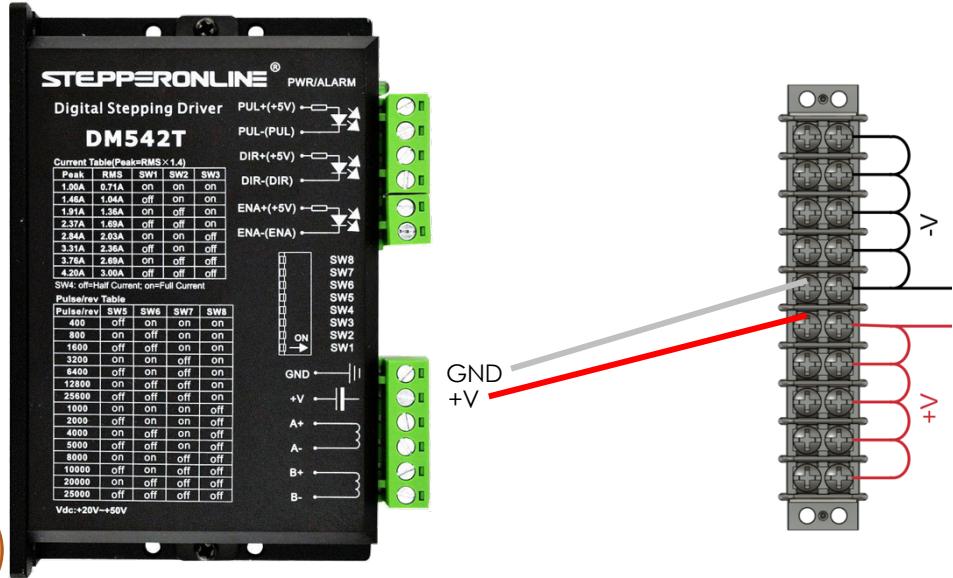
Each of the 4 DM542T stepper motor drivers is connected to the terminal block for power.

Terminal Block	Wire Color	DM542T
+V terminal	Red	+V
-V terminal	White	GND $\frac{1}{2}$

Conductor Type	Stranded or solid copper
Conductor Size	20 or 22 AWG
Cable Size	2 conductors / cable

303

202



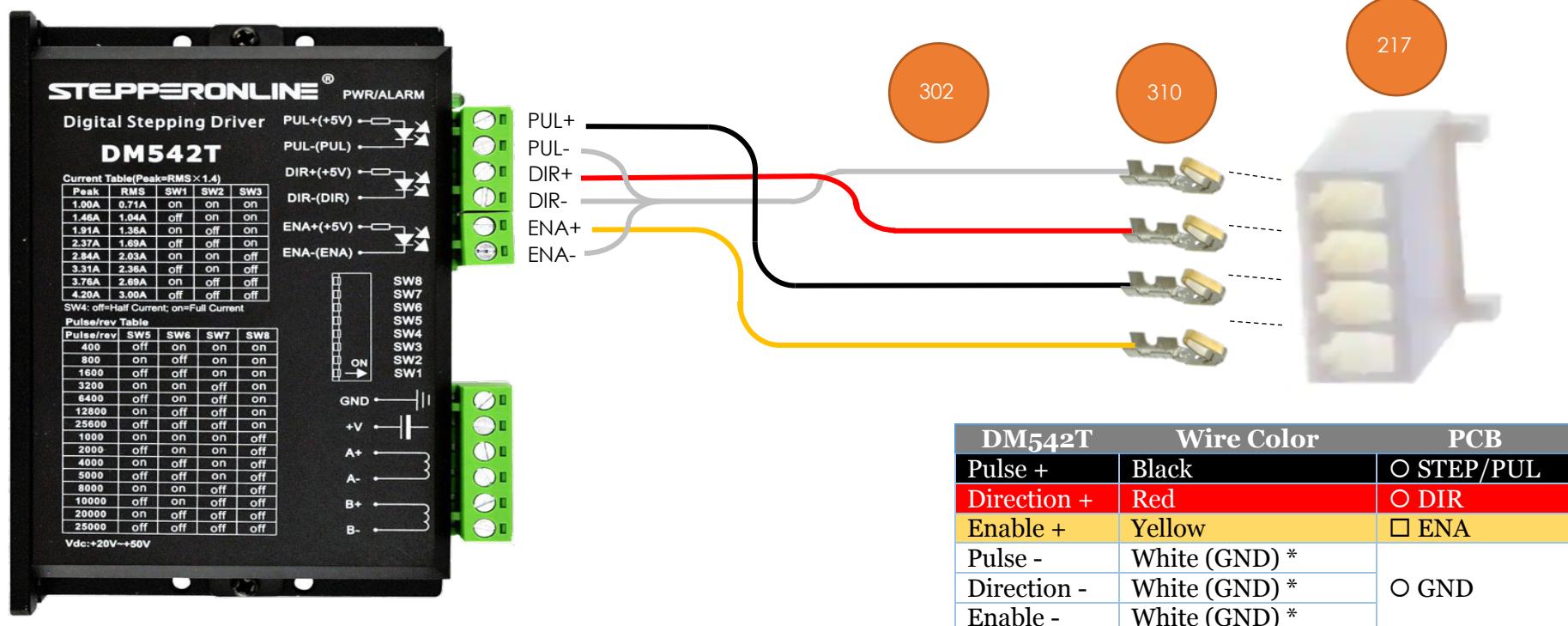
MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Section 3 – Stepper Motor Driver Signal Cables

Signal Cables – PCB to DM542T Stepper Motor Drivers

Install the pre-crimped ends of the wires into the housing. The other end is connected to the stepper driver as shown below. There are 4 of these.



A ratcheting/crimping plier for terminal pins makes the attachment of the terminal ends (#310) much easier.

The one I use is made by IZOKEE.

* GND wires tied / bonded together.

MDF Rose Engine Lathe 2.0

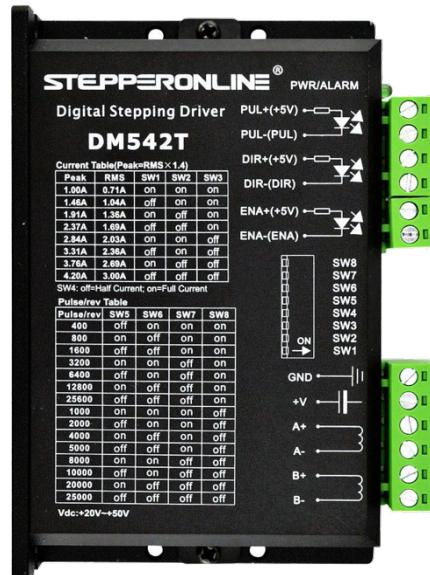
Build Instructions – ELFOS

Signal Wiring –Stepper Motor Drivers to GX-16/4 Jacks (4)

Each of the 4 stepper motors is connected to the stepper motor drivers via GX-16/4 Jacks.

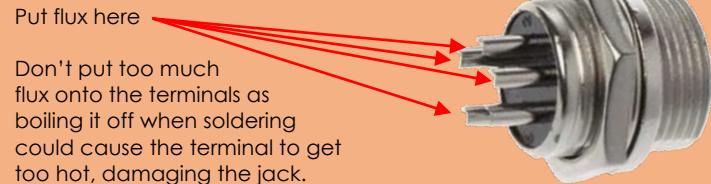
DM542T	Wire Color	GX-16/4 Pin
A+	Black	1
A-	Yellow	2
B+	Red	3
B-	White	4

Conductor Type	Stranded copper
Conductor Size	20 AWG
Cable Size	4 conductors / cable
Cable Length	6 to 8"

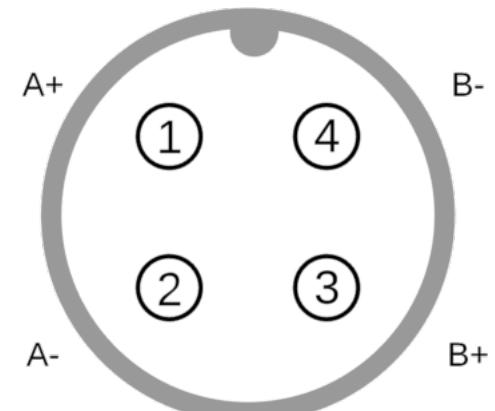
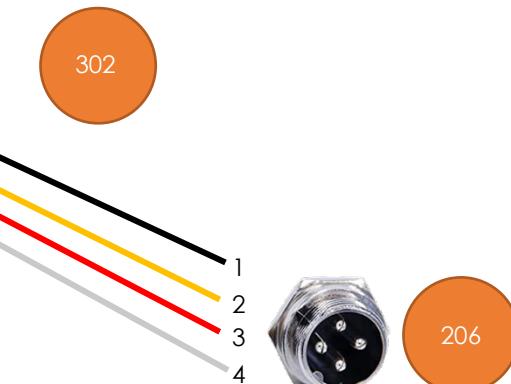


KEY POINT: It is best to solder the FX-16/4 jacks to the cables and attach the jacks to the metal plate before attaching the other end to the DM542T stepper motor driver. This is a lot easier.

NOTE: When soldering wires to the GX-16 jack, it is a good practice to put a small dab of soldering flux onto the terminal before beginning the soldering. This will help it happen faster, minimizing the chance for damage to the jack.



TROUBLESHOOTING: If the motor is running backwards (from what you wish), swap the black and yellow wires (A+ and A-). This can be done easiest at the DM542T rather than resoldering the jack.



MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Switch Settings

Set the switches on the DM542Ts as:

Purpose	Set to	Switch	Setting
Current	2.8A Peak 2.03A RMS	1	ON
		2	ON
		3	OFF
	Half Current	4	OFF
Pulses / Rev	6400	5	OFF
		6	ON
		7	OFF
		8	ON

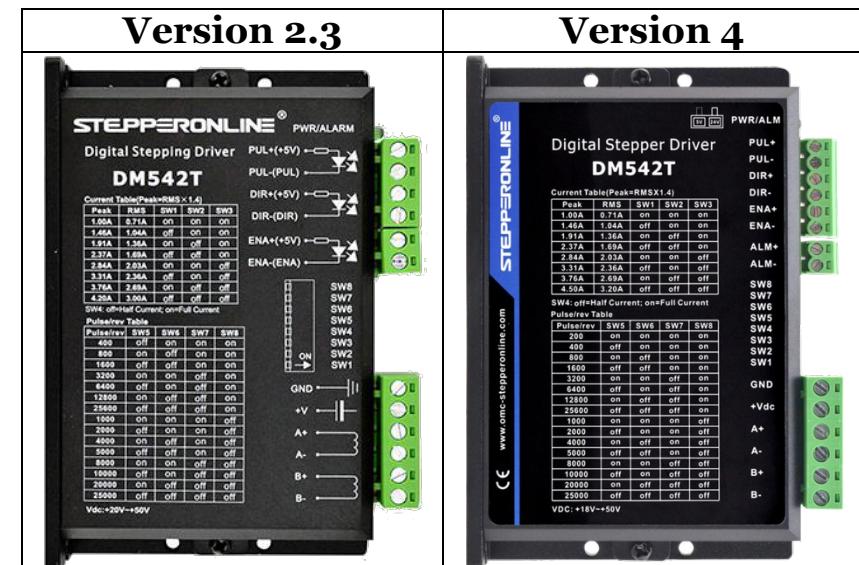
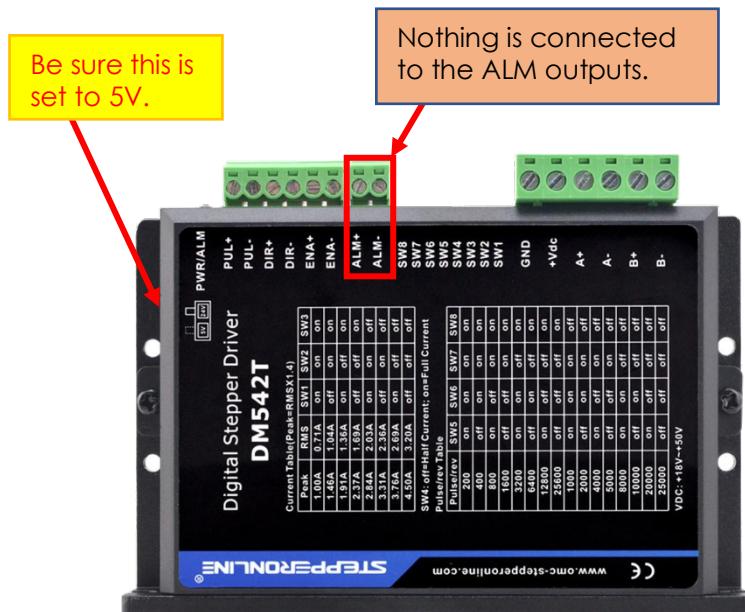
The current could be set higher with this driver; however, the selected NEMA 23 stepper motor does not need that, so it is set thusly.



NOTE: switch settings in the picture are not correct – this is a stock photo from the Internet. Use the settings in the table to the left.

DM542T Version 4

There is a newer version (v4) of the StepperOnline DM542T. For this version, the voltage must be set to 5V, and the ALM outputs can be ignored.



MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Section 4 – Nextion Display Signal Cable

Why use a Different Jack Type for the Nextion Display?

It is a really good idea to have a different connector for the stepper motors than the Nextion touch screen display.

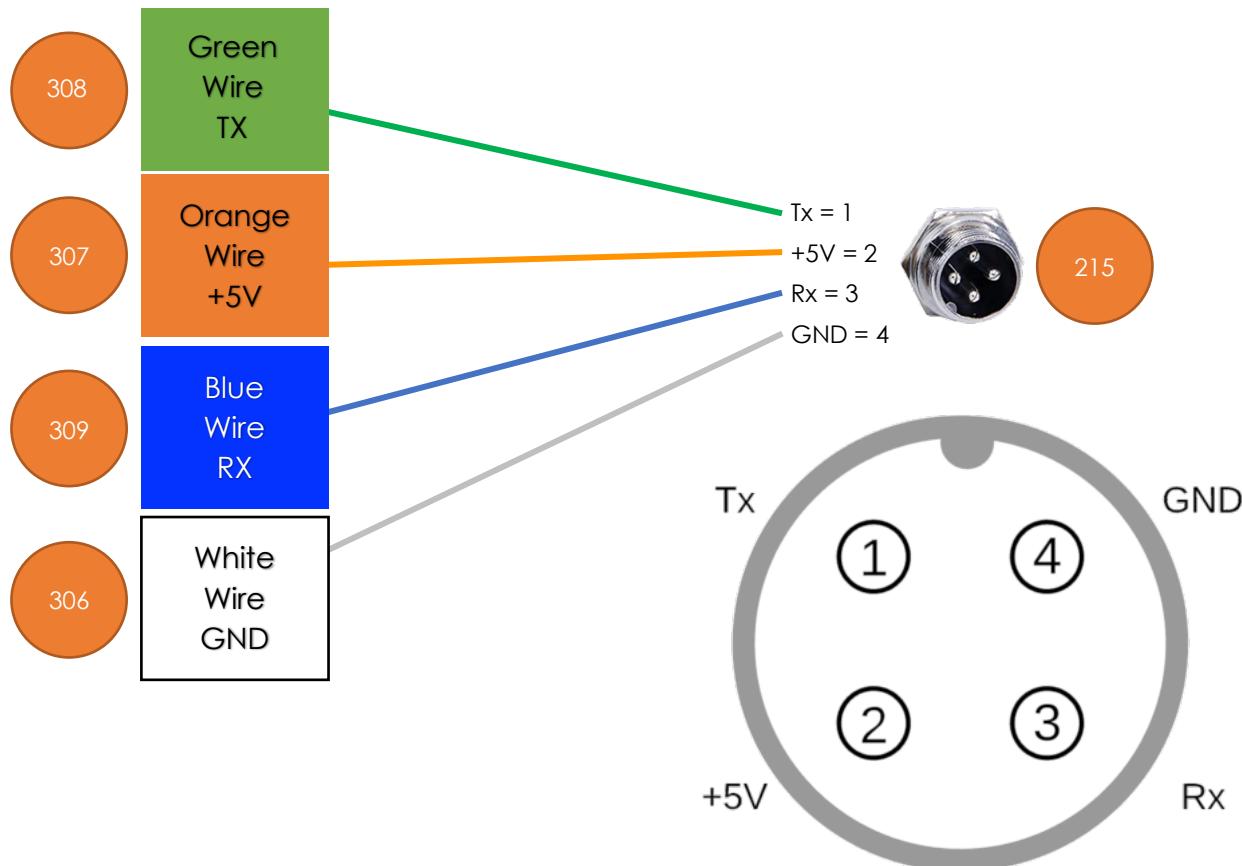
	Nextion Touch Screen Display	Stepper Motors
Cable Use	<ul style="list-style-type: none">Serial communicationsPower to the display	<ul style="list-style-type: none">Motor stepping, but at a higher voltage
Risk if Hooked Up Wrongly	<ul style="list-style-type: none">The higher voltages will probably cause the display to fail.	<ul style="list-style-type: none">The motors will certainly workMay damage the motor.
Recommended Connector	<ul style="list-style-type: none">GX-12/4<ul style="list-style-type: none">Being 12mm in diameter makes the plug not able to connect to the GX-16/4 jack.	<ul style="list-style-type: none">GX-16/4<ul style="list-style-type: none">Being 16mm in diameter makes the plug not able to connect to the GX-12/4 jack.
Optional Connectors	<ul style="list-style-type: none">Could use a GX-16 with more than 4 connectors (e.g., GX-16/5). The additional pins will just be unused, but this would prevent plugging the plug into the wrong jack.RJ-45	<ul style="list-style-type: none">n/a

MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Signal Cable – PCB to Nextion Display

The Nextion touch screen is connected to the PCB via GX-12/4 connector.



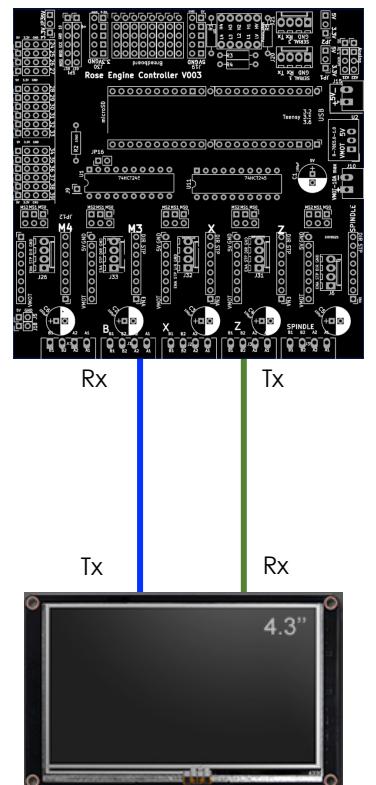
NOTE:

- Tx on the PCB is connected to Rx on the Nextion HMI display.
- Rx on the PCB is connected to Tx on the Nextion HMI display

KEY POINT: It is best to

1. Solder the jack to the cables
2. Install the jack into the 2-gang plate.
3. Once that is in place, then insert the pre-crimped ends into the housing.

This is a lot easier.

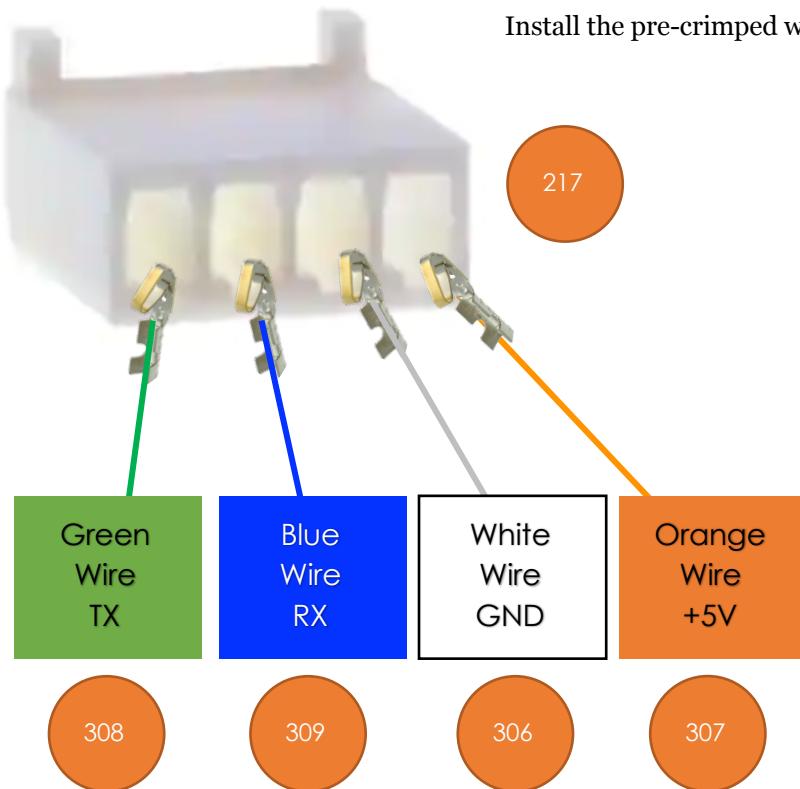


Nextion HMI Display

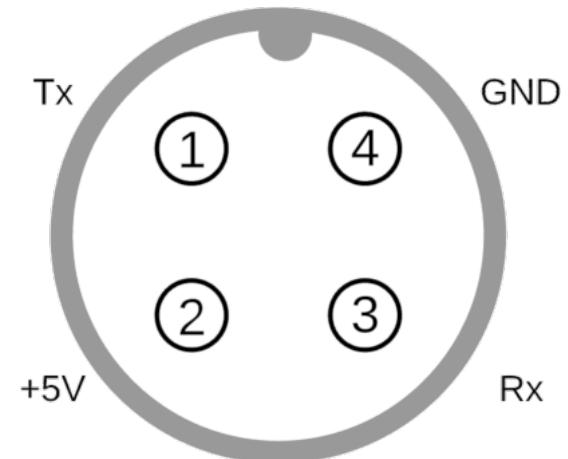
MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Signal Cable – PCB to Nextion Display



Install the pre-crimped wires into the housing. There are 4 of these.



NOTE: It is a very good practice to perform a continuity test to ensure the pins are wired correctly (i.e., pin 1 in the GX-12 jack should be connected to the left wire as shown in the picture to the right).

MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

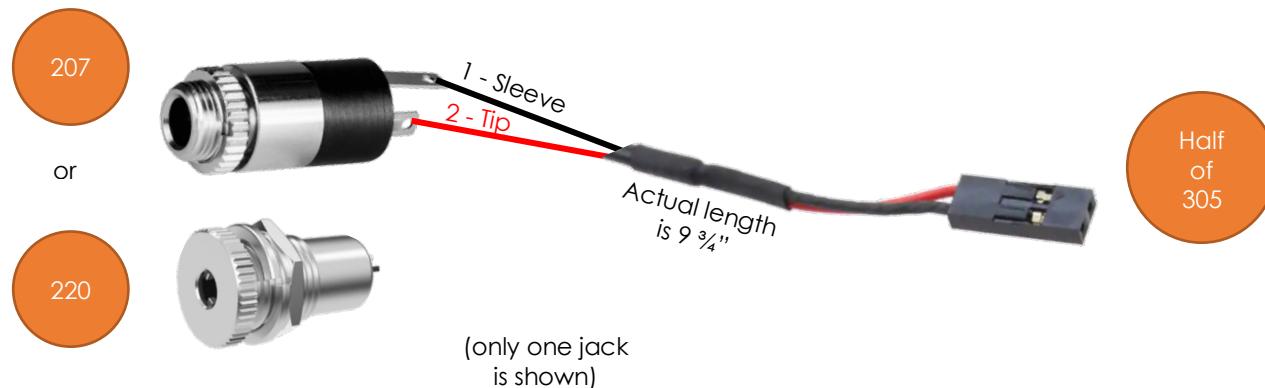
Section 5 – Limit Switch Signal Cables

Signal Wiring – PCB to 3.5mm Audio Jacks for Limit & Home Switches

The limit switches are connected to the PCB via a 3.5mm (1/8") audio female jack. 6 pins on the Teensy are used (one for each limit switch). These can be any of the pins between 25 and 39.

The cable used is half of part #305. On the V3 Boards, you will not be able to get two connectors per cable. Longer length is needed.

PCB	Wire Color	Audio Jack
O pin #	Red	Tip / pin 2
O GND	Black (or White)	Sleeve / pin 1



NOTES:

1. Most audio jacks that are available are stereo with 3 connectors. Only 2 are needed, so the 3rd one will go unused.
2. Experience has shown that it is a good practice to ensure a mono plug will work correctly for the way you have soldered the connections.

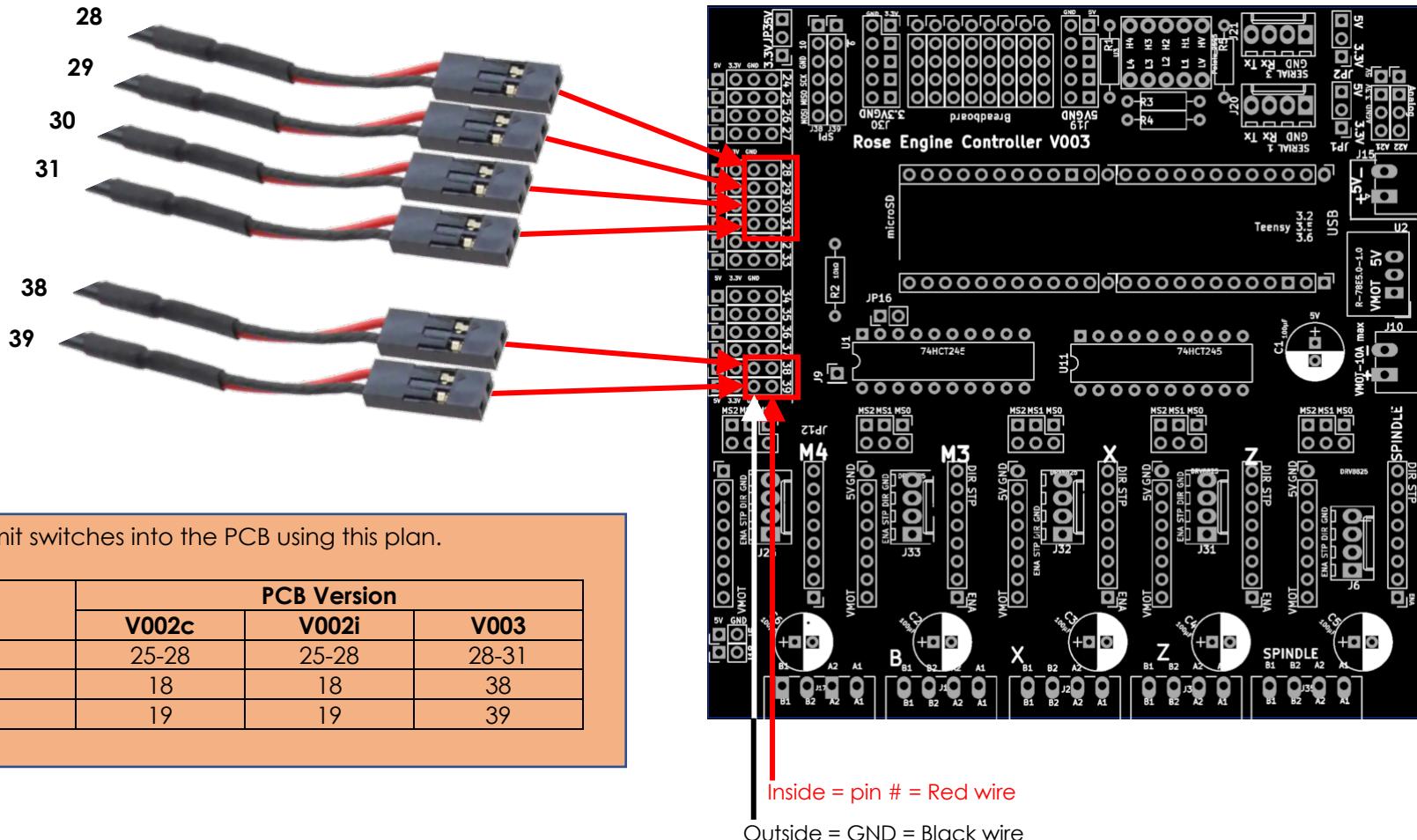
KEY POINT 1: The sleeve must be connected to ground (GND). Typically, this is pin 1, but check based on the jack you are using.

KEY POINT 2: It is a really good idea to label each cable with the pin it is used for.

MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Connect the cables to the header pins. The recommended pins are noted below, but any between 25 and 39 can be used.



MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

Section 6 – Final PCB Steps

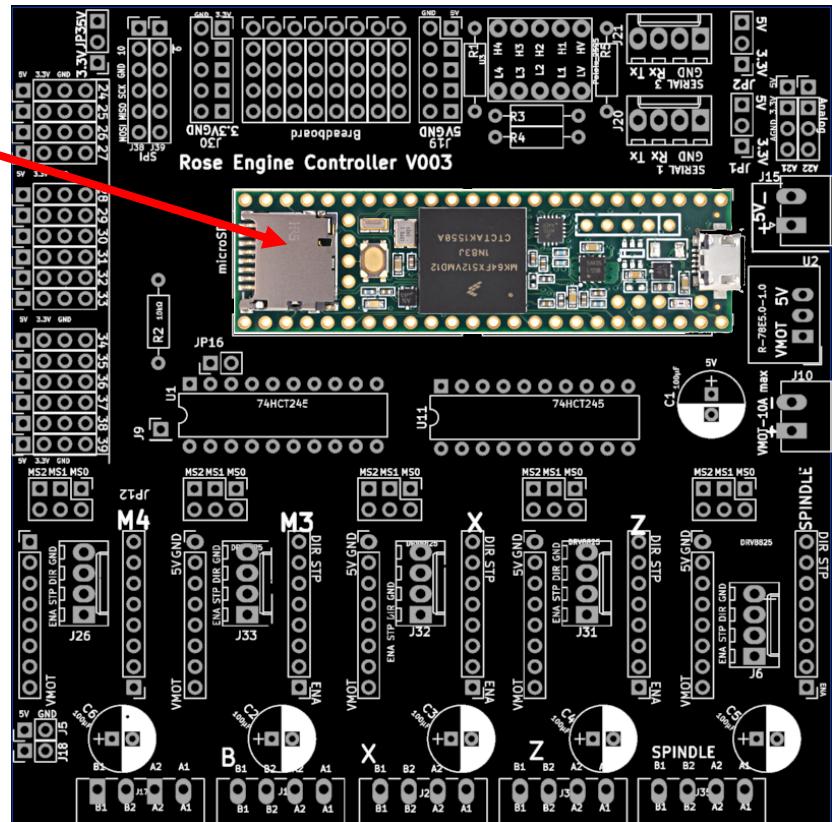
Mounting the PCB to the MDF Board

Recommend using a Sharpie to write on the top of this area what type of Teensy is being used (e.g., 3.5 or 3.6). That will be helpful when upgrading later.



MicroSD Extension Cable

A microSD extension cable, 8 to 12 inches long, is useful. The male end can be put into the Teensy's microSD slot, and the female end can then be hung out of the case. This makes it easier to access files for the screens where that function is possible.



MDF Rose Engine Lathe 2.0

Build Instructions – ELFOS

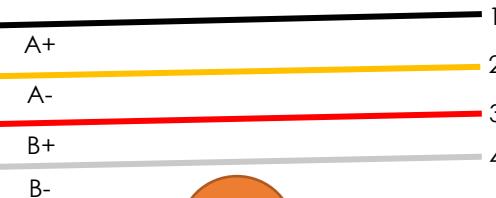
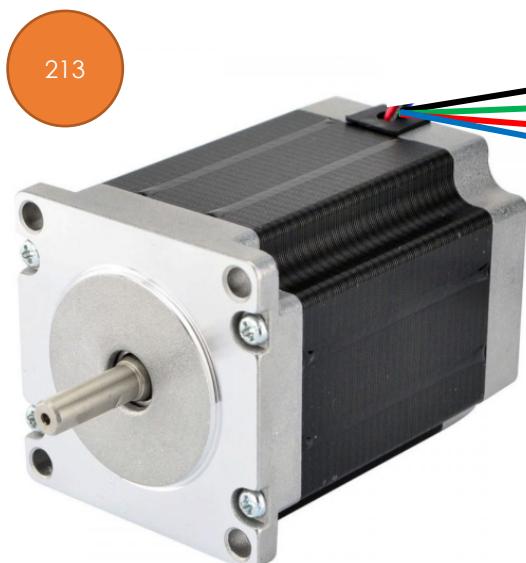
Section 7 – Stepper Motor Cables

Each of the stepper motors is connected to the stepper motor drivers via GX-16/4 plugs. Stepper motor wire colors shown are for the StepperOnline motors. Check that the one you use matches for the connection needed.

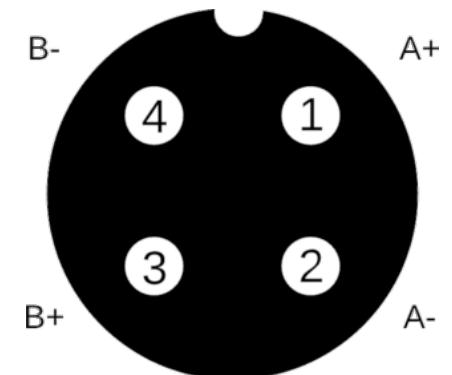
Stepper Motor	Stepper Motor Wire	Cable Wire Color	GX-16/4 Pin
A+	Black	Black	1
A-	Green	Yellow	2
B+	Red	Red	3
B-	Blue	White	4

Yes, I am a Packers fan

Conductor Type	Stranded copper
Conductor Size	20 AWG
Cable Size	4 conductors / cable
Cable Length	
Spindle	4 ft
Others	3 ft, or as desired



GX-16/4



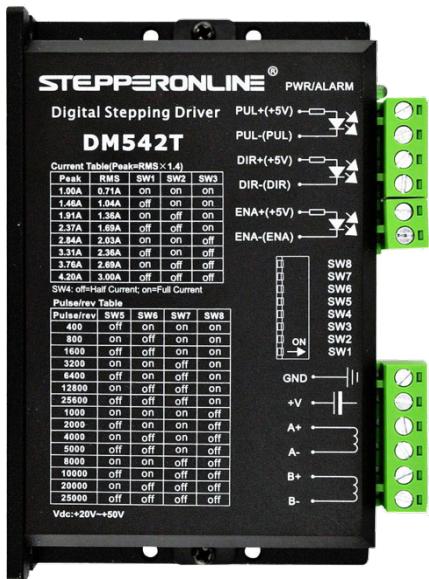
Put a 3/4" long piece of shrink file onto each one of the stepper motor wires before connecting it to the cable 5 wires.

Best Practice: Before soldering the wires together, check end-to-end connectivity

1. Connect the stepper motor's GX-16 plug to the jack on the control box.
2. Perform a continuity test on each wire to ensure it is correctly thru the jack and all other soldered joints.

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Check continuity of each wire before attaching to the DM542T and the stepper motor wires.

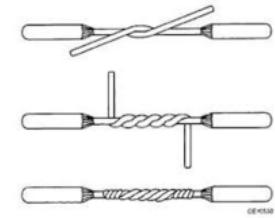


NOTE 1: It is a very good practice to perform a continuity test to ensure the pins are wired correctly (i.e., pin 1 in the GX-16 plug should be connected to the A+ wire from the stepper motor).

Connect the cable wires to the stepper motor wires using a lineman's splice (AKA, the Western Union splice, and shown to the right), and then solder the two together.

Heat the shrink file tubing around each of the joints to insulate it from the other things it could touch.

NOTE 2: Wires can change colors and positions from time to time.



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Alternatively, you can add a back cover to the stepper motor. This gives a secure way to attach the signal wires to the motor. These are available from a number of sources, and they can even be 3D printed. Look for one online using the term “stepper motor back cover”.

In this case, connect the stepper motor to the GX-16/4 jack as:

Stepper Motor	Stepper Motor Wire	GX-16/4 Pin
A+	Black	1
A-	Green	2
B+	Red	3
B-	Blue	4



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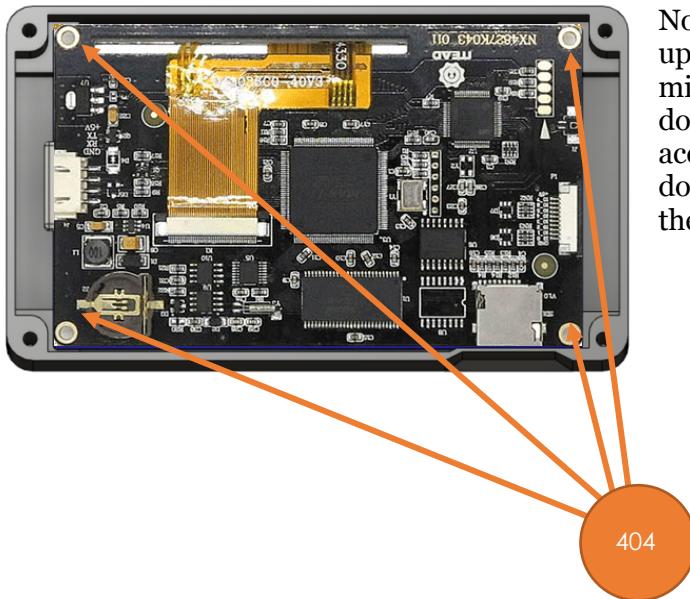
Build Instructions – ELFOS

Section 8 – Assembly of the Nextion touch screen Box

Attach Nextion Display to the Bezel

One hole is printed into the back side of the bezel for attaching the Nextion touch screen (circled in red to the right). That one needs to be enlarged using a #39 drill to a depth of $\frac{1}{8}$ ".

Attach one corner of the Nextion touch screen using an M3 Thread Forming Screw, then center the HMI. Drill the other 3 corners, and then attach the display using the remaining M3 Thread Forming Screws.



Note that the Nextion is inserted upside down. This is because the microSD card slot is then pointed down. And the microSD card slot is accessible so that upgrades can be done without having to disassemble the whole system. (The slot for inserting the microSD card is in the base, not the bezel.)



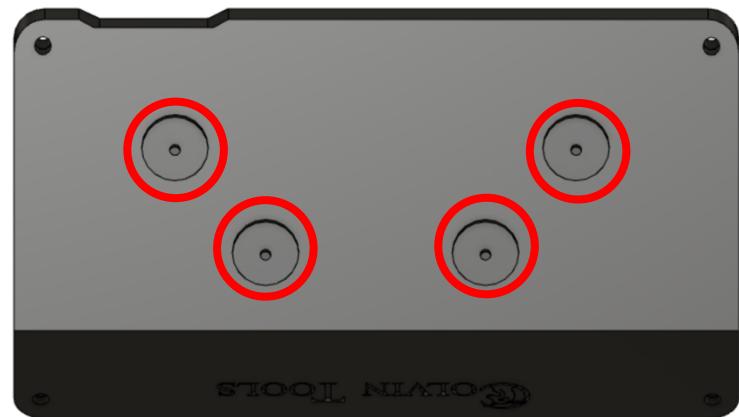
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Build Instructions – ELFOS

Attach Parts to the Base

Attach the 4 magnets to the base's bottom. There are 4 insets in the base for these.

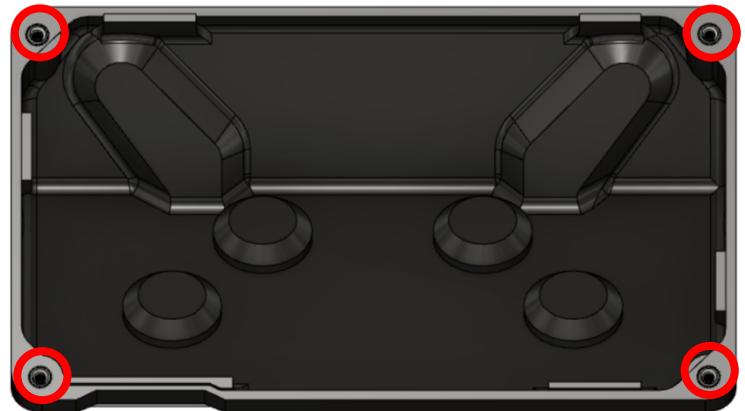
If the screws protrude into the base, take some efforts to grind or file those sharp points down.



Insert the Heat-Set Inserts

There are two options here:

1. Using a heat gun, insert each of the heat-set inserts into the corners of the base. These would then be used to attach the top of the case using the 4-40 screws (#403).
An orange circular component labeled 402, representing the heat-set insert.
2. Do nothing at this point, and attach the top using thread forming screws (#410)



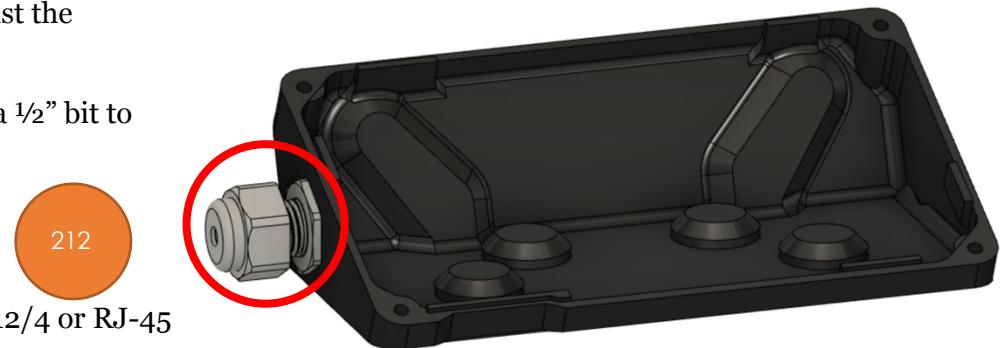
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Build Instructions – ELFOS

Add Wire Cord Grip

The cord grip is used to ensure the signal wire does not pull against the Nextion display.

Depending on the printing, you may need to drill the hole with a 1/2" bit to ease the installation.



Signal Wiring – PCB to GX-12/4 or RJ-45 Plug for Nextion Display

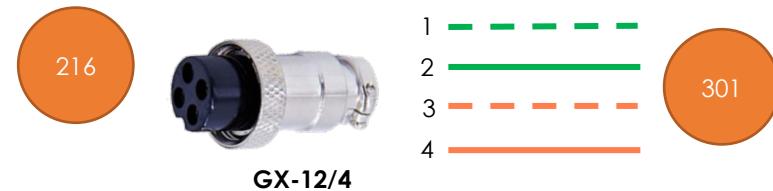
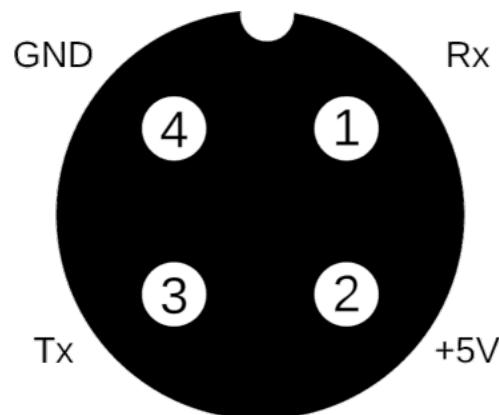
The Nextion touch screen is connected to the main box via a GX-12/4 or RJ-45 connector.

Using a piece of CAT 5 (or greater) wire, 8 feet long, make the connections to the HMI's connector (supplied by the vendor) as shown to the right.

NOTE 1: Be sure to put the cable thru the cord grip (#212) before attaching both ends.

NOTE 2: Be sure to add a short piece of shrink tubing to the CAT 6/5 wire before finishing the soldering to the GX-12/4 plug (#216). This shrink tubing is needed to secure the plug to the Wire (#301).

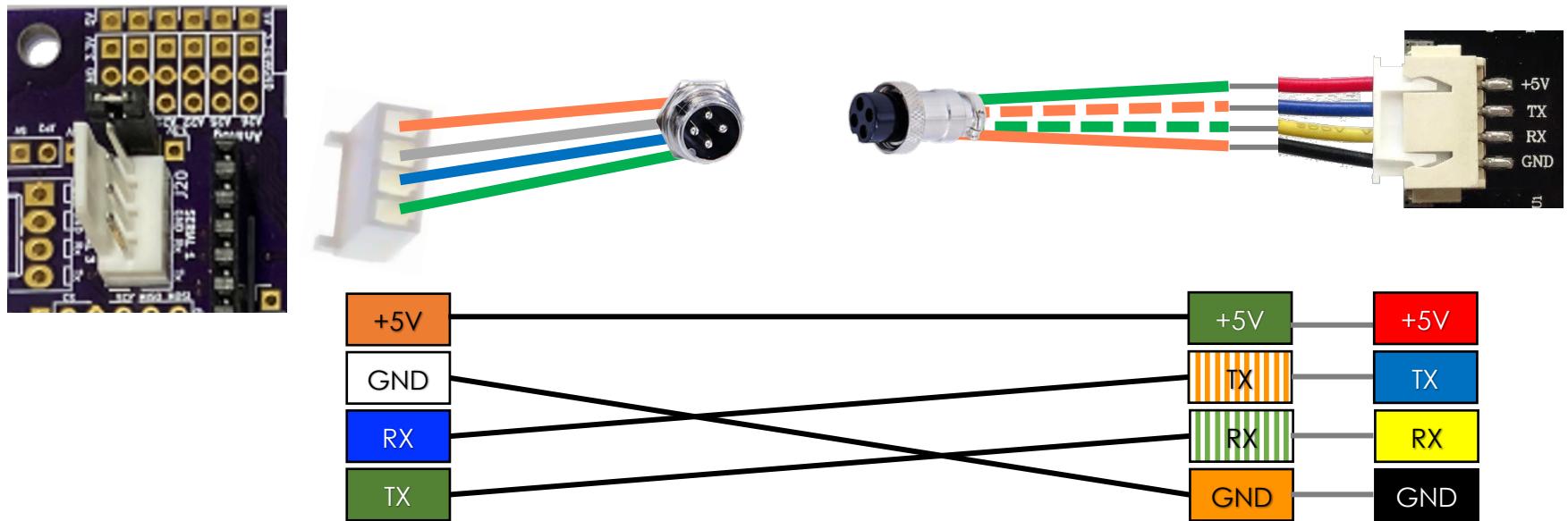
Nextion Connection	Nextion Wire Color	CAT 5 Wire Color	GX-12/4 Pin	RJ-45 Pin
RX	Yellow	White/Green	1	1
+5V	Red	Green	2	2
TX	Blue	White/Orange	3	3
		Blue	4	4
		White/Blue	5	5
GND	Black	Orange	4	6
		White/Brown	7	7
		Brown	8	8



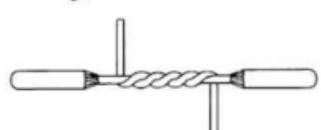
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Best Practice: check the continuity on the wires for the Nextion before soldering them into place and especially before heating the shrink film.



Put a 3/4" long piece of shrink file onto each one of the Nextion wires before connecting it to the CAT 5 wires.



Connect the CAT 5 wire to the Nextion wires using a lineman's splice (AKA, the Western Union splice, and shown to the right), and then solder the two together.

Heat the shrink file tubing around the joint to insulate it from the other things it could touch.



Lineman's Splice

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Section 9 – System Setup and Program Loading

Use the web page noted below to load the programs into the Teensy and the Nextion, and then load the initial configuration into the Teensy.

<https://mdfre2.colvintools.com/MSMCS-Upgrading.html>

Section 10 – Finishing It Up

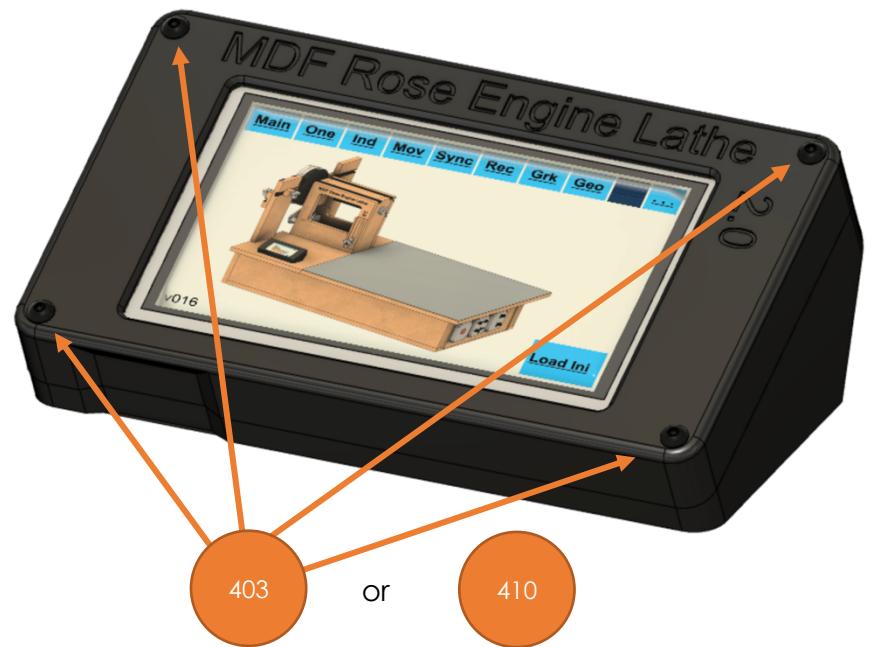
Before screwing the bezel to the base, check to be sure everything works. To do that, you will need to use the instructions in the next section to load the programs into all the pieces.

If it works, screw the two pieces together.

If you took the option to use the heat set inserts back on pg. 34, then attach the lid using four #4-40, 3/4" long screws (#403).

Otherwise, attach it using 4 thread-forming screws (#410).

When finished and powered on, it will look like the picture to the right.

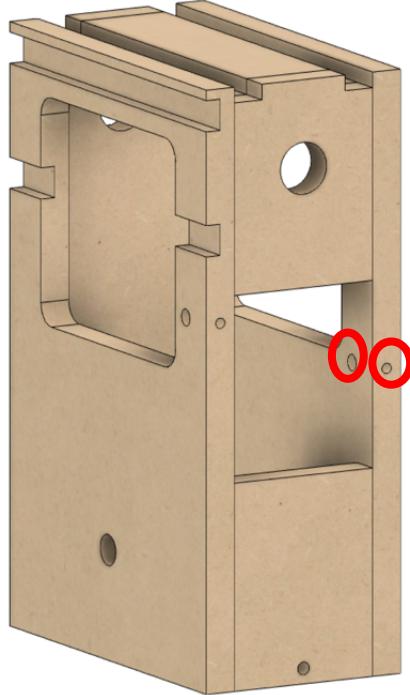


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Build Instructions – ELFOS

Attaching the Stepper Motor to the Headstock

The stepper motor attaches to the headstock as shown in the picture to the right.



If you purchased the kit we supply, the holes on the left and right are already set properly. If you built it yourself, you will now need to drill the holes for the screws on the right. As noted in the case building instructions, these need to be set based on the alignment of the bracket.



Attach the spindle pulley to the spindle flange. There are 4 screws for this. One is indicated here.



Attach the stepper motor to the bracket using 4 screws. One is indicated here.

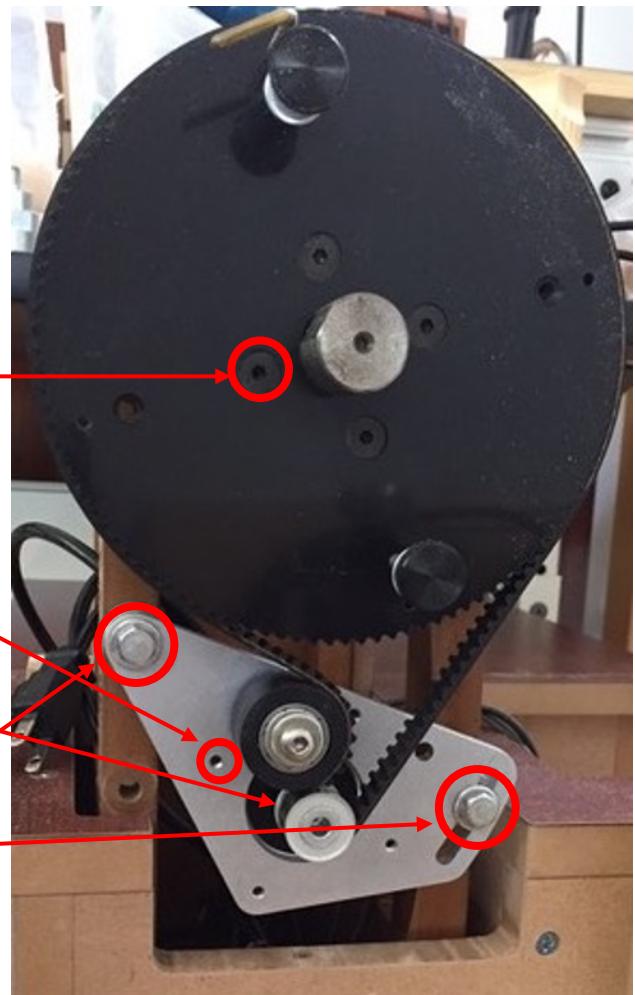


Secure the 12-tooth drive pulley to the stepper motor's spindle.

Attach the bracket to the headstock on both sides. There are two screws and two spacers (they look like thick washers). The spacers are installed between

the bracket and the headstock. They are held onto the headstock using barrel nuts. Do not tighten them just yet.

NOTE: The picture on the right is of the assembly on the original MDF rose engine lathe. On version 2.0, there is no need for the cutout in the base to accommodate the bracket.



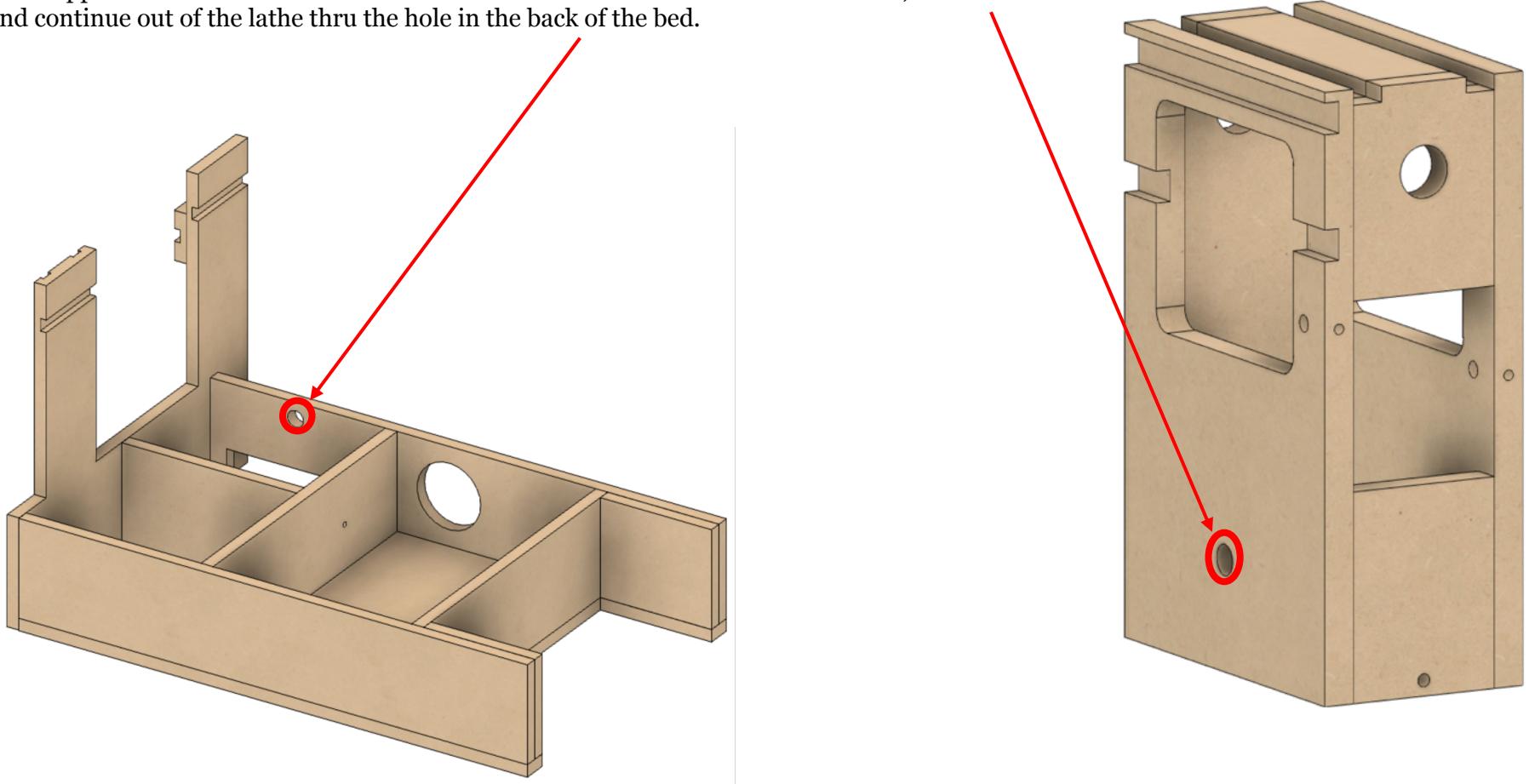
Install the timing belt (item #501).

Snug the bracket so that the timing belt is tight enough that it won't slip, but not so tight that it stretches. Once it is set, tighten the two bolts holding the bracket to the headstock. They need to be tight enough to not slip, but don't over tighten them as that will cause the barrel nuts to pull thru the MDF.

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The stepper motor's cable needs to be fed thru the hole in the back of the headstock, and continue out of the lathe thru the hole in the back of the bed.



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Build Instructions – ELFOS

Document Version History

Ver	Date	Comment
4.2	17 Mar 24	<ul style="list-style-type: none"> Updated for ELFOS, and removed references for 4-axis PCBs. Moved Motor attachment instructions from part 1 to this document.
4.1	15 Jun 22	<ul style="list-style-type: none"> Slight updates for soldering pieces on the 5-axis controller board
4.0	09 Jun 22	<ul style="list-style-type: none"> Added board information for the 5-axis controller
3.4	13 Feb 22	<ul style="list-style-type: none"> Added troubleshooting instructions for the stepper motor direction.
3.3	31 Dec 21	<ul style="list-style-type: none"> Added support information for DM542T v4.
3.2	18 Nov 21	<ul style="list-style-type: none"> Added diagrams to better elucidate the GX jacks and plugs. This is to help with troubleshooting.
3.1	19 Oct 21	<ul style="list-style-type: none"> Added support for the new Rose Engine Controller Spindle and Three Axes Voo2i printed circuit board.
3.0	19 Aug 21	<ul style="list-style-type: none"> Original document split into 3 parts to allow for different case configurations to be handled easily.
2.1	14 Aug 21	<ul style="list-style-type: none"> Changed pins used for limit switches Added information regarding different Teensy and Nextion displays.
2.0	13 Jun 21	<ul style="list-style-type: none"> This document incorporates changes to the way cables are attached to the PCB. It now shows how to use connectors in lieu of soldering the wires directly to the board.
1.4	10 Mar 21	<ul style="list-style-type: none"> Reorganized a few steps to follow better flow of work. Added notes on using GX-12/4 connector for Nextion display. Updated instructions for loading software to reference web site. Also added a few minor other tweaks.
1.3	01 Jan 21	<ul style="list-style-type: none"> Added item numbers for optional build using a Pololu Tic (this is a separate document). Renamed Document
1.2	15 Dec 20	<ul style="list-style-type: none"> Added parts to the bill of materials Added details on the installation of the 3.5mm phono jacks.
1.1	10 Dec 20	<ul style="list-style-type: none"> Added details for optional configurations. Added information for attaching the stepper motor to the headstock
1.0.2	07 Dec 20	<ul style="list-style-type: none"> Updated p/n for item #204; also updated p/n & qty for item #102. Added note on soldering on 3.5mm jacks first.
1.0.1	05 Dec 20	<ul style="list-style-type: none"> Updated commentary about stepper motor needed. Added information about stepper motor mount, pulleys, and belt. Updated drawing dimensions.
1.0	01 Dec 20	Initial document

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