

Hamilton City Train Molex Colors



PINS AND HOUSING CONNECTORS .093

MALE HOUSING

The housing is hollow and each pin sticks up within the outer wall that will encircle the female housing.



FEMALE HOUSING

The female pins are inset within the housing to maintain them from being separated when inserting the male pins.

Note this is the way that I started using the housings over 30 years ago.



The Hamilton City Train Layout Currently we are only using the 12 pin buss and the 12 V AC for Accessory Lighting.

All AC Common wiring is connected to the common WHITE wire no matter the voltage.

The colored wires assigned are to be used in the plugs to help identify the voltage by the installer and or the trouble shooter.

We have purchased LED bulbs that will work on either AC or DC installation.

The LED's can be wired to the AC accessory circuits either way. However for standardization it is best that they are wired with the Positive leads from the bulbs to the Hot lead in the female 4 pin plug that should be an ORANGE wire.

The Negative lead would be attached to the WHITE wire in the 4 pin female Molex plug.

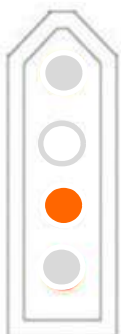
All accessory buildings and lights are attached to the female plug using the ORANGE Hot wire and the WHITE Common wire.

The female plugs will be used for either the upper or lower modules as there are two circuits for the accessories.

12 Volt AC Male Housing

Currently this is the only Molex Accessory voltage listed on the layout. Note the Male Molex is mounted to the module and the Female is on the building leads.

Circuit #2



White AC Common
Orange AC Hot



White AC Common
Purple AC Hot

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Buss Wiring Pin Number and Colors

This list Matches the current tracks Upper and Lower Level

Buss is complete around the modules on the lower level, (Full Circle). All upper level modules will be connected directly to the lower level buss with a 9 wire cable. No second buss on the upper level because there will never be a need to set up those 4 modules alone for any operation. All Buss wires are 14 Gauge including the 4 leads from the Buss to the Male connector going to the upper modules.

Pin 1 = White.....	Common AC Ground
Pin 2 = Red.....	Track 1 Upper Level Trolley
Pin 3 = Blue.....	Track 2 Upper Level Inside
Pin 4 = Black.....	Track 3 Upper Level Outside
Pin 5 = Yellow.....	Track 4 Lower Level Trolley
Pin 6 = Brown.....	Track 5 Lower Level Inside
Pin 7 = Gray.....	Track 6 Lower Level Outside
Pin 8 = Orange.....	Accessory 12 to 14 V AC #1
Pin 9 = Purple.....	Accessory 12 to 14 V AC #2
Pin 10 = Green.....	Use TBD
Pin 11 = Tan.....	Use TBD
Pin 12 = Pink.....	Use TBD



Male
Molex
Plug



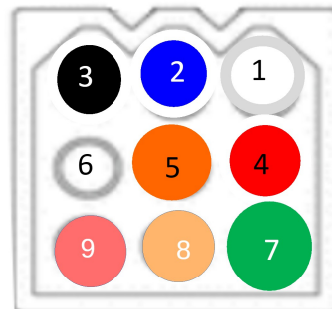
Female
Molex
Plug

Pin Number and Colors

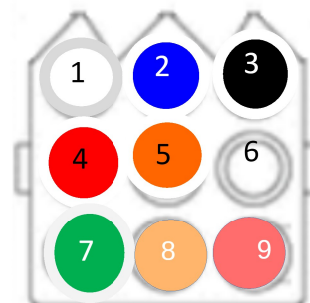
This list Matches the current tracks Upper Level

All connection are by cable from each upper module to the Buss on the lower level. All Buss wires are 14 Gauge.

Pin 1 = White.....	Common AC Ground
Pin 2 = Red.....	Track 1 Upper Level Trolley
Pin 3 = Black.....	Track 2 Upper Level Inside
Pin 4 = Blue.....	Track 3 Upper Level Outside
Pin 5 = Orange.....	Accessory 12 or 14 V AC #1
Pin 6 = Blank Pin..	This pin is not in use
Pin 7 = Green.....	Use TBD
Pin 8 = Tan.....	Use TBD
Pin 9 = Pink.....	Use TBD

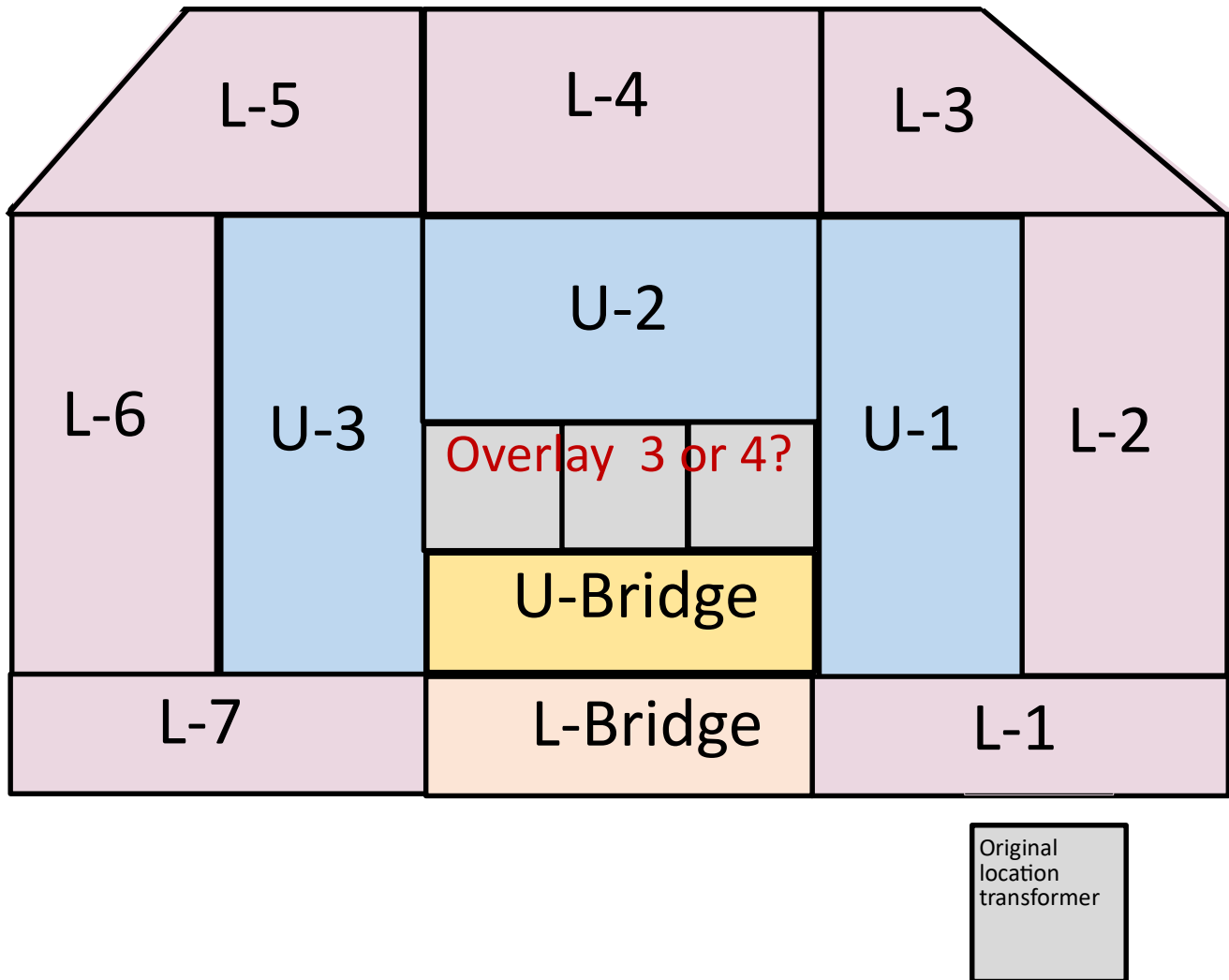


Male
Molex
Plug



Female
Molex
Plug

This is a drawing for renumbering of the modules
U is for UPPER Level and L is for LOWER Level



This drawing is the assigned numbers for the modules

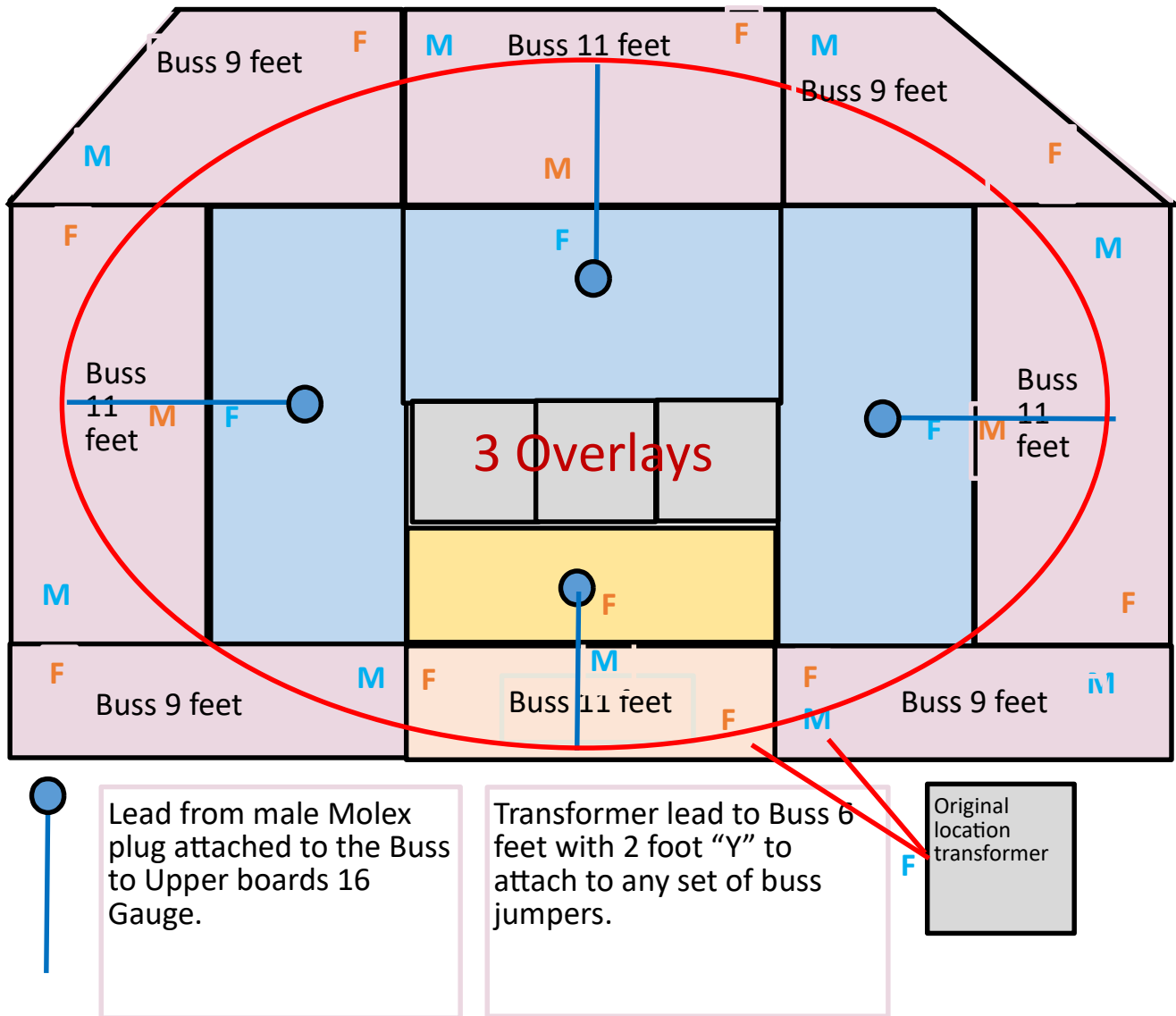
The Transformer was originally set up in the corner as shown.

We started in that corner with L-1 (Lower Level 1) numbering Counter-Clockwise with the Bridge Marked Lower Bridge.

Then the same for the U-1 (Upper Level U-1). (YES you can write UPPER and LOWER.)

The Transformer cart can be set up anywhere attached too two adjoining lower modules. Simply plug in the 2 leads from the transformer cart to the jumper plugs between any adjacent set of modules.

This is a drawing Buss wiring for the modules



This is a drawing of Suggested wiring of the layout

LOWER LEVEL

Red Oval is a buss with all 12 current wires 14 gauge.

Transformer cart attached by a cable to the buss wire. Built to plug into any two connecting modules. Each M and F are the jumper connections between all of the lower modules including the bridge.

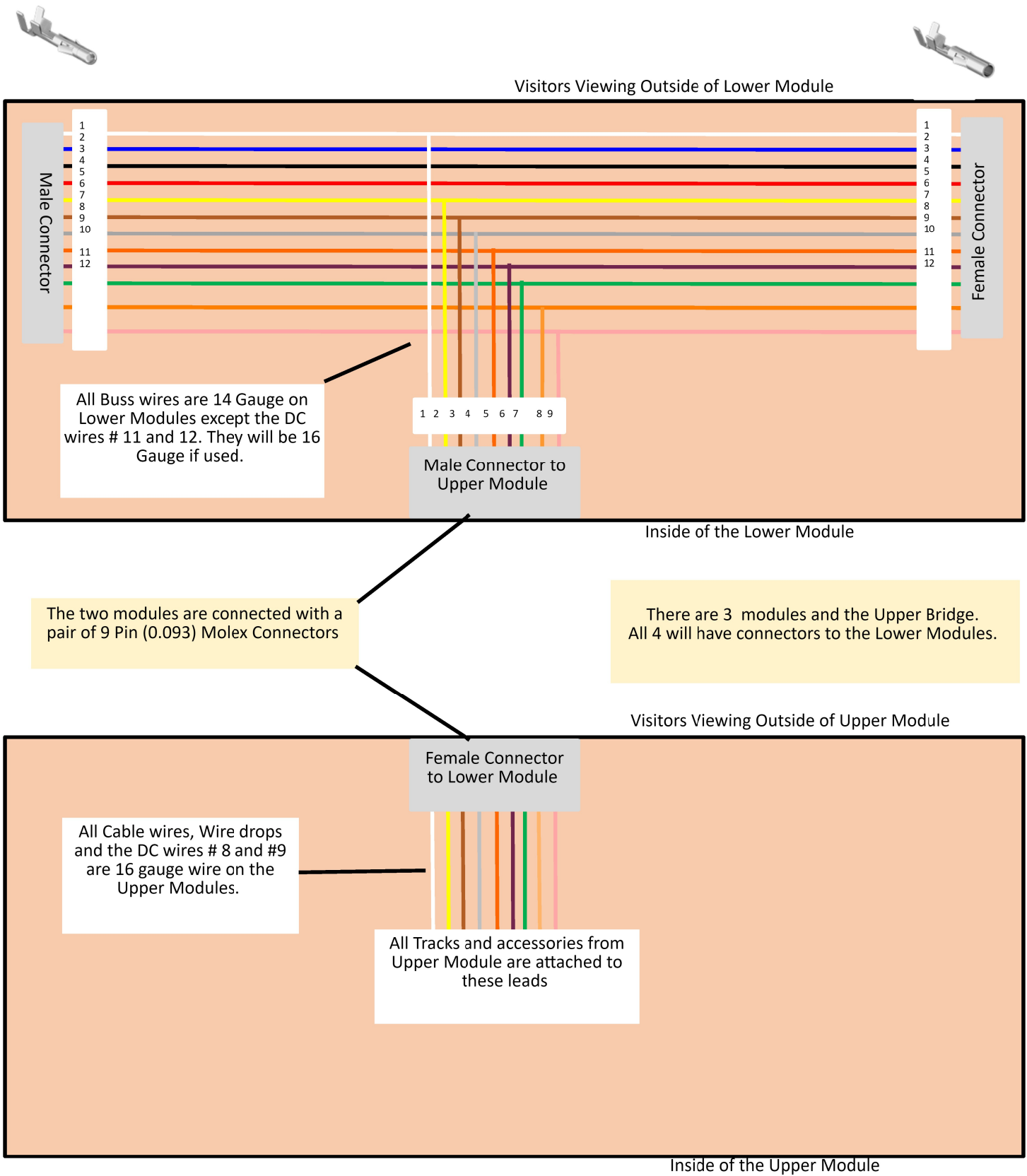
UPPER LEVEL

No Buss wires just a cable that is plugged into the Buss on the lower modules

All tracks and accessory wiring should have at least 2 drops for all connections on each module.

Wired together with 9 pin Molex connection (Color Coded) under the board and wired to the jumper cable to go to lower level with a jumper cable from the upper to lower modules.

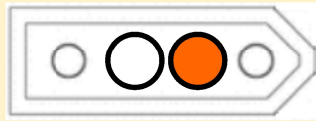
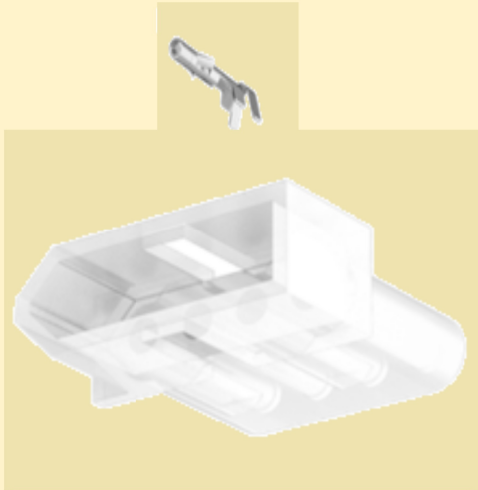
Hamilton City - Train Rewiring



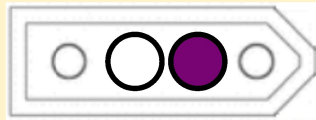
0.093 - 4 Pin Male Housing

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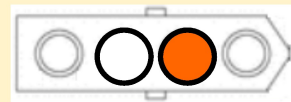
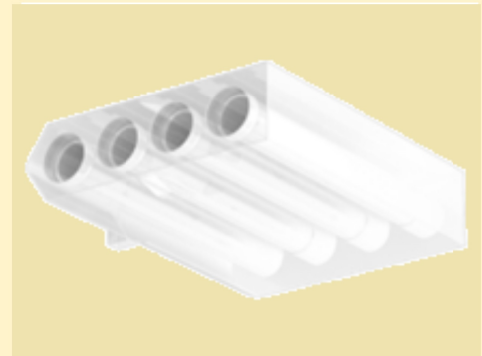
0.093 4 Pin Female Housings



Pin Location # 1 2 3 4
Male Molex Plug Accessory Circuit #1
on Upper Modules Orange Hot



Pin Location # 1 2 3 4
Male Molex Plug Accessory Circuit #2
on the Lower Modules Purple Hot



Pin Location # 1 2 3 4
Female Molex Plug All Accessory Items
to attach to either Circuit #1 or #2 shall
have an orange and white colors for
the female Molex plug.

Wire colors for the Pin Locations both Male and Female 4 pin Molex Connectors:
All are wired for 12 V AC and will have LED bulbs and Incandescent attached

- 1 Is Blank
- 2 Is the White Common Wire for both Circuit #1 and Circuit #2
- 3 Is the Orange Hot Wire for Circuit #1 Purple color Hot Wire for Circuit #2
- 4 Is Blank

The male housing will be attached to whatever board needed and the White and Orange or Purple wires will be attached on the underside of the Modules to the buss wires.

The Female housing will be attached to the leads coming from the accessory and will not be able to be detachable. Incandescent bubs and LED bulbs will be wired alike.

Common or Negative wires will be attached to the White wire coming from the Molex Plug.
Hot or Positive wires will be attached to the Orange wire coming from the Molex Plug.

All Molex connections listed are from the power source

THE ONLY VOLTAGE USED AT THIS TIME IS 14 V AC FOR ALL ACCESSORIES

THERE ARE 3 ACCESSORY CIRCUITS USING ORANGE GREEN AND PURPLE.

VOLTAGE

MOLEX PINS

HOT / POS

COM / NEG

COLORS

All six (6) train tracks are Alternating AC Current

Up to three 12—14 V AC Accessory lines ORANGE PURPLE and maybe GREEN.

COMMON	ALTERNATING	WHITE	WHITE	WHITE
12 V AC	ACCESSORY #1	ORANGE	WHITE	ORANGE
14 V AC	ACCESSORY #2	PURPLE	WHITE	PURPLE

One 12 Volt DC line for one DC operated items.

Negative	Direct	Black	Black	Black
12 V DC	4 Female	Red	Black	Red

12 Volt AC Male Housing

Currently this is the only Molex Accessory voltage listed on the layout. Note the Male Molex is mounted to the module and the Female is on the building leads.



There are 12 Circuits on the Board. Circuit #1 on the Upper Level and Circuit #2 on the Lower Level

White AC Common

Orange AC Hot

White AC Common

Purple AC Hot



We are converting all bulbs as much as possible from 12 to 14 V AC to LED's that will operate on 12volt DC.

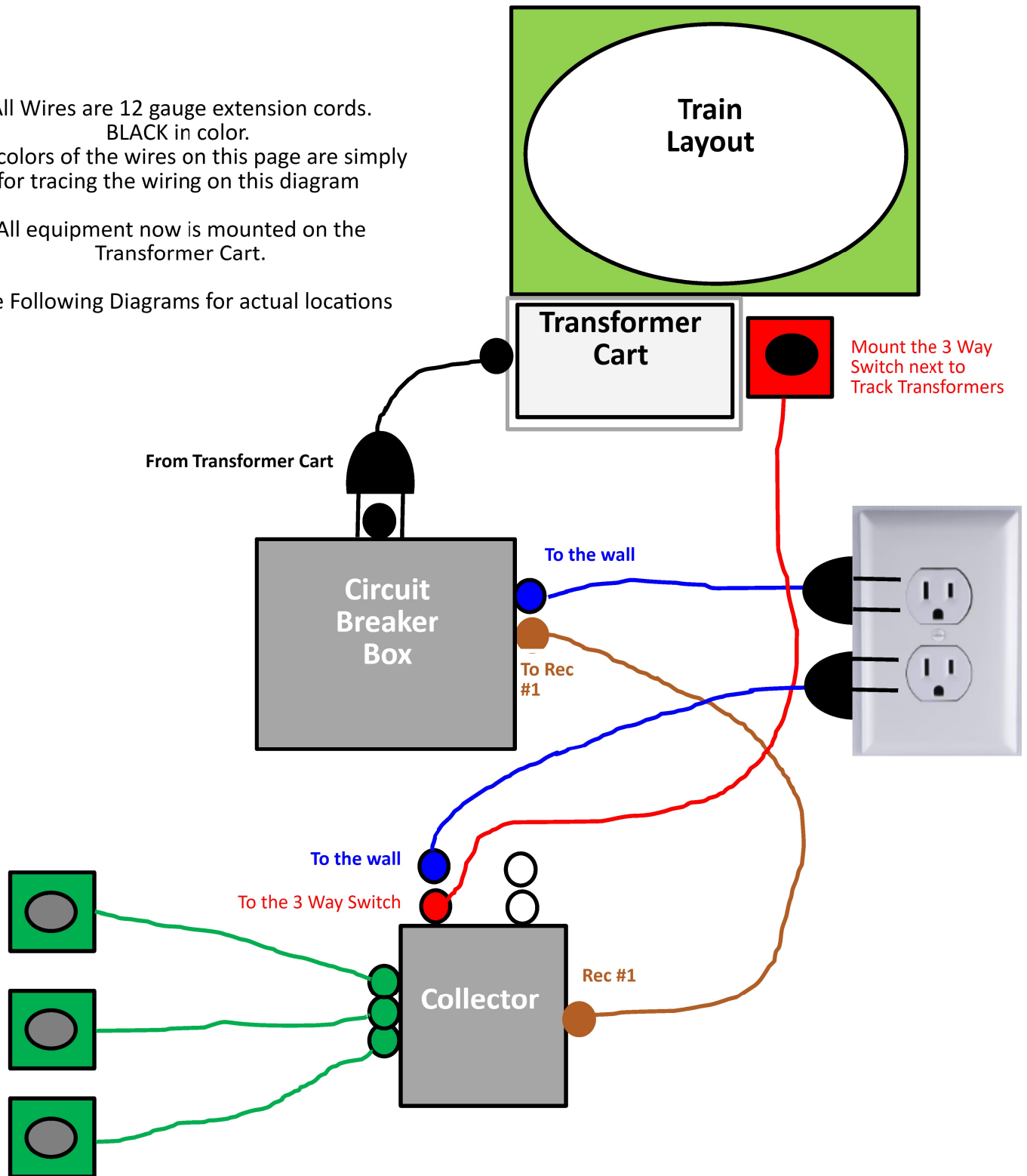
Button / Timer Control

All Wires are 12 gauge extension cords.
BLACK in color.

The colors of the wires on this page are simply
for tracing the wiring on this diagram

All equipment now is mounted on the
Transformer Cart.

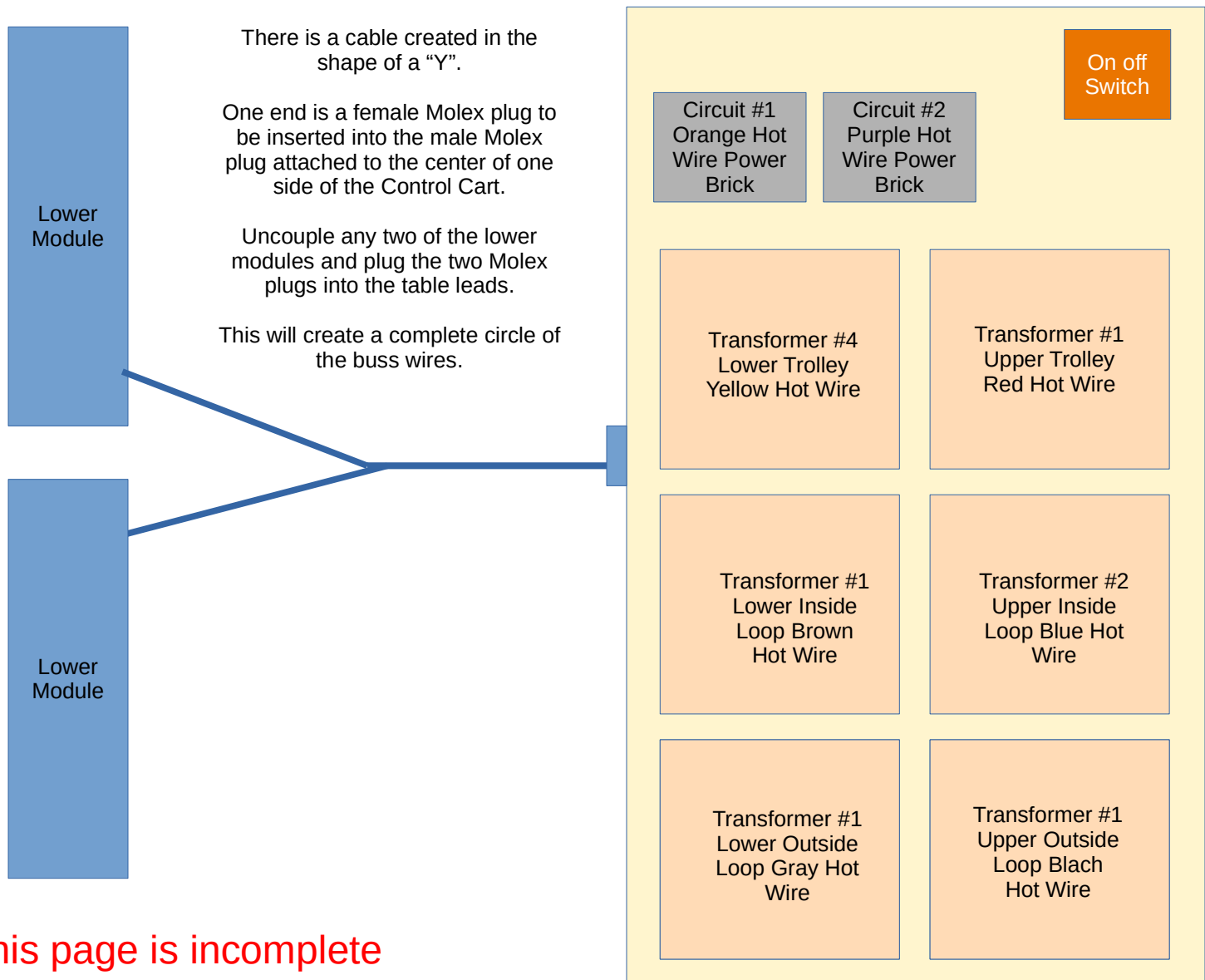
See Following Diagrams for actual locations



**3 PUSH BUTTONS ATTACH TO
THE FRONT OF THE LAYOUT**

Hamilton City - Train Rewiring

Power Connection from the Transformer Cart to the layout



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I want to put the two 12 volt circuit power bricks on the top shelf.

I am gong to investigate the possibility of placing the operation push buttons on the modules permanently mounted and wired through the 12 wire buss. We can use the two odd colors of Green and Pink for the push buttons.

If this works we can even add a 4th button on the transformer cart for testing purposes so that no one will have to go the front to push a button.

Upper Shelf on the Transformer Cart



Circuit #1
Orange Hot
Wire Power
Brick

Circuit #2
Purple Hot
Wire Power
Brick

On off
Switch

Transformer #4
Lower Trolley
Yellow Hot Wire

Transformer #1
Upper Trolley
Red Hot Wire

Transformer #1
Lower Inside
Loop Brown
Hot Wire

Transformer #2
Upper Inside
Loop Blue Hot
Wire

Transformer #1
Lower Outside
Loop Gray Hot
Wire

Transformer #1
Upper Outside
Loop Black Hot
Wire

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Middle Shelf on the Transformer Cart



On the shelf below the Power Transformers are the power bricks that have a circuit breaker.

If a track loses power the first place to check is for something off the track.

Reset the train and look for the Power brick directly under the transformer that is shorted.

Reset the circuit breaker by simply throwing the switch so the white of the reset switch is pushed in.

You should then be ready to run again.

Bottom Shelf on the Transformer Cart

On the lower shelf are two large electric boxes. One is called a collector and the other is the relay and timer to operate the train set by pushing one of the 3 buttons attached to the front of the layout.

You must plug the white power cord from the 2 power strips into the outlet on the timer box.

There are 2 black cords wire tied together and both are plugged into a double wall outlet.

At this point you may turn on the power switch to run the trains

Get all trains operational at a reasonable speed and turn the switch to automatic.



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We will need to start to address on the procedure of setting up the layout and then dismantling the layout in a manner the will preserve it for a long time in the future.

I see the fact that it will take 3 able bodied men or women to set it up and take it down just due to the weight of each of the modules.

My theory to start is set up the upper modules.

Make sure the 3 power drops are dangling including any from the bridge to be plugged in.

Set the buildings in place and plug them in. (We would not have to reach so far to plug them in if the lower modules are already in place.

Set up the lower modules.

Plug in all of the jumper buss cables including the drops from the upper board to the lower buss cables.

Place all trains on the tracks

Place and plug in all lower module buildings.

Set up the transformer cart

Plug in the cable from the cart to the location desired for operation.

If the white power strip plug is not already plugged into the timer box plug it in.

Look over everything for being connected.

Plug the double black wires into the wall outlet

Start to test and set speed of the trains for operation.

There is more to this we just have not figured the procedure out yet completely.