

# *T-TRAK FEEDER WIRE MANAGEMENT*

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*<http://ttrak.wikidot.com/feeder-wire-management>*

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# T-TRAK FEEDER WIRE MANAGEMENT

## Introduction

Our model train locomotives need electrical current to run. This means that, at some point, wires must be connected between the DC Power Pack/DCC Command Station and the track. Other papers have described various methods for Bus Cabling systems used by various T-TRAK Clubs. What isn't addressed is the feeder wires that are permanently attached to a module for a potential power drop – and what methods are used to secure the feeder wires in some fashion underneath the module.

This document will look at the various methods that have been used to secure the wires underneath the module. It is not the intent to specify a particular method but rather to provide a resource that will show what various clubs/individuals have done. It is left to the individual to use a method that works best for their situation. This is not intended to be a static document – should the reader use methods other than those currently included in this paper, they are encouraged to contact the author<sup>1</sup> so that they can also be added.

The impetus behind creating this document was a result of a Facebook post I placed on the T-TRAK Facebook page showing my use of clothespins as a possible way to “control” the feeder wires under the module – and the number of various and creative responses regarding other methods from others to my post.

## Reasons for Securing Feeder Wires

The primary reasons for securing the feeder wires is to provide some stress relief for the connection between the connectors to the track and the Bus Cabling system. Undue stress on the wires, and the connection to the track, can cause the wires to become disconnected. If it does become disconnected, it may require track to be removed to reconnect it, and possibly damaging surrounding scenery.

Another reason is to secure loose wires so that they are not hanging loose during transport and potentially getting snagged, or accidentally sticking out from beneath a module during a show.

## Securing Methods

A number of different methods have been employed to secure the feeder wires. This section will briefly describe each method. Note that the various methods are listed in alphabetical order - the order of presentation does NOT indicate any preferential method.

### “Do Nothing”

Some modelers feel that no strain relief is necessary on the feeder wires since they feel that there is sufficient slack in the wires to allow for minor tugging. I feel that this might be fine for a home layout, or

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<sup>1</sup> Interested readers are encouraged to contact/Private Message the author via the T-TRAK Facebook page regarding additional input to future versions of this document

where the individual who owns the module(s) connects the feeder wires to the bus system. However, in a club setting where different individuals may be connecting the wiring to the layout, or the modules are constantly connected and disconnected due to placement in home and show layouts, I feel that a proverbial ounce of prevention is worth it.

### Adhesive-backed Plastic Clips

Vic McTee (*North Texas T-Trak Model Railroad Club*) provided a photo showing the use of adhesive-back plastic clips as another method for securing the feeder wires (see *Figure 1*). These clips are normally used for securing larger diameter wires during the holiday season, but also work well to contain feeder wires underneath a module. The clip interlocks with itself via a set of ridges on both parts of the clip. Opening the clip is simply a matter of pushing on the tabs at the top of the clip to spread the two sides apart.



*Figure 1 - Adhesive-backed Plastic Clips  
(Photo courtesy Vic McTee)*

### Caulking

As indicated in my original Facebook post, I have tried various methods to provide strain relief on the feeder wires. Another method that seems to work is to push the wires into a bead of caulking and hold in place until the caulking cures (see *Figure 2*). While this does provide the desired stress relief, the downside is that if the wire ever needs to be replaced then the caulking needs to be removed and reapplied. This can be more challenging once the top of the module has been scenicked, making it difficult to flip over completely to work on the underside of the module. Fortunately, I have not needed to replace the wires held in place using this method yet.

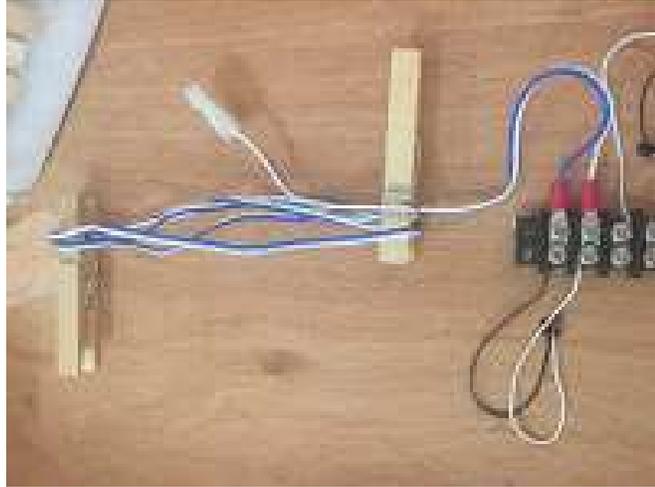


*Figure 2 - Caulking*

## Clothespins

This is the method that started the discussion on the T-TRAK Facebook page. After posting this photo to the Facebook page, and a couple of others, Jim Cottrell (*SanTrak*) indicated that their club has been using this method. Jim indicated that they use smaller clothespins because they have found that they hold the wires tighter.

Since our modules are made of wood, it is easy to attach a wooden clothespin to the underside of the module using carpenter's (or wood) glue. I have placed two clothespins, approximately 6"-8" apart leading from a barrier strip that I use under my modules (See *Figure 3*). The wires are then fed through the clothespin to hold them secure during transport.



*Figure 3 - Clothespins*

The wire can be secured to the clothespin by creating a loop in the feeder wire and then closing the clothespin through the loop. The use of clothespins also allows for easy access/removal of the wire just by opening up the clothespin.

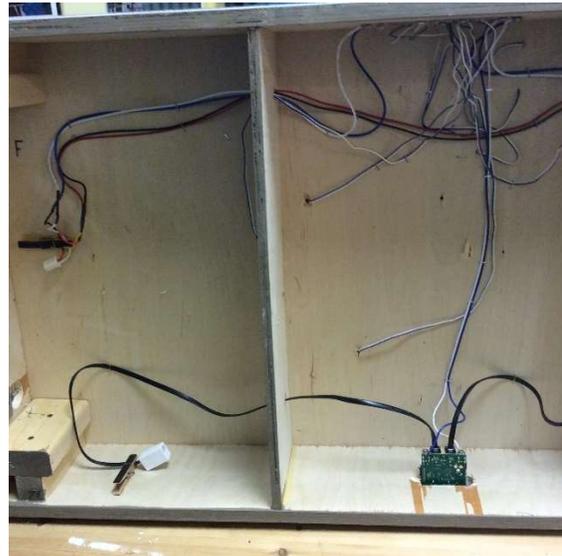
## Clothespins and Wire Staples

Other individuals and clubs have used clothespins together with wire staples to secure the feeder wires.

Carl Kinzinger (*Ganaraska Railway Modellers*) shared this photo (*Figure 4*) of the feeder wire management system used by his club for their HO layout built in the summer of 2017.

As can be seen in the photo, the majority of the wires are secured in place using wire staples. The clothespins are used to secure the loose ends as close as possible to the cable connectors.

Since the module-to-module connections in this setup appear to be via a Digitrax LocoNet, any strain/stress will be absorbed by the LocoNet cables. The connections to the track are stapled in place and terminate at the clothespin at the upper left of the photo or connected directly to the Digitrax UP5 LocoNet Universal Interconnect Panel at the bottom right of the photo.



*Figure 4 - Clothespin and Wire Staples  
(Photo courtesy Carl Kinzinger)*

## Cup Hooks

Terry Moore (*True North Rail*) uses the short KATO straight track pieces with the cable connectors to connect the feeder wires to the track. The wires are then tie wrapped to a small screw eye with 1/2" slack to prevent connection stress (see *Figure 5*). The wires then go around a cup hook at the other end of the module and returns to get clipped into a safety cup hook which holds everything in place during transport.

The cup hooks and screw eyes are 3/4"; the safety cup hooks are 7/8". The leads are tie-wrapped to a small screw eye with about 1/2" slack to prevent stress on the connector. The leads are then looped around a small cup hook at the other end of the module and return to a safety cup hook and secured by the clip.



*Figure 5 - Cup Hooks/ Screw Eye  
(Photo courtesy Terry Moore)*

Vic McTee indicated that he also uses Cup Hooks on some of his modules. The Cup Hooks are screwed into the side of the module frame and are used to secure the feeder wire during transport.

## Drinking Straws

Vic McTee has been using drinking straws glued to the underside of the module to serve as a strain relief method (see *Figure 6*). The wires are fed through the straws. Using multiple straws still allows for some movement of the wire within the straw but does provide sufficient stress relief. Placing the wire inside the drinking straw(s) virtually ensures that most of the feeder wire is contained and cannot be snagged unintentionally.

The drinking straws have a slit cut down their length as well as a small 45 degree cut on one side of the split at each end to facilitate sliding the wire into the straw.

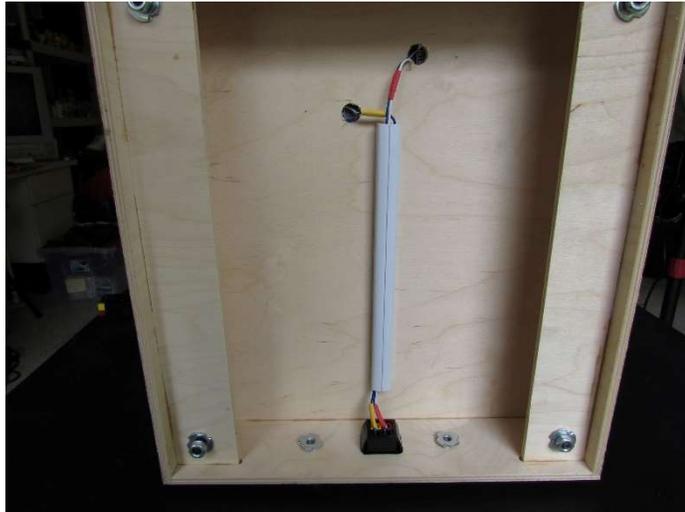


*Figure 6 - Drinking Straws  
(Photo courtesy Vic McTee)*

## Plastic Channel

Bruce Arbo (*Coastal Alabama T-Trak (CATT)/Pensacola Model Railroad Club (PMRC)*) uses Plastic Channel that is designed specifically for organizing loose wiring. A length of 8"-9" is attached to the underside of the module (see *Figure 7*).

The Plastic Channel has a peel-n-stick adhesive already - however, Bruce has found that it tends to not be permanent so he uses contact cement to permanently secure it to the underside of the module. The channel has an opening on the side so that the wiring can be pulled out if necessary.



*Figure 7 - Plastic Channel  
(Photo courtesy Bruce Arbo)*

## Velcro Cable Straps

Stephen Moore (*North Texas T-Trak Model Railroad Club*) uses Velcro cable straps which are screwed into the sides of his modules with small sheet metal screws (see *Figure 8*). The sides of his modules are made from 1x3s so the thickness is not an issue for the screws. Using the screws into the top of the module, if it is only  $\frac{1}{4}$ " thick, may not work because the screws are longer than  $\frac{1}{4}$ " unless they are placed in locations where the scenic materials on the module are thicker.



*Figure 8 - Velcro Cable Straps  
(Photo courtesy Stephen Moore)*

## Wooden Door Knobs

Jim Nealand uses a pair of wooden door knobs that are glued to the underside of the module base (see *Figure 9*). The feeder wires are then looped around the wooden door knobs to secure the wiring.

It is worthwhile to consider that the knobs be placed far enough apart so that the wires can be easily woven between the two knobs but still close enough together to easily unwind it access to the feeder wires is required.



*Figure 9 - Wooden Door Knobs  
(Photo courtesy Jim Nealand)*

## Feeder Wire Management in Commercially Available Modules

### Masterpiece Modules

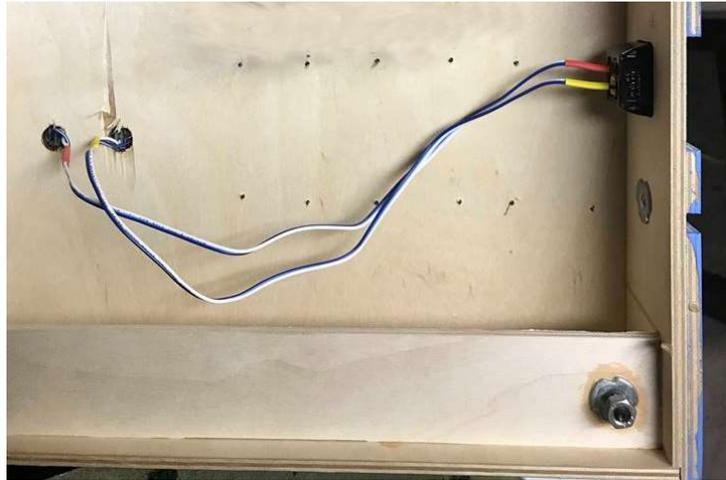
Masterpiece Modules provides the appropriate cut-out in the back panel of their straight module kits to accommodate the PowerPole receptacles, but no wiring or electrical components are currently provided with their kits. Contact the manufacturer if you have any questions at:

<http://www.masterpiecemodules.com/contact.php>.

## T-Kits

A system that was commercially available was part of the T-Kits<sup>2</sup> Module design and construction. This system made use of Anderson PowerPole connectors mounted on to the back edge of the T-TRAK Module (see *Figure 10*). Once the wires were run from the track to the PowerPole connection on the back panel of the T-TRAK Module, the wires were not disturbed and therefore stress relief for the feeder wires was not necessary.

To assist in connecting to other KATO style connectors, T-Kits also provided a PowerPole connector to KATO connector pigtail equipped with PowerPoles that plug into the PowerPole receptacle.



*Figure 10 - T-Kits Wiring Assembly  
(Photo courtesy Joshua Murrah)*

## Summary

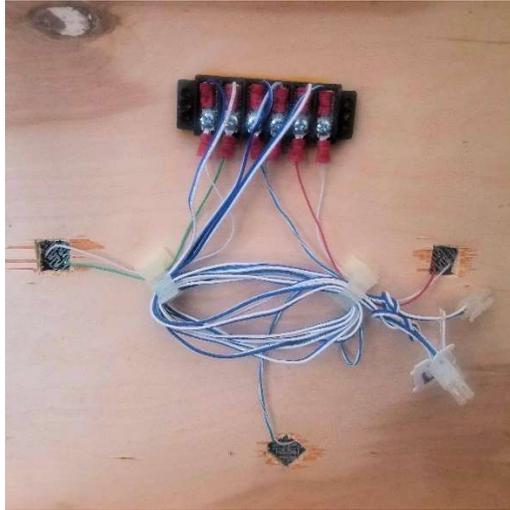
There are numerous methods used by modelers to control/secure their feeder wires. This document presented a compendium of the various methods. It is recommended that readers consider these methods when deciding how to secure their feeder wires under their modules.

I would like to thank Bruce Arbo, Carl Kinzinger, Stephen Moore, Terry Moore, Vic McTee, Joshua Murrah, and Jim Nealand, who took the time to provide input and photos showing how they manage the feeder wires on their individual modules.

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<sup>2</sup> T-Kits ([www.t-kits.com](http://www.t-kits.com)) are no longer commercially available, as of May 20, 2018.





This is an example of the use of the Adhesive-backed Plastic Clip to secure the feeder wires. Note: in this case, this is the wiring for a Junction Module and hence the three sets of leads.



The use of the Adhesive-backed Plastic Clips from a different angle. Note that Vic (and *North Texas T-Trak*) also use colored bread bag tags to mark the various feeder wires – **BLUE** for the front track, and **WHITE** for the rear track. In the case of a Junction Module, the WHITE tags are also marked “L” and “R” (for Left rear track, and Right rear track respectively).



This photograph shows Vic’s use of Cup Hooks, inserted into the side of his module, to provide some stress relief for the feeder wires.



This photograph highlights Vic’s use of plastic drinking straws to provide the stress relief on the feeder. The feeder wires are fed into the straws in the manner shown, which prevents any stress on the Unijoiner connection.

Stephen Moore



The Velcro strip is screwed into the side of the module using a sheet metal screw. This photo shows the Velcro unfastened and the wires loose.



This photograph shows the Velcro strap fastened around the feeder wires.



This photograph shows the component parts that Stephen uses. One screw is used per Velcro strip.

## Terry Moore

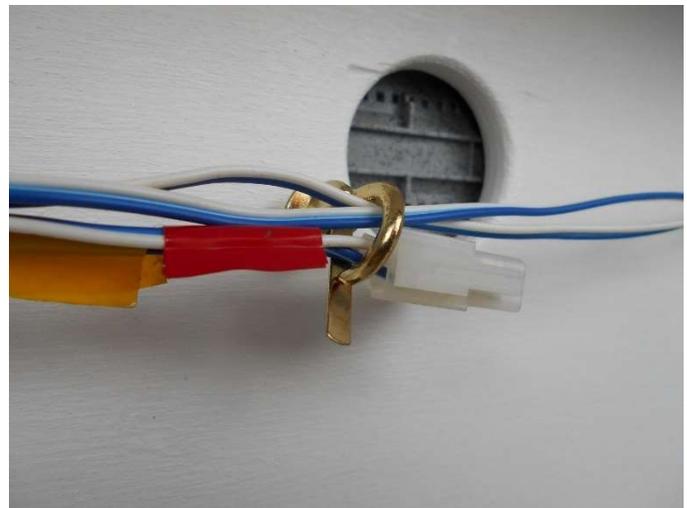


This photograph shows the Cup Hooks and Screw Eye under the module.

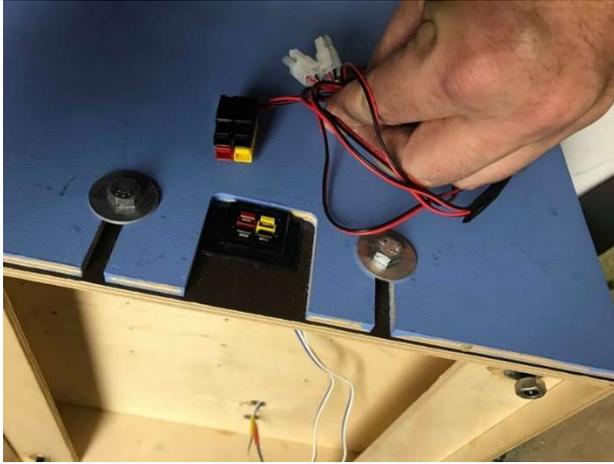
A closer look of the Screw Eye and Cable Tie used to secure the feeder wire coming from the KATO track. Terry uses double track if at all possible - the short 20-043 with the power leads so both track leads are at the same end, unlike the standard usage of single track pieces. To get BWWB wiring Terry dismantles the "yellow" (inside) track connector plug, reverse the wires and reassemble the connector.



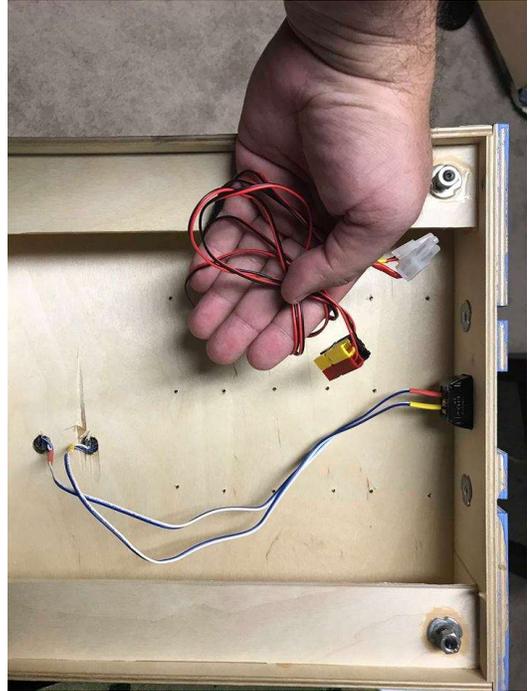
A photograph of the component parts used, with a quarter provided for scale.



After the leads are looped around a small cup hook at the other end of the module, the feeder wires are fed through a safety cup hook and secured by the clip.



PowerPole connectors on the back of the T-Kits Module, with the PowerPole to KATO (mini Tamiya) pigtail also shown.



Underside of the module, showing the feeder wires from the KATO track to the PowerPole Connectors.