

ROGUE VALLEY MODEL RAILROAD CLUB

MODULE SPECIFICATIONS
Revised July 2002

Table of contents

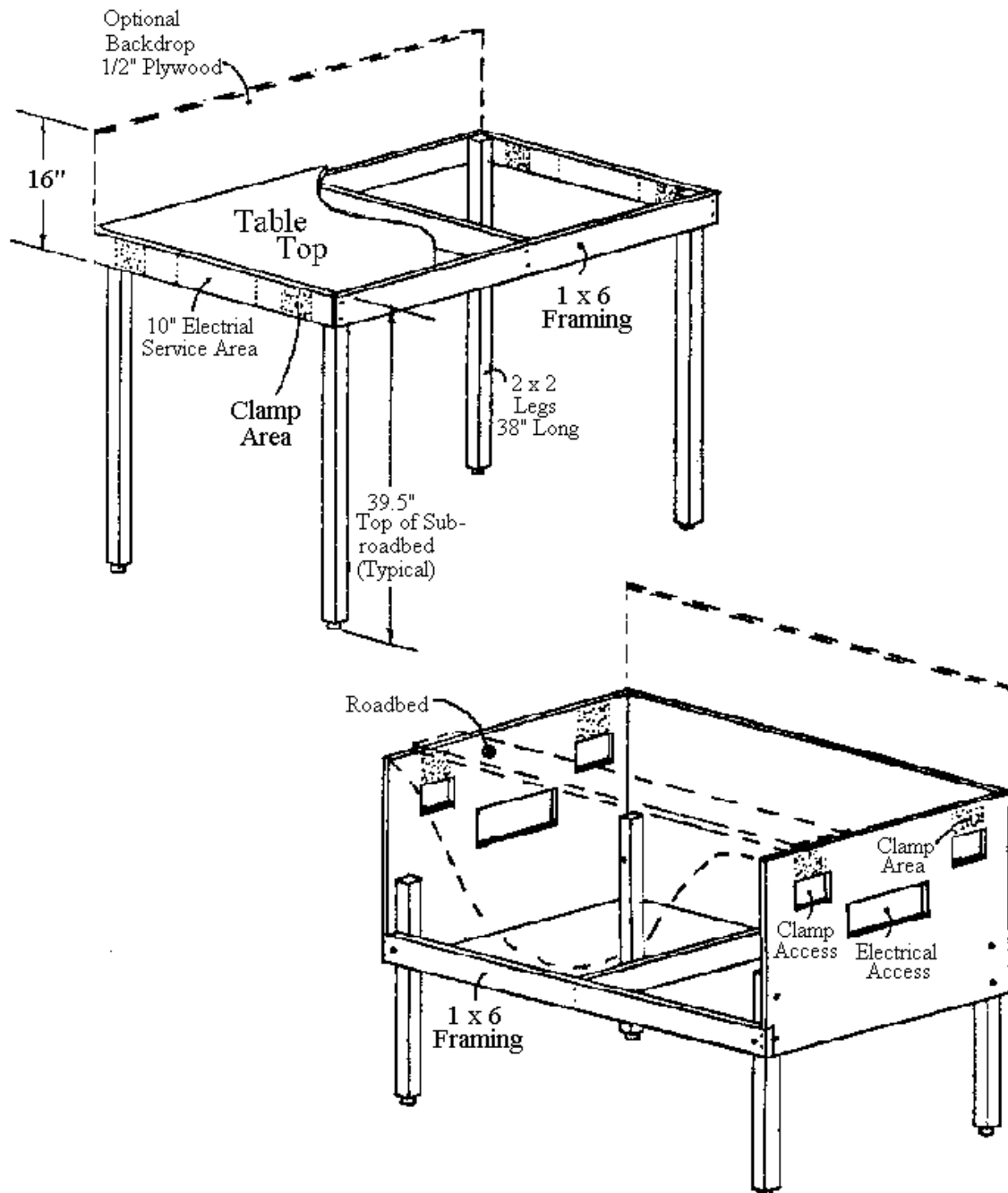
MODULE CONSTRUCTION:	4
MODULE CONSTRUCTION DIAGRAM	5
CORNER MODULE DIAGRAM	6
TRACKAGE:	7
TRACK DETAIL	8
ELECTRIAL:	9
GENERAL INFORMATION:	9
120 VOLT AC CONNECTIONS:	9
MODULE CONTROL PANELS:	10
SWITCHES:.....	10
<i>Fascia Mounted:</i>	10
<i>Control Panel:</i>	10
COLLECTOR TRACK THROTTLE CONNECTIONS:	10
<i>Wiring Harness Diagram</i>	12
MODULE TO MODULE CONNECTIONS:	13

All of the drawings by Dave Spakousky.

Module Construction:

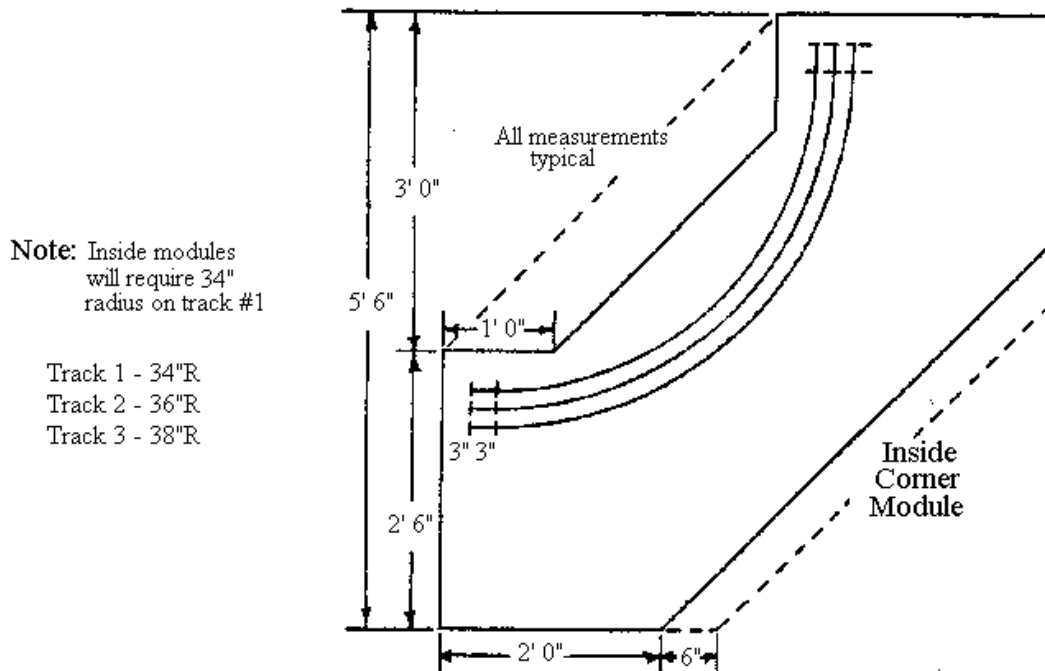
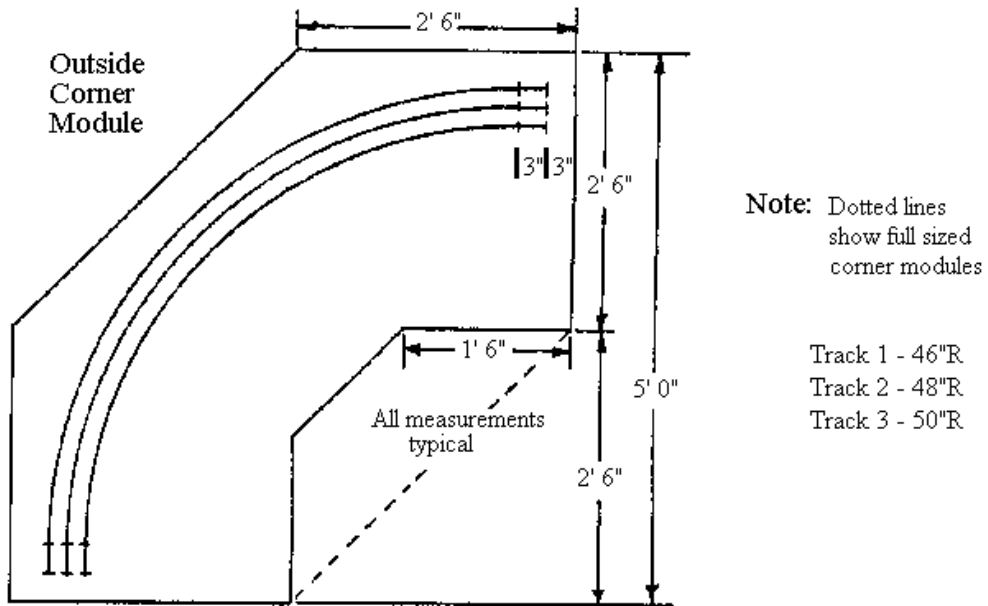
1. Consult details and plan drawings for basic construction methods.
2. Modules shall be a minimum of four feet (4') in length. Extended lengths over four feet shall be at two-foot (2') increments. Standard module lengths are 4 feet, 6 feet, or 8 feet in length or any combination thereof.
3. Modules shall be 30 inches wide at the ends of the modules.
4. All joints must be glued and screwed together using #8x2 or #8x2.5 screws.
5. All framework ***MUST*** be square.
6. Legs shall be constructed of 2x2 (1.5"x1.5") clear lumber and must be removable.
Legs shall have a 3/8 bolt and tee nut in the bottom for minor height adjustment.
Legs on 6 and 8 foot modules should be set in, from the ends, approximately 1 foot to help eliminate any sagging. (Although not required, an extra pair of legs in the middle of any 8-foot module is strongly suggested.)
7. Sub-roadbed or tabletop can be of builder's choice with the total thickness, including roadbed, not to exceed 1 inch.
8. Finished height to top of railhead shall be 40 inches.
9. Diorama boards are optional (as per drawings).

Module Construction Diagram



4 ft. module illustrated

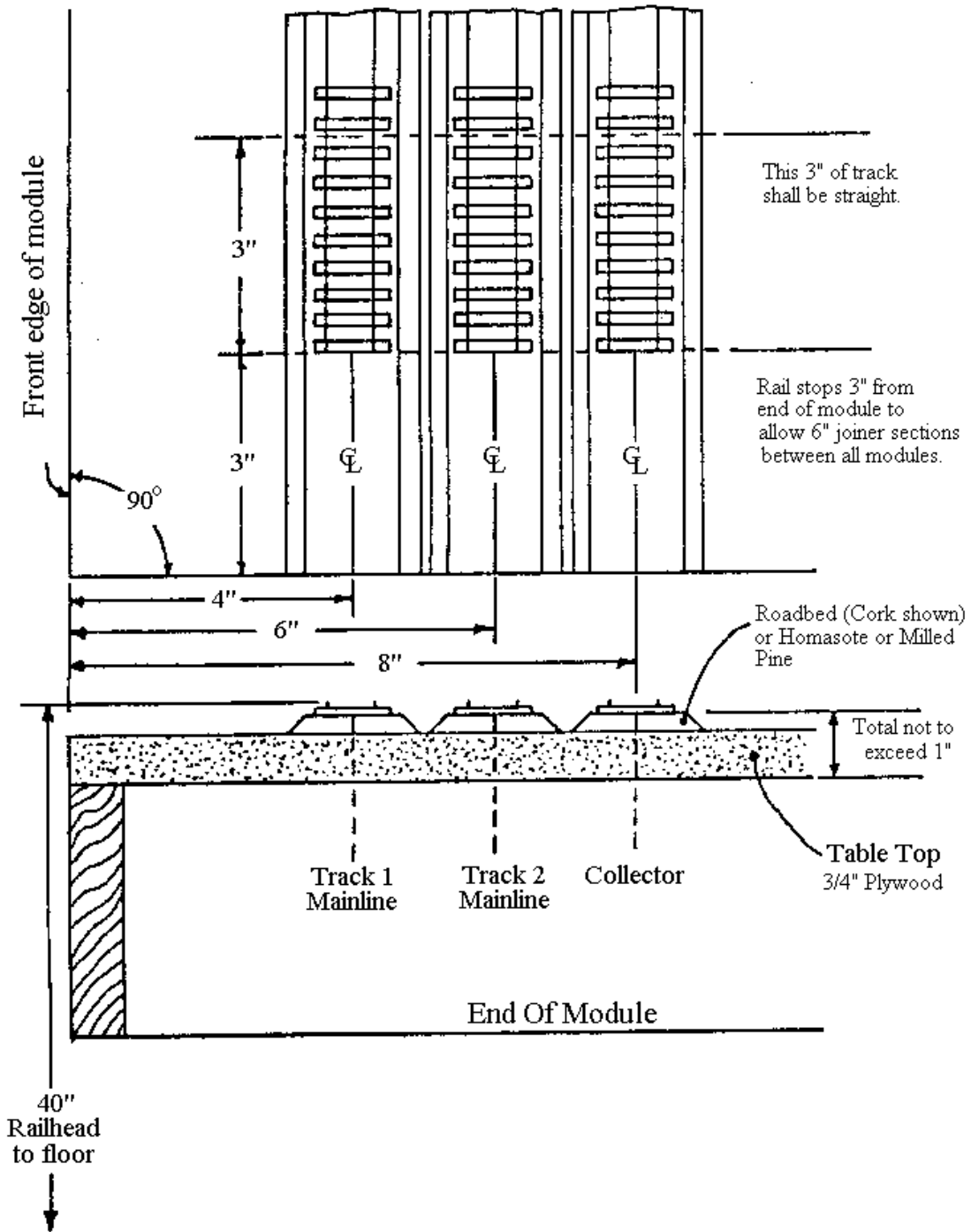
Corner Module Diagram



Trackage:

1. 2 mainline tracks and 1 collector track shall be used on all modules
2. Track centers, measured from the front edge of module, shall be 4 inches, 6 inches, and 8 inches. A placement jig is available at the clubhouse to properly position tracks.
3. Track center measurements are 3 inches from the ends of module.
4. Mainline and collector tracks shall stop 3 inches from the ends of the module, with the proceeding 3 inches to be straight. This will allow the use of 6-inch joiners between all modules.
5. Nickel-silver code 100 rail shall be used on all mainlines and collector tracks. Plastic tied track such as Atlas, Lambert, or Peco is acceptable.
6. Mainline minimum radius may be 36 inches (34-inch minimum on Track 1 on inside corner module) and 22-inch minimum radius on collector track.
7. Crossovers from collector to mainline and from mainline to mainline shall occur on club owned or operated modules only.
8. Crossovers from collector to mainline and mainline to mainline shall be no less than #6 with #8 preferred. Switches on the collector to individual sidings may be #4.
9. Crossovers on individual owned modules will be restricted or spiked shut during operating periods.
10. Spurs that are aimed off the back of any module must have an on/off switch installed on the rear fascia board to power the siding trackage. Insulated rail joiner must be installed close to the turnout as possible with power provided to the siding only through the on/off switch.

Track Detail



ELECTRIAL:

General Information:

An electrical inspection is required prior to any new module being connected into the layout. This inspection will include the 110-volt as well as the low voltage system. *Any module that fails this inspection will not be allowed to become part of the layout until such time as the deficiencies are corrected, and the module is re-inspected.*

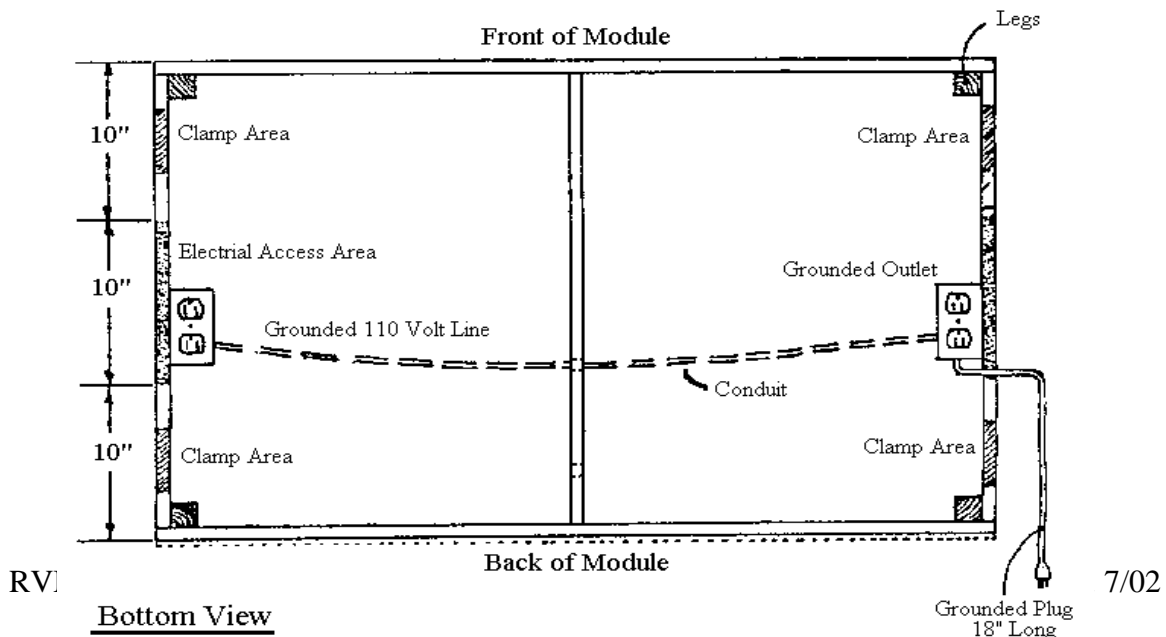
Main track power wires shall be 16 gauge stranded wire. All other wiring may not be lighter than 20 gauge stranded. Solid wire may not be used for any track power, however, it may be used for lighting buildings, signals, or other purposes.

No switch machines, lights, or other accessories may be connected to the low voltage AC power supply lines (wires 7 & 8) of the module. These lines are strictly for power to throttles. No throttle connections to tracks 1 or 2 will be allowed on any module except for yard modules or as authorized by the Module Standards Committee.

120 Volt AC Connections:

Electrical outlets shall be mounted under both ends of each module. These outlets must be mounted in standard metal electrical boxes with the wiring between them inside metal conduit. Wire shall be 12 gauge and may be either Romex (12/2 w/ground) or individual wire. A ground wire will be run between both outlets. A grounded plug with an eighteen-inch (18") long pigtail will be connected to the right side (facing front of module) outlet. See illustration for exact placement of outlets and plug.

4 ft. Module Illustrated



Module Control Panels:

Large module(s) may have control panel(s) that connect to either the front and/or the back fascia board. Control panel(s) may not control or connect to tracks 1 or 2. They may include a local cab to allow independent operation within the boundaries of the module(s). If a local cab is to be included, then its throttle power must be provided by a separate power source other than from wires 7 & 8 of the main wiring harness. The control panel must be able to be disconnected from the module(s). A "show" plug must be installed on the underside of the module, which will allow proper operation of the module without the use of the control panel.

Switches:

Fascia Mounted:

Track controlling switches may be mounted in the front and rear fascia boards. These switches may not be connected to track 1 or 2. Switches controlling spurs must be on/off toggle types and may only be mounted on the rear fascia board. Switches, which control sidings and/or main trackage, must be installed in a 3-way mode (see below) to allow either front or rear switch to turn on/off power to the track.

Control Panel:

All switches on any control panel which supply track power must be a toggle type and either on/off or "center off". No momentary pushbutton type switches are allowed for track power. Turnout control switches may be any type as required to function with the machines. Please be aware that the amount of use of any switch may require a heavier duty rating than normal.

Collector Track Throttle Connections:

The following specifications are for the walk-around control provision of the "collector" track and **are** required on all modules.

1. A minimum of 2 four circuit connectors [TRW/Cinch S-304-AB (or physical equivalent)] shall be used on each module. One connector shall be mounted in the front fascia board, and the second shall be mounted in the rear fascia board.
2. These connectors must be mounted in such a way so that they are protected from damage during module transportation and/or repair.

3. Throttle sockets shall be placed no more than four feet (4') from the end of any module and as close to centered on the length of the module as possible. Modules and module sets that are eight feet (8') or longer in length shall have additional connectors mounted so that the distance between connectors on either the front or rear fascia boards does not exceed 8 feet. Connectors shall be mounted no less than three feet (3') from the ends of modules unless required due to construction constraints.
4. Any oddly shaped module(s), such as ends or tees should have at least the minimum of one (1) socket mounted on any side that could be used during club operation period.
5. The pins on the 4 pin sockets shall be wired as follows:

A. Low voltage AC power to throttle (12 vac):

1. Pin 1 of both the inside and outside socket shall be connected to wire 7 of the main wiring harness
2. Pin 4 of both throttle sockets shall be connected to wire 8 of the main wiring harness.

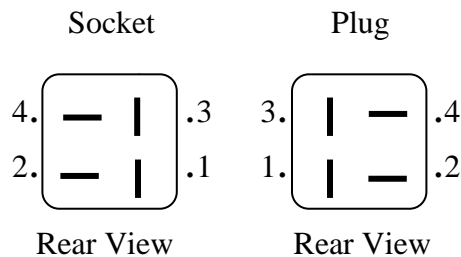
B. Low voltage DC power to the collector track from throttle:

1 - Inside mounted sockets:

- a. Pin 2 of the throttle plug shall be connected to wire 5 of the main wiring harness, and track 3 outside rail.
- b. Pin 4 of the throttle plug shall be connected to wire 6 of the main wiring harness, and track 3 inside rail.

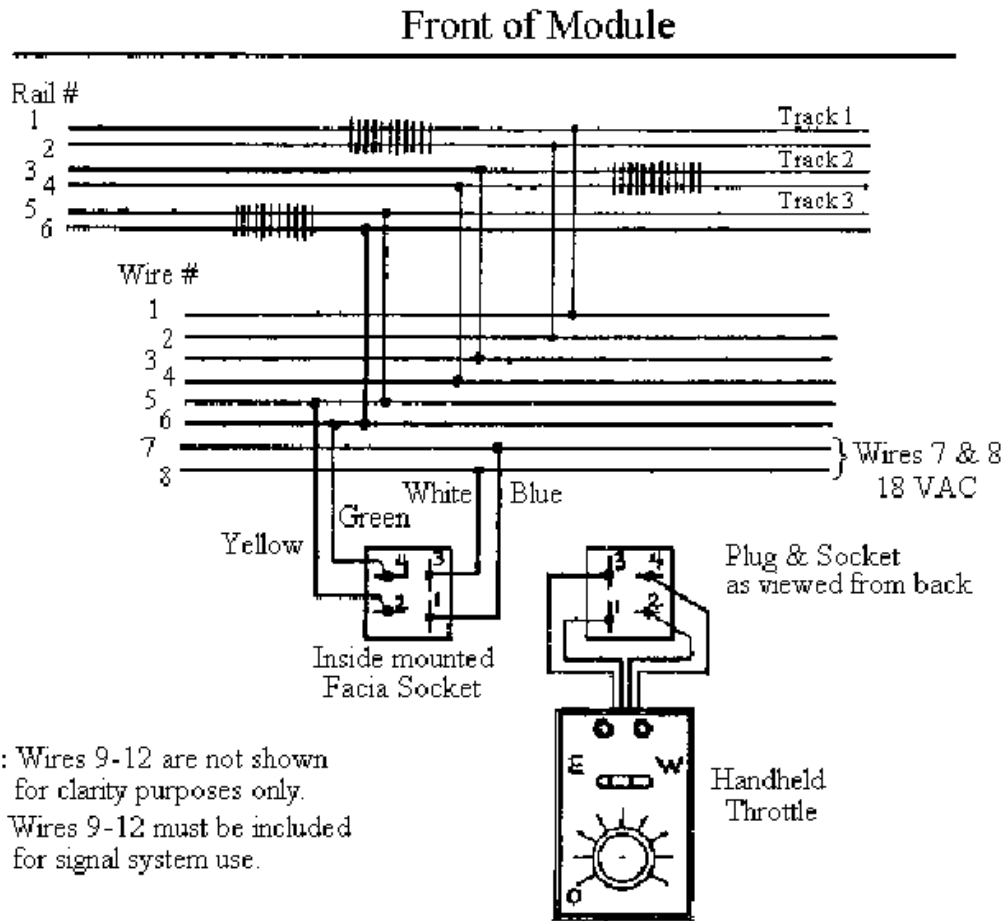
2. Outside mounted sockets:

- a. Pin 4 of the throttle plug shall be connected to wire 5 of the main wiring harness, and track 3 outside rail (rail 5).
- b. Pin 2 of the throttle plug shall be connected to wire 6 of the main wiring harness, and track 3 inside rail (rail 6).



- In the event that a self-contained power pack should need to be connected through a 4-pin throttle connector, only pins 2 and 4 are to be connected. Pins 1 and 3 on the plug must be left unconnected.

Wiring Harness Diagram



Module To Module Connections:

Each module must have a twelve-wire harness with a (12) pin connector at each end. This harness and connector provide continuous power to the tracks, AC power to the collector throttle plugs, and data signals for track occupancy control system (track signals). The male plug (RS 274-232 or equivalent) will be on the right side [facing front] of module and the female plug (RS 274-242 or equivalent) will be on the left side. Wire between connectors will be no lighter than 16 gauge stranded. Solid wire is unacceptable! A dual-row barrier (RS 910-3199 [or 274-670 & 274-658] or equivalent) strip will be installed in the center (or as close as practical) of the module. Wires shall run from this barrier strip to each end of the module and will have eighteen (18) inches of wire between the bottom of the module and the plug itself. Track feeder wires, control wires, etc. will only be attached to this terminal strip. The terminal strip ends of the wires shall be attached with soldered spade lugs and the 12 pin connector ends shall also be soldered. . (Because of problems experienced with EUROPEAN-type terminal strips, they are strongly not recommended.) A 2 pin disconnect plug (RS 274-222) shall be installed four (4) to six (6) inches from the male plug on wires 5 and 6.

The following is a description of each wire and it's connection in the main wiring harness.

- Wire 1 - Track 1 Rail 1 (outside)
- Wire 2 - Track 1 Rail 2 (inside)
- Wire 3 - Track 2 Rail 1 (outside)
- Wire 4 - Track 2 Rail 2 (inside)
- Wire 5 - Track 3 Rail 1 (outside)
- Wire 6 - Track 3 Rail 2 (inside)
- Wire 7 - Low Voltage AC Throttle Power
- Wire 8 - Low Voltage AC Throttle Power
- Wire 9 - Signal System
- Wire 10 - Signal System
- Wire 11 - Signal Logic
- Wire 12 - Signal Logic