

Farnborough Road New Wiring

All Boards and the Control Panel

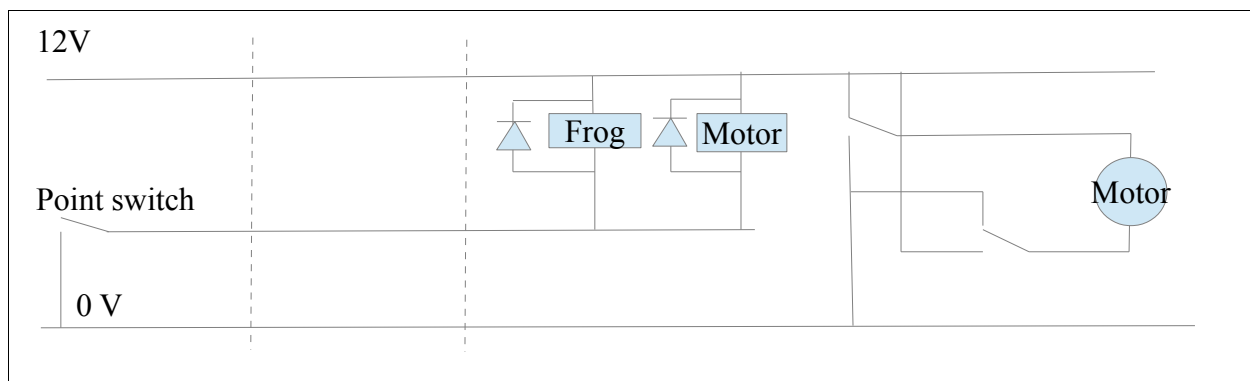
Consistent board end labeling A on left B on right when standing inside the layout, consistent wiring of the plugs and sockets, all A ends plugs and B end sockets.

The control panel is detachable, with the controls for the fiddle yard, and able to plug in and operate any board or group of boards for testing.

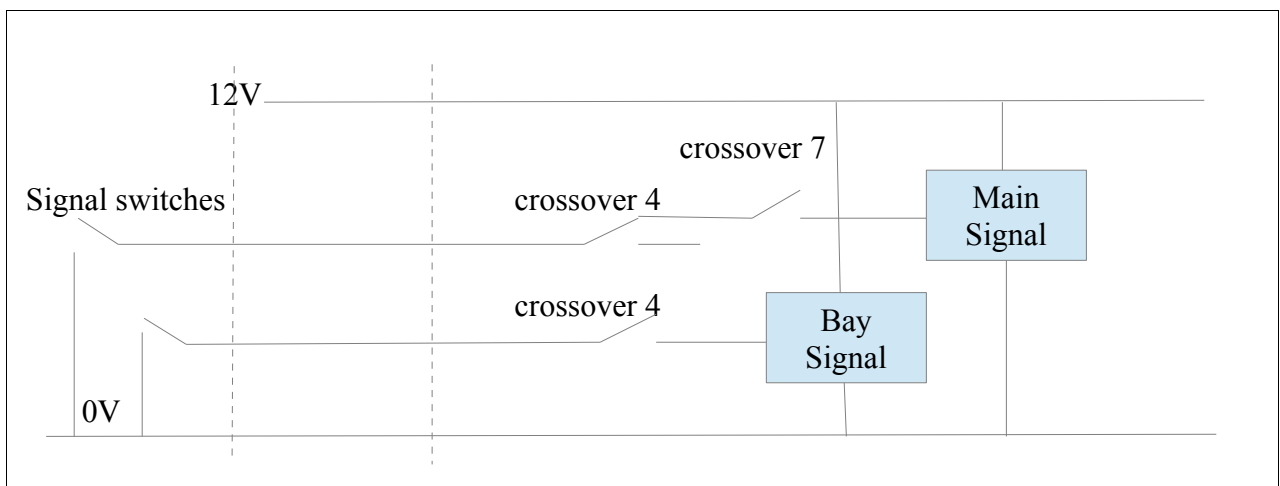
There are 4 signals, 7 crossovers, and the fiddle yard to control.

Point Motors

Each point motor currently needs 2 wires, by using a DPDT (double pole double throw) relay at the point motor we could reduce this to 1 wire and a common. This frees up space on the connectors. Currently the frog relay is operated from contacts on the point motor, but we can also operate the frog relays from the same wire. Add diodes to all relays to protect against interference from back emf. 1N4148 are about 58p for 100 plus postage. DPDT relays about £1, and we need about 11.



Signal Interlocking



Interlocking of the main starter signal needs a relay driven by the point lever switch for crossover 4 (bay exit), and crossover 7 (goods exit). Interlocking of the bay starter signal needs another set of relay contacts on crossover 4 (bay exit). So a DPDT relay on crossover 4.

We could also interlock the goods exit with crossover 6 and 7 reversed, and the new starter with crossover 6 reversed and 7 normal.

Connector Wiring

The control panel should have 2 connectors the same as 3A plug and 3B socket.

With the DCC and 12 volts connected to the control panel (Xpressnet directly into the command station) and the control panel connected to any baseboard we can operate trains, points, signals on that baseboard.

O Oval board, T Terminus board, C curve board.

CP control panel.

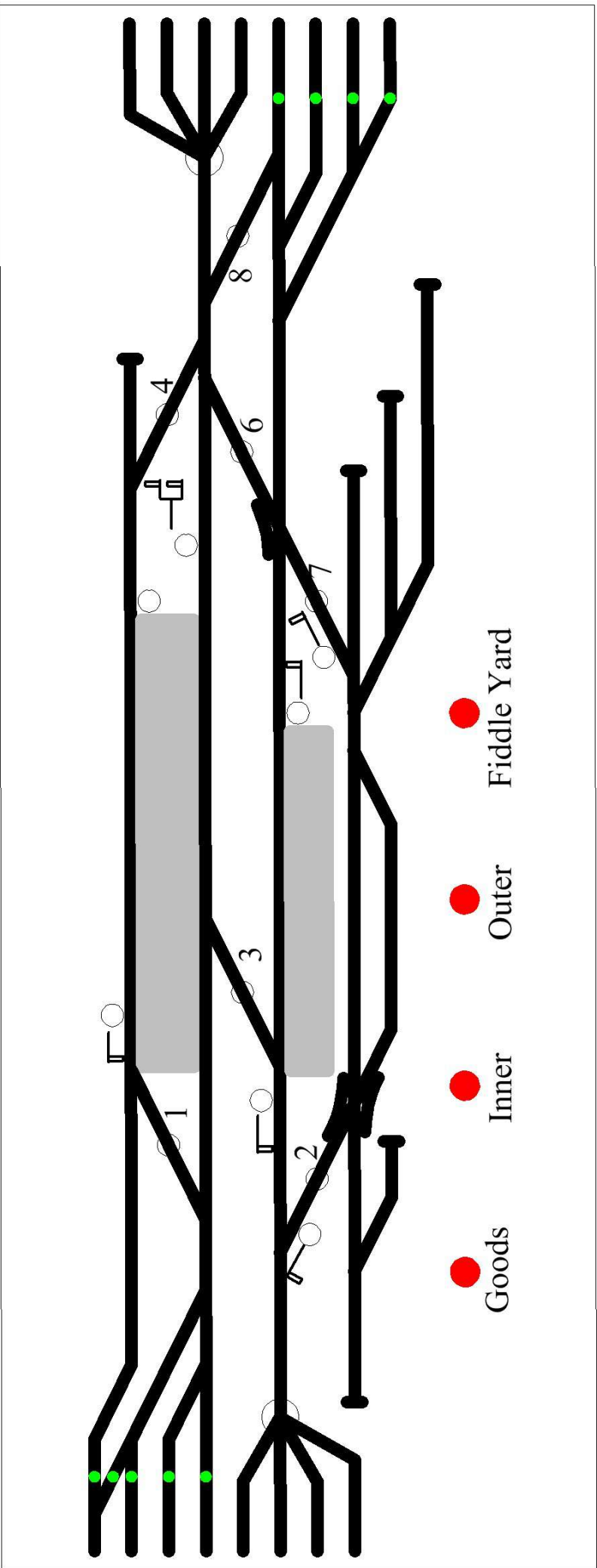
A left end plug, B right end socket.

For testing the curve boards and fiddle yard we also need a short 24 pin to 12 pin adapter cable with a 24 volt input connector.

	Control panel 24 Pin socket. 3A side.		12 Pin plug. Any baseboard with a 12 pin socket.
1	DCC Common	1	DCC Common
2	Outer track DCC	2	Outer track DCC
3	Inner track DCC	3	Inner track DCC
4	(Goods DCC, not used)	4	24v power connector
5	Fiddle yard DCC	5	Fiddle yard DCC
6	0 volt	6	0 volt
19	Fiddle yard outer 2	7	Fiddle yard outer 2
20	Fiddle yard outer 3	8	Fiddle yard outer 3
21	Fiddle yard outer 4	9	Fiddle yard outer 4
22	Fiddle yard inner 2	10	Fiddle yard inner 2
23	Fiddle yard inner 3	11	Fiddle yard inner 3
24	Fiddle yard inner 4	12	Fiddle yard inner 4

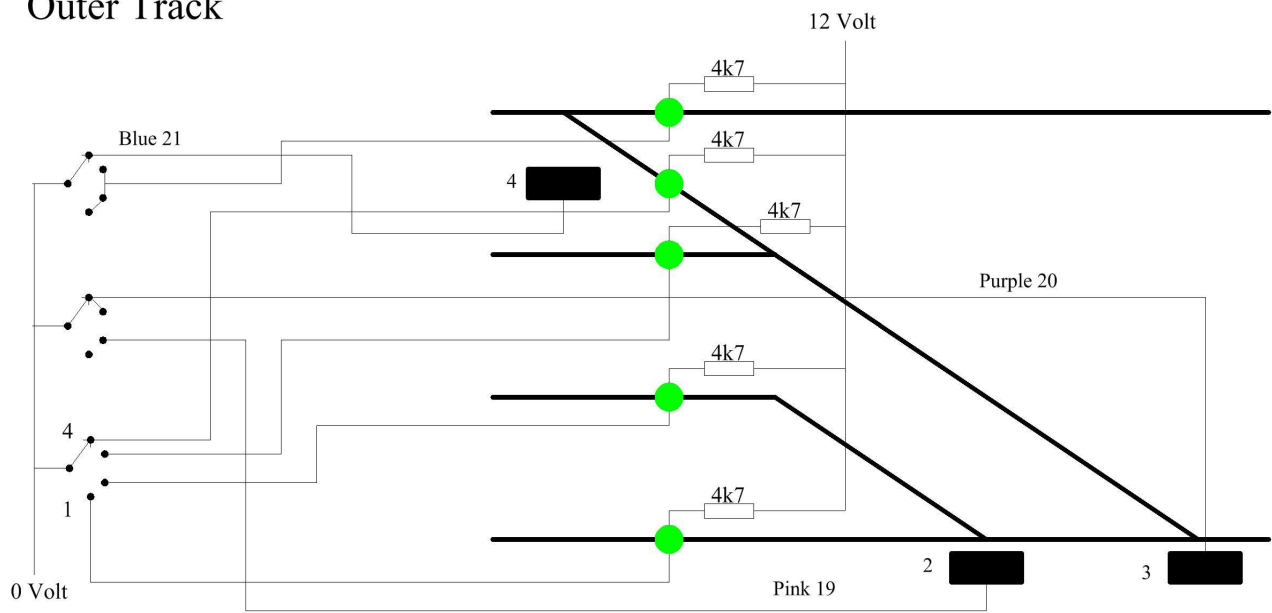
	O1A, C24B	T2B	O1B, O2, 3A, CPA	3B, 4-5, 6A, T7A, CPB	C7B, C8-C11, C12A	12B, 13-18, C19A	C19B, C20-23, C24A
1	DCC Common	DCC Common	DCC Common	DCC Common	DCC Common	DCC Common	DCC Common
2	Outer track DCC	Outer track DCC	Outer track DCC	Outer track DCC	Outer track DCC	No connection	Outer track DCC
3	Inner track DCC	Inner track DCC	Inner track DCC	Inner track DCC	Inner track DCC	No connection	Inner track DCC
4	Goods track DCC	Goods track DCC	Goods track DCC	Goods track DCC	No connection	24 volts	No connection
5	Fiddle yard DCC	No connection	Fiddle yard DCC	Fiddle yard DCC	Fiddle yard DCC	Fiddle yard DCC	Fiddle yard DCC
6	0 volt	0 volt	0 volt	0 volt	0 volt	0 volt	0 volt
7	12 volt	12 volt	12 volt	12 volt	No connection	Fiddle yard outer 2	Fiddle yard outer 2
8	Crossover 1 On C24, O1		Crossover 1 On C24, O1	Crossover 4 On 5, 6		Fiddle yard outer 3	Fiddle yard outer 3
9			Crossover 2 On O1, O2	Crossover 6 On 5		Fiddle yard outer 4	Fiddle yard outer 4
10			Crossover 3 On 3	Crossover 7 On 4, 5		Fiddle yard inner 2	Fiddle yard inner 2
11				Crossover 8 On T7		Fiddle yard inner 3	Fiddle yard inner 3
12			Bay signal (via 1)	Bay signal via 4 On 5		Fiddle yard inner 4	Fiddle yard inner 4

	O1A, C24B	T2B	O1B, O2, 3A, CPA	3B, 4-5, 6A, T7A, CPB	C7B, C8-C11, C12A	12B, 13-18, 19A	19B, 20-23, 24A
13			Starter (via 2)	Starter (via 4) On 5			
14				Reverse signal via 7 On 4			
15			Goods exit signal via 2	Goods exit signal via 6, On 4			
16							
17							
18							
19	Fiddle yard outer 2		Fiddle yard outer 2				
20	Fiddle yard outer 3		Fiddle yard outer 3				
21	Fiddle yard outer 4		Fiddle yard outer 4				
22	Fiddle yard inner 2		Fiddle yard inner 2				
23	Fiddle yard inner 3		Fiddle yard inner 3				
24	Fiddle yard inner 4		Fiddle yard inner 4				

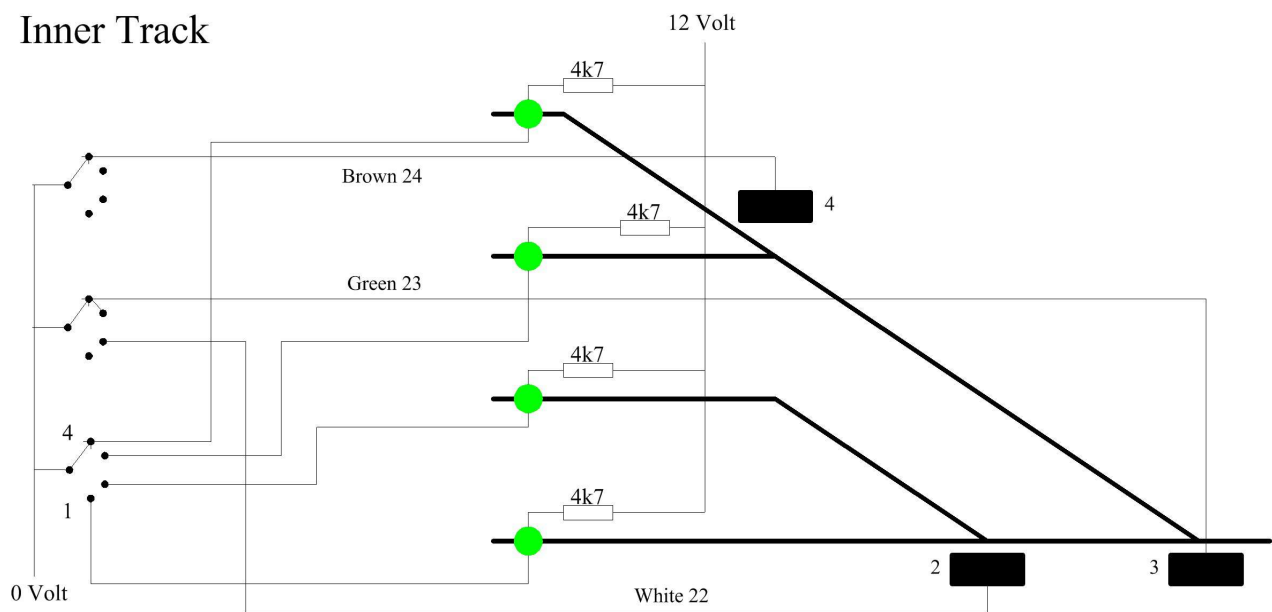


Control Panel

Outer Track

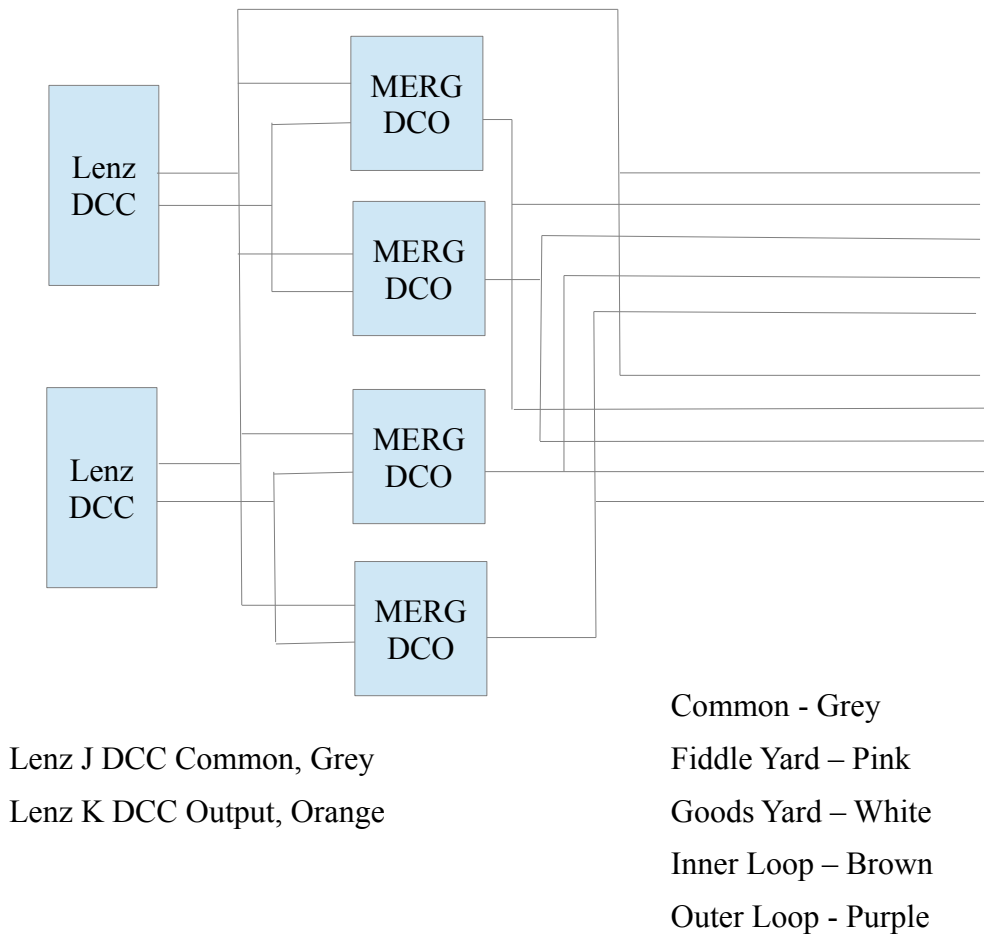


Inner Track



	CPA		CPB	
1	DCC Common	Grey	DCC Common	Grey
2	Outer track DCC	Purple	Outer track DCC	Purple
3	Inner track DCC	Brown	Inner track DCC	Brown
4	Goods track DCC	White	Goods track DCC	White
5	No connection	Pink	Fiddle yard DCC	Pink
6	0 volt	Black	0 volt	Black
7	12 volt	Red	12 volt	Red
8	crossover 1	Purple	Crossover 4	blue
9	crossover 2	white	Crossover 6	white
10	crossover 3	green	Crossover 7	green
11			Crossover 8	brown
12	Bay signal (via 1)		Bay signal via 4	pink
13	Starter (via 2)		Starter (via 4)	purple
14			Reverse signal via 7	Grey
15	Goods exit signal via 2		Goods exit signal via 6	orange
16				
17				
18				
19	Fiddle yard outer 2	pink		
20	Fiddle yard outer 3	purple		
21	Fiddle yard outer 4	blue		
22	Fiddle yard inner 2	white		
23	Fiddle yard inner 3	green		
24	Fiddle yard inner 4	brown		

DCC power districts



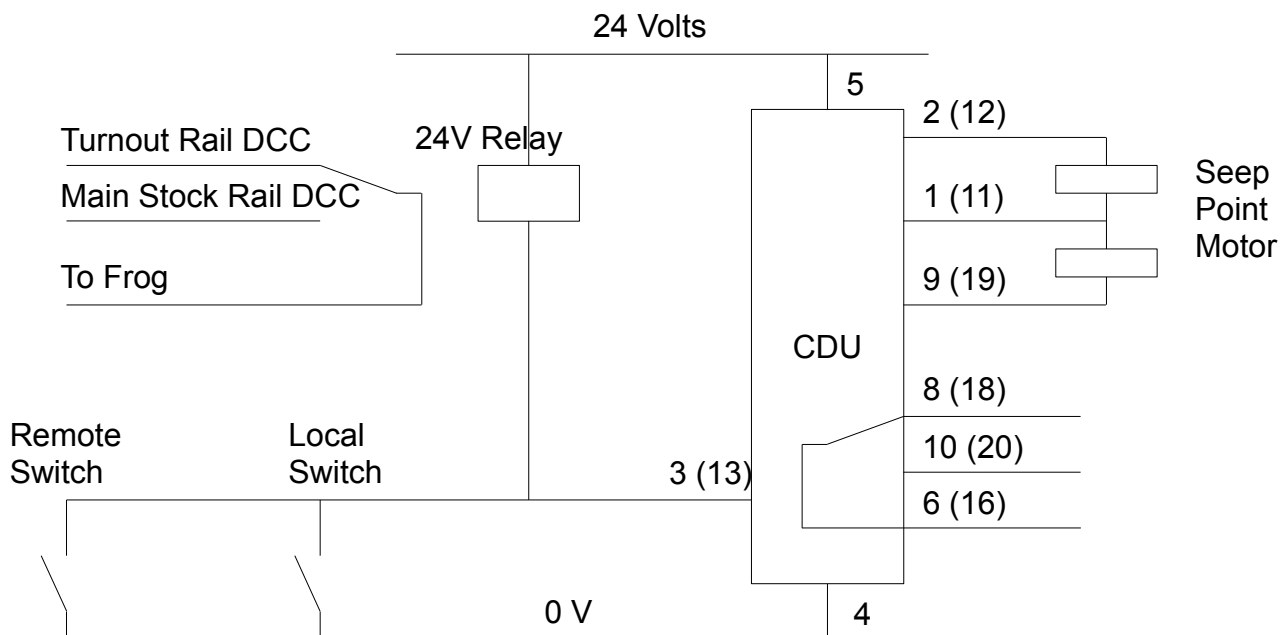
Fiddle Yard

The fiddle yard uses Peco points with over-centre springs, Seep point motors, a MERG PD3 CDU's (capacitor discharge units) per point motor, 24 Volt relays to switch the frogs and has a 24 Volt supply. It is wired so that a failure will allow running on the 2 centre roads. The control switches only operate relays so that the wiring can be longer and will allow operation in future from a new front control panel as well as the 2 local control panels. Select route 1 to disable all local or remote switches.

External relays are used to switch the frog because the MERG PD3 relay does not have a high enough current capacity.

MERG PD3 Connections

1	Coil 1C	11	Coil 2C
2	Coil 1A	12	Coil 2A
3	Switch 1	13	Switch 2
4	0 V	14	(Switch 2)
5	+24 V	15	(Switch 1)
6	Frog 1 – Relay 1 common	16	Frog 2 – Relay 2 common
7	(Boost)	17	(n/c)
8	Rail 1A – Relay 1 break	18	Rail 2A – Relay 2 break
9	Coil 1B	19	Coil 2B
10	Rail 1B – Relay 1 make	20	Rail 2B – Relay 2 make



Number in () are for the 2nd CDU on a MERG PD3 board