Reverse Loop Controller
Norbert Doerry

January 2013
Rev 1: June 2013
Rev 2: February 2014

3.9 inches

Straight Trip

insulating pins

Curve Trip

1.9 inches

Switch set for
2 train operation

Switch Sensor

Switch Pulse

Switch Direction

Power

Switch Sensor

Curve Trip

Straight Trip

Remote Control

Transformer 16V ac
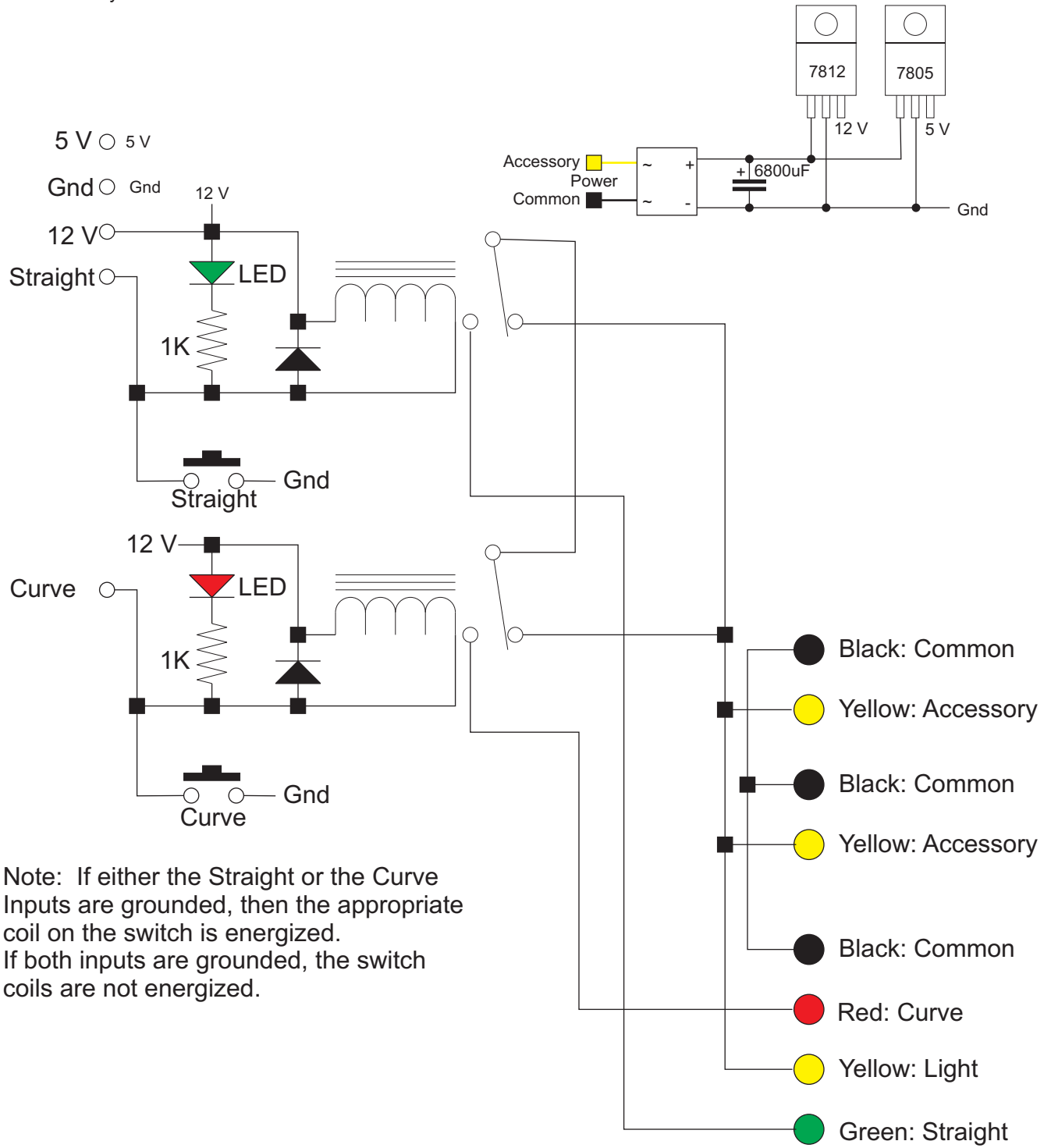
Reverse Loop Controller
Norbert Doerry

January 2013
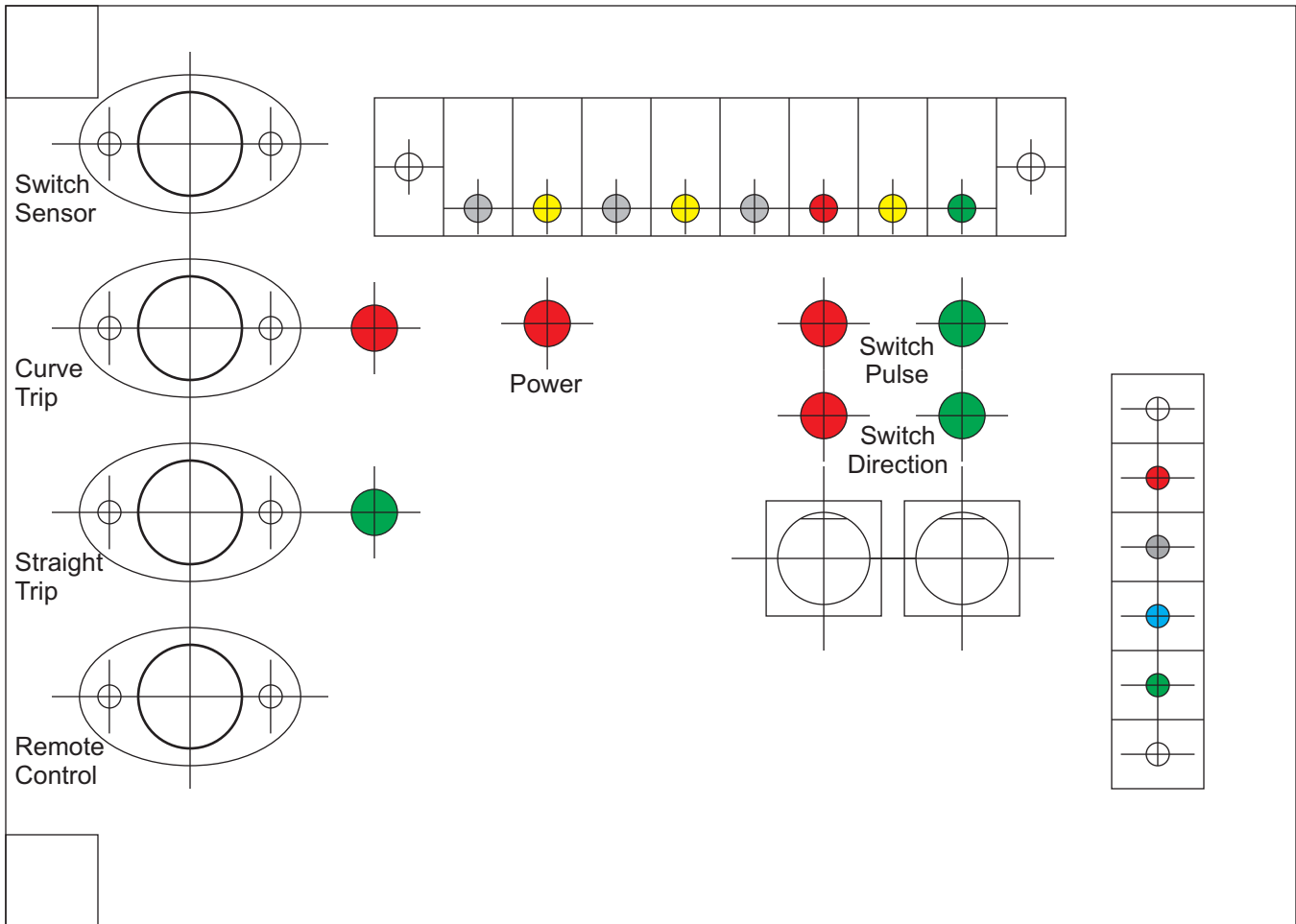Rev 1: June 2013
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NOTE: Insert .01 uF capacitors across power input to all ICs

12 volt DPDT relay with 5 to 10 amp contacts

12V

Curve = Gnd

4.7K

1K

12 V

1K

Gnd

Alternate Swtich Direction LEDs

Gnd

12V

5 V

LED

Straight Trip

1

4 Gnd

5 12V

220

10K

5 V

Curve = Gnd

74LS02

74LS02

.01uF

5 V

5 V

5 V

10K

Gnd

100K

555

Gnd +5V   5 V

Trg Dis

Out Thr

Rst FM

.1uF

Gnd

10uF

Gnd

1.5K

Gnd

Switch sensor
Curve = short
Straight = open

1

4 Gnd

5 12V

5 V

1.5K

4.7K

Gnd

A

5 V

LED

330

5 V

LED

10K

220

Straight = Gnd

5 V

LED

5 V

10K

Curve Trip

1

4 Gnd

5 12V

330

LED

12 V

LED

1K

Gnd

74LS02

74LS02

.01uF

5 V

5 V

5 V

10K

Gnd

100K

555

Gnd +5V   5 V

Trg Dis

Out Thr

Rst FM

.1uF

Gnd

10uF

Gnd

1.5K

Gnd

5 V ◯ 5 V

1 ◯ Straight

12 V 5 ◯ 12 V

Gnd 4 ◯ Gnd

2 ◯ Curve

To Switch Interface

Reverse Loop Controller
Switch Interface
Norbert Doerry

January 2013
Rev 1: June 2013
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7812

7805

12 V

5 V

Accessory
Power

Common

~

~

+

-

+ 6800uF

12 V

5 V

Gnd

5 V

5 V

Gnd

Gnd

12 V

12 V

Straight

LED

1K

Gnd

Straight

12 V

Curve

LED

1K

Gnd

Curve

Black: Common

Yellow: Accessory

Black: Common

Yellow: Accessory

Black: Common

Red: Curve

Yellow: Light

Green: Straight

Note: If either the Straight or the Curve
Inputs are grounded, then the appropriate
coil on the switch is energized.
If both inputs are grounded, the switch
coils are not energized.

Reverse Loop Controller
Exterior Layout
Norbert Doerry

January 2013
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Switch
Sensor

Curve
Trip

Power

Switch
Pulse
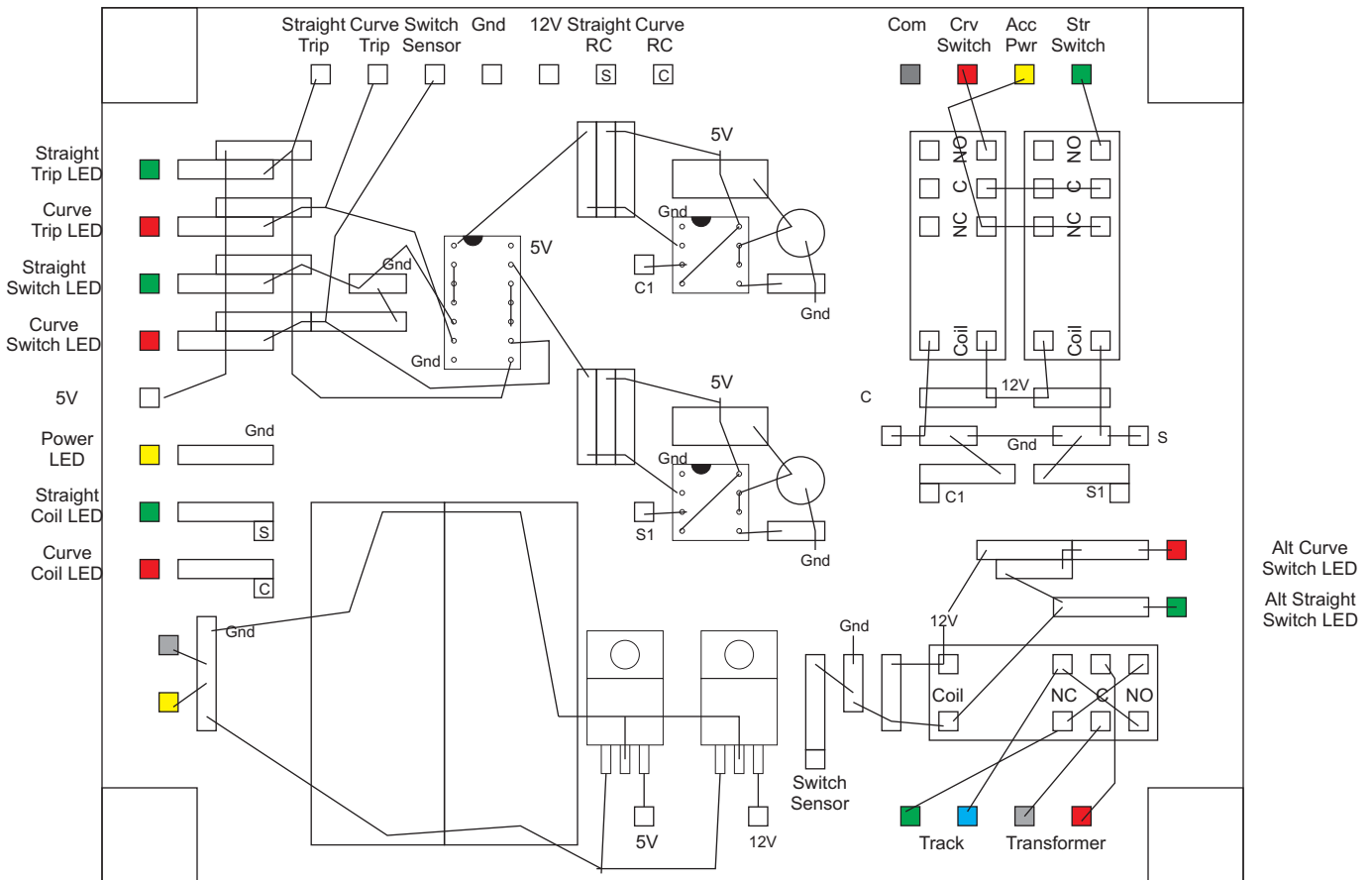
Switch
Direction

Straight
Trip

Remote
Control

Reverse Loop Controller
Norbert Doerry
Board Layout

January 2013
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Reverse Loop Controller
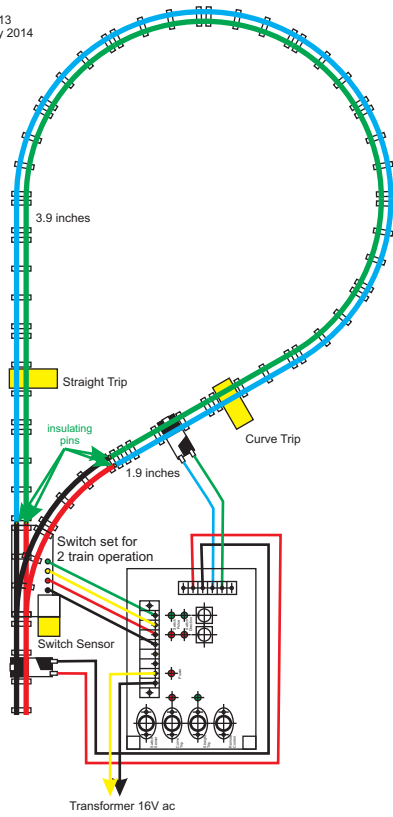Norbert Doerry
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3.9 inches

Straight Trip

insulating
pins

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1.9 inches

Switch set for
2 train operation

Switch Sensor

Transformer 16V ac

Switch Sensor	Curve Trip	Straight Trip	Remote Control

Switch   Power   Reverse Loop Controller
                               January 2014

Switch   Transformer   Loop   Track