

Revised Block Signal controller. 2/6/2014

Since the remote control for the Block Signal at the bridge is rarely used, we have modified the system.

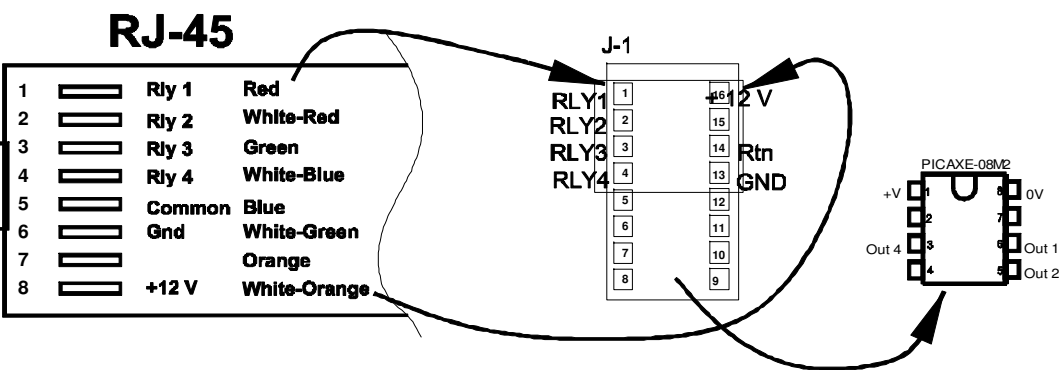
In the present configuration, the lights will cycle continuously from red to yellow to green.

After the initial turn on sequence each light with blink three times and then remain lit for 20 seconds. Then it will cycle to the next light.

When the system is first turned on each lamp will blink three times then cycle to the next lamp. It will perform this routine six times. At this point it will switch to the routine described above.

To restore the remote control system:

- 1- Remove the PACAXE chip from the J1 socket.
- 2- Carefully install the DIP cable into the J1 DIP socket. The RED wire goes to PIN 1. See diagram below.
- 3- Connect the RJ-45 cable from the receiver at the top of the signal to this RJ-45 jack on the above cable.
- 4- Install the two 74HC74 ICs into the IC-1 and !C-2 sockets





Circuit description

To make the Block Signal lamps cycle, I used the existing lamp driver transistors. To accomplish this I removed the to Flip Flop chip, IC-1 and IC-2.

The transistors are now driven from a microcontroller chip, a PICAXE-08M2. We are using three outputs of this chip as shown in the diagram below.

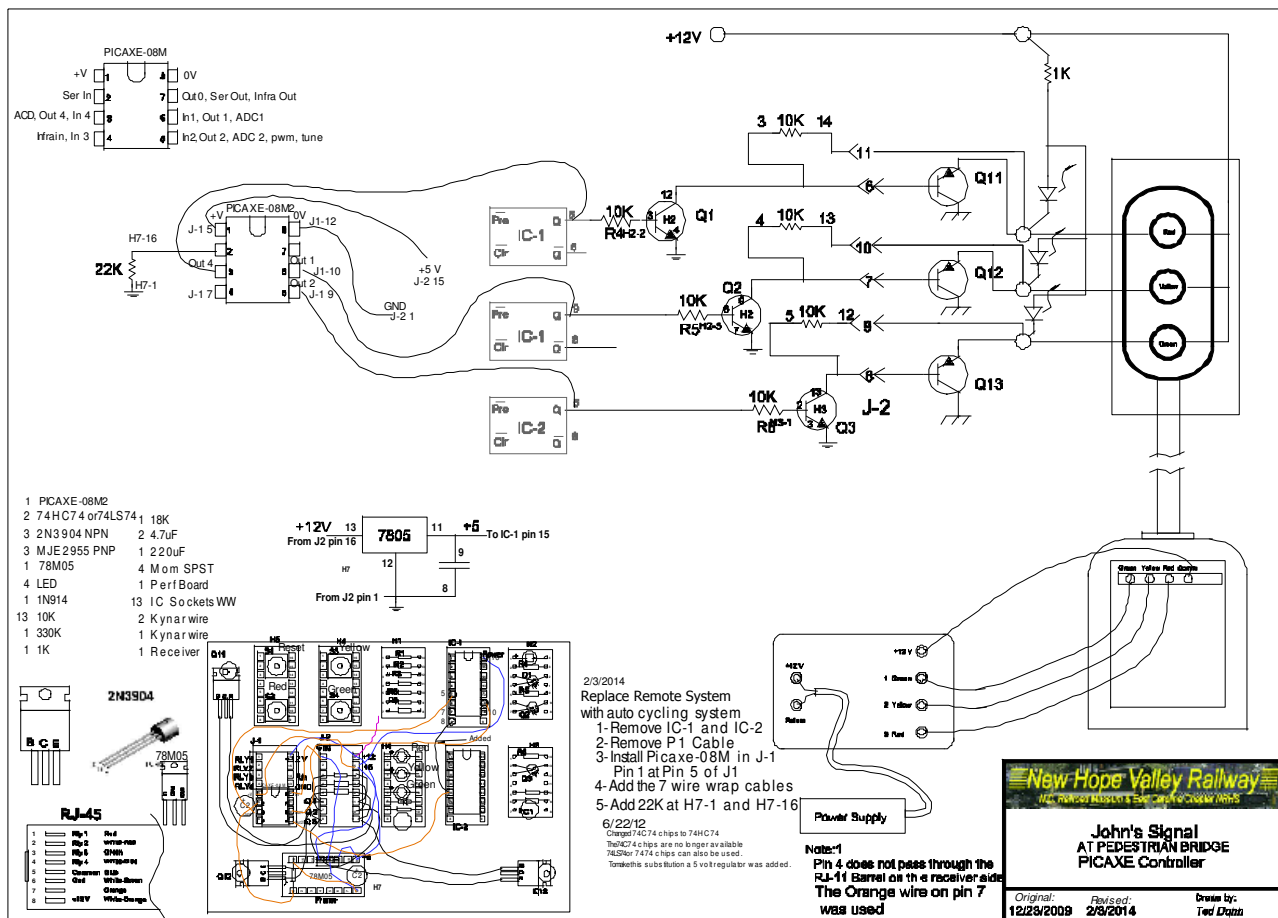
The chip is installed in the J-1 DIP connector with pin 1 of the chip installed into pin 5 of the IC socket.

The wiring was added to connect the chip outputs to the transistors.

This microcontroller will not work with pin 2 left floating (unconnected). Pin 2 is the programming port and it **MUST** be tied to ground through the 22K resistor. This resistor is installed on header H7.

The program for this microcontroller is **BlockSignal 02-06-14.bas**. The yolasite system will not allow the .bas file to be uploaded. To get this file, download the .txt file and rename it .bas.

If you need to change the program, you will have to download the software from the picaaxe website.





Below is the listing of the basic program **BlockSignal 02-03-14.txt**

```
' This program controls the block signal at the bridge
' On startup it flashes the Green, Yellow and Red lamps.
' Then it flashes each lamp three times and lights it for 20 second,.
' It cycles through each lamp every 20 seconds until power is removed
```

```
symbol counter =b1 'Index
symbol flash = b2 'Index
symbol RED = B.4
symbol YEL = B.1
symbol GRN = B.2
symbol ton= w3 'Startup on
symbol toff= w4 'Startup off
symbol flcyc=b6 'flash cycles
symbol thold =b0 'Wait time
```

```
let ton =1000 '2000
let toff =1000 '1000
let thold = 5 '20
let flcyc=3
```

```
main:
low red
low yel
low grn
```

```
gosub flashall3
```

```
gosub cycle
```

```
end
```

```
flashall3:
```

```
    for counter = 1 to 6 'b1
        gosub flashred

        gosub flashyel
        gosub flashgrn
```

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next counter

cycle:

flcyc = 3 'If I change ton and toff it
 ' it hangs in the flashred sub

```
gosub flashred
  high red
  wait 20      'Cannot make variable
  low red
```

```
gosub flashyel
  high yel
  wait 20
  low yel
```

```
gosub flashgrn
  high grn
  wait 20
  LOW GRN
```

goto cycle

flashred:

```
for flash = 1 to flcyc    ' b2
  high RED
  pause ton
  low RED
  pause toff
next flash
```

return

flashyel:

```
for flash = 1 to flcyc
  high YEL
```



```
        pause ton
        low YEL
        pause toff
    next flash
return
```

```
flashgrn:
    for flash = 1 to flcyc
        high GRN
        pause ton
        low GRN
        pause toff
    next flash
return
```
