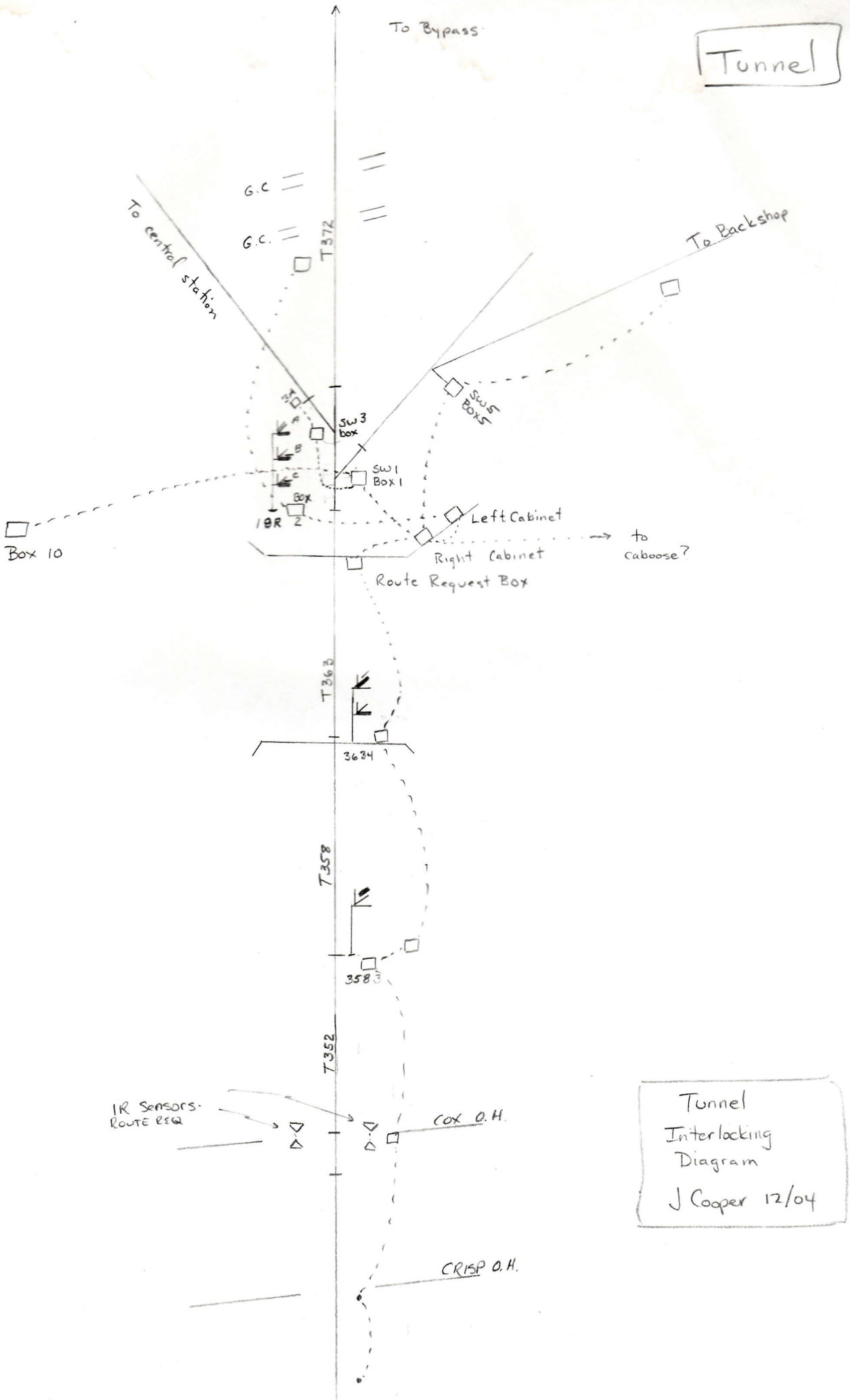
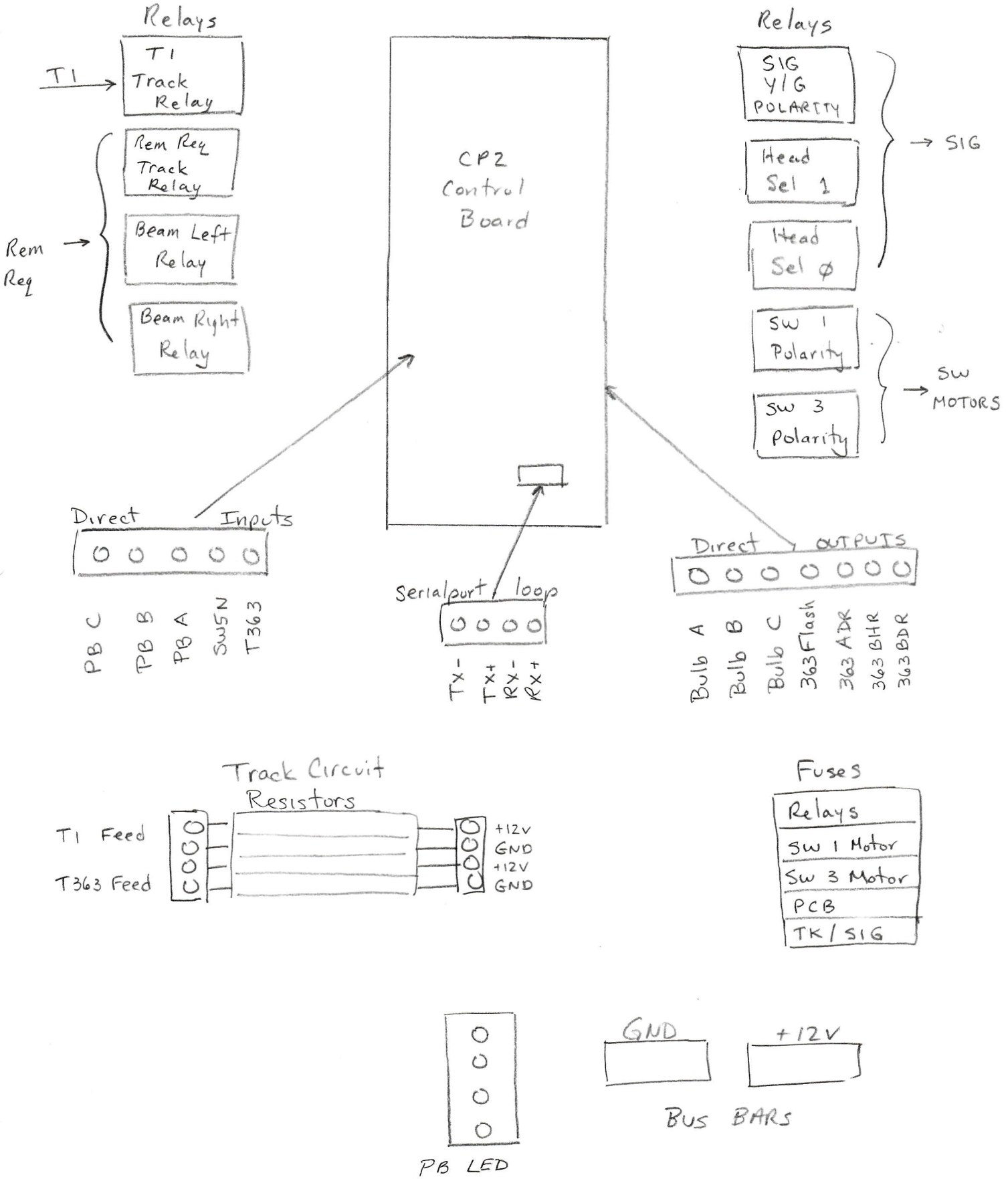
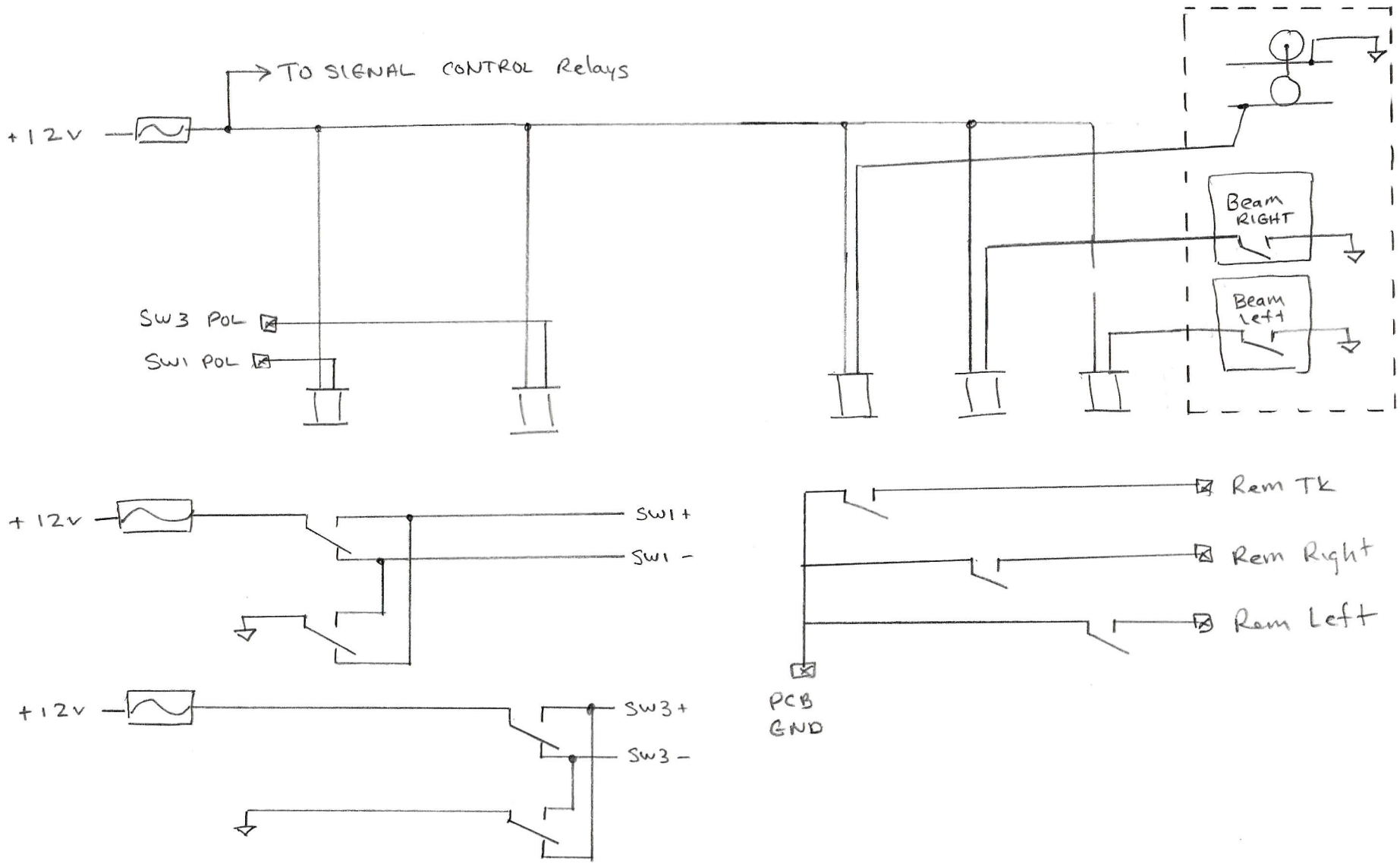

Tunnel
To Bypass
G.C
G.C.
T372
To central station
To Backshop
SW 3 box
SW 5 Box 5
SW 1 Box 1
Box 2
IBR
Box 10
Left Cabinet
Right Cabinet
to caboose?
Route Request Box
T363
3634
T358
3583
T352
IR Sensors- Route Req
COX O.H.
CRISP O.H.
Tunnel Interlocking Diagram
J Cooper 12/04

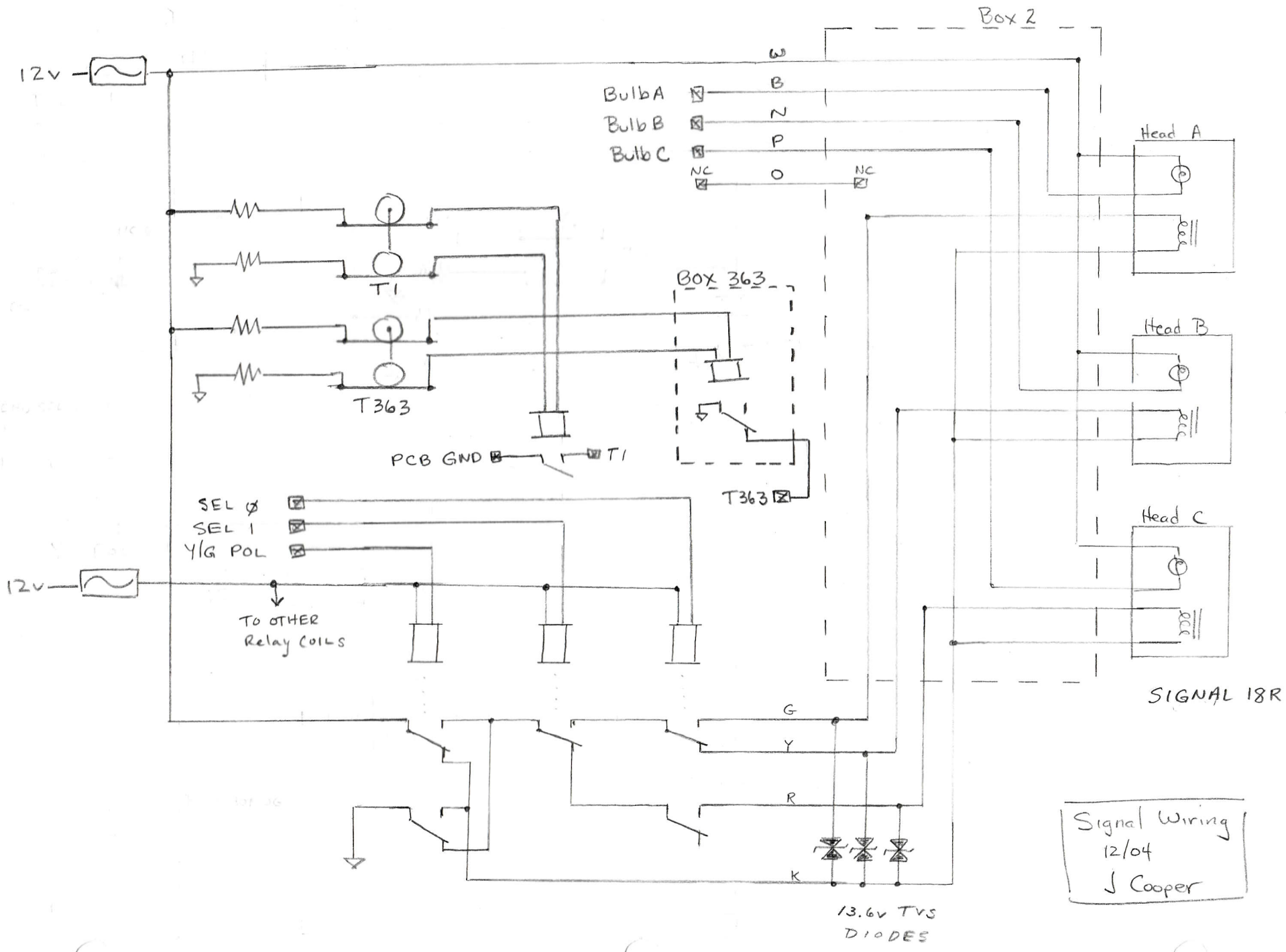
8/2017

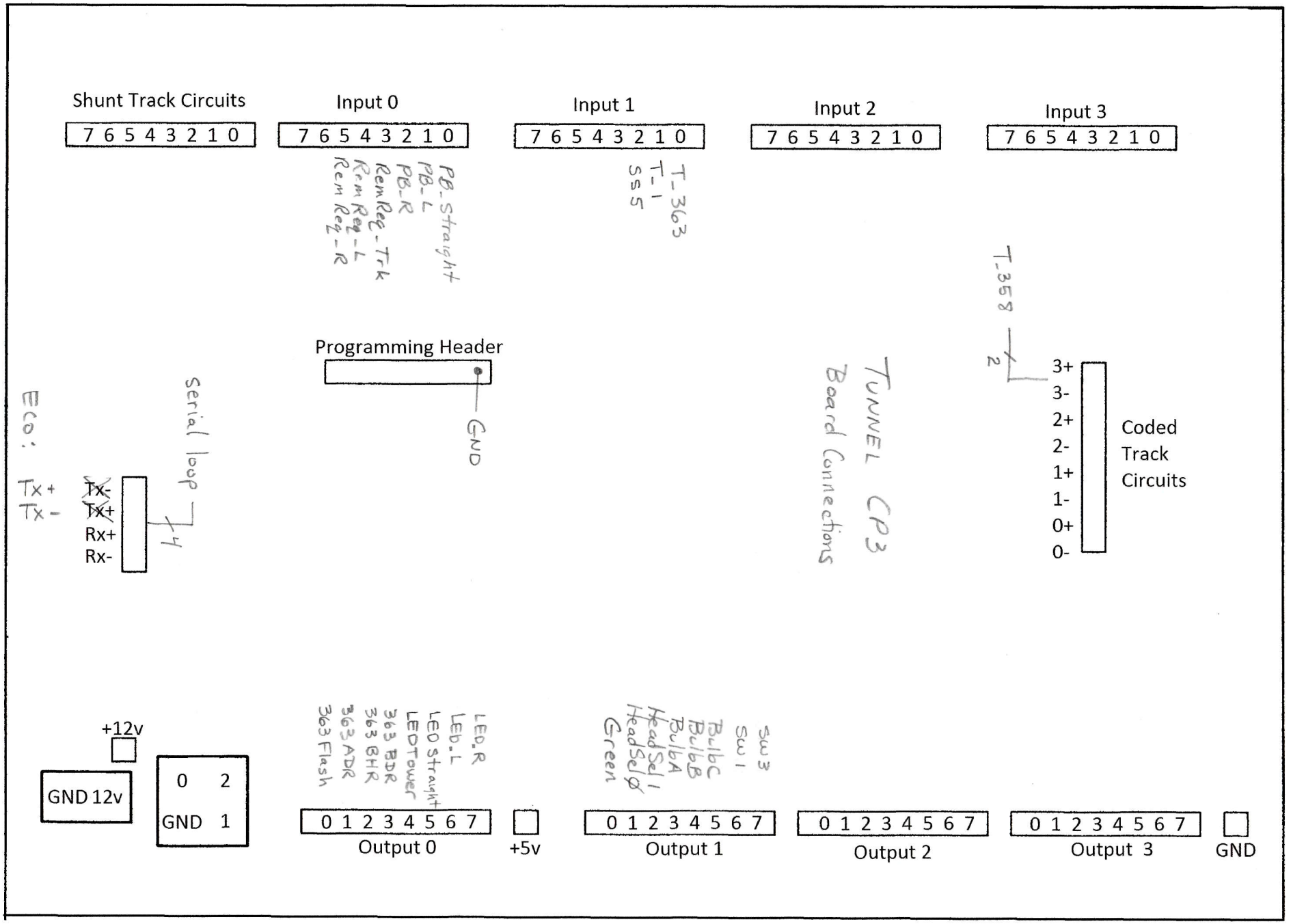
TUNNEL CONTROL BOX

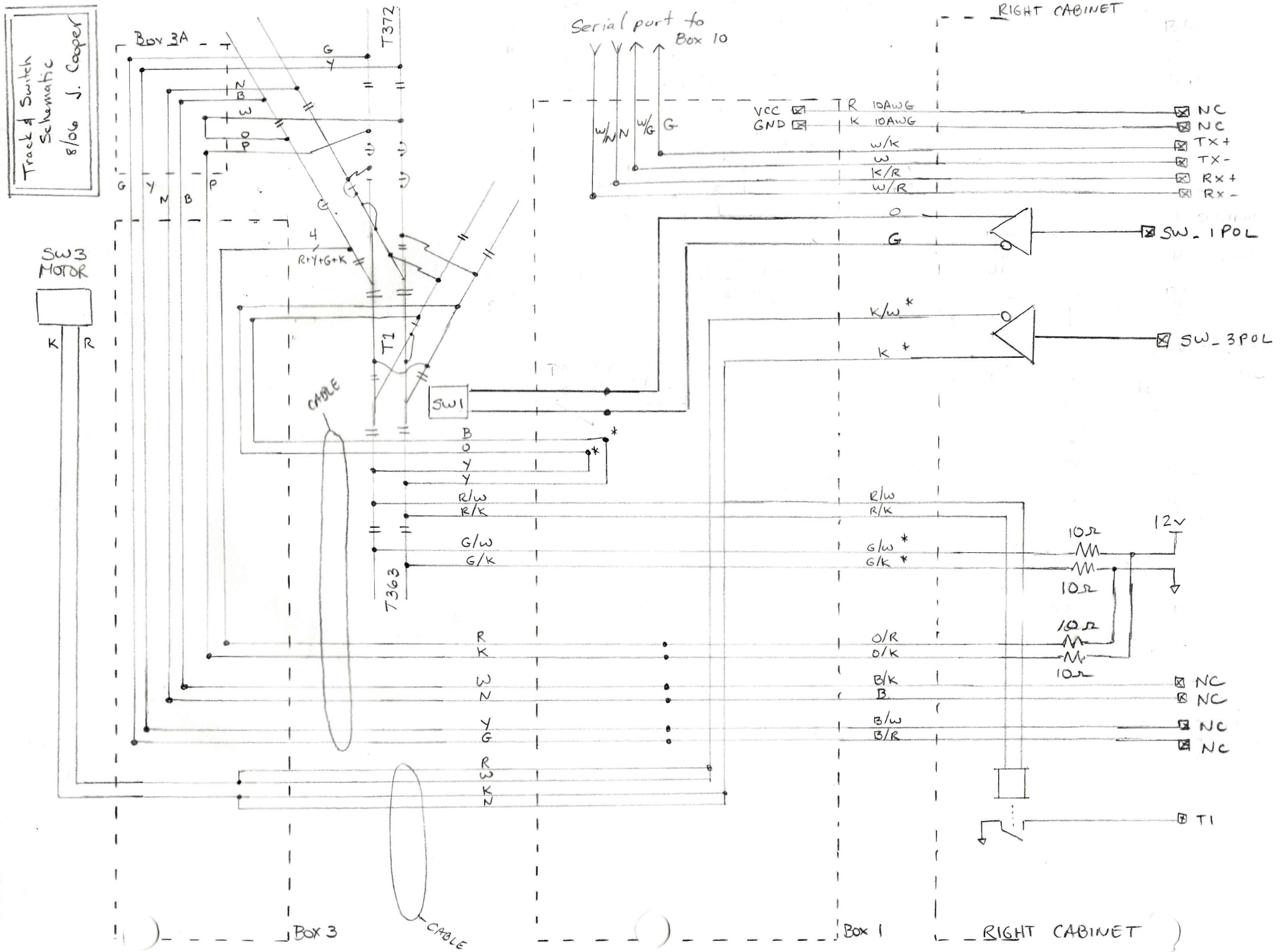


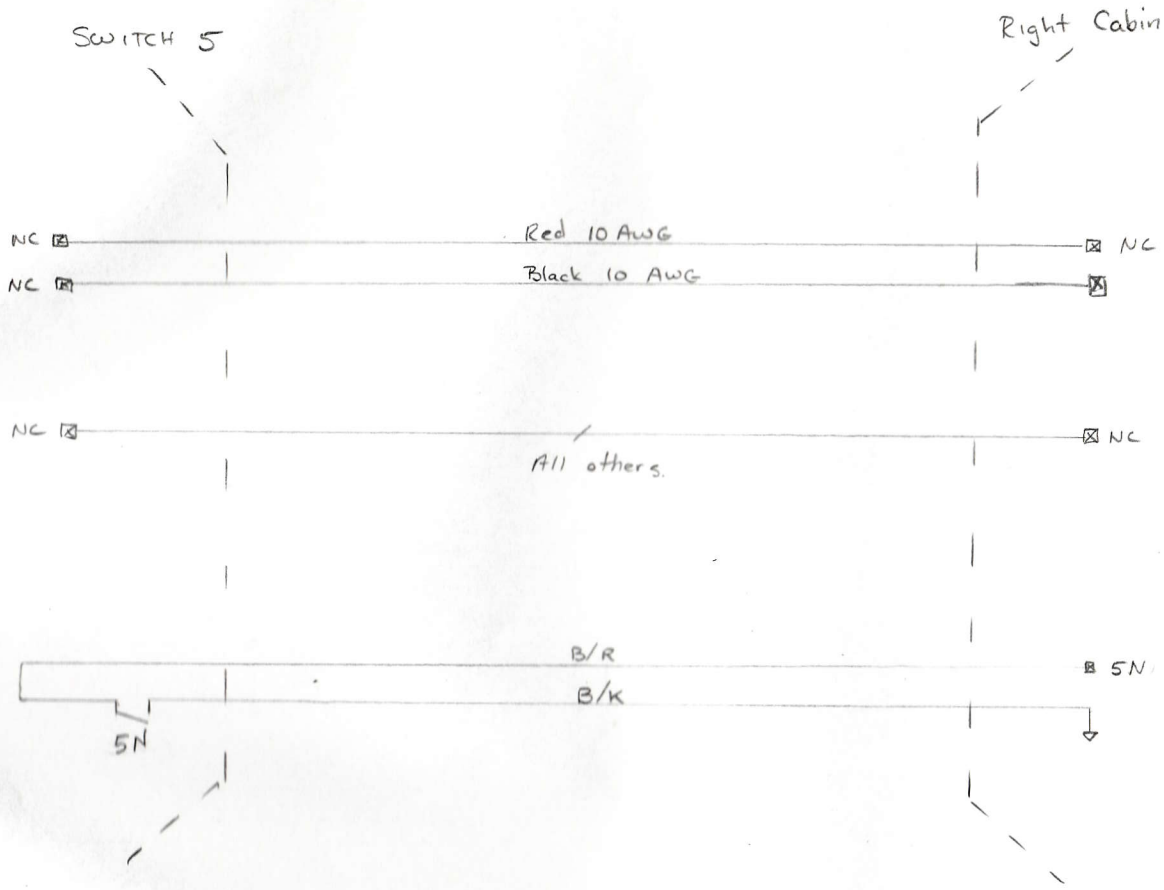


All Relays have
fly back protection diodes
not shown

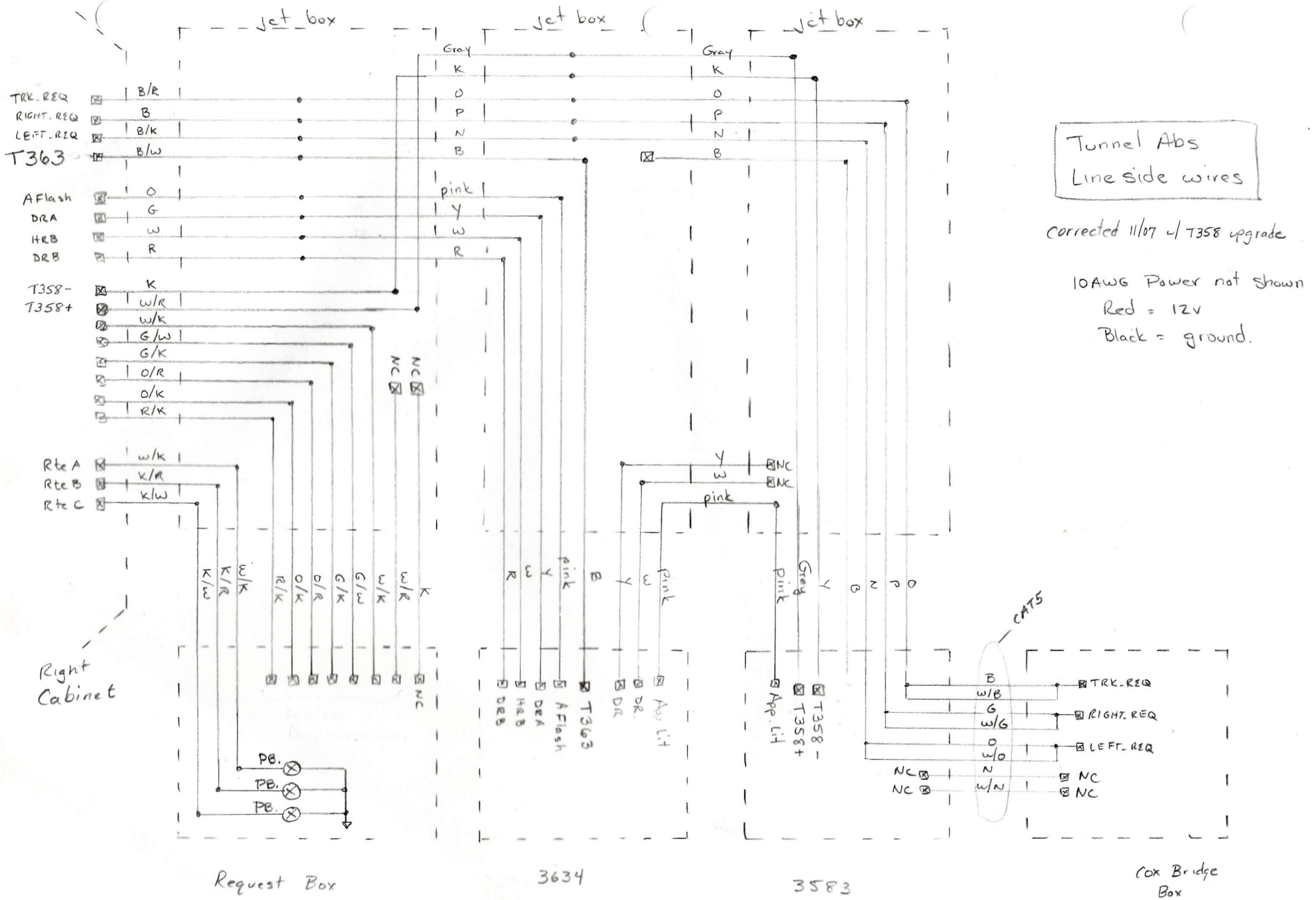

Box 2
12v
W
Bulb A
B
Bulb B
N
Bulb C
P
NC
O
NC
Head A
Head B
Head C
T1
T363
Box 363
PCB GND
T1
T363
SEL Ø
SEL 1
Y/G POL
12v
TO OTHER
Relay COILS
G
Y
R
K
13.6v TVS
DIODES
SIGNAL 18R
Signal Wiring
12/04
J Cooper


TUNNEL CP3
Board Connections
Shunt Track Circuits
7 6 5 4 3 2 1 0
Input 0
7 6 5 4 3 2 1 0
PB_Straight
PB_L
PB_R
RemReq_Trk
RemReq_L
RemReq_R
Input 1
7 6 5 4 3 2 1 0
T-363
T-1
SS5
Input 2
7 6 5 4 3 2 1 0
Input 3
7 6 5 4 3 2 1 0
T-358
2
3+
3-
2+
2-
1+
1-
0+
0-
Coded
Track
Circuits
Programming Header
GND
ECO:
Tx+
Tx-
Rx+
Rx-
Serial loop
4
+12v
GND 12v
0 2
GND 1
LED_R
LED_L
LED Straight
LED Tower
363 BDR
363 BHR
363 ADR
363 Flash
0 1 2 3 4 5 6 7
Output 0
+5v
SW 3
SW 1
BulbC
BulbB
BulbA
HeadSel 1
HeadSel 0
Green
0 1 2 3 4 5 6 7
Output 1
0 1 2 3 4 5 6 7
Output 2
0 1 2 3 4 5 6 7
Output 3
GND


Track 4 Switch Schematic
8/06 J. Cooper
Box 3A
T372
SW3 MOTOR
K
R
T1
CABLE
SW1
7363
Serial port to Box 10
RIGHT CABINET
VCC
GND
R 10AWG
K 10AWG
NC
NC
TX+
TX-
RX+
RX-
SW_1POL
SW_3POL
12V
10Ω
T1
Box 3
Box 1
RIGHT CABINET



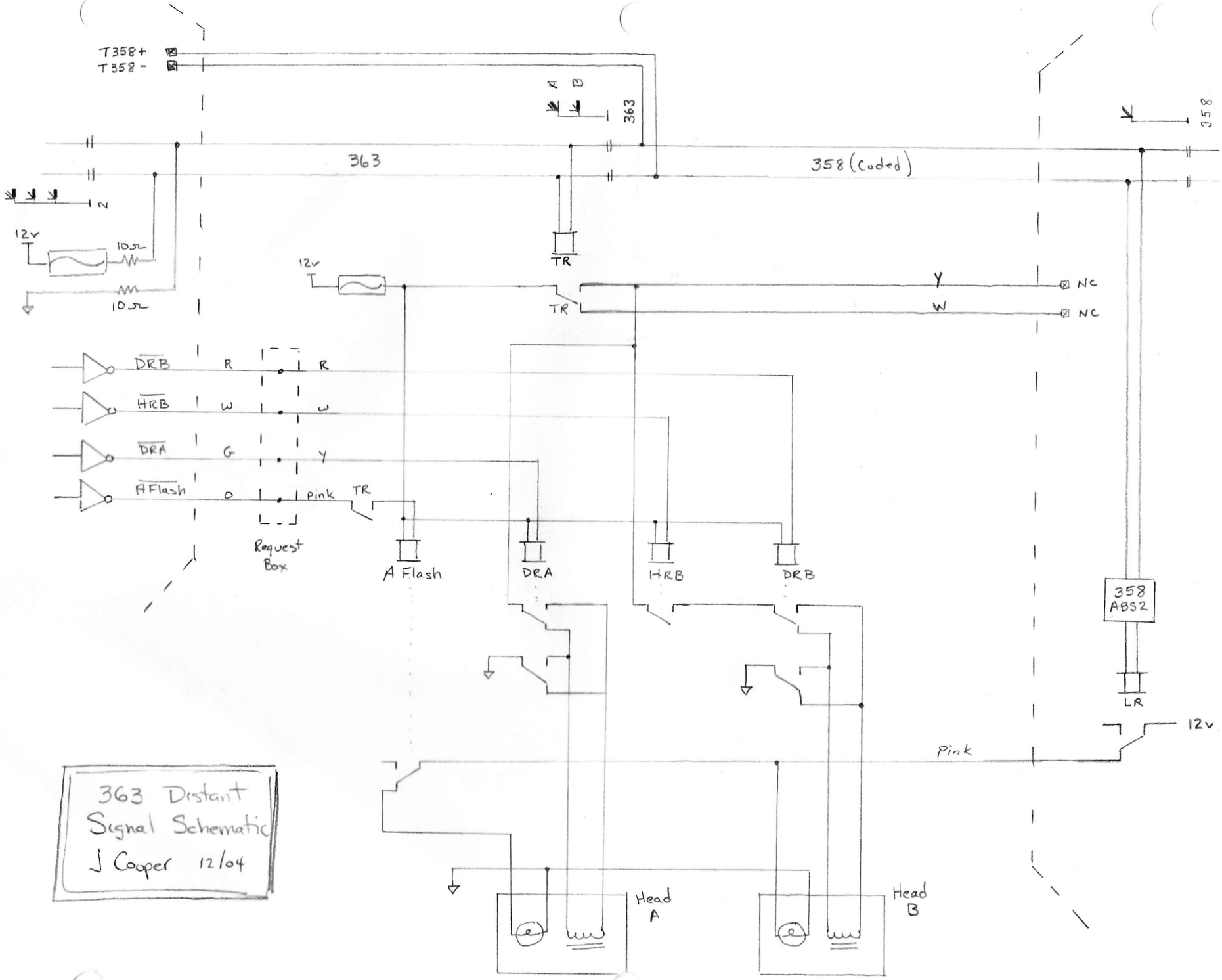
Switch 5 Schematic
J Cooper 11/04

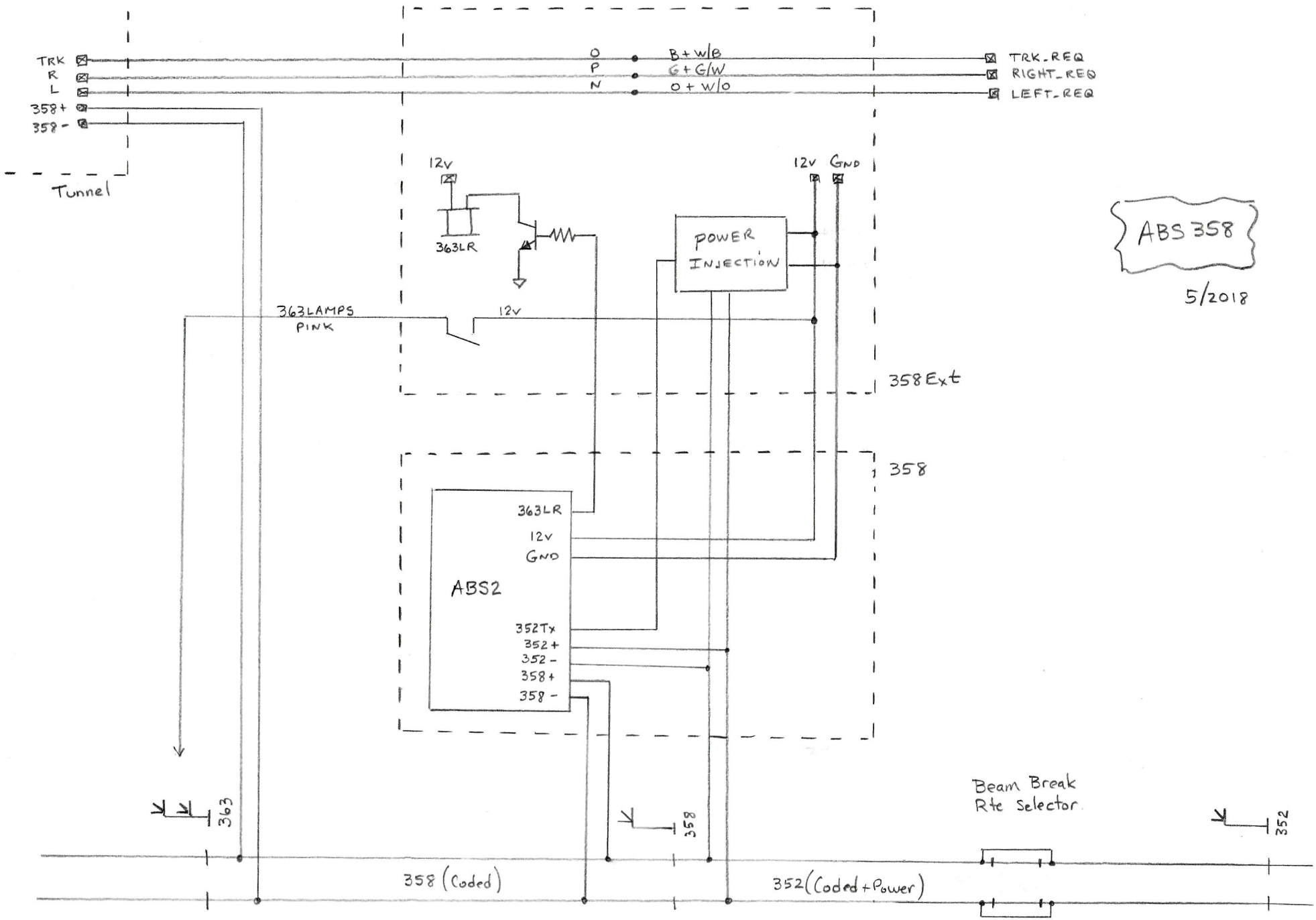


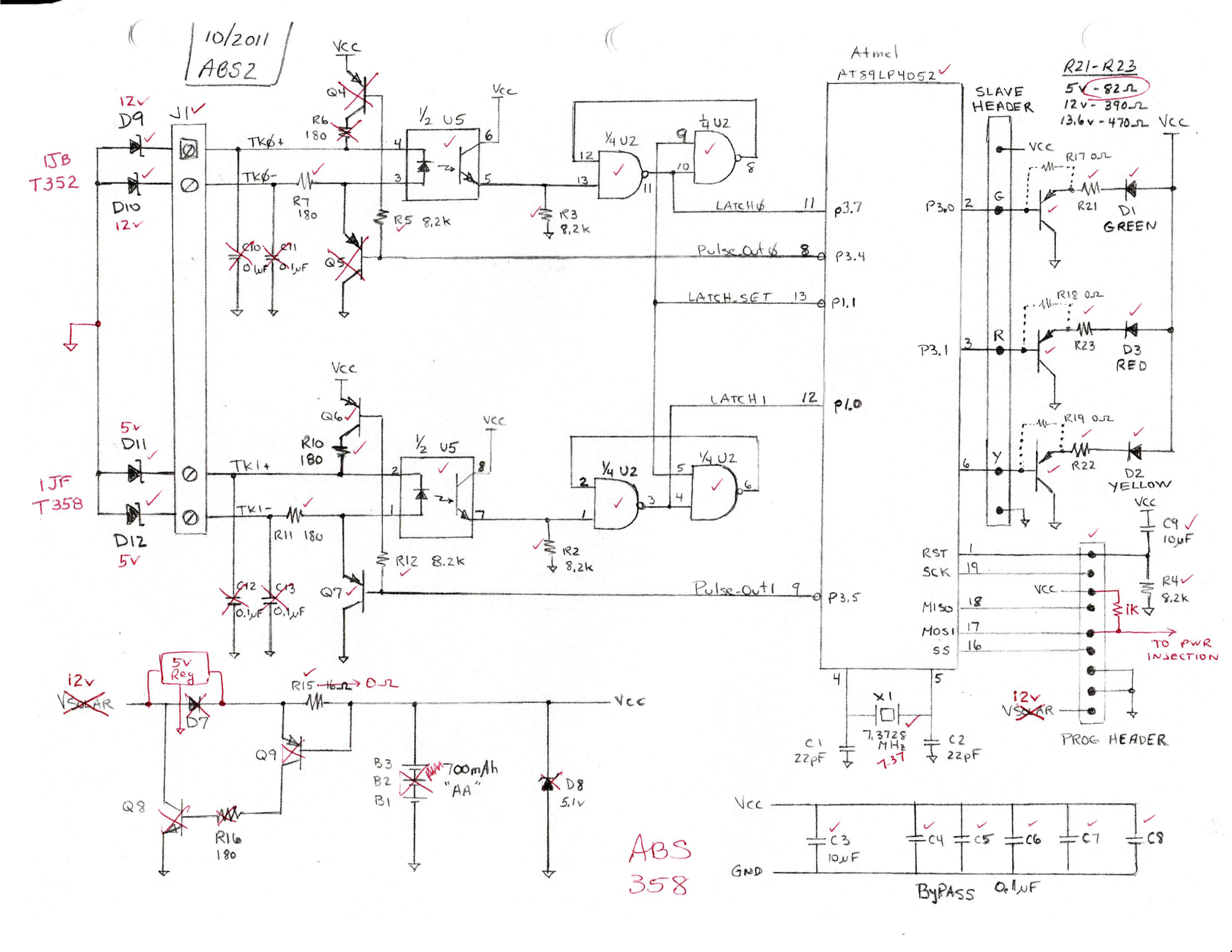
Tunnel Abs
Line side wires

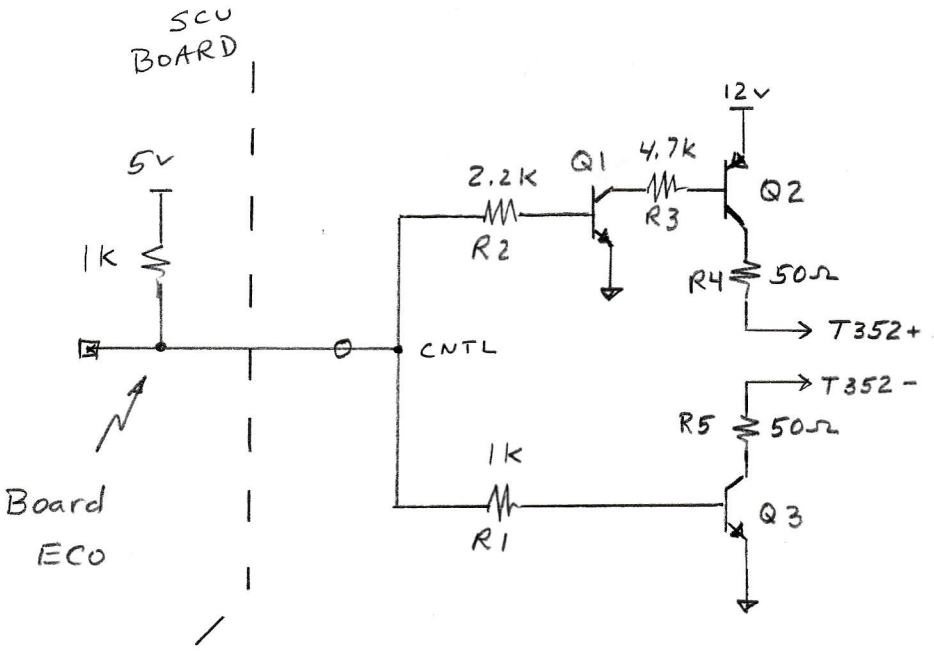
corrected 11/07 w/ T358 upgrade

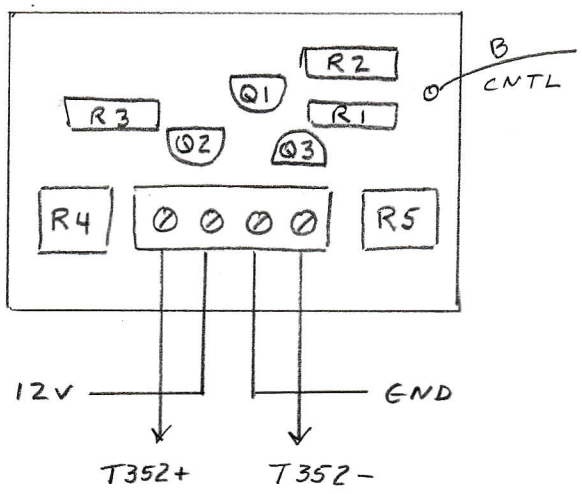
10AWG Power not shown
Red = 12V
Black = ground.


T358+
T358-
363
358 (Coded)
358
12v
10Ω
10Ω
TR
NC
NC
DRB
HRB
DRA
A Flash
R
W
G
O
pink
Request Box
A Flash
DRA
HRB
DRB
358 ABS2
LR
12v
Pink
Head A
Head B
363 Distant Signal Schematic
J Cooper 12/04


TRK
R
L
358+
358-
Tunnel
O
P
N
B+w/B
G+G/W
O+w/O
TRK_REQ
RIGHT_REQ
LEFT_REQ
12V
363LR
12V
GND
POWER
INJECTION
363LAMPS
PINK
12V
358 Ext
358
363LR
12V
GND
ABS2
352Tx
352+
352-
358+
358-
ABS 358
5/2018
363
358
352
Beam Break
Rte Selector
358 (Coded)
352 (Coded + Power)


10/2011
ABS2
Atmel
AT89LP4052
R21-R23
5V - 82Ω
12V - 390Ω
13.6V - 470Ω
SLAVE HEADER
PROG HEADER
TO PWR INJECTION
1JB T352
1JF T358
D9
D10
D11
D12
J1
TK0+
TK0-
TK1+
TK1-
LATCH0
LATCH1
LATCH_SET
Pulse_Out0
Pulse_Out1
P3.7
P3.4
P1.1
P1.0
P3.5
P3.0
P3.1
R17 0Ω
R18 0Ω
R19 0Ω
R21
R22
R23
D1 GREEN
D2 YELLOW
D3 RED
R5 8.2k
R12 8.2k
R3 8.2k
R2 8.2k
R4 8.2k
1K
R6 180
R7 180
R10 180
R11 180
C10 0.1μF
C11 0.1μF
C12 0.1μF
C13 0.1μF
C9 10μF
C1 22pF
C2 22pF
X1
7.3728 MHz
7.37
5V Reg
D7
R15 → 0Ω
Q9
Q8
R16 180
B3
B2
B1
700mAh "AA"
D8 5.1V
ABS 358
C3 10μF
C4
C5
C6
C7
C8
BYPASS 0.1μF

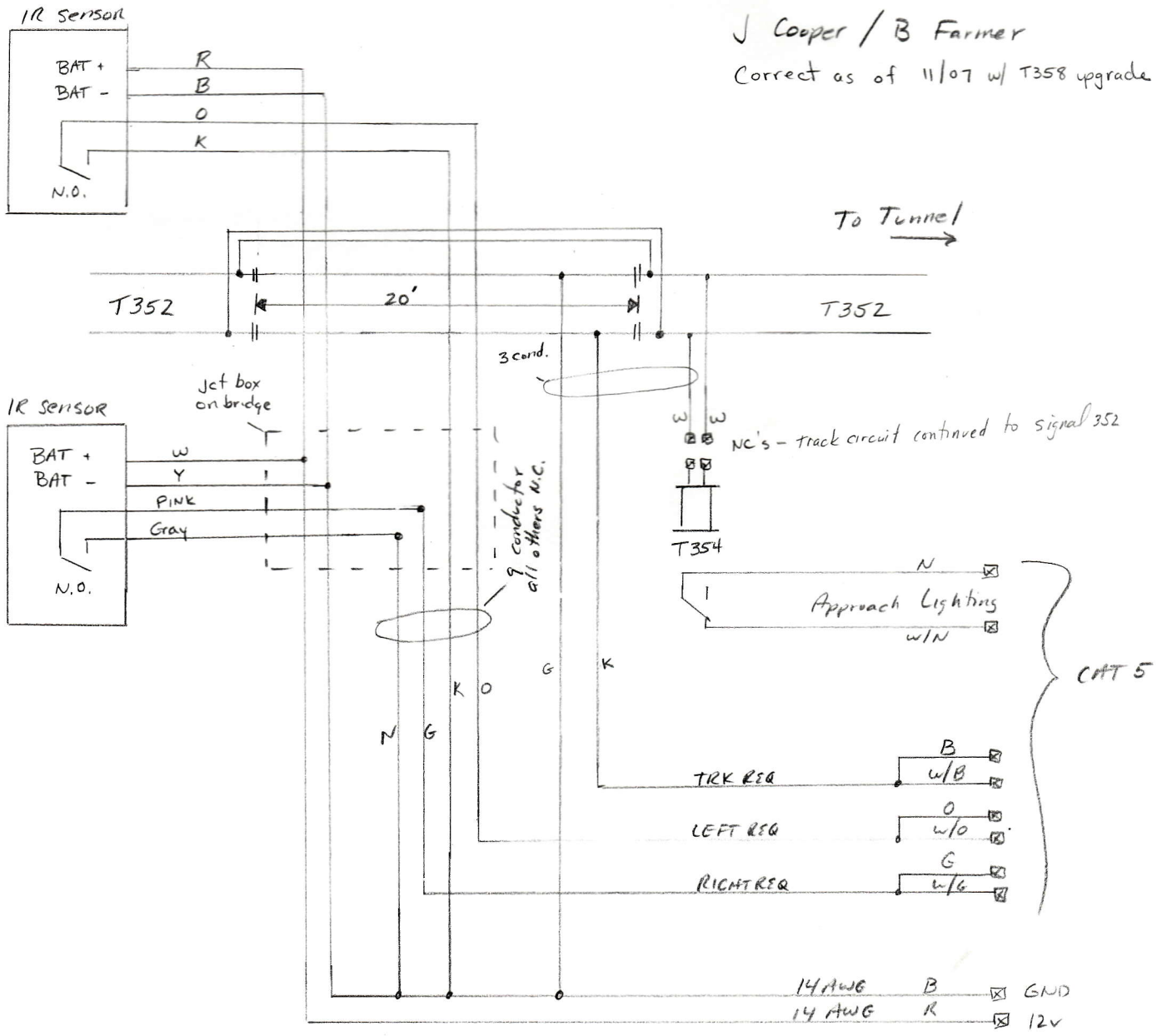




358 Power Injection Board 12/16

Remote Request Sensors

Mounted on Cox bridge
As built 7.05
J Cooper / B Farmer
Correct as of 11/07 w/ T358 upgrade



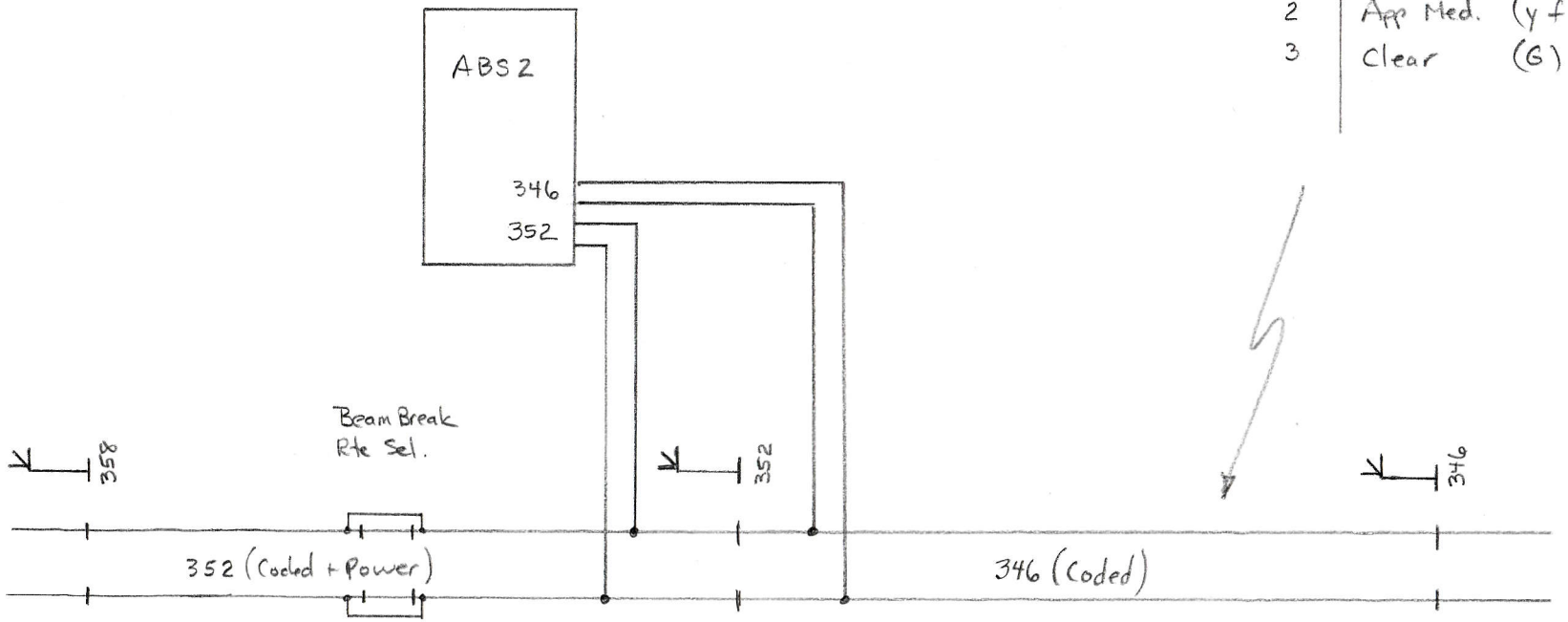
ABS 352

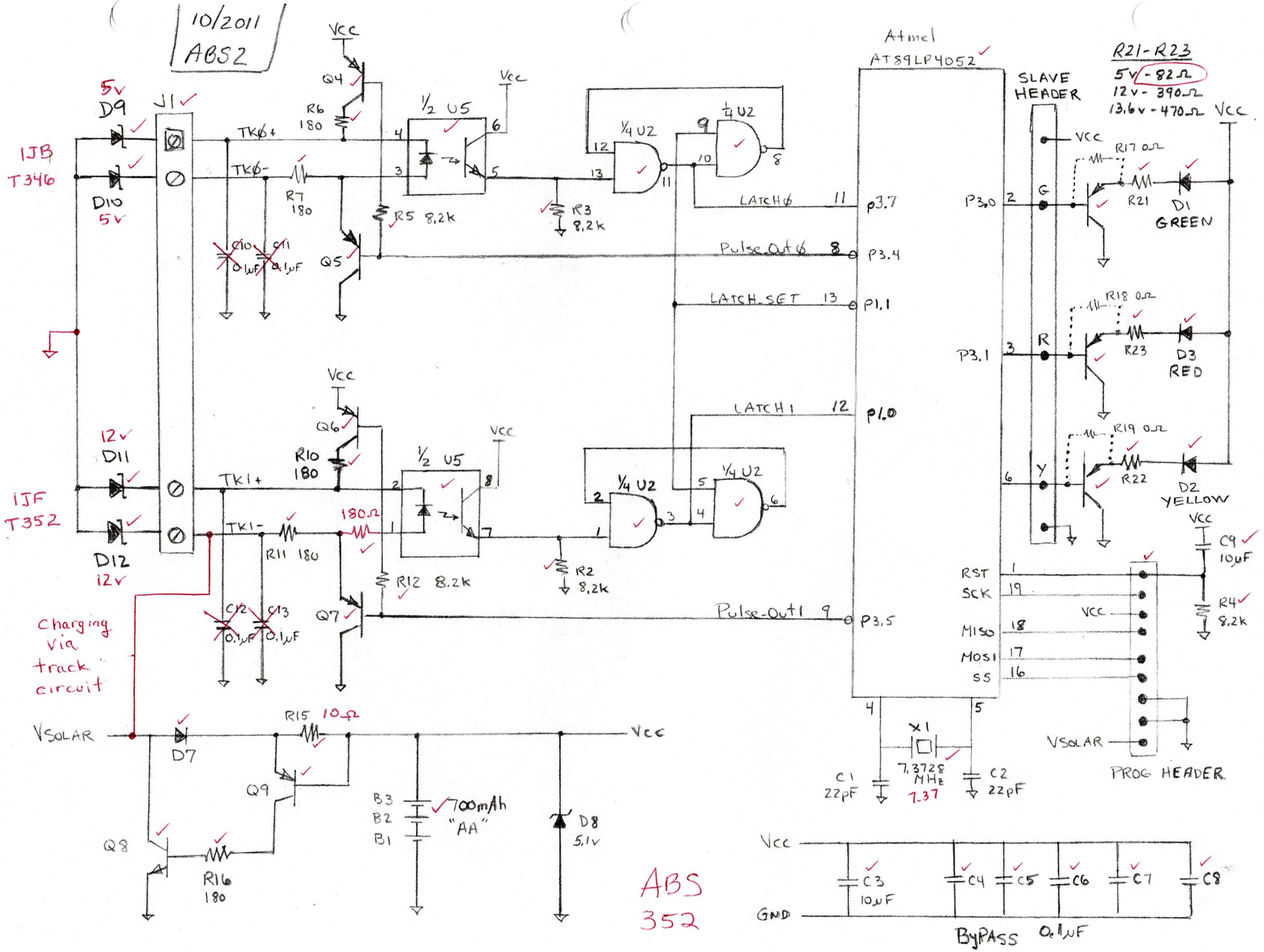
5/18

T346

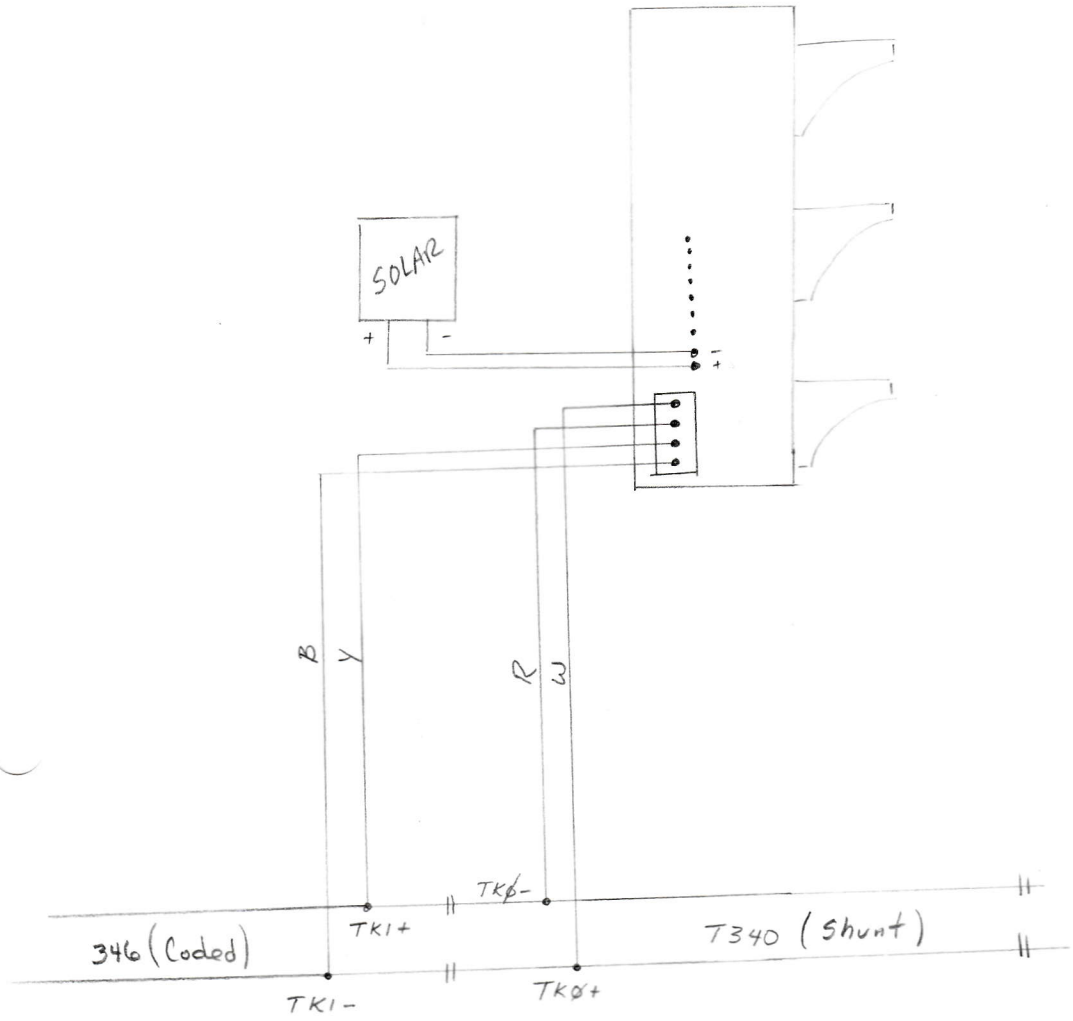
Non Standard Track Code Usage.

Code	Meaning	
1	Approach	(Y)
2	App Med.	(y flash)
3	Clear	(G)




10/2011
ABS2
Atmel
AT89LP4052
R21-R23
5V - 82Ω
12V - 390Ω
13.6V - 470Ω
SLAVE HEADER
PROG HEADER
1JB
T346
1JF
T352
J1
D9
5V
D10
5V
D11
12V
D12
12V
Charging via track circuit
VSOLAR
Vcc
GND
TK0+
TK0-
TK1+
TK1-
LATCH0
LATCH1
LATCH_SET
Pulse_Out0
Pulse_Out1
P3.7
P3.4
P1.1
P1.0
P3.5
P3.0
P3.1
RST
SCK
MISO
MOSI
SS
R1 180
R2 8.2k
R3 8.2k
R4 8.2k
R5 8.2k
R6 180
R7 180
R10 180
R11 180
R12 8.2k
180Ω
R15 10Ω
R16 180
R17 0Ω
R18 0Ω
R19 0Ω
R21
R22
R23
D1 GREEN
D2 YELLOW
D3 RED
D7
D8 5.1V
Q4
Q5
Q6
Q7
Q8
Q9
C0 0.1μF
C1 0.1μF
C2 0.1μF
C3 0.1μF
C9 10μF
C1 22pF
C2 22pF
X1 7.3728 MHz
7.37
B1
B2
B3
700mAh "AA"
C3 10μF
C4
C5
C6
C7
C8
Bypass 0.1μF
ABS 352

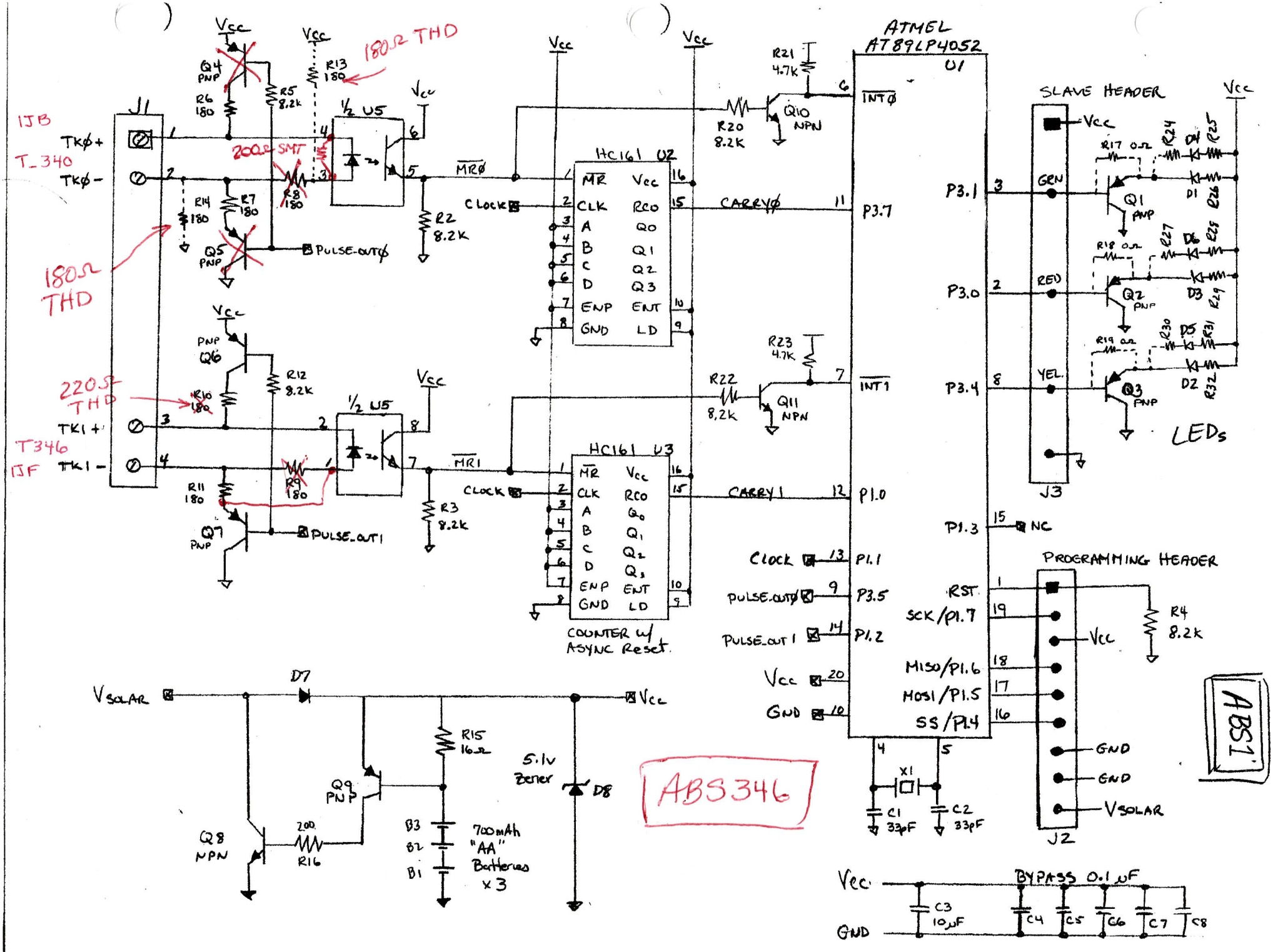
ABS 346



← Direction of Travel

T346 Non Standard
Track Code Assignments

Code	Indication
1	Y
2	Y*
3	G


ATMEL AT89LP4052
U1
SLAVE HEADER
PROGRAMMING HEADER
LEDs
HC161 U2
HC161 U3
COUNTER w/ ASYNC Reset
J1
J2
J3
T_340
T346
180Ω THD
220Ω THD
200Ω SMT
Vcc
GND
Clock
PULSE_OUTØ
PULSE_OUT1
CARRYØ
CARRY1
MRØ
MR1
INTØ
INT1
P3.1
P3.7
P3.0
P3.4
P1.0
P1.3
P1.1
P3.5
P1.2
P1.7
P1.6
P1.5
P1.4
RST
NC
GRN
RED
YEL
VSOLAR
5.1v Zener
700mAh "AA" Batteries x3
ABS346
ABS1