# WIRING DIAGRAMS

The following color code is use when using cable supplied by SRT. If you have the cable with 12 solid colors, use the color on the left. If you have the cable with 6 solid colors, use the color on the right.

Example…When you see Color Red/Blk, that means solid red with a blk stripe.

## INPUT CABLE OF DB-37 CONNECTOR TO LAP COUNTER

| DB-37 Pin # | Color | Discription |
|---|---|---|
| 1 | RED or Red | LANE 1 LAP COUNTER |
| 2 | WHT or White | LANE 2 LAP COUNTER |
| 3 | GRN or Green | LANE 3 LAP COUNTER |
| 4 | ORG or Orange | LANE 4 LAP COUNTER |
| 5 | BLU or Blue | LANE 5 LAP COUNTER |
| 6 | YEL or Wht/Blk | LANE 6 LAP COUNTER |
| 7 | PUR or Grn/Blk | LANE 7 LAP COUNTER |
| 8 | BLK or Black | LANE 8 LAP COUNTER |
| 20 | BRN or Org/Blk | AUX. INPUT #1, REMOTE TRACK CALL |
| 21 | TAN or Blu/Blk | AUX. INPUT #2, DRIVER'S PANEL SELECT SWITCH |
| 22 | SLATE or Blk/Wht | AUX. INPUT #3, DRIVER'S PANEL RESET SWITCH |
| 23 | PINK or Red/Wht | AUX. INPUT #4, SECOND CH. OF A 2 CH. TX'r TO REMOVE TRACK POWER DURING HALF POWER TRACK CALLS. |
| 36 | RED/BLK or Red/Blk | LAP COUNTER GROUND |

## OUTPUT CABLE OF DB-37 CONNECTOR TO RELAY PANEL

| DB-37 Pin # | Color | Discription |
|---|---|---|
| 9 | RED or Red | LANE 1 RELAY CONTROL |
| 10 | WHT or White | LANE 2 RELAY CONTROL |
| 11 | GRN or Green | LANE 3 RELAY CONTROL |
| 12 | ORG or Orange | LANE 4 RELAY CONTROL |
| 13 | BLU or Blue | LANE 5 RELAY CONTROL |
| 14 | YEL or Wht/Blk | LANE 6 RELAY CONTROL |
| 15 | PUR or Grn/Blk | LANE 7 RELAY CONTROL |
| 16 | BLKor Black | LANE 8 RELAY CONTROL |
| 17 | RED/BLK or Red/Blk | +12v FROM BATTERY |
| 18 | RED/GRN or Grn/Wht | GROUND (-) OF BATTERY |
| 19 | RED/YEL or Blu/Wht | GROUND (-) OF BATTERY |
| 24 | PINK or Red/Wht | AUX. OUTPUT #4, Used to key relay that would turn on track call caution light. |
| 25 | SLATE or Blk/Wht | AUX. OUTPUT #3, Used in Voltage select |
| 26 | TAN or Blu/Blk | AUX. OUTPUT #2, Used in Voltage select |
| 27 | BRN or Org/Blk | AUX. OUTPUT #1, Used in Voltage select |
| 37 | SHIELD | GROUND (-) OF BATTERY |

# Hookup procedure for the S.R.T. Pro-Race Director interface card to track.

| Note:  Cable with connector already assembled is available from SRT on request |
| --- |

The instructions below assume that you are using the SRT recommended cable. If you use a different cable make your own color code chart to keep in the manual.

**Step 1:** Determine your cable(s) lengths needed. Keep in mind that there is a cable that will terminate at the relay panel area and another that terminates at the dead strip(lap counter). Both of these cables will connect at the computer with the DB-37 connector supplied with the system. It is a good idea to terminate the wire ends(track side) with crimp spade lugs and a 16 terminal barrier block at both locations. The program has many other features that are quite useful that need the extra wires in the cable.

## COMPUTER PLUG WIRING

**Step 2:** Solder the wires into the DB-37 connector first, including the Auxiliary input and output signal wires. Even if you do not use these wires at this time it's a big time saver later down the road. Use a small iron (10- 40w) with needle point tip to solder with. ***DO NOT USE THE IRON YOU USE FOR SOLDERING MOTORS INTO CHASSIS.***

You can start with the lap counter cable first, using lane color to match wire color in pins 1 through 8. Pin 1 being Red and pin 8 being Black, etc. Pick out the Red wire with a Black stripe and use it for the daisy chain Ground and solder to pin 36. Pick the Brown, Tan, Slate, Pink wires and solder to pin's 20,21,22 and 23 respectively. These are the aux. input signals that you may or may not use at this time. You will have 2 spare wires (Red/Green stripe and Red/Yellow stripe) that can be twisted around the cable and used later in the event a wire should ever go bad.

Next do the relay cable, using lane color to match wire color in pins 9 through 16. Pin 9 being red and pin 16 being black, etc. Solder the Red wire with Black stripe into pin 17 (this will be voltage from battery) and the Red/Green stripe, Red/Yellow stripe, and the shield in pins 18,19 and 37 respectively (these are Gnd. return wires). Solder the Pink, Slate, Tan, and Brown wires in pins 24, 25, 26, and 27. These are aux. output signals used with other program features.

The shield of the input cable gets soldered to the metal part of the DB37 connector while the other end is cut off and not used.

## TRACK SIDE WIRING

**Lap counter**

**Step 3:** Computer wires from pins 1 through 8 of the DB-37 plug are attached to the left side of the dead strip(top view in relation to car travel) of each lane. The right side of each dead strip are jumpered together with 24ga. wire and is connected to the wire that goes to pin 36 of the DB-37 plug (Red with Black stripe). This wire(pin 36) is used for all input signal grounds, i.e. remote track, select and reset switches at driver's panel. The wire that connects to pin 20 (Brown) of the DB-37 plug is used for remote track call. This can be hard wired or remote control via key chain type auto alarm system transmitter/receiver (available through SRT). The wire that connects to pins 21 (Tan) and 22 (Slate) of the DB-37 plug are used for lane select and reset, respectively. **Use wire nuts or solder wire to dead strip braid that is below the track surface.**

Hookup procedure for the S.R.T. Pro-Race Director interface card to track.

**Relay panel**

**Step 4:** Computer wires from pins 9 through 16 of the DB-37 plug are attached to one side of each relay coil through a 1/4 amp fuse (pin 9 is red and pin 16 is black lane etc.). The other side of the relay coil is daisy chained together with the other 7 relays(same side) and connected to a 5 amp fuse which is then connected to the positive side of the battery(+).

**There should also be a diode placed across each relay coil to minimize voltage spike's which can damage the interface board(see wiring diagram for details of installing this device).**

The 3 wires that are in pins 18,19 and 37 connect to the negative(-) side of the battery through a 5 amp fuse.

The wire coming from pin 17 of the DB-37 plug needs to be connected to "+" side of battery through a 1 amp fuse. If you are only going to use 12v battery power on your track, it may be more convenient to connect the 1 amp fuse to the hot side of the relay.

Note:
**If your track is going to have multiple voltage settings, be sure that the voltage feeding the relay coils and the interface card do not exceed 14v.**

It is very important that your mechanical timers, if used, are wired in the same direction as the S.R.T. system. This means that your timers should be applying a ground to energize the track relays. Otherwise damage will occur to the interface board. **Also do not use a switch in series with the ground return as a way to cut power to the track**. This too in some instances will damage the interface card.

The remaining wires can be tied back or connected to the barrier strip, and will not be used at this time. If later you decide to add the voltage select feature, we found it easier to use the Cidex voltage reducer module with our software. This will give you reduced track call power instead of total power removal. You can also follow the wiring diagram in this manual to build a track voltage source panel for your track. Give us a call for more details.

Diodes, barrier strips and fuse holders can be purchased from your local Radio Shack dealer...

|  | PART# | QTY | DESCRIPTION |
|---|---|---|---|
| RELAY | 275-226 | 2-8 | 30A RATED |
| DIODES | 276-1101 | 8 | 1N4001 |
| BARRIER | 274-670 | 4 | 8 POSITION |
| FUSE | 270-1003 | 8 | 1/2 AMP |
| FUSE | 270-1011 | 2 | 5 AMP |
| FUSE | 270-1005 | 1 | 1 AMP |
| FUSE HOLDERS | 270-1281 | 11 | INLINE or |
| FUSE HOLDERS | 270-742 | 3 | 4 POSITION FUSE BLOCK |

## The following is a test procedure for testing the track wiring *before* you hook up to the computer.

Note:  V.O.M.(volt ohm meter) is needed to carry out the following procedure.

First place the VOM on a voltage scale suitable for measuring D.C. voltage. Place the negative lead of the VOM on one of the negative pins of the DB37(pin 19 or 37) and the other lead of the VOM (+) to pin 17 of the DB37 connector. Verify a reading between +12 to 14 volts, if you don't, check the track for miss wiring before going on to the next step.

To test the lap counter place the VOM on the R x  1 scale, put the negative lead of the VOM on the signal Gnd  pin of the DB37 plug (pin 36) and the other lead of the VOM on pin 1 of the DB37 connector. While someone is applying a short across the lane 1 dead strip(usually red) you should see the meter deflect up scale. Remove the short at the dead strip and meter will return down scale. If you are using a digital meter the internal buzzer will sound when the short is across the dead strip, and go silent when removed(should also show a few ohms of resistance, depending on the length of your cable). Do this same procedure for the remaining 7 lanes. **If it doesn't pass this test, correct the wiring error before connecting to the computer.**

To test relay control, use 2 small test lead wires(paper clip) connected at both ends of the a clip lead  wire.  Insert one lead in any of pins 19 or 37 (neg.). Use the other end and probe  pins 9 - 16 (pin 9  is lane 1 through pin 16 which is lane 8) on the DB37 plug one at a time. Verify that only one relay at a time turns on and that it is the correct relay.

Use your VOM  to check the current draw of your relays. Placing the negative lead of the meter to one of the negative pins of the DB37 plug and the positive lead to pins 9 - 16 one at a time. Make sure you have the meter in one the current measuring position before you make this test. Typical meter readings should be in the range of 60 to 250ma. **If you get over 500ma you will exceed the limits of the interface card, and damage will occur.**

If you can pass all of these tests, then it is safe to connect the DB37 plug to the interface card at the computer.

Make sure you install all fuses as per the installation sheet before using the system. This will help protect the computer equipment and save you time and money in repairs.

## DON'T TAKE SHORTCUTS

If you still have troubles after completing this test, just give us a call.
Thanks,  Mike & Gary of S.R.T.

Direction of travel >

Use 15 conductor #24ga. cable, (shielded)
one to dead strip area, and one to relay panel area.
Shield should be connected to metal of DB37 connector only.

S.R.T. has cable in stock

To DB37 INRED

You can use up to 3 wires for track gnd, fuse
at track with 5 amp inline,
back to the computer.

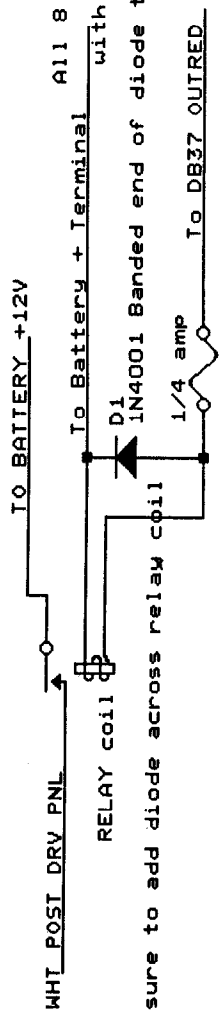Make sure to fuse Track 12v to
computer with 1 amp fuse, at Track

To DB37 Signal Gnd (inputs)

Jumper

Jumper

Track Gnd

Red Lane

Track 12v
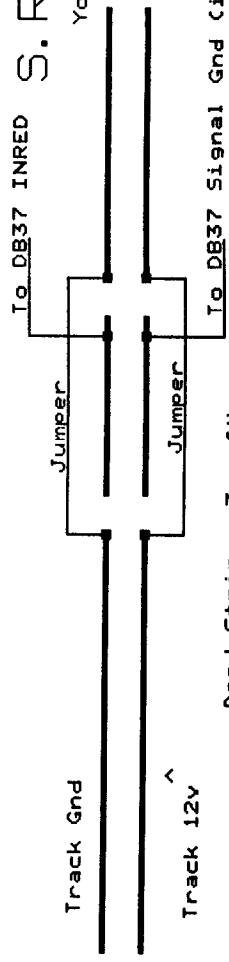
Dead Strip.. 3 - 6"
Isolated from track power
Opposite polarity

TRACK GND "-" OF BATTERY

5amp

1amp

TO BATTERY +12V

Signal gnd at dead strip can be daisy chained, using small ga. wire.

At least 7/8" gap isolation at dead strip from track braid.

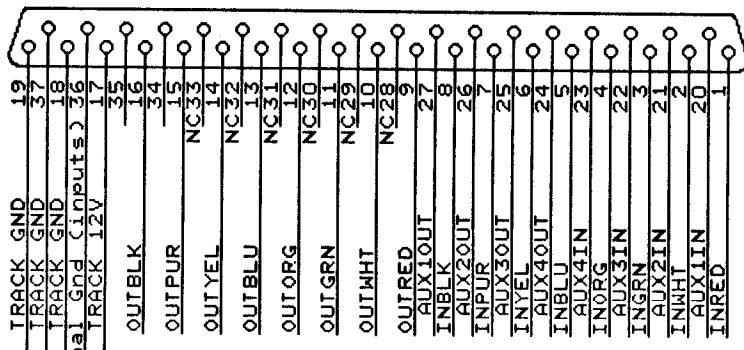Example for red lane.  Do the same for the remainder lanes

Existing RED Lane 12V RELAY

TO BATTERY +12V

WHT POST DRV PNL

RELAY coil

Make sure to add diode across relay coil

To Battery + Terminal

All 8 relays can be daisy
chained on + side
with one 5amp fuse feed.

To Battery + Terminal

D1
1N4001 Banded end of diode to '+'

1/4 amp

To DB37 OUTRED

WARNING

Look in the Doc file of program for Aux. input & output explainations
Do not have any other lap counter or timer across dead strip

| Pin | Signal |
|-----|--------|
| 19 | TRACK GND |
| 37 | TRACK GND |
| 18 | TRACK GND |
| 36 | Signal Gnd (inputs) |
| 17 | TRACK 12V |
| 35 | OUTBLK |
| 16 | OUTPUR |
| 15 | OUTYEL  NC33 |
| 14 | NC32 |
| 13 | OUTBLU  NC31 |
| 12 | OUTORG  NC30 |
| 11 | OUTGRN  NC29 |
| 10 | OUTWHT  NC28 |
| 9 | OUTRED |
| 27 | AUX1OUT |
| 8 | INBLK |
| 26 | AUX2OUT |
| 7 | INPUR |
| 25 | AUX3OUT |
| 6 | INYEL |
| 24 | AUX4OUT |
| 5 | INBLU |
| 23 | AUX4IN |
| 4 | INORG |
| 22 | AUX3IN |
| 3 | INGRN |
| 21 | AUX2IN |
| 2 | INWHT |
| 20 | AUX1IN |
| 1 | INRED |

DB37 MALE, ON BOARD

Do Not Use Pins 34 & 35

I/O INTERFACE CARD HAS A MAXIMUM CURRENT SWITCHING CAPABILITY OF 500ma
PER OUTPUT. DO NOT EXCEED THESE LIMITS.

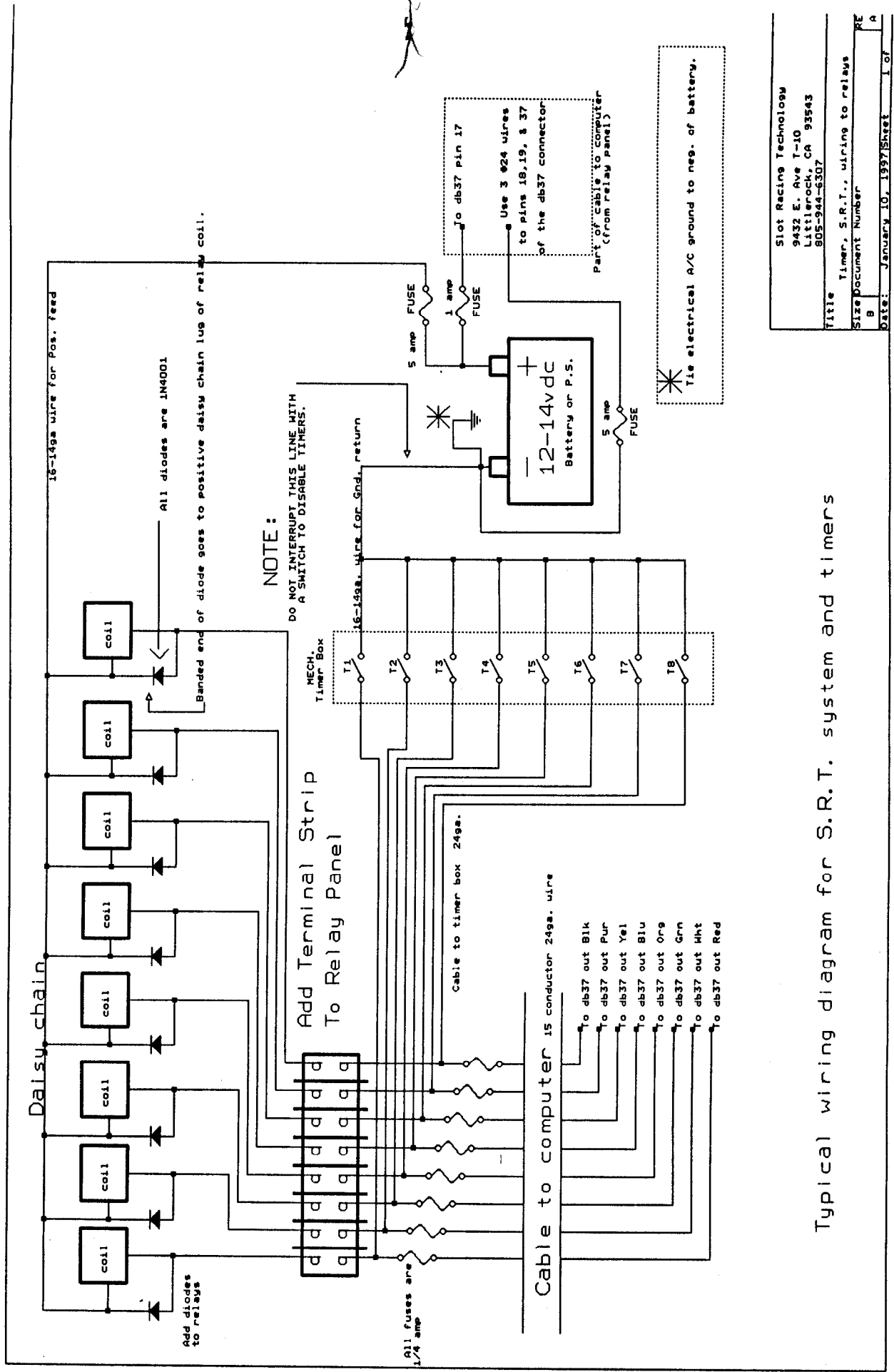CHECK THE SPECIFICATION OF THE RELAYS YOU INTEND TO USE. MOST RELAYS USED
DRAW APPROX. 250MA OR LESS.

Title
Slot Racing Technology

Hook-Up

Size: A    Document Number                                      REV: A

Date: November 25, 1996   Sheet   1 of 1

16-14ga wire for Pos. feed

All diodes are 1N4001

Banded end of diode goes to positive daisy chain lug of relay coil.

NOTE:
DO NOT INTERRUPT THIS LINE WITH A SWITCH TO DISABLE TIMERS.

Coil  Coil  Coil  Coil  Coil  Coil  Coil  Coil

Daisy chain

Add diodes to relays

All fuses are 1/4 amp

Add Terminal Strip To Relay Panel

MECH. Timer Box

16-14ga. wire for Gnd. return

T1  T2  T3  T4  T5  T6  T7  T8

Cable to timer box 24ga.

Cable to computer  15 conductor 24ga. wire

To db37 out Blk
To db37 out Pur
To db37 out Yel
To db37 out Blu
To db37 out Org
To db37 out Grn
To db37 out Wht
To db37 out Red

To db37 pin 17

Use 3 #24 wires to pins 18,19, & 37 of the db37 connector.

Part of cable to computer (from relay panel)

5 amp FUSE     1 amp FUSE

12-14vdc
Battery or P.S.

5 amp FUSE

Tie electrical A/C ground to neg. of battery.

Typical wiring diagram for S.R.T. system and timers

Slot Racing Technology
9432 E. Ave T-10
Littlerock, CA 93543
805-944-6307

Title  Timer, S.R.T., wiring to relays
Size  Document Number  REV
B                       A
Date:  January 10, 1997  Sheet  1 of

# Remote track call

## REMOTE METHOD

Garage type or car alarm Tx'r & Rx'r

Transmitter        Receiver

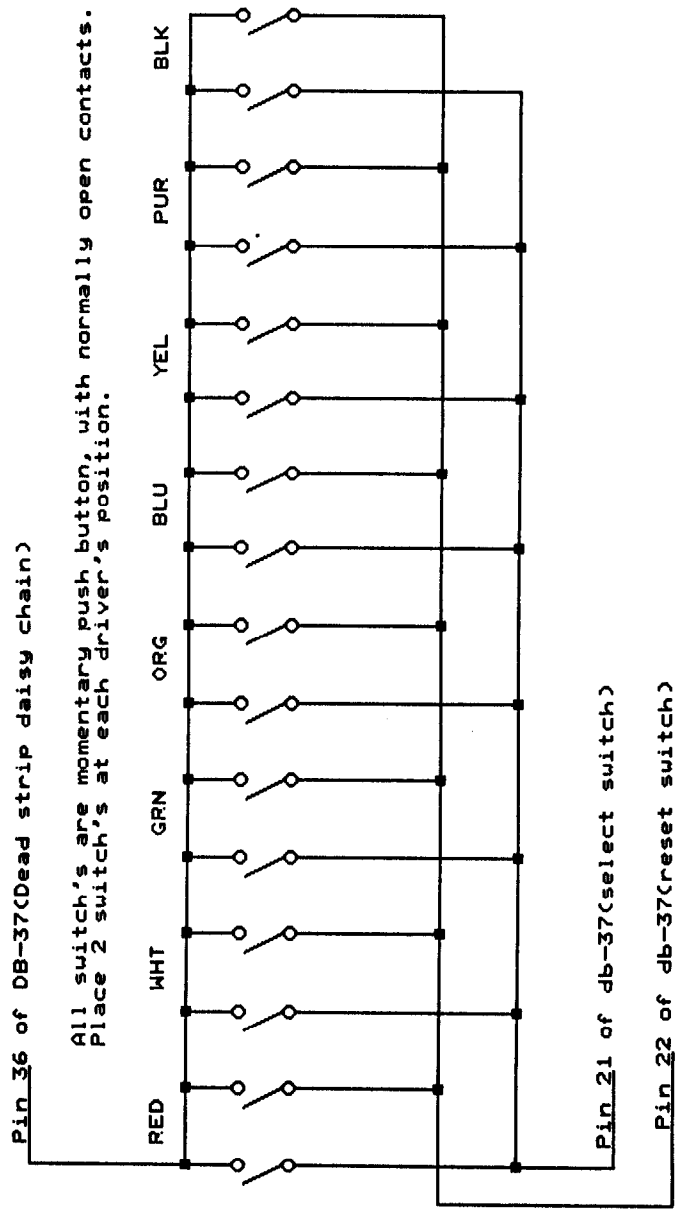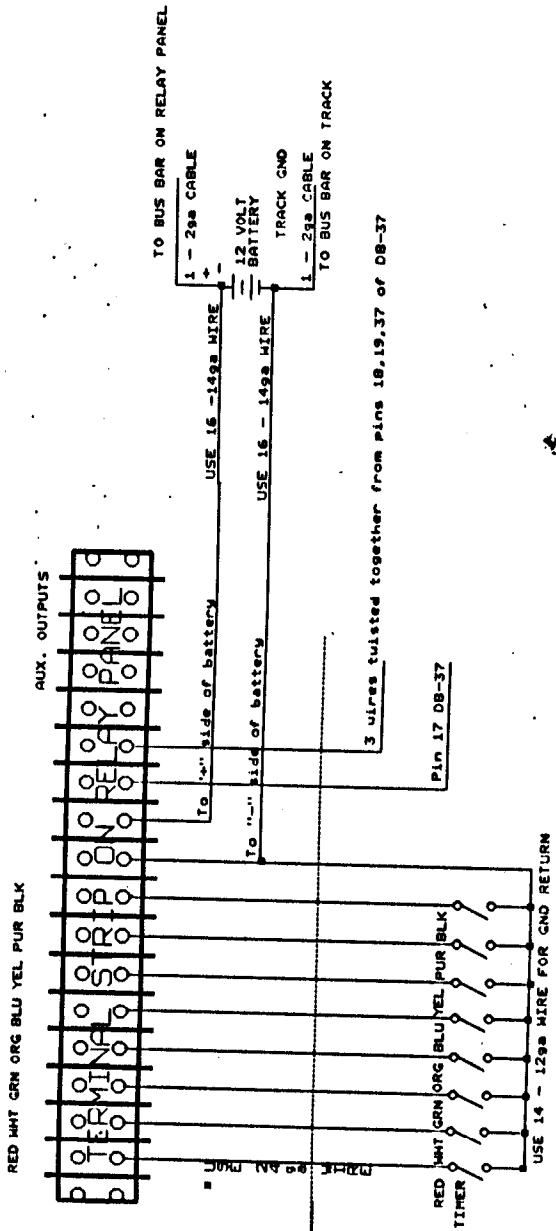Pin 20 of db-37        Pin 36 db-37
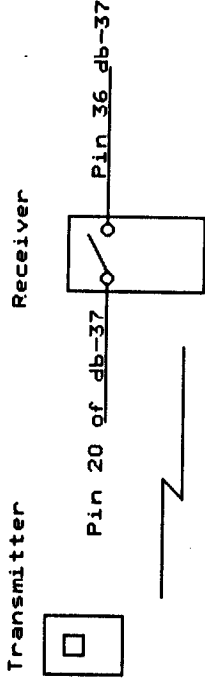
Mounted at track

NOTE:

Receiver must have relay
contacts that are available
for use. Most garage type
openers run 24vac thru the
contacts. This must be modified
to get both relay contacts
free.

## HARD WIRE METHOD

Pin 20 of db-37(remote track call)

Pin 36 of db-37(daisy chain)

S?        SW SPST

S?        SW SPST

S?        SW SPST

Place as many switch's or jacks for switch's on track as desired.

NOTE:

S.R.T. NOW HAS A NEW CAR ALARM STYLE REMOTE TRACK CALL, CALL FOR DETAILS.

# Driver's panel select & reset switch's

Pin 36 of DB-37(Dead strip daisy chain)

All switch's are momentary push button, with normally open contacts.
Place 2 switch's at each driver's position.

RED    WHT    GRN    ORG    BLU    YEL    PUR    BLK

Pin 21 of db-37(select switch)

Pin 22 of db-37(reset switch)

| Title | | |
|---|---|---|
| Hook-up for select & reset switch's | | |
| Size | Document Number | REV |
| A | | A |
| Date: | June 21, 1994 | Sheet 1 of 1 |

TO BUS BAR ON RELAY PANEL

1 - 2ga CABLE

12 VOLT
BATTERY

TRACK GND

1 - 2ga CABLE
TO BUS BAR ON TRACK

USE 16 -14ga WIRE

USE 16 - 14ga WIRE

3 wires twisted together from pins 18,19,37 of DB-37

To "+" side of battery

To "-" side of battery

Pin 17 DB-37

AUX. OUTPUTS

RELAY PANEL

TERMINAL STRIP ON RELAY PANEL

RED WHT GRN ORG BLU YEL PUR BLK

PUR BLK

RED WHT GRN ORG BLU YEL

TIMER

USE 14 - 12ga WIRE FOR GND RETURN

OTE: SOURCE FOR CABLE IS ATLAS WIRE CO.

*   1-800-352-4335, CAT# IS 292-24-7T-15J

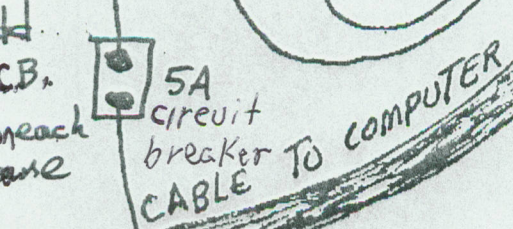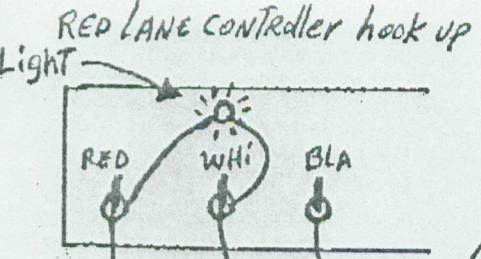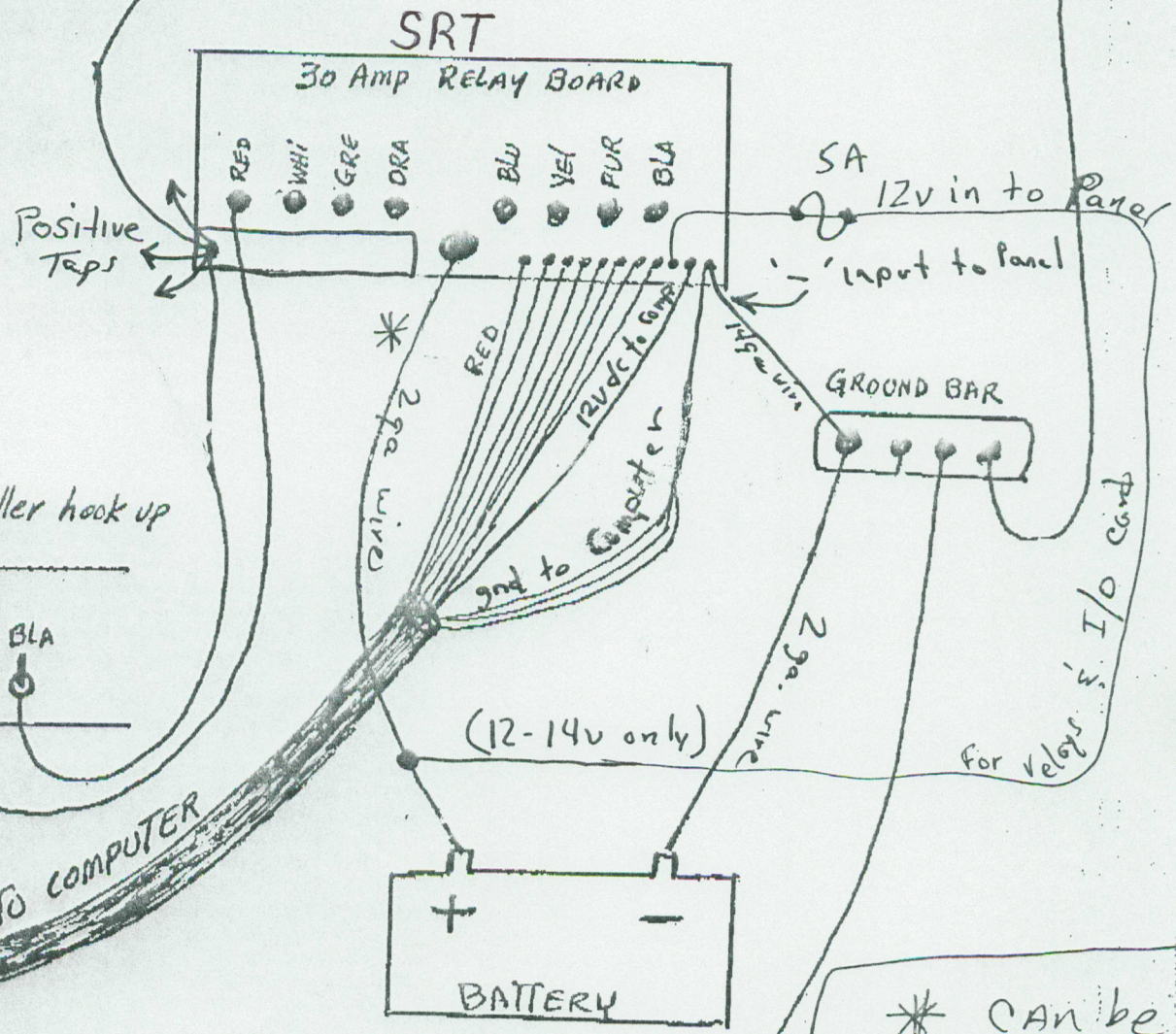    CABLE IS IS CONDUCTOR WITH SHIELD USED IN S.R.T. SYSTEMS

SLOT RACING TE

Title        SRT RELAY PANEL

Size  Document Number
B

Date: September 24, 1335

General wire hook up

Red lane Tap

Car direction

Neg Taps
all 8 lanes

## SRT
### 30 Amp Relay Board

RED  WHi  GRE  ORA    BLU  YEL  PUR  BLA

Positive Taps

5A  12v in to Panel

'–' input to Panel

GROUND BAR

for relays & I/o card

2 ga. wire

RED

12 vdc to comp.

14 ga wire

gnd to Computer

2 ga. wire

Red lane Controller hook up

Light

RED  WHi  BLA

H.
C.B.
on each
fuse

5A circuit breaker

CABLE TO COMPUTER

(12-14v only)

+  –

BATTERY

12-10 sc wire
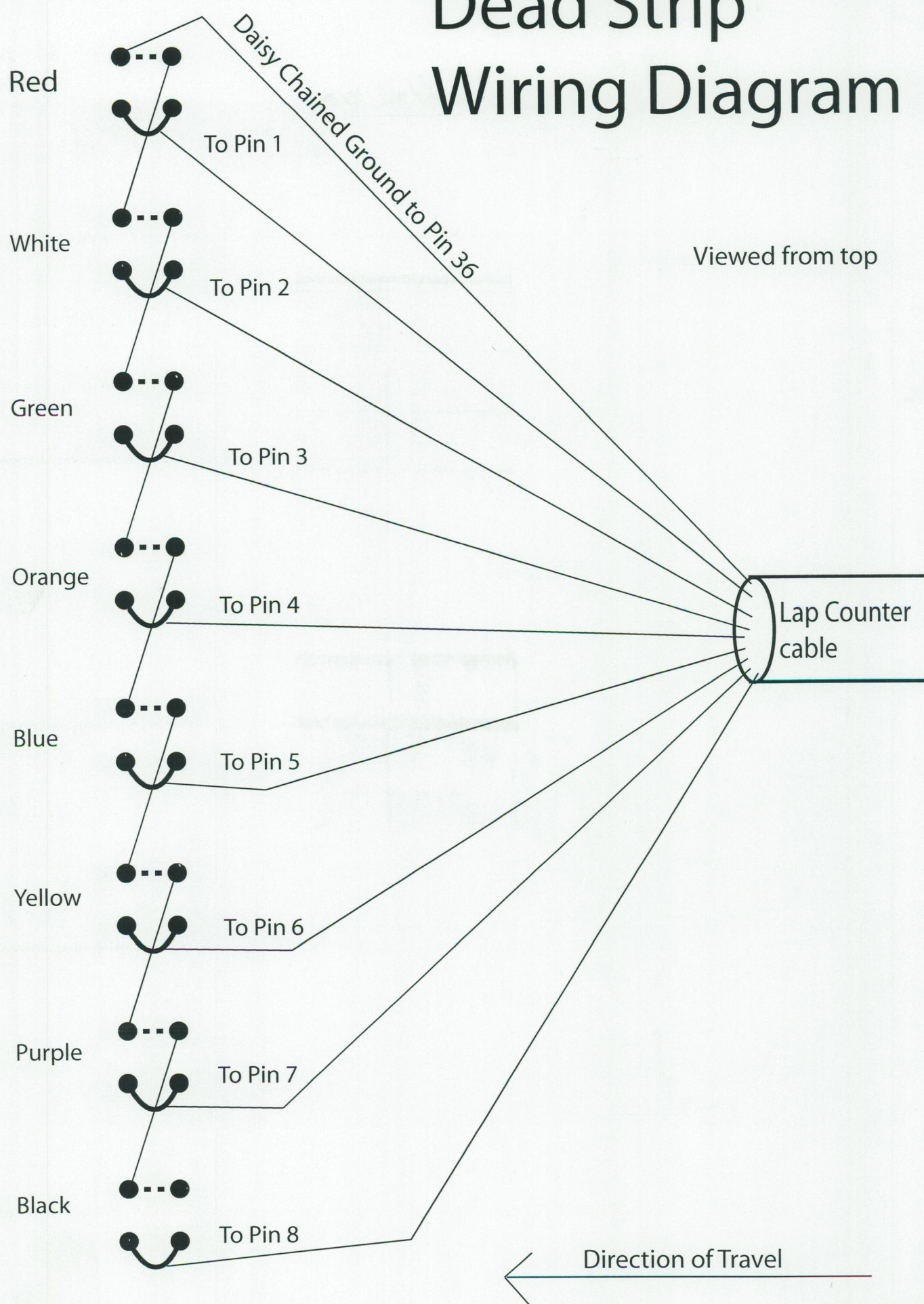
all 8 lanes
Bridged at driver's panel

✳ can be any voltage you want. Only 12-14 for relay coils.

# Dead Strip Wiring Diagram

Viewed from top

Red
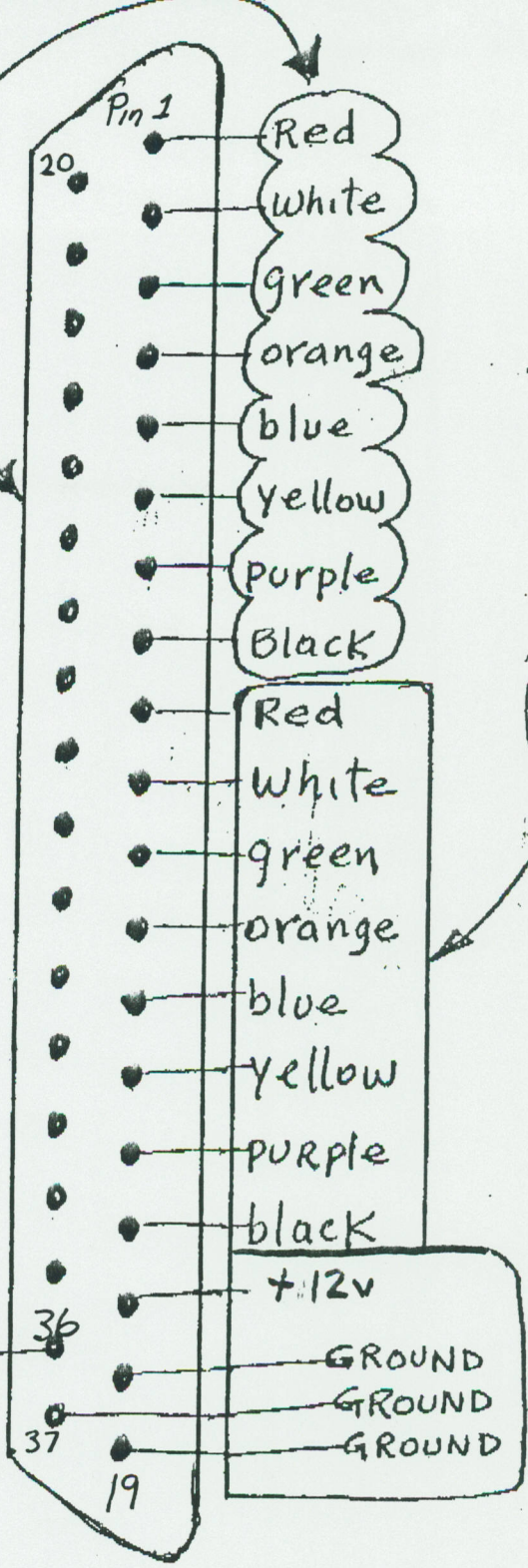
Daisy Chained Ground to Pin 36

To Pin 1

White

To Pin 2

Green

To Pin 3

Orange

To Pin 4

Blue

To Pin 5

Yellow

To Pin 6

Purple

To Pin 7

Black

To Pin 8

Lap Counter cable

Direction of Travel

# #2

**Computer inlet**

**Tap counter WIRES**

**Ground**

**Time seller WIRES**

Pin 1

20

Red
White
green
orange
blue
Yellow
Purple
Black

Red
White
green
orange
blue
Yellow
Purple
black

+12v

GROUND
GROUND
GROUND

36

37

19