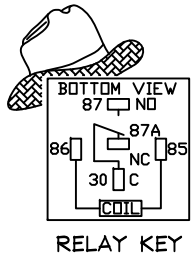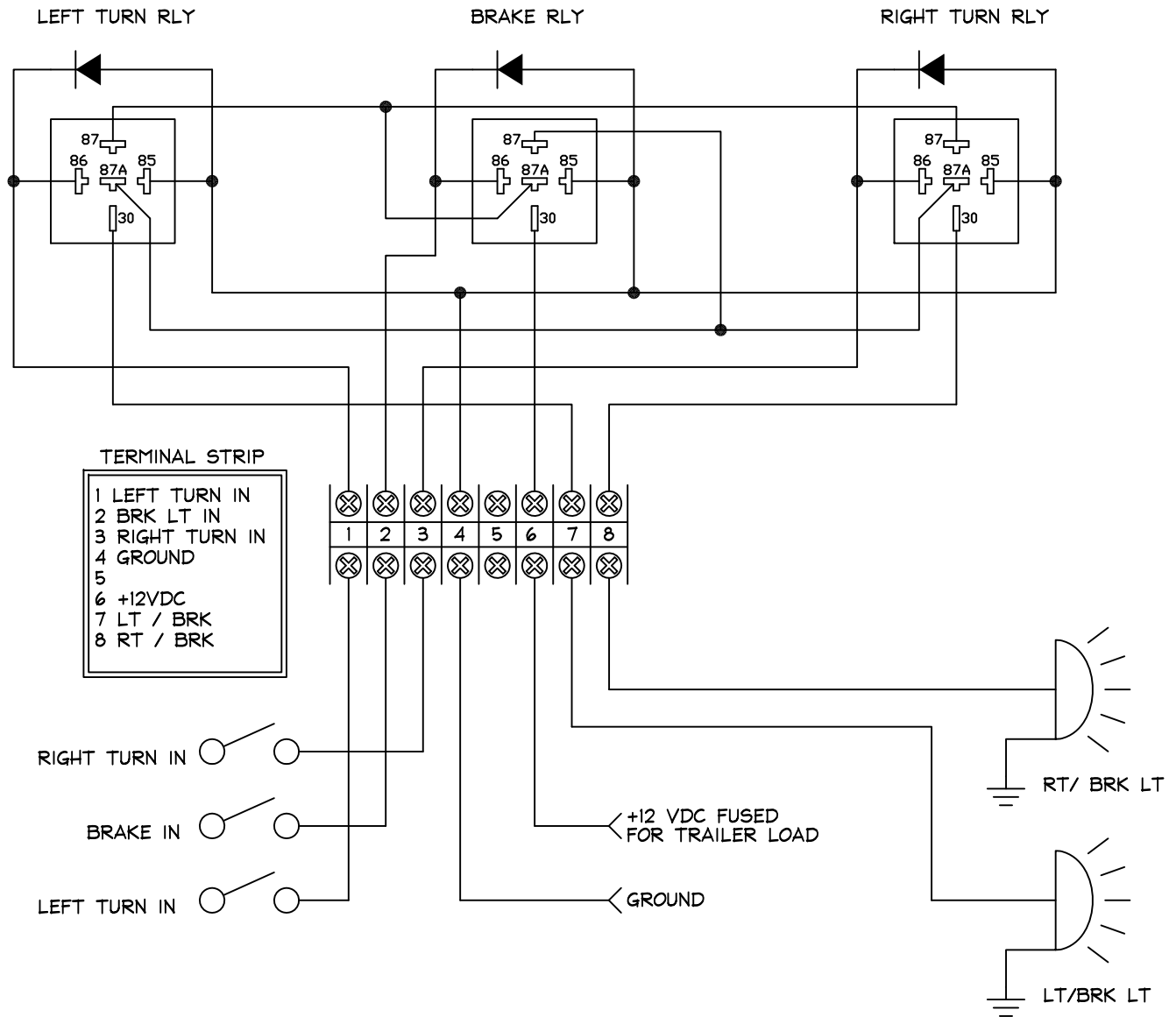# 3 Wire to 2 Wire Trailer Light Converter

I built a circuit using 3 relays to convert the Safari 3 wire trailer connection to a standard 2 wire. The relays, sockets, diodes and terminal strip came from All Electronics in Van Nuys, CA. The design fits in a 6x4x2 project box from Radio Shack.

To mount the diodes for the relay, I slipped the pins out of the socket and soldered the diodes across the coil pins before replacing them. One diode shows in the picture below. The sockets interlock so mounting them using the relay tabs is easy.

LEFT TURN RLY

BRAKE RLY

RIGHT TURN RLY

87
86   85
87A
30

87
86   85
87A
30

87
86   85
87A
30

BOTTOM VIEW
87 □ NO
87A
86   85
NC
30 C
COIL

RELAY KEY

TERMINAL STRIP

1 LEFT TURN IN
2 BRK LT IN
3 RIGHT TURN IN
4 GROUND
5
6 +12VDC
7 LT / BRK
8 RT / BRK

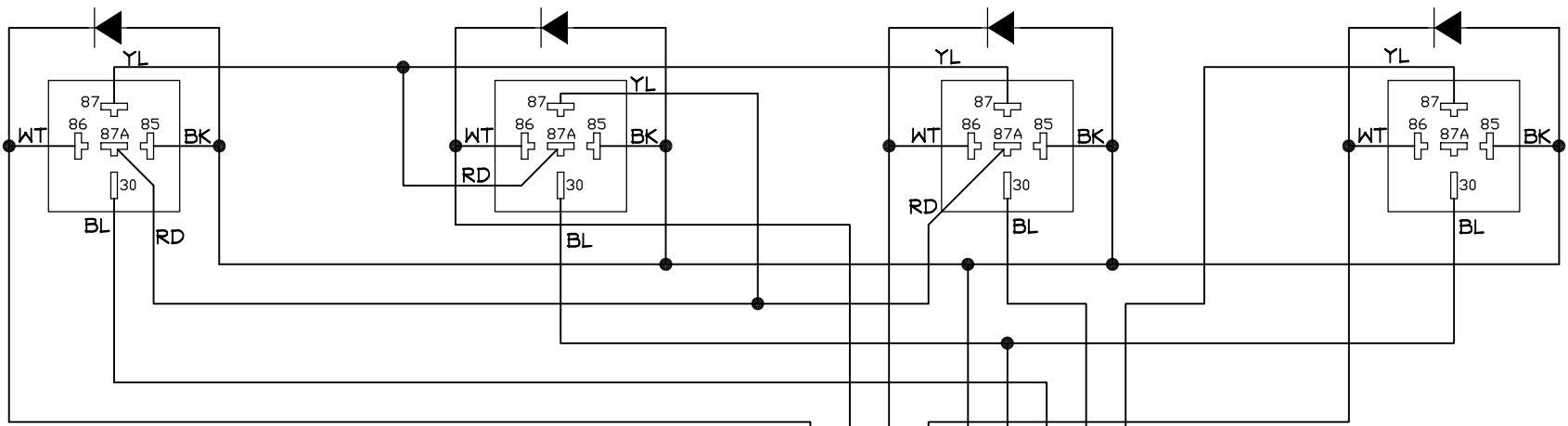| 1	2	3	4	5	6	7	8

THIS CIRCUIT WILL CONVERT MODERN 3
WIRE BRAKE AND TURN LAMP WIRING TO
THE STANDARD 2 WIRE FOR USE WITH
MOST TRAILERS. THE TRAILER SIGNALS
ARE POWERED EXTERNAL OF THE VEHICLE
SO AS NOT TO OVERLOAD THE TOW
VEHICLE CIRCUITS. TAIL/CLEARANCE LIGHTS
REMAIN POWERED BY THE TOW VEHICLE
CIRCUIT.
  WHEN THE BRAKE LIGHTS ARE ON, THE
TURN SIGNAL ON THE TRAILER WILL
ALTERNATE WITH THE TOW VEHICLE. WHEN
THE BRAKE LIGHTS ARE OFF, THE SIGNALS
WILL BE IN SYNC.

RIGHT TURN IN

BRAKE IN

LEFT TURN IN

+12 VDC FUSED
FOR TRAILER LOAD

GROUND

RT/ BRK LT

LT/BRK LT

C:\ACADX\DRAWINGS\AUTOELECTRIC1.DWG

8:07:44 AM

04/10/09

SCALE:N/A	PROJECT:SAFARI	TITLE:3 x 2 TRAILER LIGHT CONV	
DRAWN:JIM EXLER	LOC:CAMARILLO	DRG:3X2 LIGHT CONV	REVISION
DATE:5/4/07	JOB NO:N/A	AutoElectric1.dwg	0

LEFT TURN RLY   BRAKE RLY   RIGHT TURN RLY   RUNNING LTS RLY

YL   YL   YL   YL

87   87   87   87
86   85   86   85   86   85   86   85
WT   87A   BK   WT   87A   BK   WT   87A   BK   WT   87A   BK
RD   30   RD   30   RD   30   30
BL   RD   BL   BL   BL

TERMINAL STRIP

1 LEFT TURN IN	7 LT / BRK
2 BRK LT IN	8 RT / BRK
3 RIGHT TURN IN	9 RUNNING LTS
4 RUN LT IN	10
5 GROUND	11
6 +12VDC	12
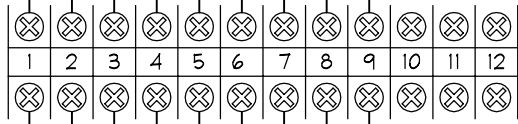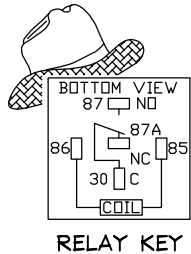
BOTTOM VIEW
87 NO
86   87A   85
   NC
30   C
COIL

RELAY KEY

| 1 | 2 | 3 | 4 | 5 | 6 | 7 | 8 | 9 | 10 | 11 | 12 |

THIS CIRCUIT WILL CONVERT MODERN 3
WIRE BRAKE AND TURN LAMP WIRING TO
THE STANDARD 2 WIRE FOR USE WITH
MOST TRAILERS. ALL TRAILER SIGNALS /
LIGHTS ARE POWERED EXTERNAL OF THE
VEHICLE SO AS NOT TO OVERLOAD THE
TOW VEHICLE CIRCUITS. THE ONLY POWER
USED FROM THE TOW VEHICLE IS TO
ACTUATE THE RELAYS.
WHEN THE BRAKE LIGHTS ARE ON, THE
TURN SIGNAL ON THE TRAILER WILL
ALTERNATE WITH THE TOW VEHICLE. WHEN
THE BRAKE LIGHTS ARE OFF, THE SIGNALS
WILL BE IN SYNC.
COLORS LISTED ARE FOR MY SOCKETS.

LEFT TURN IN

BRAKE IN

RIGHT TURN IN

RUNNING LT IN

RUNNING LT

RT/ BRK LT

LT/BRK LT

+12 VDC FUSED
FOR TRAILER LOAD

GROUND
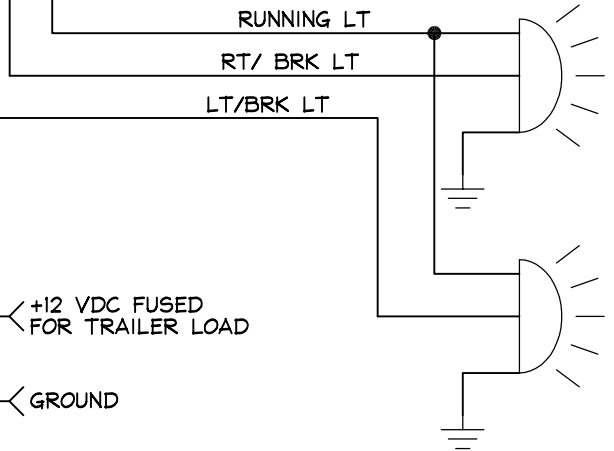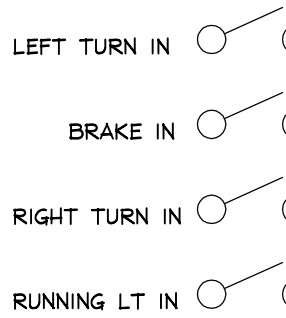
SCALE:N/A	PROJECT:SAFARI	TITLE:3 x 2 TRAILER LIGHT CONV + RL
DRAWN:JIM EXLER	LOC:NAMPA, ID	DRG:3X2 LIGHT CONV
DATE:5/6/13	JOB NO:N/A AutoElectric1.dwg	REVISION 0