1954-1959 Cadillac LED lights tech-tip

I've seen previous post at the CLC and other Cadillac sites regarding the issue with the dash turn signal indicators not working or having either or both RH and LH flashing when the turn signal is active.

It took a bit of time to get the attachment under Fig. 1 – 4 clean up, verified and to add the path for the signal "flashing" through the turn-signal switch and to show the ground path for the dash lights.

So far I was able to verify the 3-prong signal flasher was use on Cadillac from 1954 - 1959 so this layout should be applicable for these, the 1960 changed to the 2-prong.

The 3-prong flasher have the following designations, "P" pilot (dash lights), "L" lamp (or load) and "X" for power.

With the Cadillac arrangement the dash signal lights are connected in series with the front signal lights for the ground source instead of having the dash bulbs directly to ground which most other manufactures had done when using the 3-prong flasher.

One key element with the Cadillac wiring arrangement the dash bulbs would need to match (correct filament resistance) and that both RH and LH front signal lights filaments are NOT burned/open and they are properly grounded.

Fig. 1 shows the wiring arrangement for the signal/break lights through the signal switch.

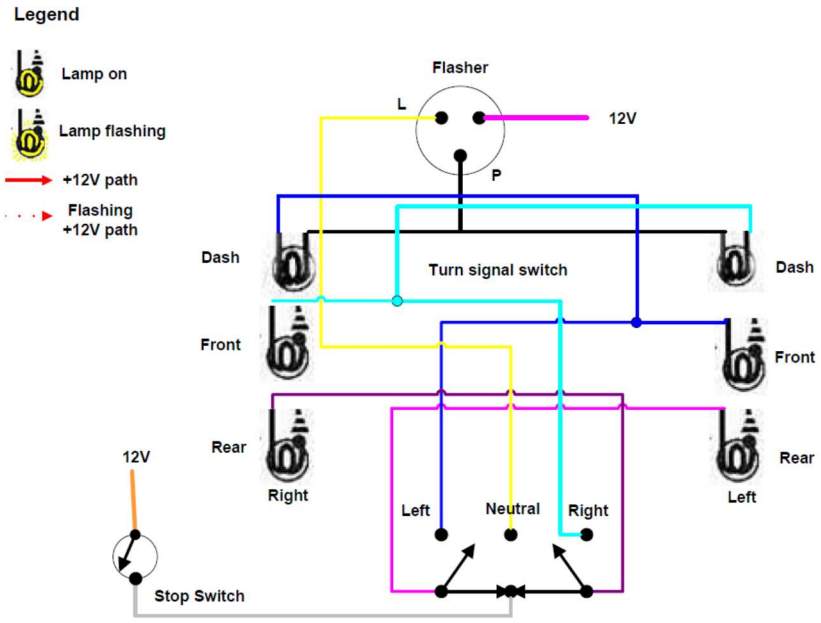

Fig. 1

Fig. 2 shows the path for the +12V from the stop switch to the turn signal switch in the "Neutral" position to extend the path to the brake lights.

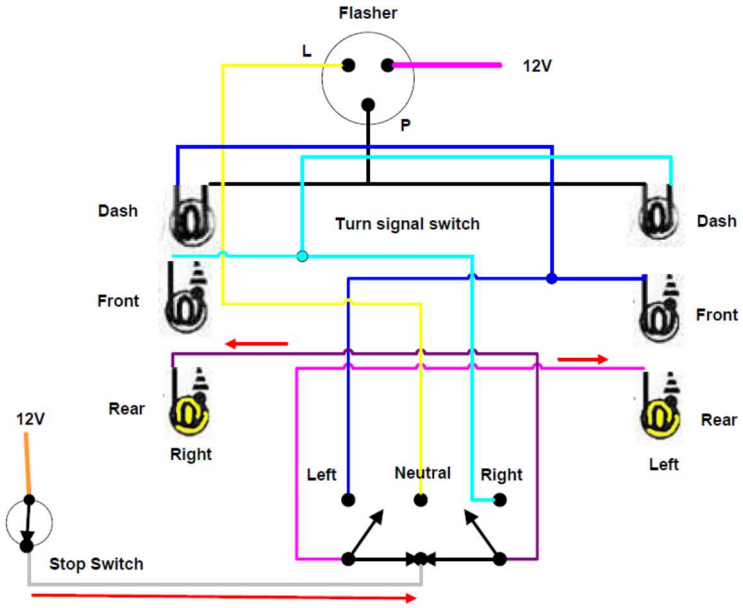

Fig. 2

Fig. 3 and 4 below shows the flashing path from the flasher in operation to both the “L” and the “P” terminal. It also shows the dash lights path (working side) for the ground takes place through the opposite dash bulb filament and up the same side front lamp ground.

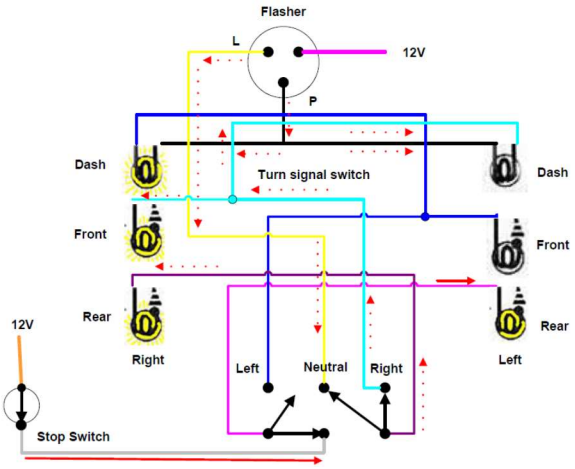

Fig. 3

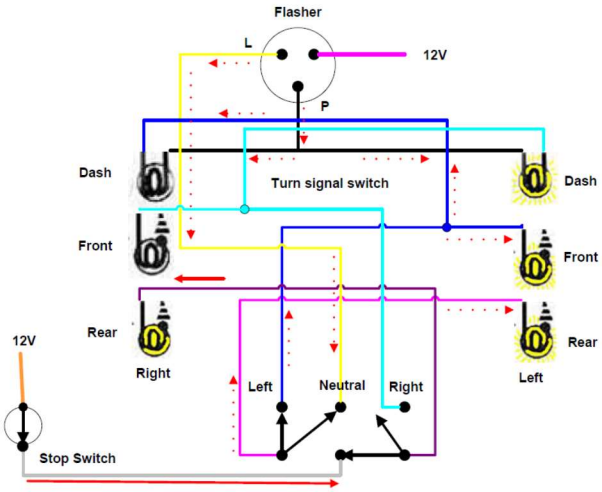

Fig. 4

Since the filament of the front light bulb is very low (in the range of 6 ohms) the bulb filament would act as a resistor straight to the ground source.

If either “dash” bulbs (filament resistance) are mismatched, a burn/open front light(s) filament or a bad/open ground at the front bulb the path for ground will changed causing both dash bulbs to be in series to each other extending their path over to the working flashing side.

Either of these conditions will cause both dash bulbs to flash if;

a) The resistance for the dash bulb are different or

b) The path to ground is not extended to the working front bulb.

Fig. 5 below depicts a basic layout for this application with the mechanical flasher, the “dash bulb” is not connected on this drawing details on how is done can be found under Fig. 1-4 above.

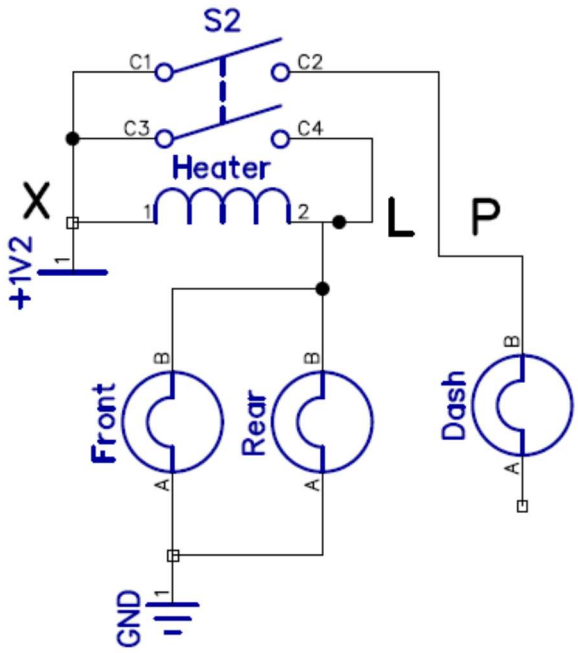

Fig. 5

Since the “P” is not part of the load, the flasher cycle is determine by the “L” filament resistance on the front and rear bulbs which are connected in “parallel” to each other at the turn signal switch.

A few specs on the light bulbs (***note: these are approximate values and as so are just for rough estimates***);

For the 1954 – 1956 with fog lights the bulb use is the 1044, specs are 2.73A (fog side) 34.9W/1.83A (signal side) 23.4W.

For 1958 with fog lights the bulb use is the 1074, however this bulb is NOT part of the signal light, the bulb use for the front signal is the 1034 (1157 equivalent) same applies to the non-fog options for the 1954 – 1956.

For the rear light the bulb is the 1034/1157 for all the above models, specs are 2.25A (signal side) 28.8W/0.59A (park side) 8.28W.

For the instrument panel turn signal bulbs these are 1895 (for 1954-1958) specs are 0.27A – 3.78W, while the 1445 (for 1959) specs are 0.135A -1.94W.

The normal resistance of the filament of these bulbs is approximately, 7 ohms for the 1044, 6 ohms for the 1034/1157, 20 ohms for the 1895 and 58 ohms for the 1445.

Since the front and rear bulbs are connected in parallel with the “L” terminal the total resistance for the load is approximately 3 ohms (resistance in parallel formula is 1/R total (3.25 ohms) = 1/ R1 (7 ohms with 1044 bulb) (or 1/R2 (6 ohms for the 1034/1157 non-fog option) + 1/R2 (6 ohms for the 1034/1157).

On the “P” side the dash bulb resistance is 20 ohms (with the 1895) and with the front bulb in series (6 ohms) to the ground source to total resistance is approximately 26 - 27 ohms, (resistance in series is Rt = R1+R2).

So for the path to the “P” in keeping just the active bulb flashing with the correct bulb in the dash and good grounds on both front lights the resistance would need to be about 26-27 ohms on each side.

Other car manufactures would have the “P” from the flasher going to one end of the dash light and ground on the other end of the light, the turn signal switch would switch the path from the “P” terminal to either R or L side at the switch.

There are some pros and cons with the 3-prong versus the 2 prong flashers and/or why Cadillac choose this method versus what others have done. However that topic is outside the scope of this document.

Now to questions that have come up on few threads.

Can I replace the incandescent bulbs to LED's for my turn signal lights?

Well the answer is "Yes" and "No";

Yes, you can replace the rear ones with LED but you would require to add a "load resistor" across the LED bulb if you keep the standard mechanical flasher.

Or you could change the flasher to the electronic LED type (*see note below*) with no need to add the "load resistor" the electronic flasher will work with any resistance load on the "L" to operate.

Note: You will need one that have the connectors for "X", "L" and "P" with a wire connection for ground. There are 3 prong flasher which are really for the 2-prong type with an "X" and "L" with the third prong for ground, ***those are not the correct ones****.*

I bought the CEC EF33RL specifications can be found here https://cecindustries.com/products/sockets/flashsockdetails.php?SentPartNum=EF33RL.

I found this unit to be extremely sensitive any load on the "L" terminal either high or low resistance would activate the flasher. **(Note: this flasher requires to have a load present on the "L" terminal for it to operate, so either a bulb or a load resistor is required).**

I replaced the rear bulbs with red LEDs and also replace the mechanical flasher with the LED type mention above but since I have the fog-light option with the 1044 these remain the same.

The change worked fine with the following caveats;

- ***a- Since power to the electronic flasher is "on" at the "X" terminal (with the ignition switch on) once the turn signal lever is back in the neutral position (opening the "L****oad****" path) there would be a slight delay for the flasher to stop (drained) flashing so both dash lights would flashed for a second or two until the flasher is fully drained.***
- ***b- The flasher requires the external wire to be connected to a ground source.***

How about the front signal bulbs for non-fog lights, can these the changed to LEDs with an electronic flasher?

No, the reason as described on the diagrams above, the dash lights would require the opposite front bulb filament to ground to work. LEDs have almost no resistance and they will not provide a path to ground across them.

Could I add the “load resistor” to the front LEDs lights for the dash lights to work?

Possible but it may cause both dash lights to flash, the resistor reacts a bit different than the bulb filament would.

Additional notes for reference;

Changing the mechanical flasher to an electronic type while keeping the same filament lamps provides a greater improvement over the traditional mechanical flasher.

The CEC EF33 is one alternative replacement, specs can be found here -> https://www.ceclighting.com/products/flashers/flashdetails.php?SentPartNum=EF33

I must noted that replacing the mechanical with an electronic flasher will NOT cause the rate of flashing to change if any of the bulbs are burned/open as it is noticeable with the mechanical type, the rate of flashing will remain the same. However the same condition remains with both dash light flashing when either of the front lights are burned/open which supplies the ground for them.

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