

Installaion notes for 61 and 80 series Toyota LED Lights. Negative Switching Issues.



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TOOLS: 10mm Socket, P2 Philips.

Remove the front grille as per the manual.

OK well you have chosen to get a super upgrade here .. Not going to compare to 100 W HID inserts but then again not going to attract the FUZ from 5 KM away also.

The KIT that Ultraflex4x4 Supplies for the 60 and 80 Series is comprehensive. It deals with High beam dash lights, Rusted screws . The kit has Zinc Plated Steel M4 Pan Head P2 Phillips screws to replace the rusted stock units. It also has the H4 + H4 Harness kit (so you can connect up inner lights as low beam also via a fog light switch). This harness kit MUST (on 80 series) be installed on the Passenger side between the Radiator support panel and the battery. It is simply cable tied in place to the AC Alloy pipe.

24V Imports .. PLEASE specify this as all I have to do is CHANGE the relays from 12V to 24V. The lights operate from 10.8 V to 32V. The harness kit converts Negative switching to LED compatible Positive switching. The Passenger side is the EARTH side in in Toyotas. SO that 12 and 24 V are very much the same .. except for the 24V relay Change.

1./ Confirm that you are 24V or 12V. IF your current globes are 24 V and you have NOT ordered a 24V kit then STOP. You need 24V relays.

2./ Mount the relays on the PASSENGER SIDE between the battery and the Radiator Support panel. Cable Tie them to the Alloy pipe of the AC. It's Safe and reliable here as many units have too many accessories elsewhere.

Remove the lights with the P2 Phillips head driver.

Replace the lights.

Install the new M4 Pan Head Phillips P2 screws ‘

3./ The Passenger side Battery is Grounded. So that a connection to the Positive is always 12 Volts. IF you want to defy my instructions and you are 24 Volts .. then you will destroy the lights. NOT Immediately but in a few weeks.

4./ Issues with Lights and Dash board indications of High Beam. These are related to HALOGEN UNITS causing cavities in your relays under the drivers side kick panels. The 80 Series has Relays. and the arcing from high power Halogens just destroys them. You MAY NEED to replace these relays in your stock wiring. IF you have issues. If you are like ME then you will have tried many lights to fix the poor light conditions. OK well rest assured these have been researched and are LEGAL in all states of Australia.

NOTES: yes the INNER and OUTER lights are HIGH and LOW beam. The red Wire is the DRL or PARKER. LEGALLY this is connected ONLY on the outer lights.

YOU WANT 4 LIGHTS on LOW BEAM .. OK sure this is LEGAL ONLY if you have a switch labeled as "FOG LIGHTS" and used as such under the legislation. They AIM of the Flog Lights is LOWER under ADR 13/00 and it's 2%. The AIM of low beam is 1 to 1.5% so that is 100mm to 150mm drop from the centre height of light to the top of the low beam on a wall 10m away.

Technical Support call +61423 346 612 Garret Krampe

Power drain is 3 Amps on high beam per light.

NOTE: HJ60 (wired 4656 sealed beams)

- 1./ Swap the black and the white wire on the male harness.
- 2./ Put a 6 ohm 50W to 30 ohm 10 watt resistor between black and white
- 3./ Put a same resistor between the red and black wire.

NOTE: I have found some sealed beams you swap the white and red around . Not the white and black .. confusing ? ha me too ..

Jaycar cat number RR3357 27 OHM 10W is acceptable.

<https://www.jaycar.com.au/27-ohm-10-watt-wire-wound-resistor/p/RR3357>

This swaps "pass"(low beam) and "drive"(high beam) and gets the relays to work and the dash light to work. the 60 series use a modified H4 connection.

NOTE: HJ60 24v

- 1./ Replace the 12 Volt Relays in the harness with 24Volt Relays
- 2./ As for 80 series if they have the adapters in the end of the OE sockets.(H4 insert globes not sealed beams 4656 wiring) If not then wire for the HJ60 (1) above (swap white and black).

3./ Put a 100 Ohm 10 W resistor between black and white wires on the harness. (Common to low beam)

Jaycar Cat Number RR3364 100 Ohm 10 Watt Wire Wound.

<https://www.jaycar.com.au/100-ohm-10-watt-wire-wound-resistor/p/RR3364>

If you have spotties wired : on your Spotlight relay find pin 85 and 86 these are your trigger for the relay coil.

one will go to power and the other will go to your OEM harness to the highbeam.

The one that goes to power (not pin 30 or pin 87) cut / disconnect from power and ground it .

the one that goes to your OE harness cut that and join to the brown wire in my harness.

NOTE: some 60 series require a NARAVA 12V 21W resistor from Common to Low and common to High. 6 OHM 50W is commonly available .. they get really hot about 100 C.

Common in the new harness is BLACK Low is WHITE RED is HIGH.

NOTE SEALED BEAM with harness upgrade: remove the extension / adapter from the outer lights and plug into the new harness outer.

LIGHTS NOT CHANGING: remove relays from holders, push up all the wires until home and refit the relays. Check . Try swaping relays and then fuses. The voltages on the BLACK MALE PLUG (when plugged into your outer light harness in the car)

Lights on LOW beam from Black to white should be above 8V and from Black to red should be less than 4V

Lights on HIGH beam from Black to white should be below 4V and from Black to red should be above 8V

If the voltages are not correct then you must trace and find and remove any old relays etc running off the OEM harness .

Check from battery to each “black wire” in the female sockets and make sure your earths are good. Best to use a test light for this and compare brightness between the points.

MIXED UP ?: The Male plug is (horizontal at top, pins away from you). left red, top white, and right black . When I sent it to you .

Diagnostics:

The harness relays drop out at around 4V and turn on around 8 volts (12v systems). You need to check the volts from common to drive and common to pass with the new harness plugged in. on hi and low beam write them down and send to me and I can make some suggestions from there.

Each relay has a certain amount of Hysteresis and repeat errors. Sometimes swapping relay positions can help.

Send me something that looks like this:

	Com-Pass	Com-Drive	Com-ground
Low Beam	3.7	9.6	11.5
High Beam	9.2	6.8	11.3

Truth Table for Diagnostics of Negative Switching Issues

As you can see from the above table . The high beam is not dropping out (it appears that low beam is not activating i.e Seems like only high beam is working). It needs to be less than 4 Volts. The Ultraflex4x4 Lights turn on low and high beam when on high beam .. giving you the best out put possible wide and long . However .. a relay or globe or a resistance pulling up the voltage on the high beam such as spot lights .. keep the high beam ON. So by adding resistors you can manipulate these voltages so that both high and low beam are <4V and > 8V. So what do we do about this ? OK it's weird in Toyota and other negative switched systems . We need to think in terms of the "Differential Voltage" So literally the truth table above .. it's the be-all and end-all of the system functionality.

So the high beam is too high to drop out . What do we do ? Well we need to reduce the voltage DIFFERENCE from Common (12V Battery supply) to the "ground" supplied by the column switch . So we need to add a resistance between the Common and the High beam . This will pull them closer together . So in this case .. we would add a 27 Ohm resistor 10W between the high and common.

OK why are there issues ? Well the Globes in the stock harness are about 65 - 100 W and they work ok .. right ? So that equates to around 2.2 Ohms down to about 1 ohm .. For guaranteed success .. you can put 6 Ohm "LED" resistors from common to Drive and from Common to Pass. However these resistors are running at over 100 Degree C.

I can send you express .. these resistors .. but I assure you that in 98% of cases they are NOT necessary .. I call them FUDGE resistors .. because if you can not disconnect the old lights and relays from the OEM (Original Equipment Manufacturer) Harness . I the case where I know you are REMOTE .. I will send these resistors to save you the dramas and the time . Just in case you MIGHT need them .