



THE AUTOMOTIVE LIGHTING BENCHMARK

# INSTALL GUIDE

## 2014-2024 4RUNNER XB EVO HEADLIGHTS

LF2-531/LF2-531Y



WARNING: IT IS THE INSTALLER'S RESPONSIBILITY TO CONFIRM COMPLIANCE WITH STATE AND LOCAL LAWS. BY READING THIS DOCUMENT, YOU AGREE IT IS ONLY TO BE USED AS AN EDUCATIONAL GUIDE. MORIMOTO LIGHTING NOR ITS DEALERS MAKE GUARANTEES ON ANY FINISHED RESULTS, NOR ARE THEY TO BE HELD RESPONSIBLE FOR ANY DAMAGE, MISUSE, OR PERSONAL INJURIES. IF YOU ARE UNABLE TO CLEARLY UNDERSTAND AND ADAPT THE INFORMATION BELOW, PROFESSIONAL INSTALLATION IS RECOMMENDED.

IMPORTANT: IF YOUR VEHICLE IS EQUIPPED WITH ANYTHING BUT MORIMOTO OR OEM TAILLIGHTS, SIDE MARKERS OR OTHER OEM EXTERIOR LIGHTING; YOU MAY EXPERIENCE A HYPER FLASH AND/OR PROBLEMS WITH THE SEQUENTIAL SIGNAL SETTING ON THESE HEADLIGHTS. THIS IS NOT A DEFECT IN THE HEADLIGHT AND CAUSED BY UN-MATCHED IMPEDANCE WITH YOUR ORIGINAL VEHICLE SETTINGS.



# 14-24 4RUNNER XB EVO HEADLIGHTS

## TABLE OF CONTENTS

## PAGE

DISASSEMBLY -----	4
HEADLIGHT SETUP -----	10
INSTALLATION -----	14
AIMING -----	20
LENS HEATER ACTIVATION -----	21

## WHAT'S INCLUDED

**PENDING**

2X (PAIR) HEADLIGHTS

**PENDING**

4X PAIRS OF MODE  
SELECTORS (EXCLUDING  
HYBRID MODEL)

**PENDING**

2X OE HALOGEN  
HARNESSES

**PENDING**

2X OE LED  
HARNESSES

**PENDING**

2X RESISTORS

**PENDING**

1X FUSE TAP

**PENDING**

1X DRL HARNESS

**PENDING**

1X DRL HARNESS  
EXTENSION

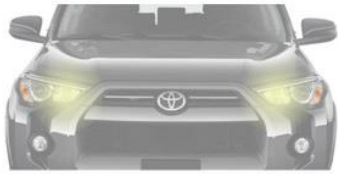
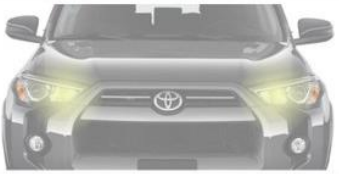




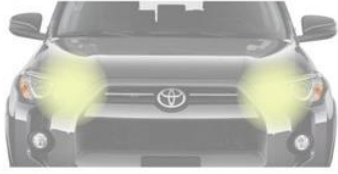
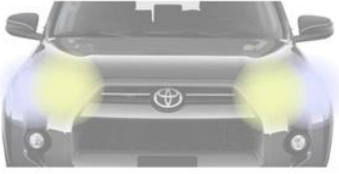

## REQUIRED TOOLS

- RATCHET
- 10MM SOCKET
- PRY TOOL
- PHILLIP'S HEAD SCREWDRIVER
- ZIP TIES
- DRILL AND 7/32" BIT



# 14-24 4RUNNER XB EVO HEADLIGHTS

BEFORE REMOVING YOUR FACTORY HEADLIGHTS, USE THE CHART BELOW TO IDENTIFY WHICH HEADLIGHTS YOUR VEHICLE CAME WITH FROM THE FACTORY. MAKE A NOTE OF THIS, AS THE WIRING WILL VARY DEPENDING ON WHICH VERSION YOU HAVE

	<i>All 2014-2020</i> <b>HALOGEN LOW BEAM HALOGEN HIGH BEAM</b>	<i>2021 (excl. Limited, Nightshade, TRD Pro)</i> <b>LED LOW BEAM HALOGEN HIGH BEAM</b>	<i>2021 Limited, Nightshade, TRD Pro All 2022-2024</i> <b>LED LOW BEAM LED HIGH BEAM</b>
<b>DAYTIME RUNNING LIGHT*</b>			
<b>LOW BEAM</b>			
<b>HIGH BEAM</b>			

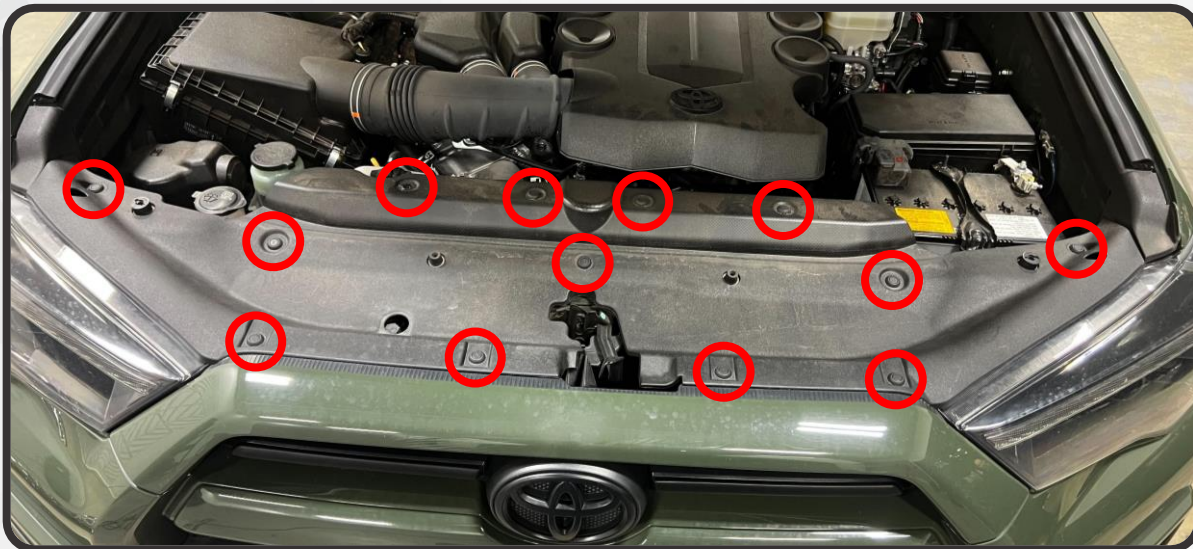
\*All 2014-2024 4Runners have a halogen Daytime Running Light (DRL). (65w 9005 High Beam @ 50% via PWM)



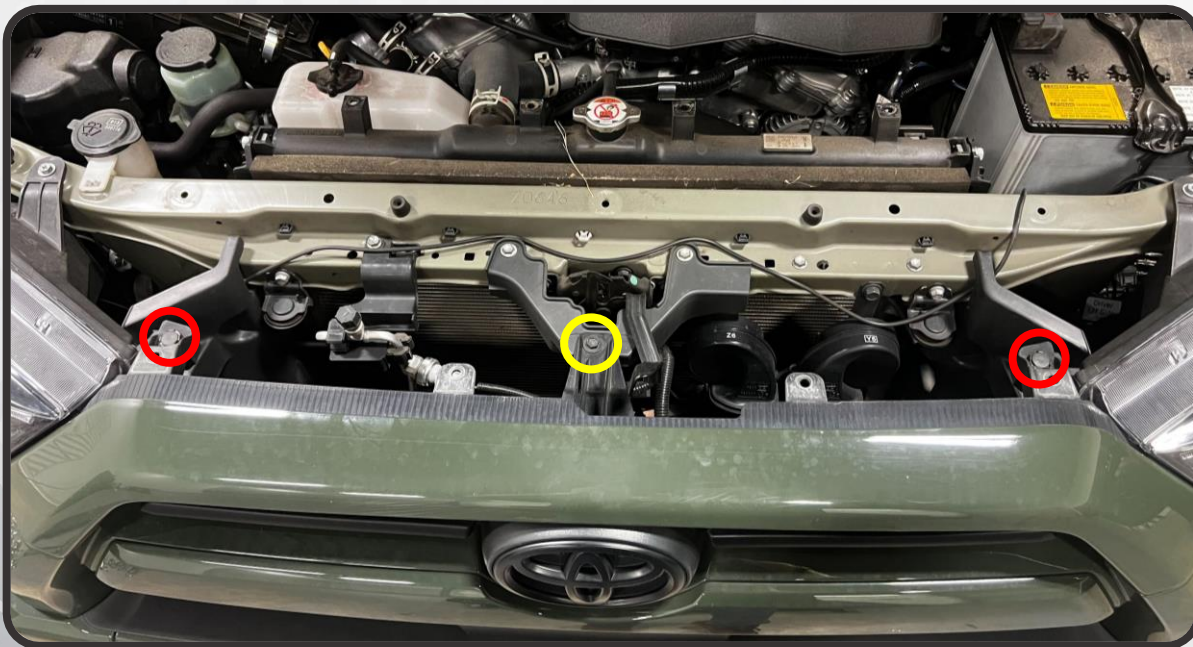


## DISASSEMBLY

1. RAISE THE HOOD OF THE VEHICLE. REMOVE THE THIRTEEN PUSH CLIPS SECURING THE RADIATOR COVER BY DEPRESSING THE INNER PORTION OF THE CLIP, AND THEN PRYING UP ON THE OUTER PORTION. WITH THE CLIPS REMOVED, REMOVE THE RADIATOR COVER AND SET IT ASIDE

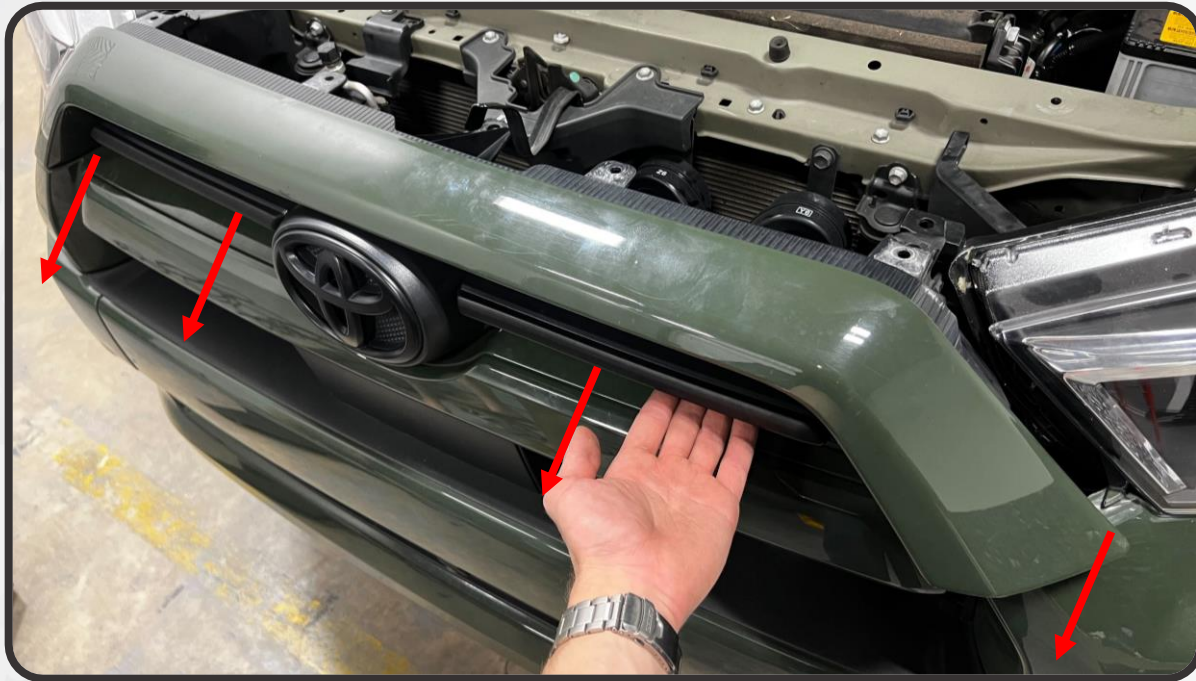


2. REMOVE THE TWO PUSH CLIPS (RED) BY PRYING UP THE MIDDLE AND THEN PRYING UP THE OUTER PORTION, AND ONE CENTER 10MM SCREW (YELLOW), FROM THE TOP OF THE GRILLE



## DISASSEMBLY

3. FIRMLY PULL THE UPPER GRILLE FORWARD, RELEASING THE 6 CLIPS SECURING IT, AND REMOVE IT FROM THE VEHICLE



4. MOVING TO THE SIDE OF THE BUMPER COVER IN FRONT OF THE WHEEL, REMOVE THE THREE 10MM SCREWS FROM THE SIDE OF THE BUMPER IN FRONT OF THE FRONT WHEEL





## DISASSEMBLY

5. REMOVE THE TWO 10MM SCREWS FROM THE UNDERSIDE OF THE BUMPER



6. PRY THE TWO FENDER LINER CLIPS FROM THE BUMPER

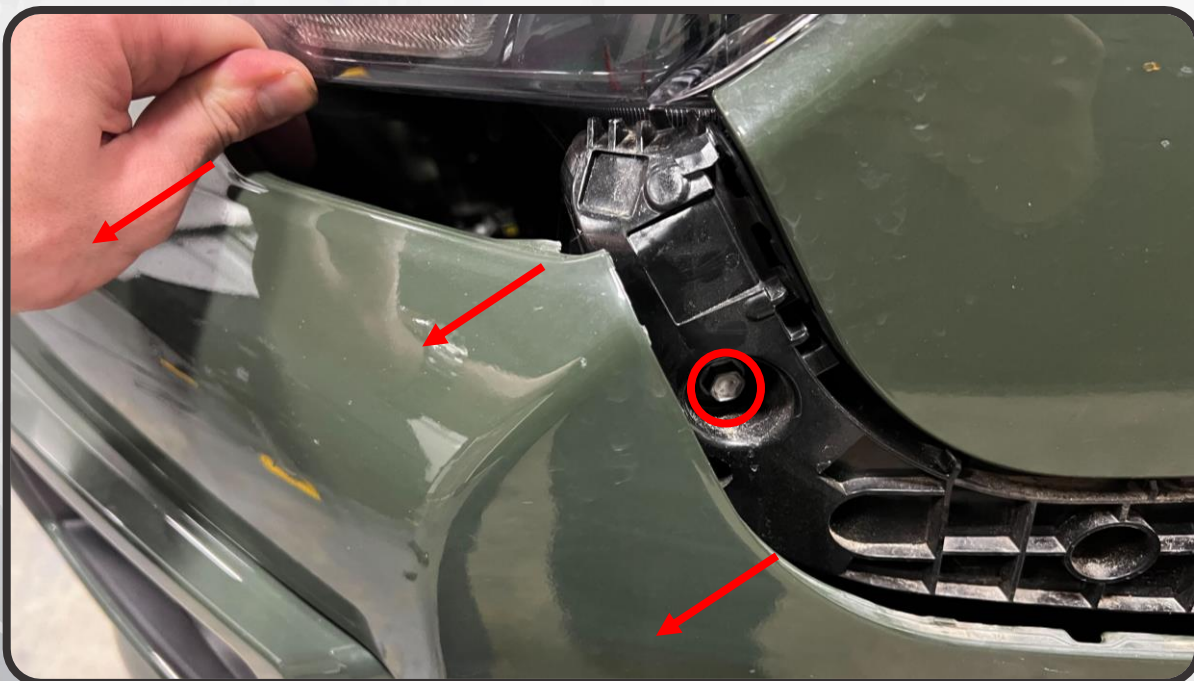


## DISASSEMBLY

7. PULL THE TOP TAB OF THE BUMPER COVER BACK TOWARDS THE WHEEL, AND THEN PULL THE BUMPER COVER AWAY FROM THE FENDER



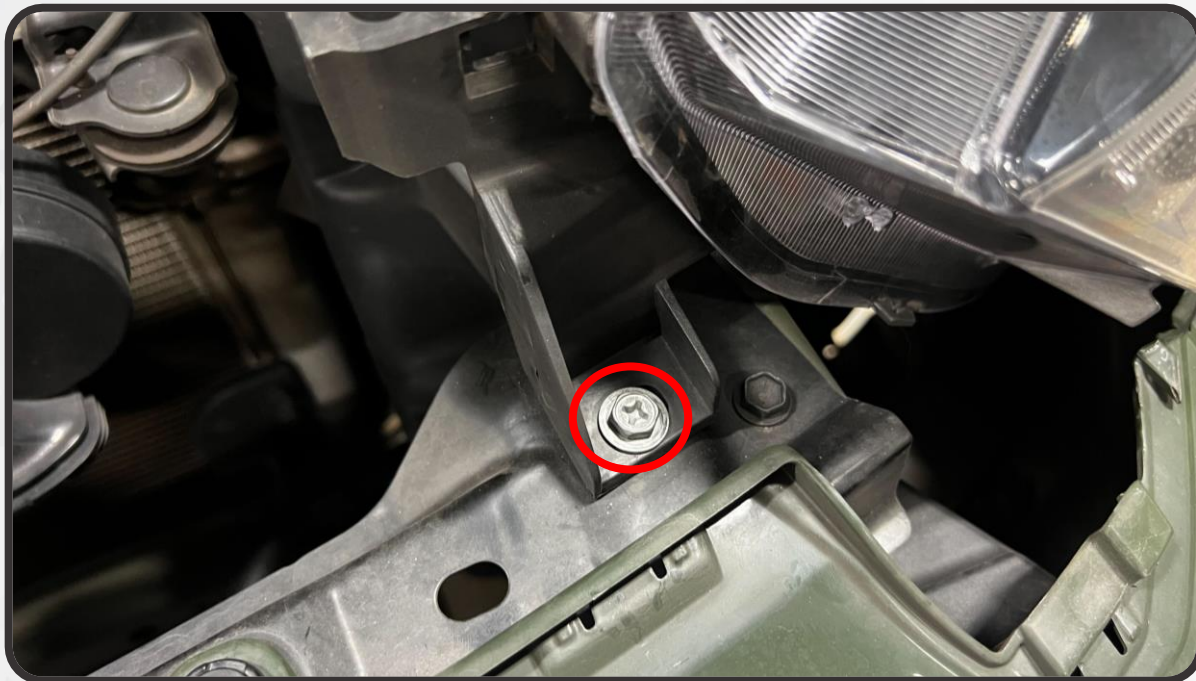
8. PULL THE SIDE OF THE BUMPER FORWARD, RELEASING IT FROM THE BUMPER COVER BRACKET ON THE BOTTOM OF THE HEADLIGHT ASSEMBLY. REMOVE THE 10MM BOLT ON THE FENDER BRACKET THAT WAS BEHIND THE SIDE OF THE BUMPER COVER



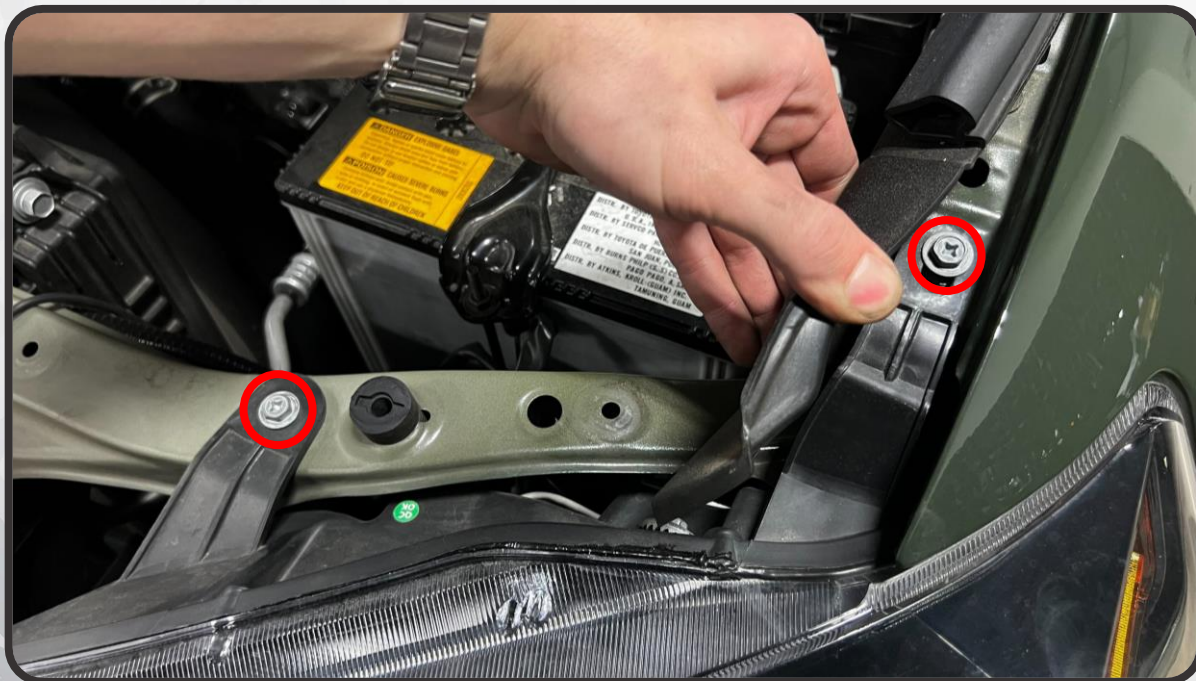


## DISASSEMBLY

9. REMOVE THE 10MM BOLT ON THE INNER EDGE OF THE HEADLIGHT



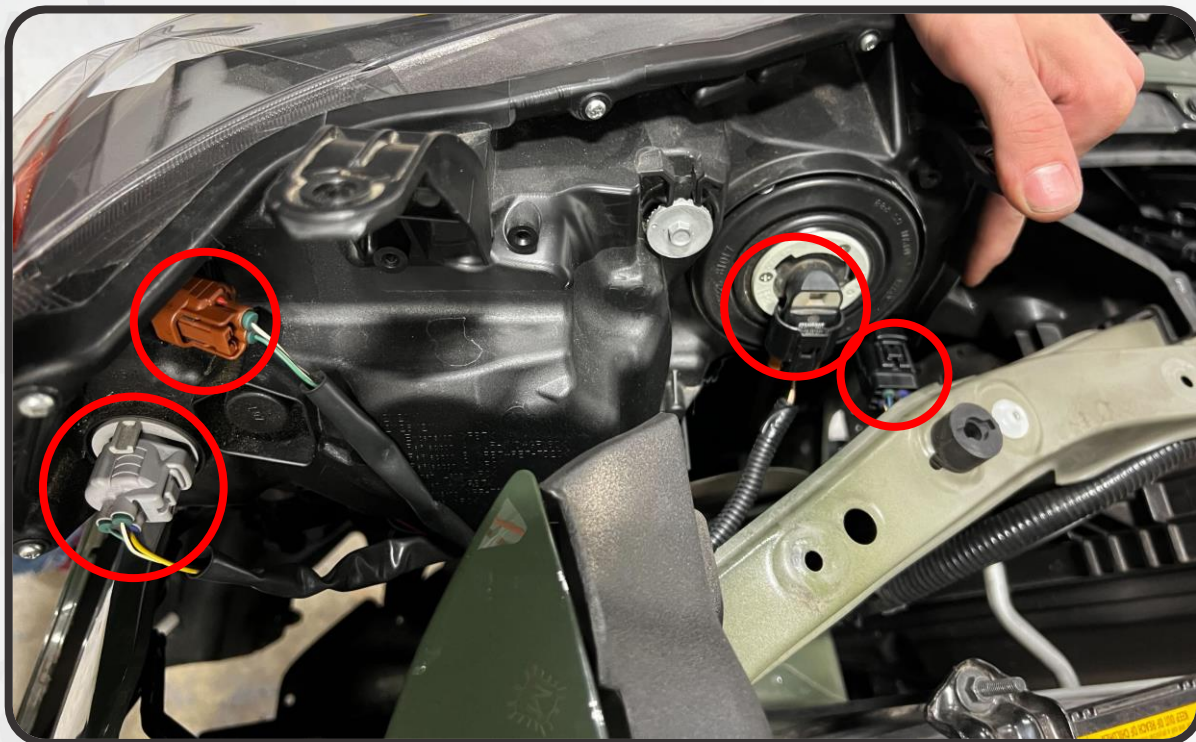
10. REMOVE THE TWO BOLTS SECURING THE TOP HEADLIGHT TABS





## DISASSEMBLY

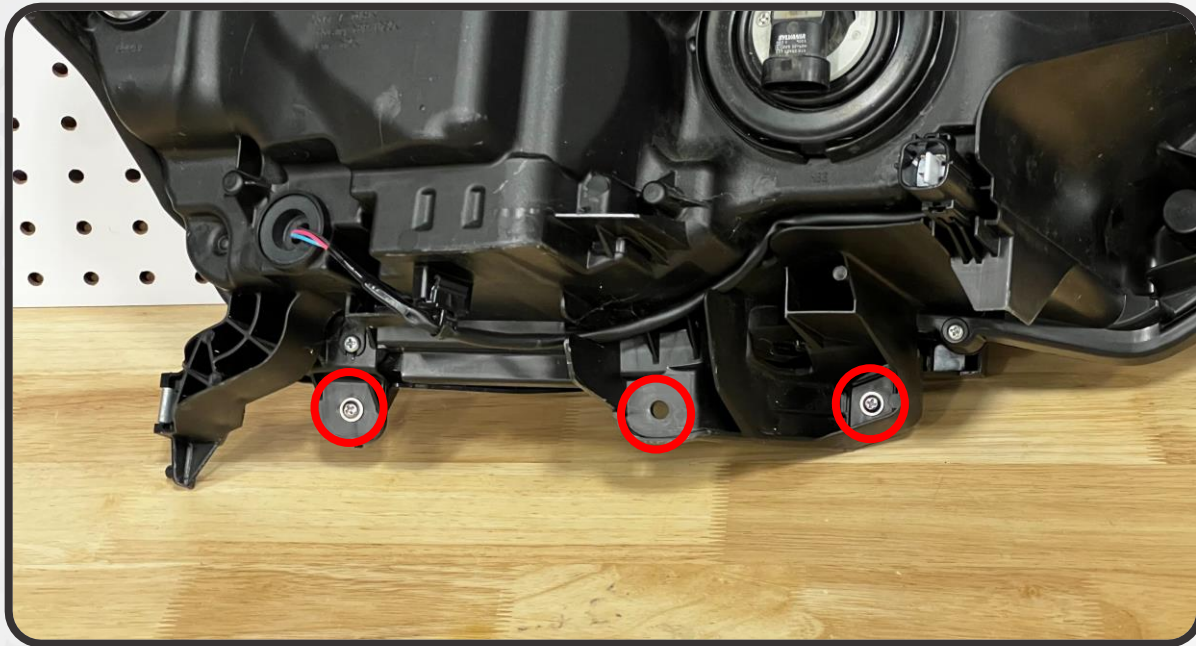
11. LIFT UP ON THOSE TWO UPPER HEADLIGHT TABS AND PULL THE HEADLIGHT FORWARD. FLEX THE BUMPER COVER OUT OF THE WAY AND PULL THE HEADLIGHT OFF OF THE VEHICLE ENOUGH TO DISCONNECT THE FOUR PLUGS ON THE BACK OF THE LIGHT. WITH THE PLUGS DISCONNECTED, REMOVE THE LIGHT AND SET IT ASIDE



12. REPEAT STEPS 4-11 ON THE OPPOSITE SIDE OF THE VEHICLE

## HEADLIGHT SETUP

13. REMOVE THE BUMPER COVER BRACKET FROM THE BOTTOM FACTORY HEADLIGHT. IT WILL BE HELD ON BY EITHER TWO OR THREE PHILLIPS HEAD SCREWS, DEPENDING ON MODEL



14. TRANSFER THE BRACKET OVER TO THE NEW HEADLIGHT ASSEMBLY, AND SECURE IT USING THE FACTORY HARDWARE. REPEAT THESE STEPS ON THE OTHER HEADLIGHT ASSEMBLY



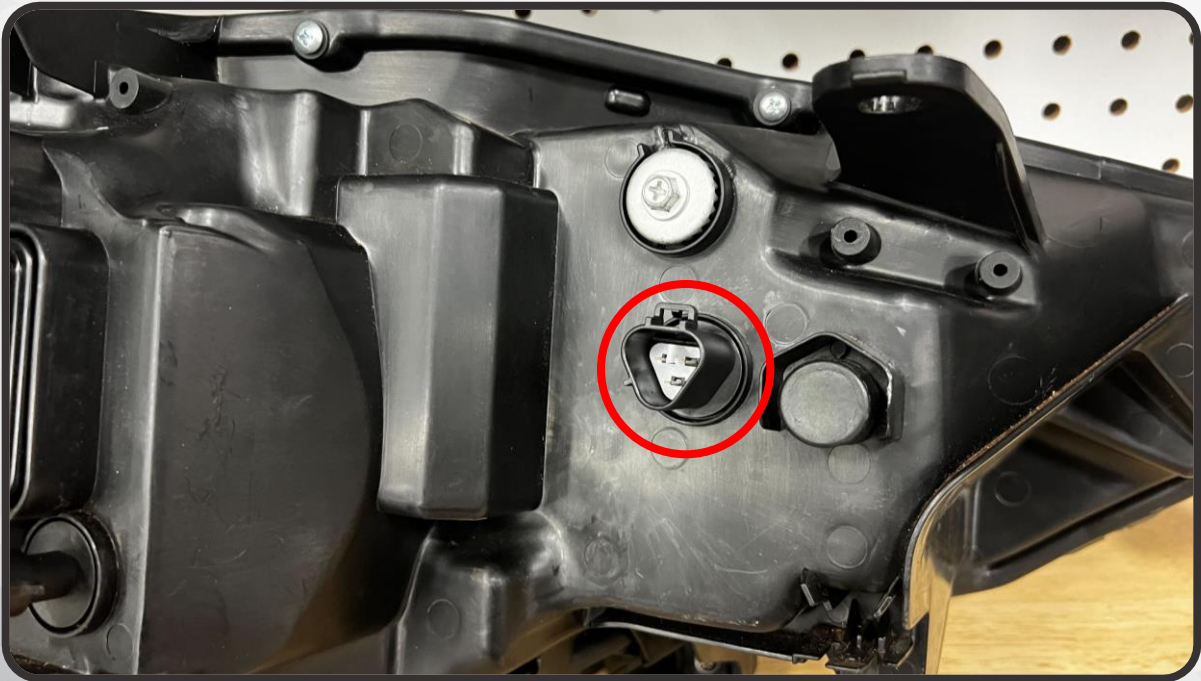


# HEADLIGHT SETUP

15. WITH THE MORIMOTO XB MODE SELECTOR KEYS, YOU CAN DECIDE WHAT STYLE YOU'D LIKE FOR YOU DAYTIME RUNNING LIGHT AND TURN SIGNAL. CHOOSE FROM THE COLORCODED KEYS SHOWN BELOW FOR YOUR DESIRED STYLE (NOT APPLICABLE ON XB EVO HYBRID HEADLIGHTS)

			
<ul style="list-style-type: none"><li>• DRL: WHITE</li><li>• TURN SIGNAL: FADE-OFF</li></ul>	<ul style="list-style-type: none"><li>• DRL: WHITE</li><li>• TURN SIGNAL: SEQUENTIAL</li></ul>	<ul style="list-style-type: none"><li>• DRL: AMBER</li><li>• TURN SIGNAL: FADE-OFF</li></ul>	<ul style="list-style-type: none"><li>• DRL: AMBER</li><li>• TURN SIGNAL: SEQUENTIAL</li></ul>

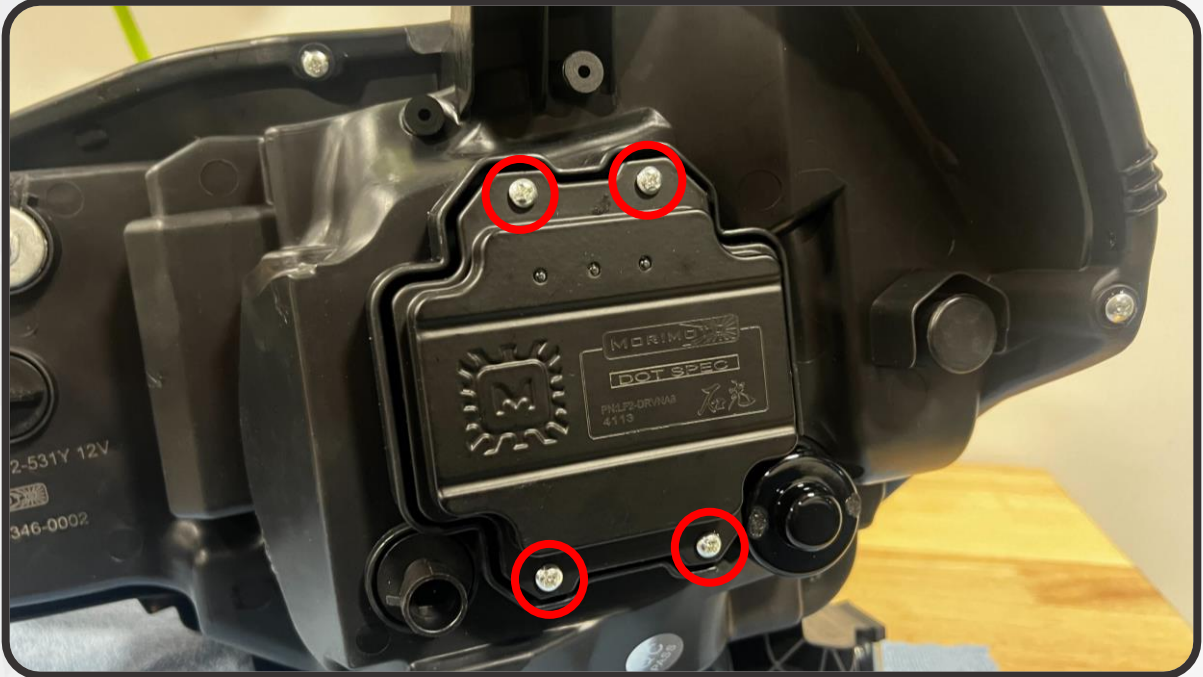
16. INSTALL THE MODE SELECTOR FOR YOUR PREFERRED MODE ONTO THE 3-PIN CONNECTOR ON THE BACK OF EACH HEADLIGHT. THIS CAN ALWAYS BE CHANGED AFTER INSTALL IF DESIRED. MAKE SURE THE VEHICLE AND HEADLIGHTS ARE OFF WHEN CHANGING MODE SELECTORS



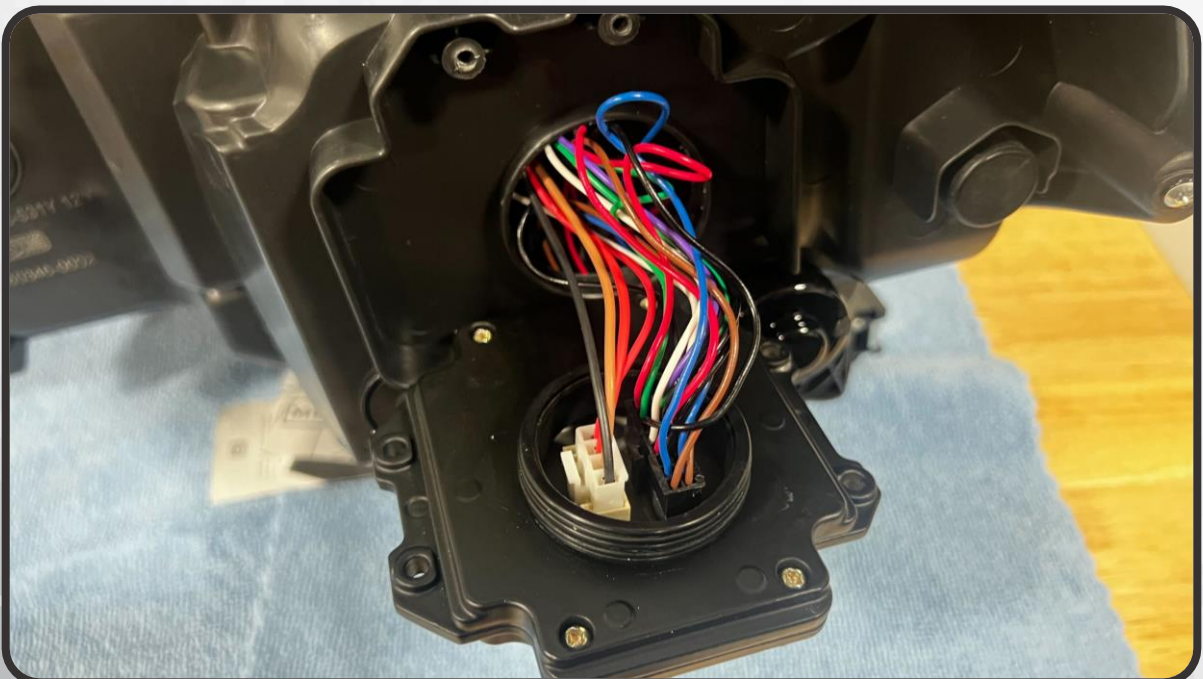


## HEADLIGHT SETUP

17. IF YOU HAVE PURCHASED THE MORIMOTO XB SUPERCHARGED HEADLIGHT DRIVERS (SOLD SEPARATELY, FOR OFFROAD USE ONLY), REMOVE THE FOUR PHILLIPS HEAD SCREWS SECURING THE STANDARD HEADLIGHT DRIVER TO THE BACK OF THE HEADLIGHT

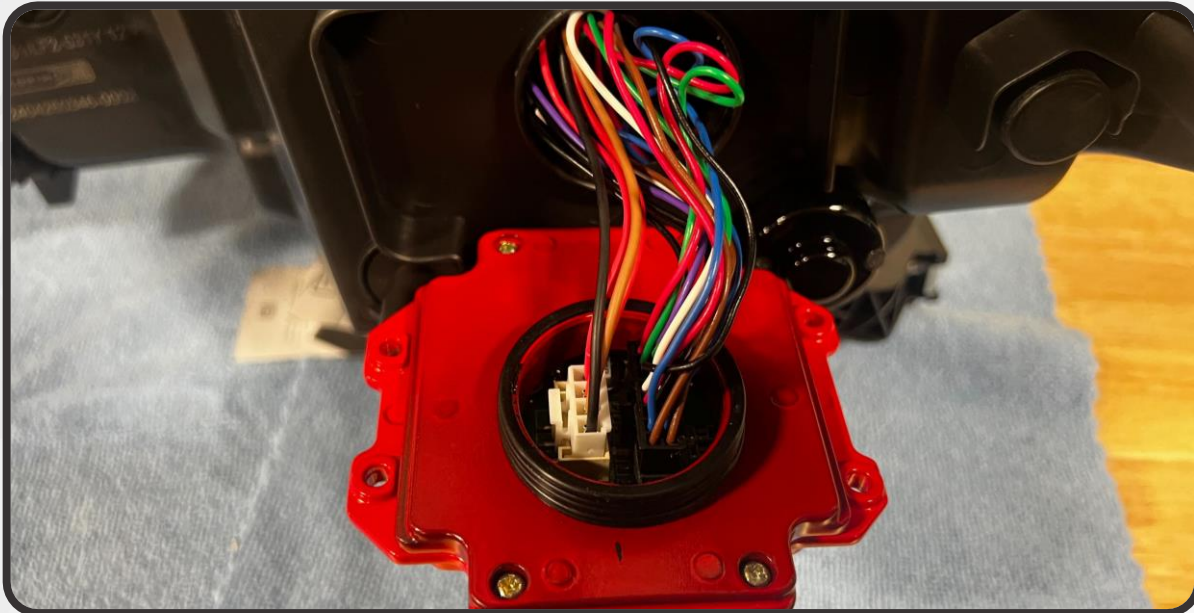


18. PULL THE DRIVER OFF OF THE HOUSING. DEPRESS THE CLIP ON EACH OF THE DRIVER CONNECTORS AND PULL TO DISCONNECT THE DRIVER FROM THE INTERNAL HEADLIGHT WIRING

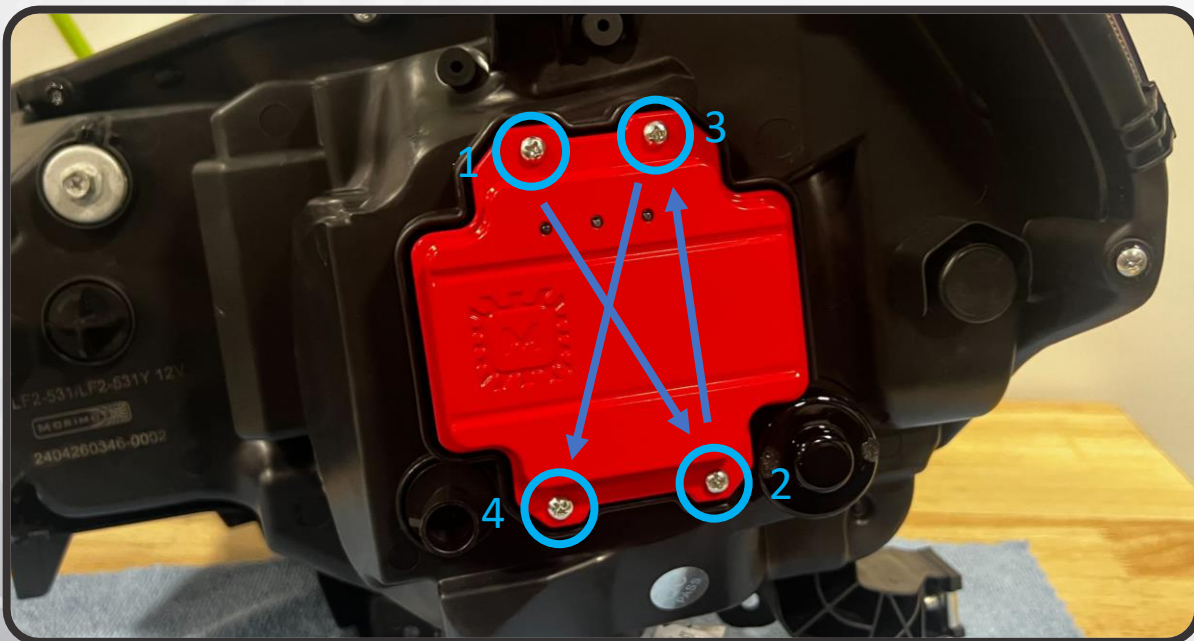


## HEADLIGHT SETUP

19. CONNECT THE NEW SUPERCHARGED DRIVER TO THE INTERNAL HEADLIGHT WIRING, MAKING SURE THE TAB ON EACH OF THE CONNECTOR'S CLIPS SECURELY INTO PLACE



20. APPLY A SMALL AMOUNT OF THE INCLUDED GREASE TO THE SEAL OF THE NEW DRIVER. PRESS THE SUPERCHARGED DRIVER STRAIGHT INTO THE MOUNTING LOCATION, MAKING SURE THE RUBBER SEAL IS SEATED PROPERLY AND DOES NOT GET PINCHED OR BUNCHED UP. SECURE THE DRIVER TO THE HOUSING USING THE ORIGINAL FOUR PHILLIPS HEAD SCREWS, HAND TIGHTENING THEM DOWN IN A STAR PATTERN TO ENSURE THE DRIVER SEATS EVENLY AGAINST THE HOUSING

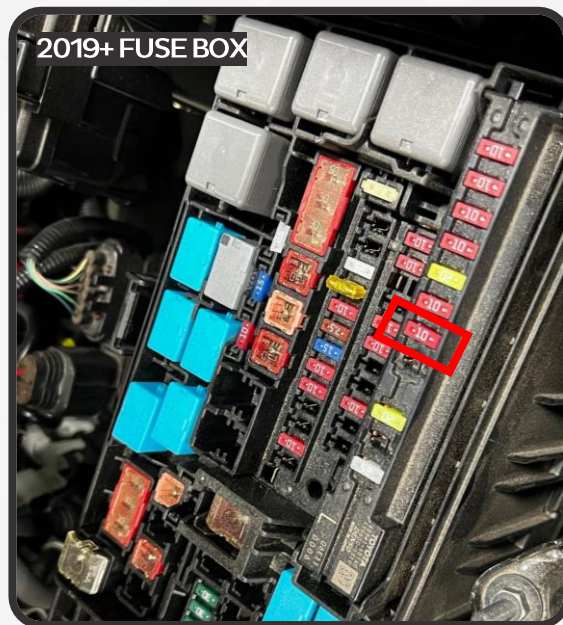
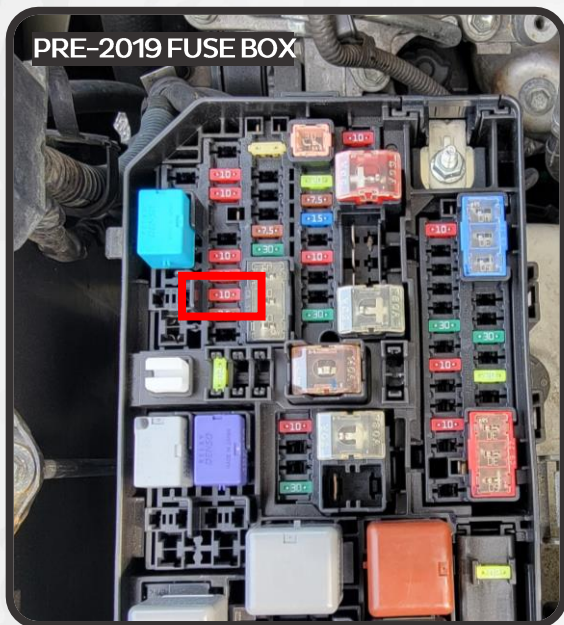




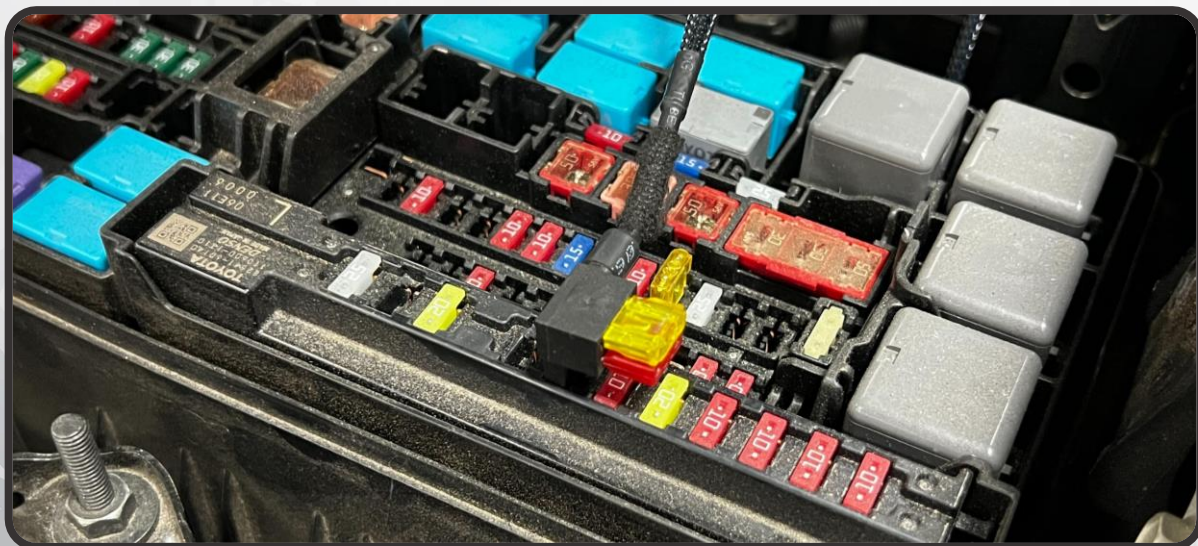
# INSTALLATION

21. THE DAYTIME RUNNING LIGHT AND LENS HEATER (IF EQUIPPED) ARE POWERED VIA THE INCLUDED FUSE TAP HARNESS. THE FUSE TAP NEEDS TO BE INSTALLED INTO A FUSE SLOT ON YOUR VEHICLE WITH SWITCHED IGNITION POWER (CONSTANT 12V WHEN THE VEHICLE IS ON, AND OFF WHEN THE VEHICLE IS OFF). WE RECOMMEND USING THE 10A INJECTOR FUSE (LABELED "INJ") IN THE UNDER-HOOD FUSE BOX. AN EXTENSION HARNESS IS ALSO INCLUDED IF YOU WOULD LIKE TO GO THROUGH THE FIREWALL AND TAP INTO A FUSE IN THE UNDER-DASH FUSE BOX

LOCATE YOUR DESIRED FUSE IN THE FUSE BOX AND REMOVE IT



22. INSERT THE FUSE YOU REMOVED FROM THE FUSE BOX INTO THE EMPTY FUSE SLOT OF THE SUPPLIED FUSE TAP HARNESS. THEN, INSERT THE FUSE TAP INTO THE INJECTOR FUSE YOU REMOVED THE





## INSTALLATION

23. ROUTE THE FUSE TAP OUT OF THE FUSE BOX. USING A DRILL WITH A 5.5MM/7/32" DRILL BIT OR A SMALL CUTTING TOOL, MAKE A NOTCH IN THE SIDE WALL OF THE FUSE BOX LID FOR THE HARNESS TO PASS THROUGH, AND INSERT THE GROMMET ON THE FUSE TAP INTO THE NOTCH. CLOSE THE FUSE BOX LID DOWN OVER THE HARNESS



24. CONNECT THE DRL HARNESS TO THE FUSE TAP



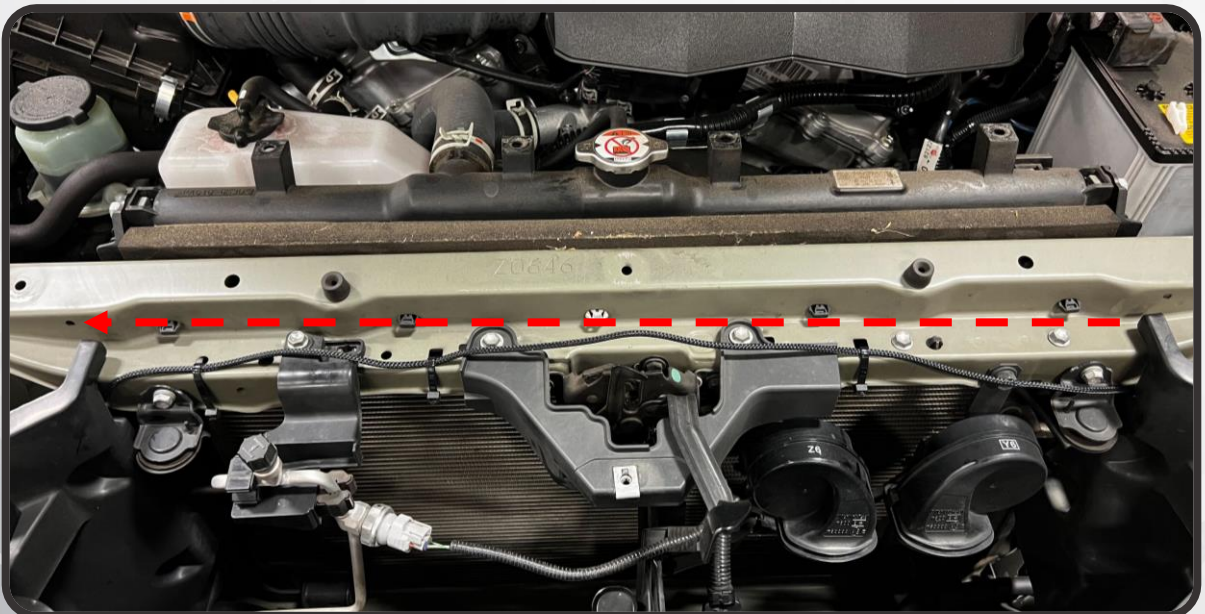


# INSTALLATION

25. ROUTE THE SHORTER END OF THE DRL HARNESS FORWARD TO THE DRIVER-SIDE HEADLIGHT CAVITY



26. ROUTE THE LONG END OF THE HARNESS ACROSS TO THE PASSENGER-SIDE HEADLIGHT CAVITY. WE RECOMMEND ROUTING IT ACROSS THE TOP OF THE RADIATOR SUPPORT AND SECURING IT IN PLACE WITH ZIP TIES. MAKE SURE ANY LOOSE/EXCESS WIRING IS TUCKED AWAY IN A SAFE LOCATION AND SECURED



## INSTALLATION

27. MOUNT ONE OF THE MAGNET MOUNT RESISTORS IN THE HEADLIGHT CAVITY ON EACH SIDE. MAKE SURE THE RESISTOR IS OUT OF THE WAY OF THE HEADLIGHT



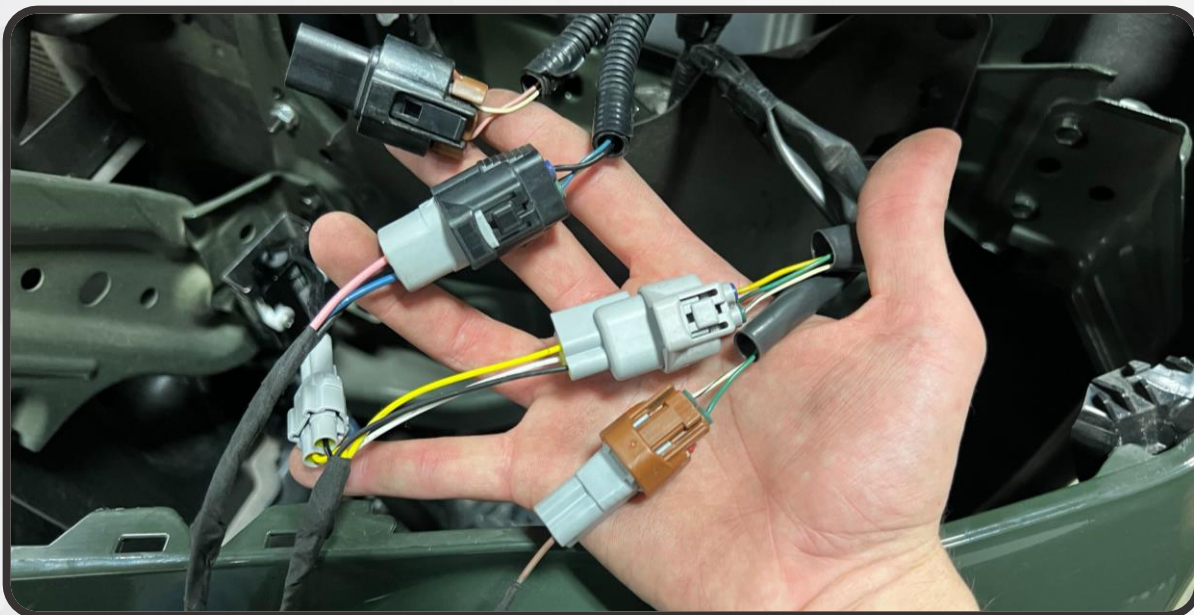
28. IF YOUR VEHICLE CAME EQUIPPED WITH THE FULLY HALOGEN FACTORY HEADLIGHTS, TAKE THE HALOGEN ADAPTER HARNESS AND MATCH THE FOUR CONNECTORS ON IT TO THE FOUR FACTORY HEADLIGHT CONNECTORS ON THE VEHICLE, AND THE SINGLE REMAINING CONNECTOR TO THE RESISTOR. REPEAT ON THE OPPOSITE SIDE OF THE VEHICLE



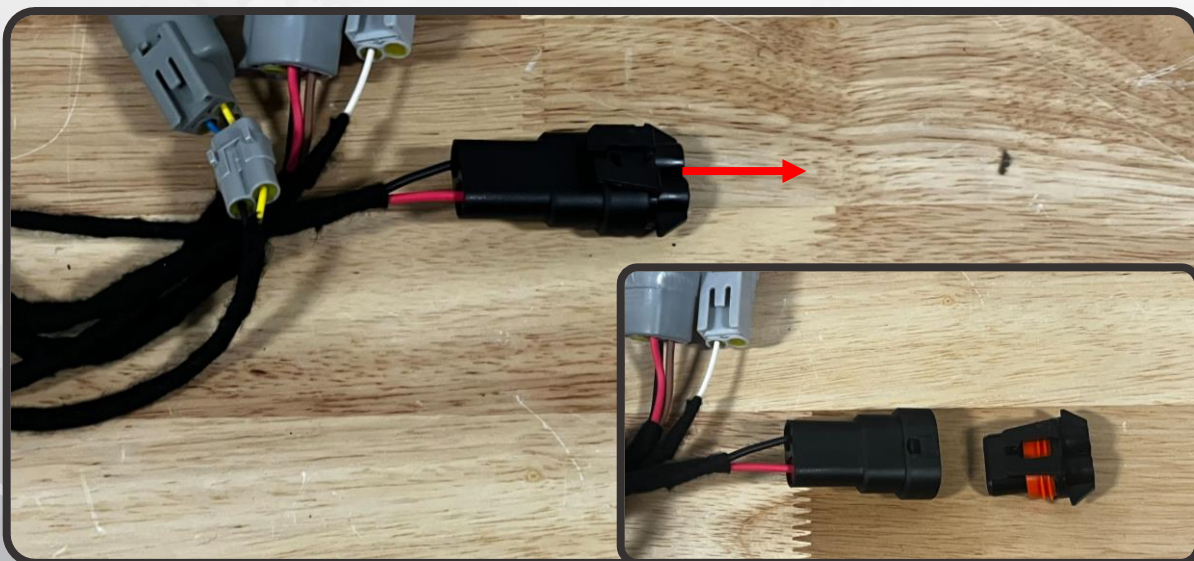


## INSTALLATION

28. IF YOUR VEHICLE CAME EQUIPPED WITH THE FULLY LED FACTORY HEADLIGHTS, TAKE THE LED ADAPTER HARNESS AND MATCH THE FOUR GREY CONNECTORS ON IT TO THE THREE CORRESPONDING FACTORY HEADLIGHT CONNECTORS ON THE VEHICLE AND THE SINGLE CONNECTOR ON THE RESISTOR. THERE SHOULD BE ONE FACTORY HEADLIGHT CONNECTOR LEFT DISCONNECTED. THIS CONNECTOR IS NOT USED, SO INSTALL THE INCLUDED CONNECTOR CAP ONTO IT. REPEAT ON THE OPPOSITE SIDE OF THE VEHICLE

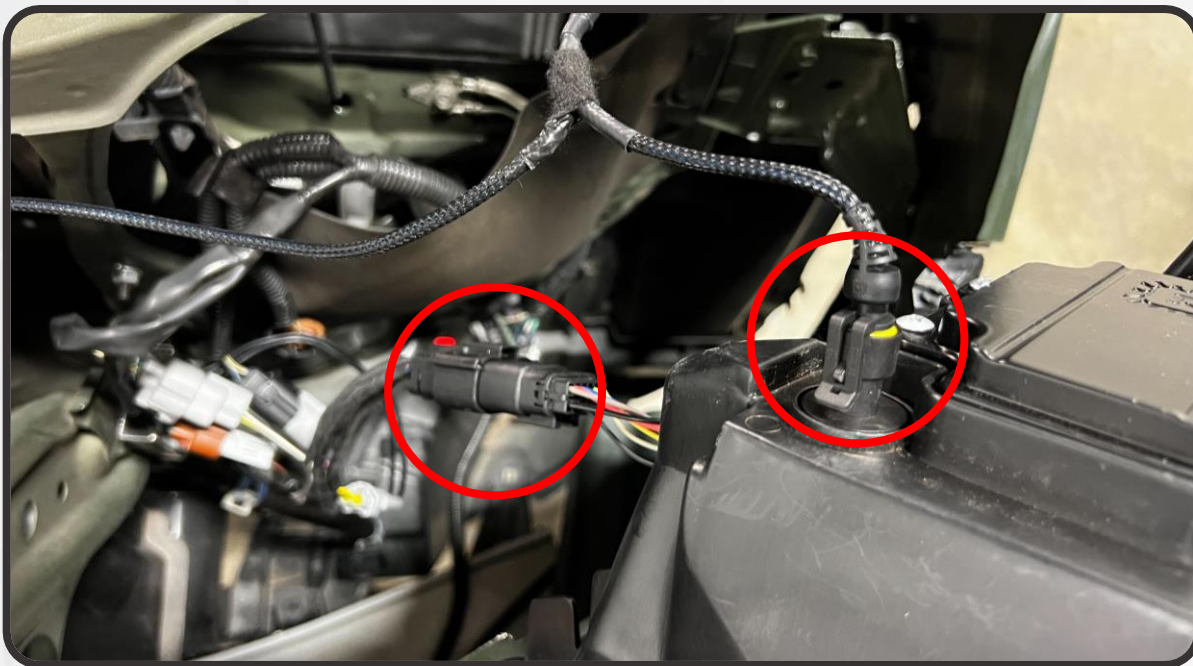


28. IF YOUR VEHICLE CAME EQUIPPED WITH THE LED LOW BEAM AND HALOGEN HIGH BEAM FACTORY HEADLIGHTS, TAKE THE LED ADAPTER HARNESS AND REMOVE THE CAP ON THE BLACK CONNECTOR. THEN, MATCH THE FOUR FACTORY HEADLIGHT CONNECTORS TO THE FOUR CORRESPONDING CONNECTORS ON THE HARNESS, AND THE SINGLE REMAINING CONNECTOR TO THE RESISTOR. REPEAT ON THE OPPOSITE SIDE OF THE VEHICLE



# INSTALLATION

29. LIFT THE HEADLIGHT UP TO THE HEADLIGHT CAVITY, AND CONNECT THE DRL HARNESS AND HEADLIGHT ADAPTER HARNESS TO THE CONNECTORS ON THE BACK OF THE HEADLIGHT ASSEMBLY



30. FIT THE HEADLIGHT ONTO THE VEHICLE AND REINSTALL THE FACTORY HEADLIGHT HARDWARE

31. REPEAT STEPS 29 AND 30 ON THE OPPOSITE SIDE

32. GET IN THE VEHICLE, AND CONFIRM THAT ALL HEADLIGHT FUNCTIONS ARE WORKING PROPERLY

- THERE ARE THREE LEDS ON THE BACK OF THE LED DRIVER THAT INDICATE WHEN POWER IS BEING RECEIVED BY THE HEADLIGHT. IF ANY OF THESE INDICATOR LIGHTS ARE NOT ILLUMINATED WHEN THE CORRESPONDING FUNCTION *SHOULD* BE POWERED, RECHECK YOUR CONNECTIONS AND RELEVANT FUSES



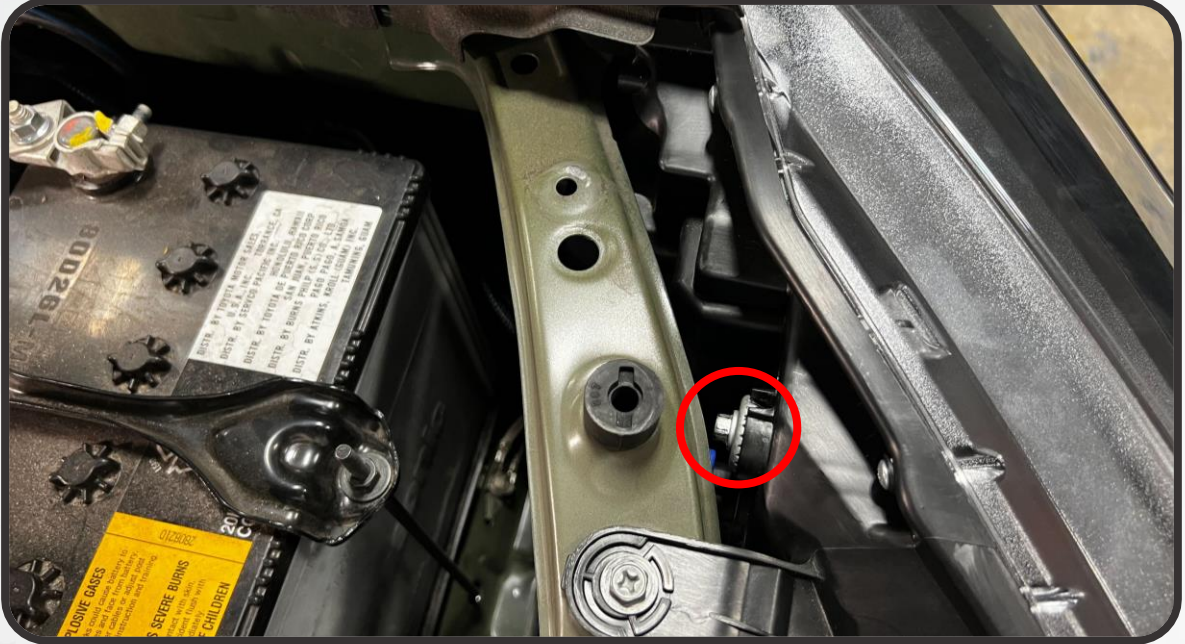
- GREEN – LOW BEAM
- BLUE – HIGH BEAM
- RED – FUSE TAP

33. REASSEMBLE THE FRONT OF THE VEHICLE IN THE REVERSE ORDER OF DISASSEMBLY



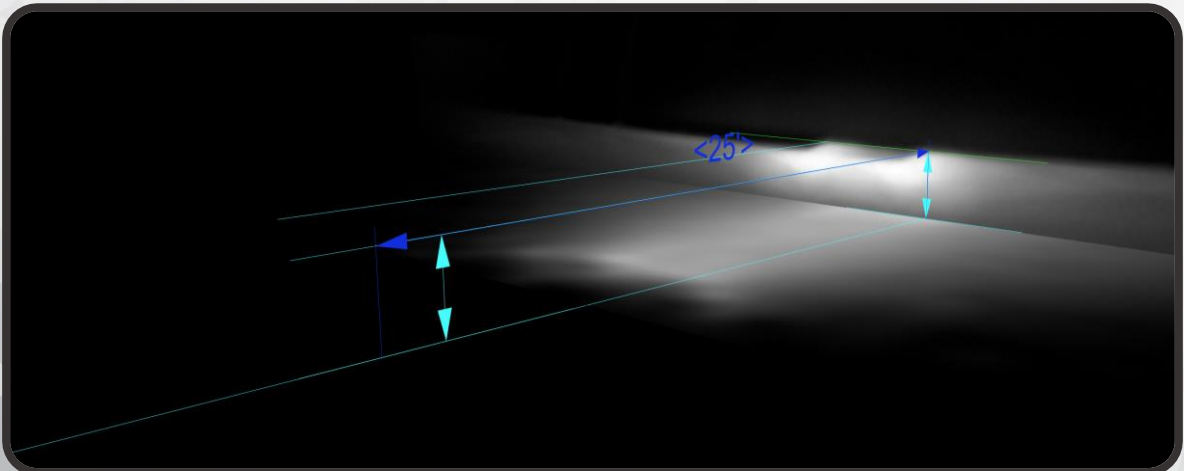
## AIMING

**34. USING A LONG PHILLIPS HEAD SCREWDRIVER DOWN THE BACK OF THE HEADLIGHT TO THE ADJUSTER GEAR, FOLLOW THE INSTRUCTIONS BELOW TO PROPERLY ALIGN YOUR HEADLIGHTS' LOW BEAM CUTOFF (THE UPPER HORIZONTAL EDGE OF THE LOW BEAM)**



35. WITH THE VEHICLE PARKED ON LEVEL GROUND, 25' FROM A WALL, MEASURE THE DISTANCE FROM THE GROUND TO THE OPTICAL CENTER OF THE OUTERMOST PROJECTOR IN THE HEADLIGHT

- IF THE DISTANCE FROM THE GROUND TO THE OPTICAL CENTER IS LESS THAN 34.5", ADJUST THE TOP OF THE HEADLIGHT CUTOFF TO THE SAME HEIGHT AS THE HEADLIGHT MEASUREMENT YOU TOOK
- IF THE HEIGHT IS BETWEEN 35"-39", ADJUST THE CUTOFF TO 2" BELOW YOUR HEADLIGHT MEASUREMENT
- IF THE HEIGHT IS GREATER THAN 39.5", ADJUST THE CUTOFF TO 3" BELOW YOUR HEADLIGHT MEASUREMENT





# LENS HEATER ACTIVATION

(NOT APPLICABLE ON XB EVO HYBRID HEADLIGHTS)

THE HEATING SYSTEM HAS BEEN DESIGNED TO MITIGATE SNOW AND ICE BUILDUP ON THE FRONT LENSES OF YOUR HEADLIGHTS WHILE DRIVING IN INCLEMENT CONDITIONS. WHILE IT MAY ACT AS AN AID, IT WAS NOT DESIGNED TO DEFROST/MELT HEAVY BUILDUP FROM AN OVERNIGHT SNOWSTORM.

AS A BASIC REQUIREMENT: IT WILL ONLY ACTIVATE IF THE AMBIENT EXTERNAL TEMPERATURE SENSOR READS AT/BELOW 5°C (41°F). IF IT'S TOO WARM OUTSIDE, THE HEATING ELEMENTS WILL NOT RUN TO AVOID CREATING EXCESS/UNNECESSARY HEAT WITHIN THE HOUSINGS.

TO ENABLE THE SYSTEM, FOLLOW THE STEPS OUTLINED BELOW:

WITH THE VEHICLE RUNNING (AND AFTER THE WELCOME SEQUENCE HAS COMPLETED) FLASH YOUR HIGH BEAMS 4 TIMES WITHIN 4 SECONDS. THE HEATING SYSTEM IS NOW AWAKE: THE HIGH BEAMS WILL RESPOND ONE OF TWO WAYS.

TWO FLASHES: HEATING SYSTEM FULLY ACTIVE. POWER IS ACTIVELY BEING DELIVERED TO THE HEATING ELEMENTS AND CONVECTION FANS.

ONE FLASH: REQUEST ACKNOWLEDGED, BUT SOME CONDITION\* HAS NOT BEEN MET. SYSTEM IS IN AUTOMATIC STANDBY FOR OPERATION IF ALL CONDITIONS ARE MET.

ONCE ACTIVATED: THE SYSTEM IS AUTOMATICALLY MONITORED THROUGH A CLOSED-LOOP CONTROL SYSTEM TO MAINTAIN AN IDEAL TEMPERATURE TO KEEP THE FRONT LENS CLEAR. IT WILL TURN ON/OFF AS NECESSARY UNTIL YOU TURN THE IGNITION OFF COMPLETELY OR MANUALLY DISABLE THE HEATER. FOR EACH IGNITION KEY CYCLE, THE DEFAULT STATE OF THE HEATING SYSTEM IS OFF UNTIL REQUESTED ON.

MANUAL DISABLING: JUST FLASH THE HIGH BEAMS AGAIN (4X WITHIN 4 SECONDS) AND THE SYSTEM SHOULD RESPOND WITH ONE FLASH, ACKNOWLEDGING YOUR REQUEST.

\*EXAMPLES OF CONDITIONAL REQUIREMENTS:

- AMBIENT TEMPERATURE NOT LOW ENOUGH (AT BELOW 5°C / 41°F)
- LENS TEMPERATURE ALREADY AT TARGET TEMPERATURE
- PRIMARY HEATING ELEMENT TEMPERATURE TOO HIGH
- INSUFFICIENT BATTERY VOLTAGE
- SYSTEM NOT REQUESTED ON



# 14-24 4RUNNER XB EVO HEADLIGHTS



- ENJOY YOUR NEW MORIMOTO XB HEADLIGHTS! -

