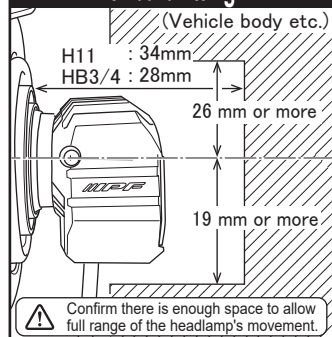


## LED Bulb Installation Manual

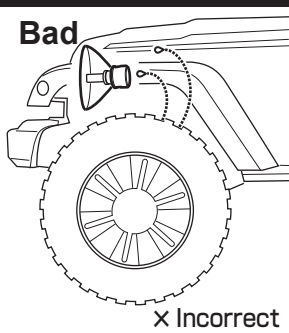
(H11, HB3/4) Compact Type

### LED bulb fitting

#### Required minimum clearance of bulb fitting



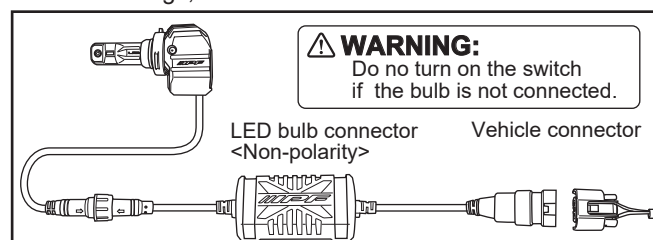
#### Direct contact with water, dirt or dust



### LED bulb lighting test points ※Do it before installation.

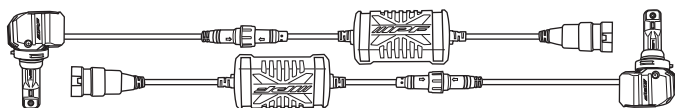
#### <Test procedure>

1. Remove the vehicle connector from halogen bulb connector.
  2. Connect LED bulb connector to the vehicle connector.
  3. Turn on your headlamp and test for correct lighting.
  4. Check the vehicle gauges for any warning signs shown.
- If no warnings, the test is finished.



## Components

- LED bulb assy ..... 2



- Hex wrench ..... 1



- Cable ties ..... 4



- HB3/4 type bulb
- O-ring (gray) ..... 2



## Installation procedure

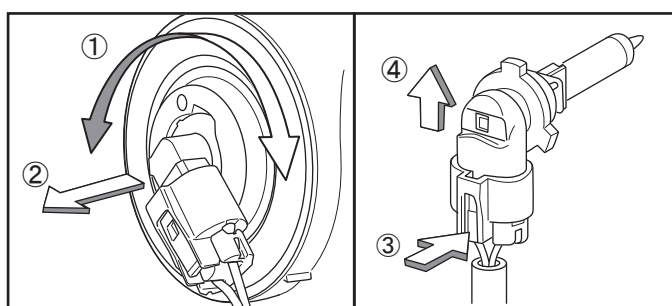
### 1 Halogen bulb check

Check the condition of the halogen bulb attachment.

If the check cannot be done visually or the space is too narrow, please remove the headlamp unit from the vehicle.

Refer to the vehicle's manual when changing or removing your halogen headlamp bulb.

### 2 Removing halogen bulb



Removing the halogen bulb by referring to the figure left.

- ① Turn the bulb counter/clockwise rotation.
- ② Remove the bulb.
- ③ Push the tab to release the bulb.
- ④ While still pushing the tab, pull the connector from the bulb.

#### ⚠ Caution

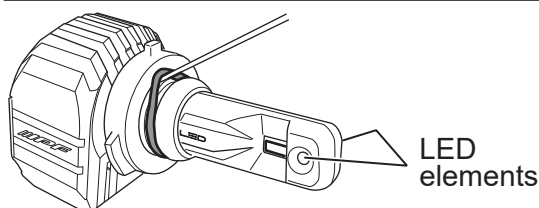
Rotation direction of turning/removing the bulb may vary depending on the vehicles or the headlamp position (right or left side).

#### How to change the O-ring

Remove the HB3 O-ring with a pointed tool, using a tooth pick etc.

Set the HB4 O-ring in the same groove.

HB3/4 type bulb contains two types of O-rings  
HB3 O-ring: thin (pink)  
HB4 O-ring: thick (gray)



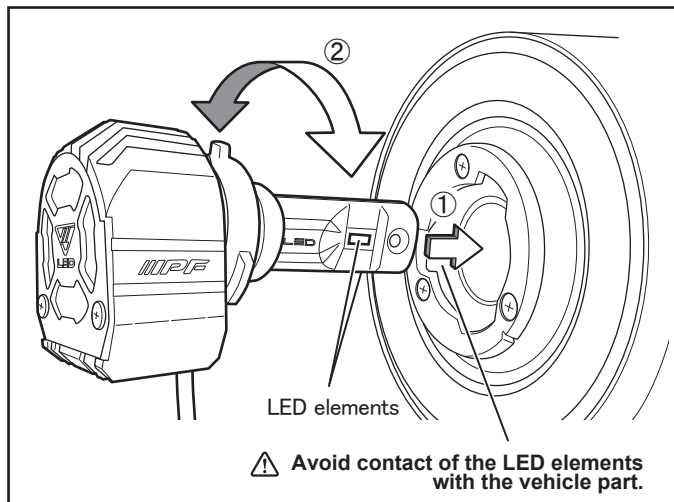
The O-rings are pre-attached to the LED bulbs using as HB3 type.

If you use the LED bulbs as HB4 type, change the HB3 O-rings to the HB4 O-rings.

#### ⚠ Caution

Do not touch the LED elements when changing the bulb.

### 3 Installing the LED bulb



Refer to the figure left.

- ① Insert the LED bulb into the headlamp aligning it with the three grooves.
- ② Turn the LED bulb clockwise to lock it into place.

#### ⚠ Warning

Don't rotate it by excessive power.  
Also don't rotate by tool.

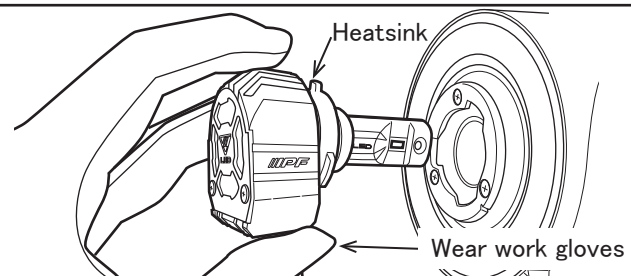
#### ⚠ Caution

- Rotation direction of turning/removing the bulb may vary depending on the vehicles or the headlamp position (right or left side). Install it after confirmation of vehicle installation instruction.
- When inserting the LED bulb, be careful not to hit the LED elements on the edge of headlamp etc.
- If the LED element becomes scratched, the brightness or light distribution might reduce in range and the vehicle might not meet the standard requirements in a vehicle inspection.

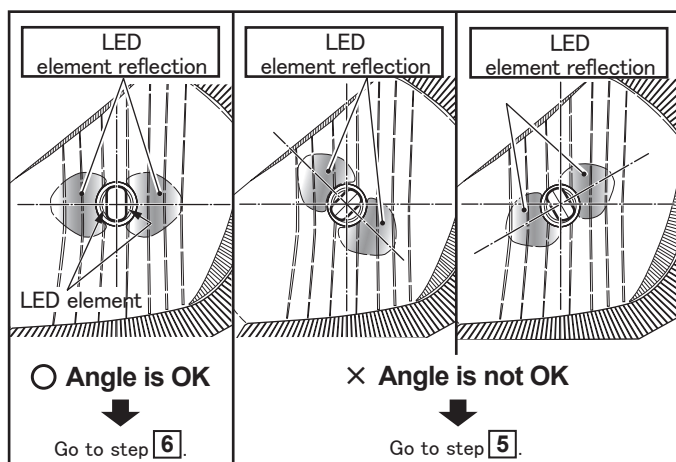
#### ⚠ Warning



Wear work gloves to prevent a minor cut with pointed part of the heatsink.



### 4 Angle check



When facing the front of the vehicle, make sure the LED elements are level and the yellow LED element reflection is level too. If the LED element reflection is not level or horizontal, please go to procedure **5** and adjust the angle of attachment.

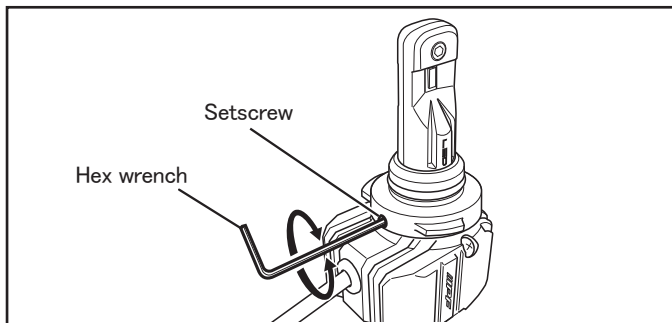
If the LED element is level, proceed to step **6**.

※For the projector type lamp, the element is not visible.  
Use the IPF logo as a reference to check for balance.

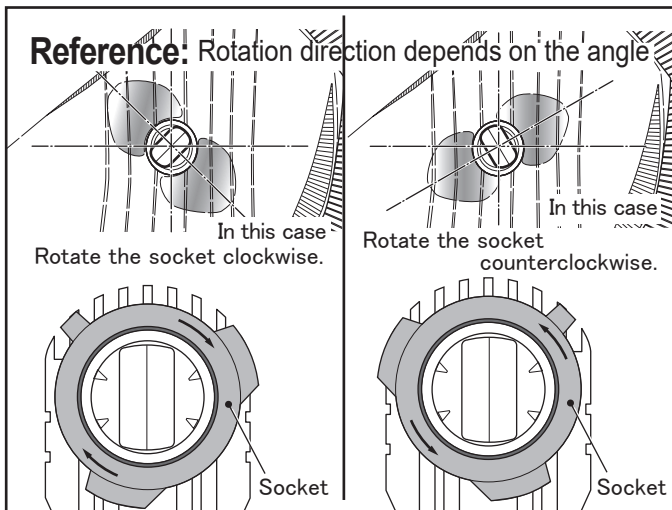
#### ⚠ Warning

If the bulb is not level when installed, the brightness or light distribution might reduce in range and the vehicle might not meet the standard requirements in a vehicle inspection.

## 5 Angle adjustment



If the angle is not correct, loosen the setscrew and adjust the socket's angle using provided hex wrench. Reinstall your bulb after angle adjustment.



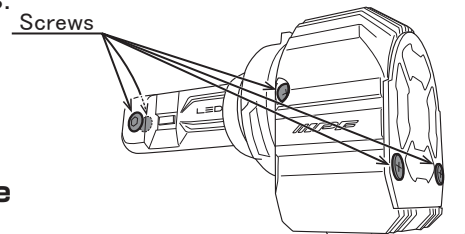
Go back to step 4. and confirm the LED element's position and angle.

### ⚠ Warning

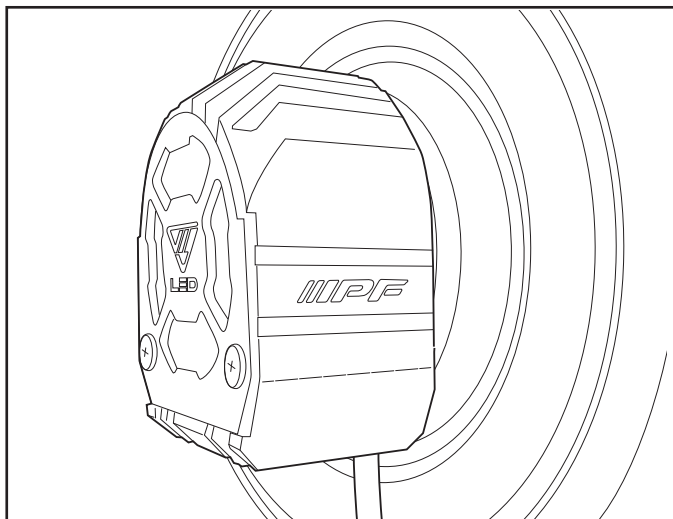
- Do not leave the setscrew too loose or too tight. This might lead to the LED bulb's failure. 1.0 to 1.5 N · m torque is recommended.
- Do not loosen or remove the screws other than the setscrews.



**Do not disassemble**

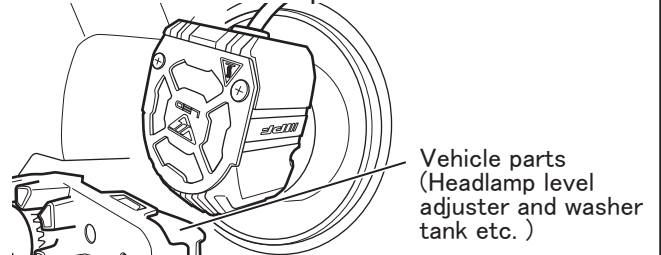


## 6 Installation check



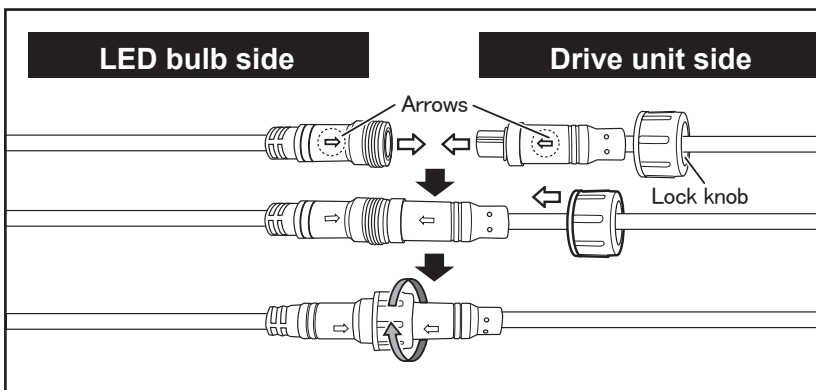
Confirm there is no wobbling.

If the LED bulb's cable is interfering with the vehicle parts, turn the LED bulb 180° so that the cable is on the top. The IPF logo will be upside down but this will not reduce performance.



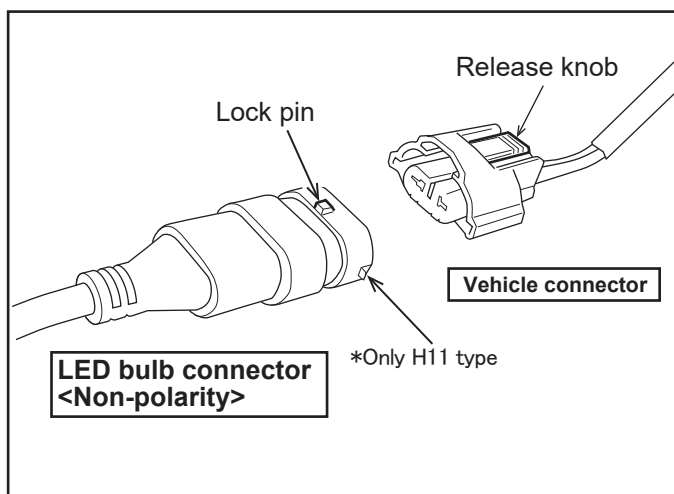
## 7 Connecting and fixing the harness and drive unit

Connect LED bulb's connector to drive unit's connector.



### ⚠ Caution

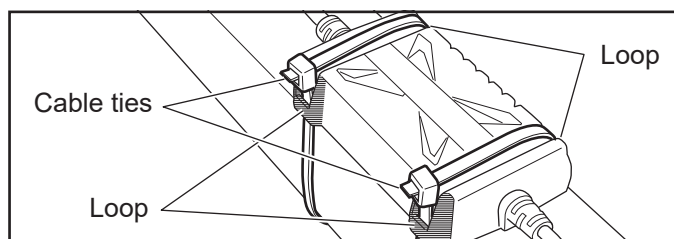
- Insert the driver unit's connector into LED bulb's connector, the arrows in a straight line. Rotate the lock knob clockwise and tighten it securely. Prevent LED bulb's failure from water entry into the joint part. If the joint part is not locked securely, water entry may result.



Connect the LED bulb connector with the vehicle's connector.  
Insert the connector all the way and align the lock pin. Make sure the connector is locked into place. If there is extra length in the harness, fix it into place with a standard cord clip. Leave a little slack in the harness to give room for the movement of the headlamp leveler etc. If you removed the headlamp unit, reinstall the unit now.

#### ⚠ Caution

- In some H11 type bulbs, release knob is on the side of the vehicle's connector.
- In rare cases, the connector does not lock into place. Secure the connection with electrical tape.
- Avoid contact of the drive unit and harness with vehicle parts (washer tank, horn etc.).

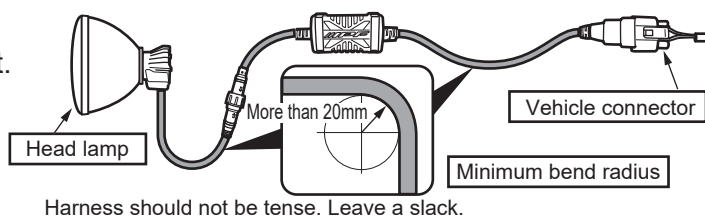


Insert cable ties into the loops and fix them in the right place near the fog lamp.

Verify that the LED bulb is secured tightly by wobbling it. If you removed front bumper or other parts, reinstall them into original positions.

#### ⚠ Warning (prevent disconnecting)

Do not tie the harness together with the drive unit. Do not bend or pull the harness by excessive power. Leave a slack in the harness. Harness's minimum bend radius should be more than 20mm (see the figure right).



#### In the case of the cover attached at the rear of bulbs

Make a hole in the cover or headlamp unit in order to pass LED bulb's harness.

#### 👉 Advice

- Make a slit in the cover refer to the figure right.
- Making a hole or slit in the downside of the cover to avoid dust and water entry.

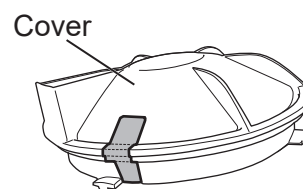
Pass the LED bulb's harness through the cover.

Apply caulking material to fill a gap in the cover to avoid dust and water entry.

#### ⚠ Caution

Water entry into the headlamp unit may result in technical malfunction.

#### Making a slit in the cover (modification example)



## 8 Lighting check

Turn on the engine and switch on the headlamp. Check to see if the LED bulbs light up properly.

Check to see if there is any light leaking from the bulb socket.

If needed, adjust the optical axis with headlight tester.

If you install the LED bulb with high beams, please make sure the high beam indicator performs properly.

#### ⚠ Headlight tester measurement caution points

Results might vary when using the headlight tester in an auto mode. Manual mode is recommended.