///PF

LED Bulb Installation Manual
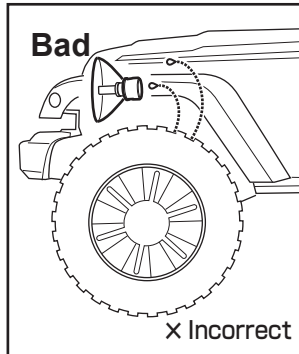## (H11, HB3/4, HIR2) All-In-One Type

LED bulb fitting

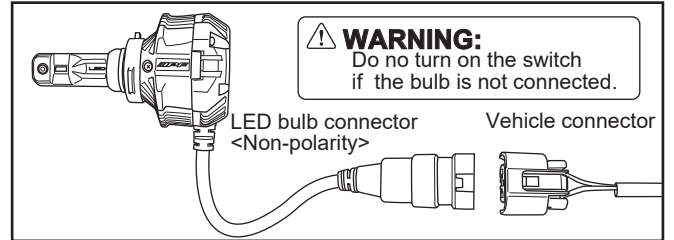### Space around the bulb

More than 42 to 48 mm from the body to the rear

H11 : 48mm
HB3/4 : 42mm
HIR2 : 43mm

Vehicle body

More than 54mm diameter of space

⚠ Confirm there is enough space to allow full range of the headlamp's movement.
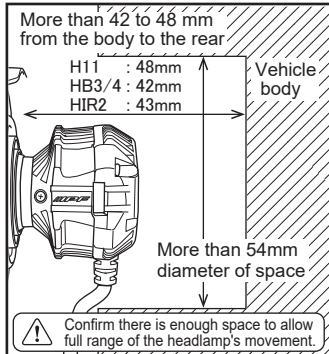
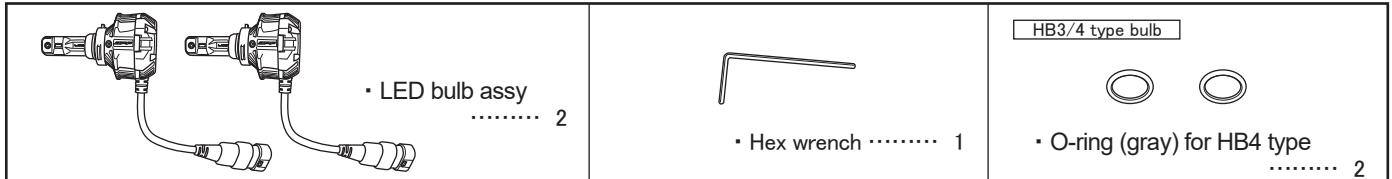### Direct contact with water, dirt or dust

Bad

✕ Incorrect

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 sings shown. If no warnings, the test is finished.

⚠ **WARNING:**
Do no turn on the switch if the bulb is not connected.

LED bulb connector <Non-polarity>   Vehicle connector

Components

· LED bulb assy ········· 2

· Hex wrench ········· 1

HB3/4 type bulb

· O-ring (gray) for HB4 type ········· 2

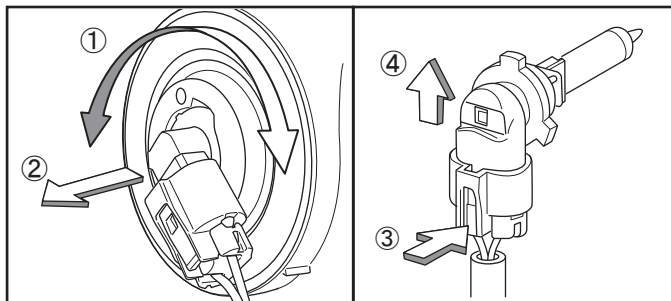## Installation procedure

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

① ② ③ ④

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.
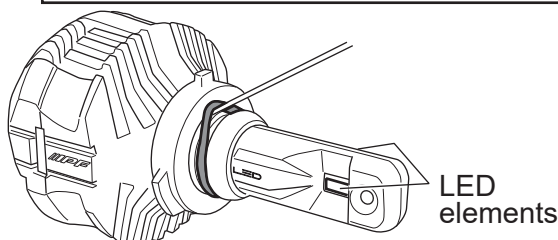④ While still pushing the tab, pull the connector from the bulb.

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

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.

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
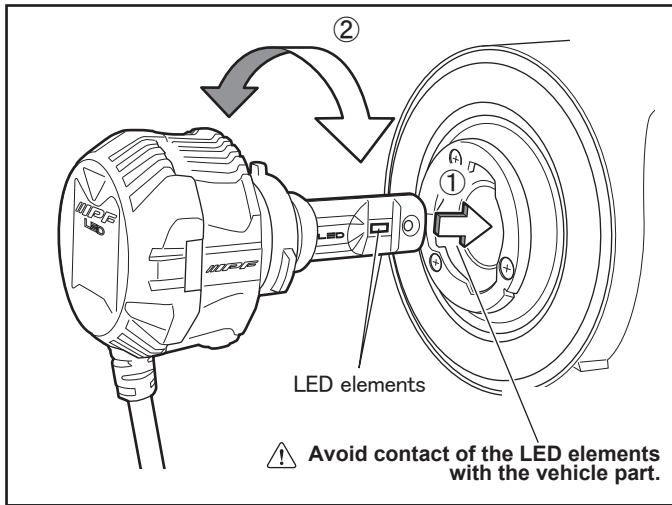HB3 O-ring: thin (pink)
HB4 O-ring: thick (gray)

LED elements

3   Installing the LED bulb

Avoid contact of the LED elements with the vehicle part.

LED elements

②

①

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.
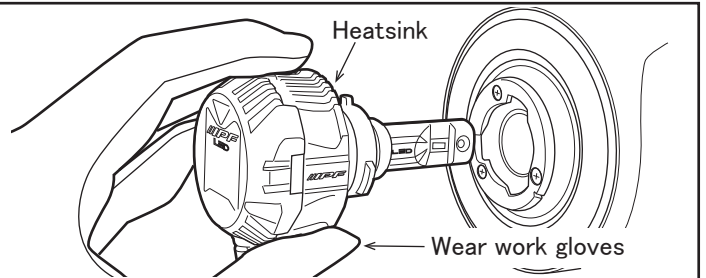Also don't rorate by tool.

⚠ **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.
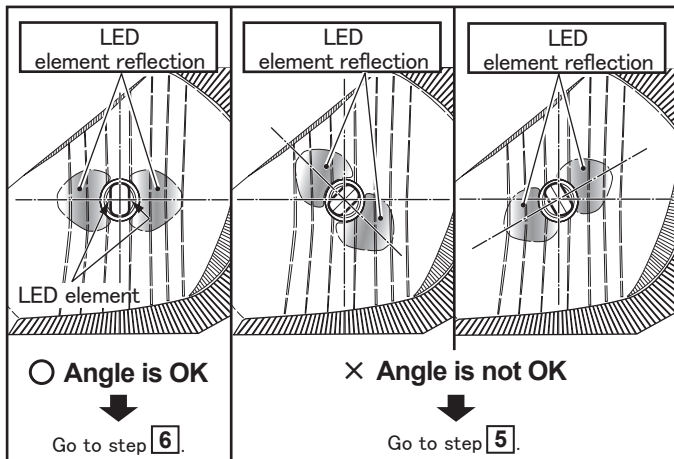
⚠ Warning

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

Beware

Heatsink

Wear work gloves

4   Angle check

| LED element reflection | LED element reflection | LED element reflection |

LED element

○ **Angle is OK**
Go to step 6.

✕ **Angle is not OK**
Go to step 5.

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.
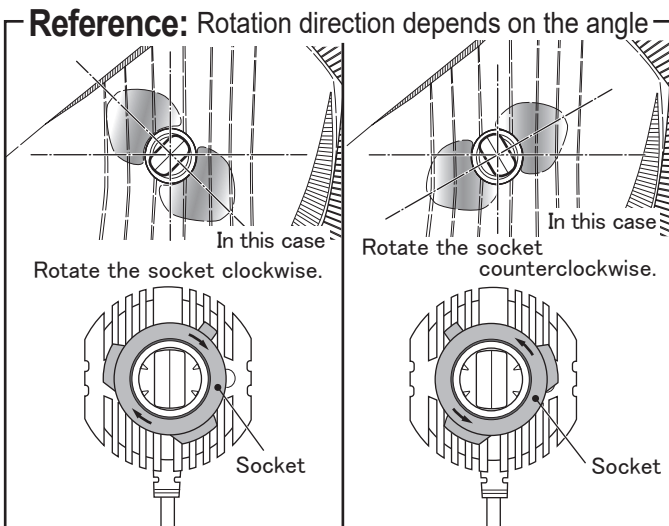 Use the IPF logo as a reference
  to check for balance.

⚠ **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

Setscrew
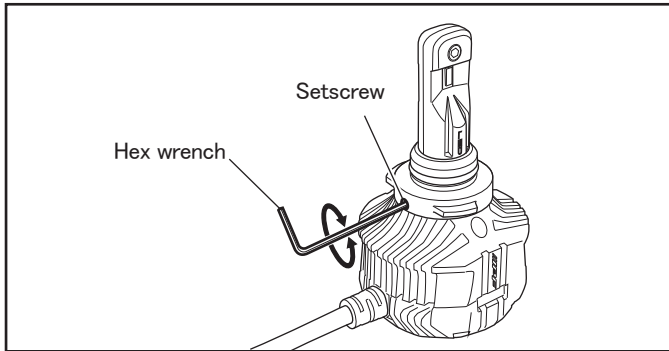
Hex wrench

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.

Reference: Rotation direction depends on the angle

In this case
Rotate the socket clockwise.

In this case
Rotate the socket
counterclockwise.

Socket

Socket

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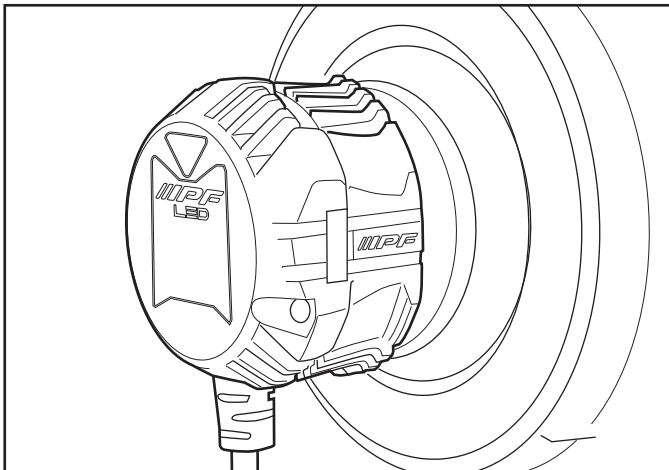position and angle.

⚠ 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.
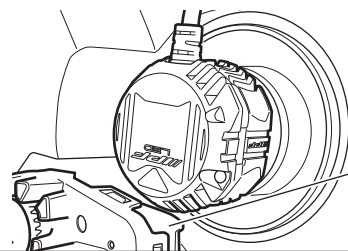
**Do not
disassemble**

Screws
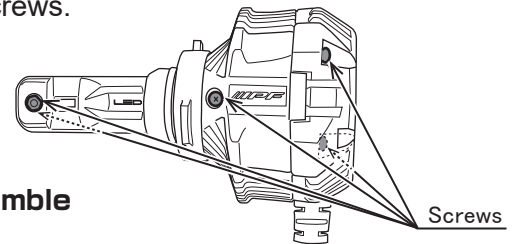
6 Installation check

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.

Vehicle parts
(Headlamp level
adjuster and washer
tank etc.)

7 Connecting and fixing the harness

Release knob

Lock pin

*Only H11 type

Vehicle connector
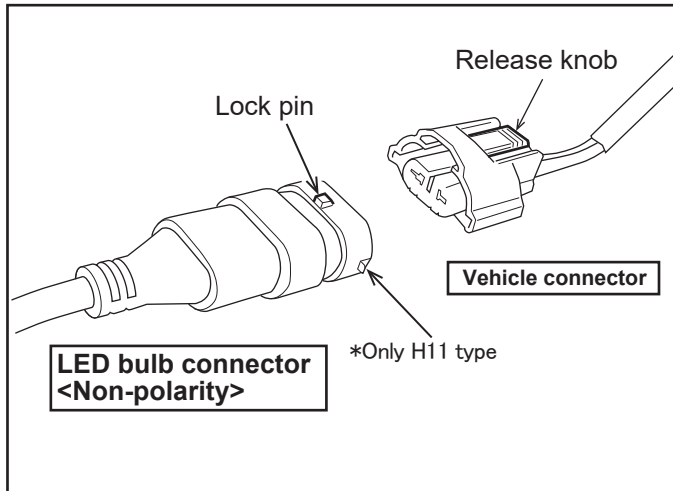
**LED bulb connector
<Non-polarity>**

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 rare cases,
the connector does not lock into place.
Secure the connection with electrical tape.

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.