

PIAA 2000 Back-Up Installation Instructions

Thank you very much for purchasing PIAA product.
Please read this entire manual before installation and use of this product.

※ The  **CAUTION** and  **WARNING** marks indicated in this manual are cautionary points related to the installation of the product.

To ensure safe and secure installation of the product, please follow these points closely.

To user

… When giving this product to a third party, always include this manual together with the product.

To shop owners installing the product

… After installation of the product, make sure the customer is provided with this manual.

BEFOR INSTALLATION

WARNING

- Do not touch the lamp while lit or immediately after switching it off because the lamp remains extremely hot. Severe burns may occur as a result.
- Do not look directly into the light for long periods. Doing so may cause eye irritation or visual impairment.

CAUTION

- Make sure the lamp is installed securely before driving the vehicle. If an abnormality is found, adjust it immediately.
- Avoid needless disassembly of lamp or harness as it may cause it to fail.
- If the lens is cracked or damaged in any way, verify whether there is any damage to the harness or the relay harness that it is connected to. If there is any damage to the cord covering, replace it immediately.
- When washing the vehicle with a hose, do not apply excess water pressure to the lamp. Water may seep in and causes damage to the lamp.

LAMP INSTALLATION

CAUTION

- This lamp is provided with a bracket for use as a hanging type lamp. When using it in an upright position, make sure the **PIAA** logo is correctly displayed . Install by rearranging the bracket.
- Lamps are specified the attachment position on either side. Make sure not to install right-and-left contrary.
- All work procedures should be carried out in a location with adequate space. Place the shift lever in neutral or in the parking position. Turn off the engine and set the side brake.
- Do not begin work if engine parts such as radiator, oil-cooler or turbo part are still hot.
- Do not modify the lamp system in any way or it will void the warranty.

CAUTION

- Be extremely careful when handling the lamp and harness. If dropped or excessive shock is applied to the lens, bulb or harness, it may cause irreversible damage.
- Do not add additional holes to the main body of the lamp. Also, do not apply adhesives or stickers to the lamp parts.
- Make sure all bolts are tightly secure. If there are any loose bolts tighten them accordingly.
- After installing the lamp, make sure the headlamps, wipers and horn are working normally.

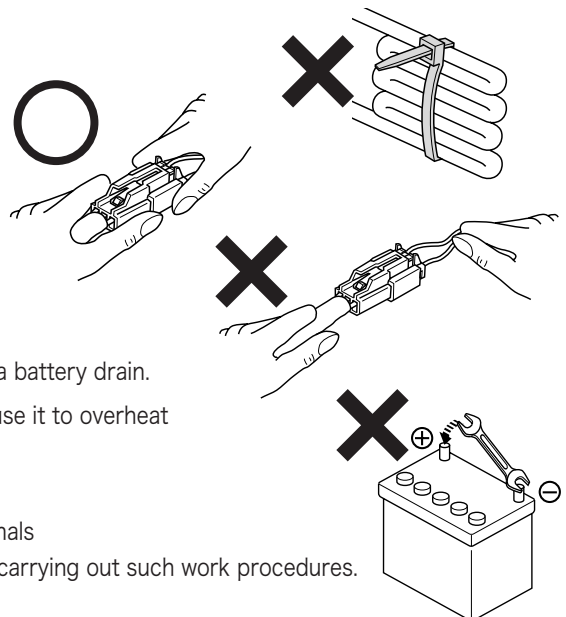
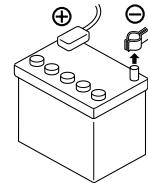
WIRING INSTALLATION

WARNING

- When doing wiring work, strictly follow the cautionary points mentioned below. Incorrect or faulty wiring may cause the lamp to operate improperly. In some cases, it may cause the vehicle to catch fire.

CAUTION

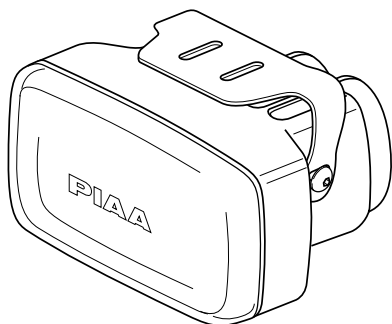
- Before you begin always remove the (-) terminal.
- When removing the battery terminals, always turn the key to OFF and remove it. Turn all other electrical units off such as the light switch.
- Verify the (+) harness (white), (-) harness (black) and (+) switch harness (white/black) before connecting.
- Install the harness in a position where it will not make contact with high temperature surfaces such as the engine, radiator or engine compartment.
- Arrange the harness so that it does not make contact with moving parts.
- Do not place the harness on high-voltage wires such as brake or air-conditioning wires.
- If the harness makes contact with a part of the engine, apply a length of ordinary cushioned tape around the harness.
- Do not tie the harness in a bundle by bending into too many folds. The relay harness may overheat.
- When connecting the terminal, make sure to install it correctly and secure it into position.
- Make sure the harness does not sag. Use a harness band of vinyl tape to secure it in place inside the engine compartment.
- When removing the terminal, hold the main body of the terminal and pull it out. If excess force is used to pull the cord, it may damage the connection, which could cause it to overheat.
- Before connecting it to the battery, verify the wiring arrangement.
- After all wiring is complete, confirm that it works properly.
- Do not draw power from the battery on a regular basis as it may cause a battery drain.
- Do not modify the lamp harness in any way. Such modifications may cause it to overheat or short. In some cases, it may cause the vehicle to catch fire. PIAA will not be liable for damage caused by such modifications.
- When removing the battery terminals, do not touch the (-) and (+) terminals simultaneously. An electrical shock may occur. Wear rubber gloves when carrying out such work procedures.
- Make sure the (-) and (+) terminals do not make contact with metal. It can be extremely dangerous if a short occurs.
- When the battery terminal is removed, memory related to the clock, radio, audio system etc, will be affected. After all work procedures are completed, reset to the original settings. (For adjustment procedures refer to your car's instruction manual)



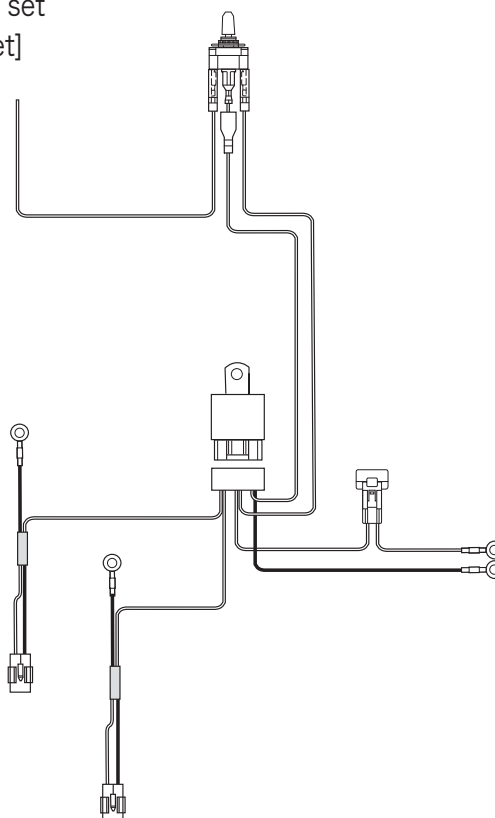
Product Details

※ Verify that all the parts are included. If a part is missing, please contact your local distributor.

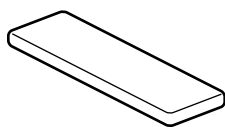
① Lamp main unit (2 units)



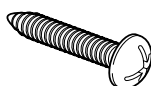
② Relay harness set (LR-22E) [1 set]



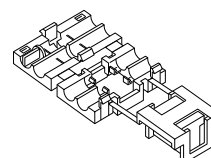
③ Double-stick tape (6 pcs. - 2 spare)



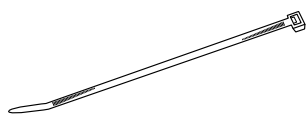
④ Screw (4 pcs)



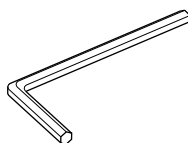
⑤ One-touch connector (1 pc)



⑥ Wire tie (10 pcs)



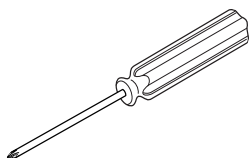
⑦ Hexagon wrench (1 pc)



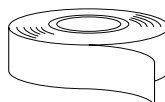
Tools Required

※ Please use the tools indicated below.

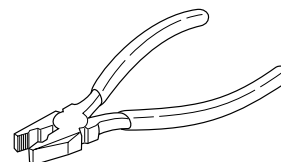
● Philip' s head driver



● Vinyl tape



● Pliers



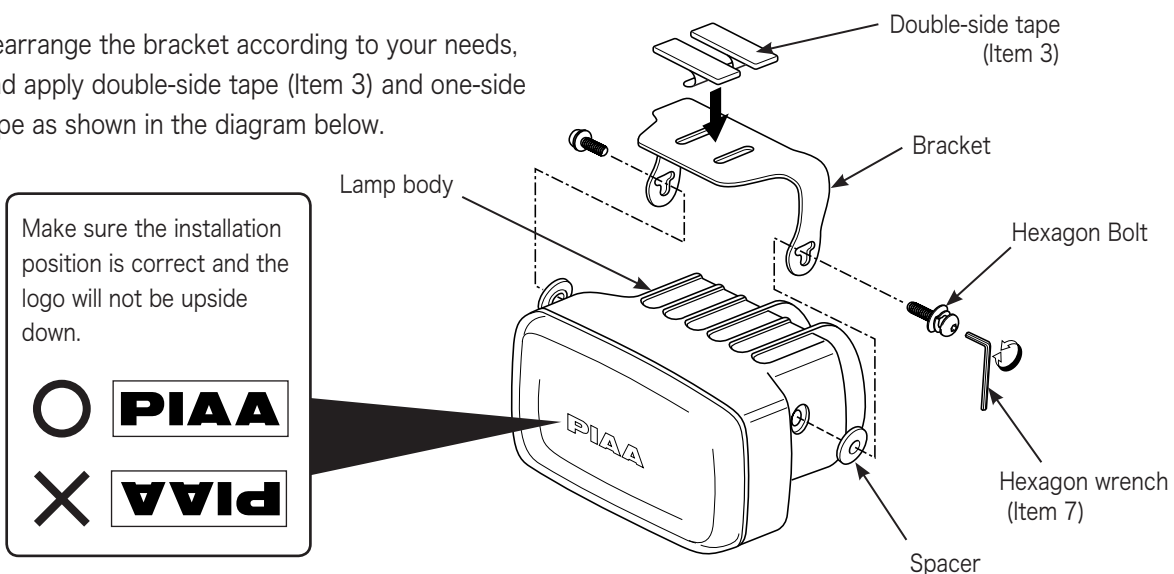
【1】 Preparation for Installation

⚠ CAUTION

- Install the lamp body so it does not rub against the surface of the bumper. Heat may cause the plastic to deform. Allow between 5mm to 10mm between lamp body and vehicle part.
- When using a bracket available on the market, make sure the bolts you remove from the vehicle does not hinder its performance.
- Do not install on an unstable location, it may come lose while driving. This may affect the overall life of the bulb. In addition it may damage the vehicle or the main body of the lamp. Make sure you install the lamp on a stable and secure location.

◆ When you have decided the installation method.....

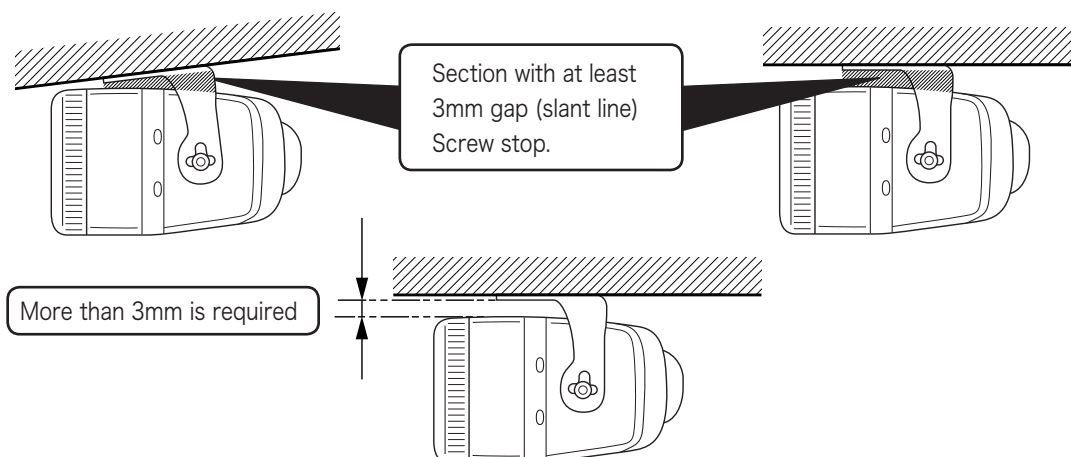
- (1) Rearrange the bracket according to your needs, and apply double-side tape (Item 3) and one-side tape as shown in the diagram below.



- (2) Hold the lamp up to where it will be installed on the vehicle. Verify the gap between the lamp and surrounding obstacles.

Check !

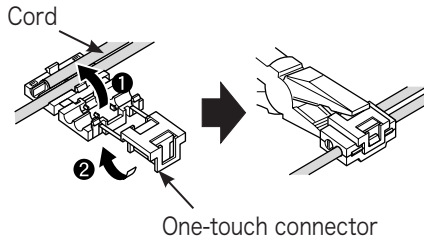
- Make sure the lamp can be adjusted up and down (beam must be adjusted so that it shines at least 40m ahead of the vehicle.) If it cannot be adjusted, it must be re-installed.
- There must be between 30mm to 35mm on either side of the lamp to allow for proper adjustment.
- If using a screw, make sure there is adequate space between the bracket and the lamp (where screw will be inserted).




【2】 Relay Harness Installation Sequence

The numbers shown in the figure below indicate the sequence the parts should be installed.

- 6** Connect the switch power (+) wire to a positive (+) lead for the reverse lights. To do so use the supplied connector or any connector that is suitable for this application.



- 5** Secure relay bolt so that connector is facing downward.
- 
- The diagram shows a relay unit with a bolt being inserted into the bottom. A large black arrow points downwards from the text, indicating the orientation. The text "Facing down" is written below the arrow.

- 7** Connect the lamp harness to the connector.

- 4** Connect the lamp ground (-) wire to chassis ground. This connection should be metal to metal. Scrape all rust, paint, dirt and undercoating from the connection location.

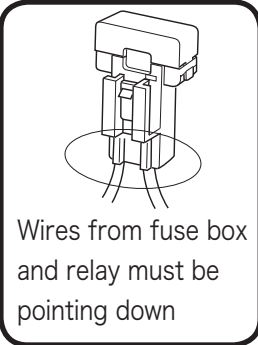
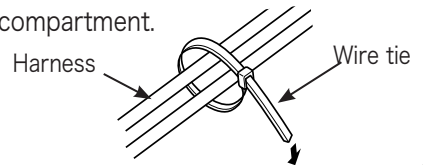
- 8** First ground the terminal then take the (-) cord (black) and connect it to the (-) terminal.

- 12** After all wires are connected test the system for operation.

- 13** If the switch is in position ON1 the PIAA back-up lamp will be on.
If the switch is in position ON2 the PIAA back-up lamp will only come on when the vehicle is in reverse and the vehicles factory reverse lights are on.
If the switch in the OFF position the PIAA back-up lamp system will be off.

- 1 Run the PIAA harness from the engine compartment next to the battery back to the PIAA back-up lamp. Run the switch into the drivers compartment and mount it in a location that is easy for the driver to control and so that it is out of the way of other automotive functions.

- 11** After lamp has been installed, verify the relay harness does not make contact with the engine's moving parts or sections that emit extreme heat. Use the wire tie included (Item 6) and secure to harnesses inside engine compartment.

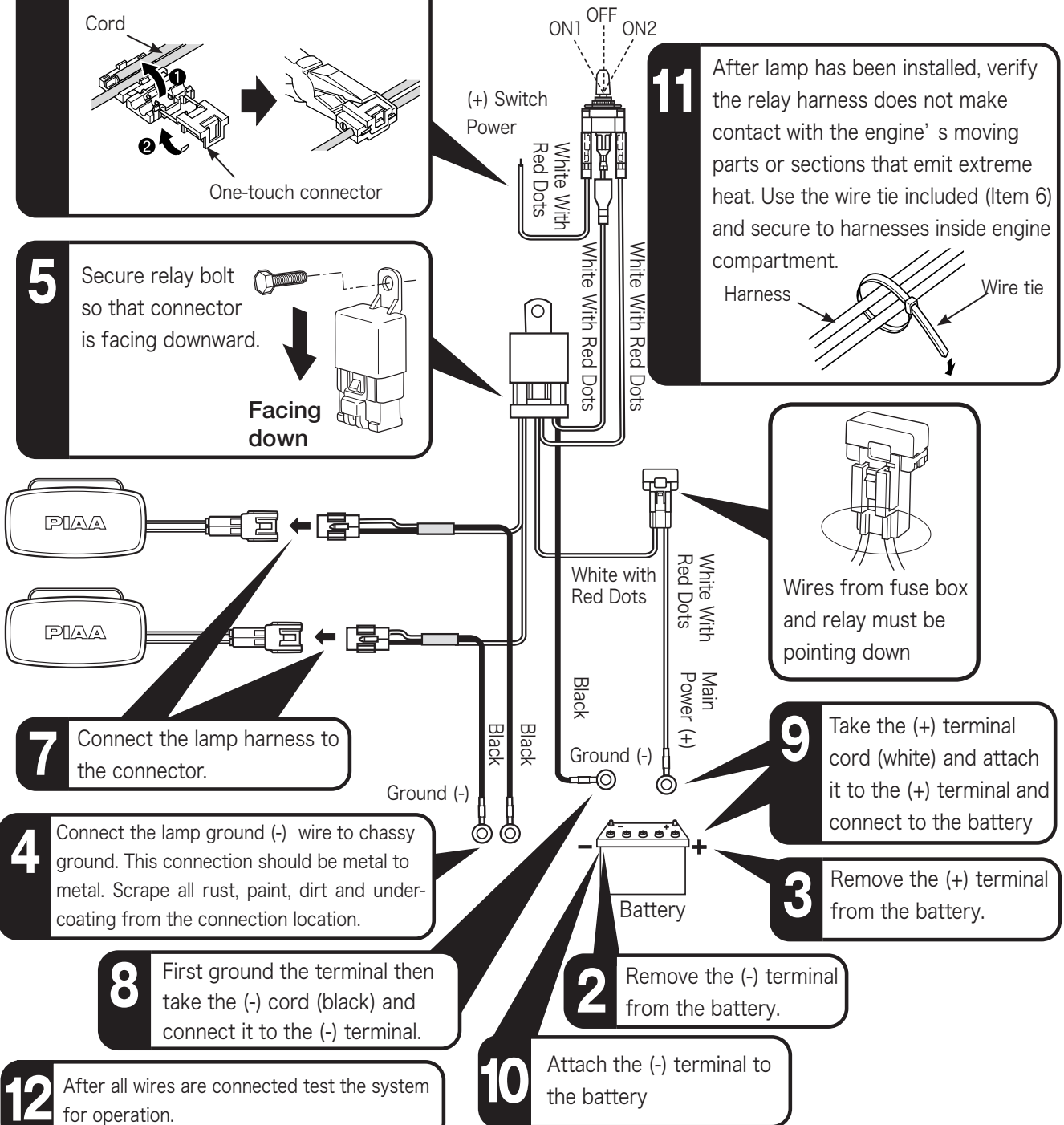


- 9** Take the (+) terminal cord (white) and attach it to the (+) terminal and connect to the battery

- 3** Remove the (+) terminal from the battery.

- 2** Remove the (-) terminal from the battery.

- 10** Attach the (-) terminal to the battery

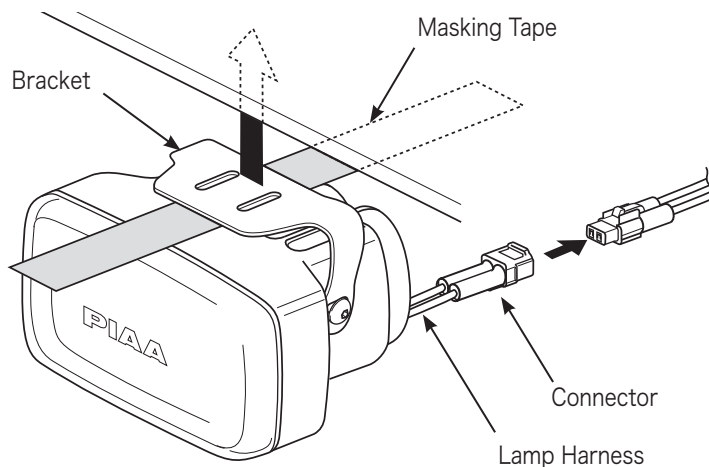


[3] Lamp Installation Procedures

- 1 Temporarily set the bracket with masking tape and then mark the correct position.

CAUTION

- Make sure to set position properly before permanently setting the lamp. Also, thoroughly clean the surface of the installation position beforehand.



- 2 Remove the lamp harness and take out the lamp.
- 3 Install the lamp according to the marking made prior to installation.

◆ If using only the double-side tape.

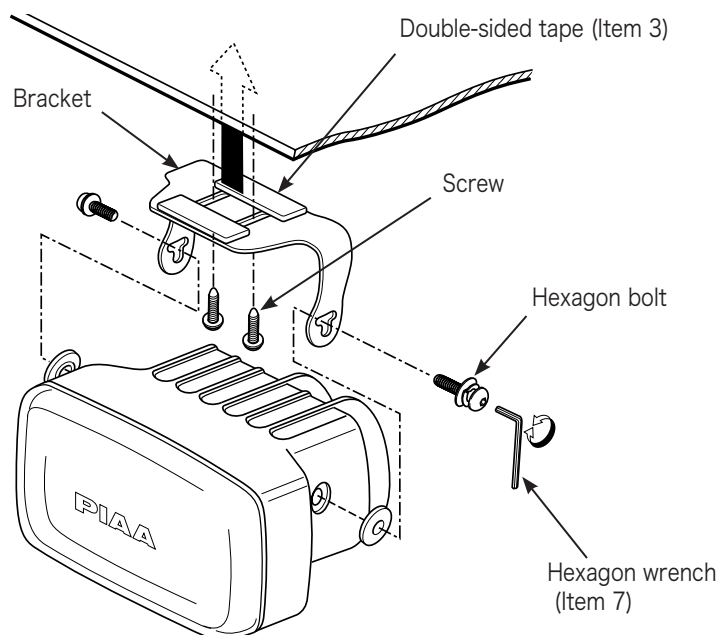
Peel the protective sheet from the double-sided tape (Item 3) and apply.

CAUTION

- When using the double-side adhesive tape, clean the surface where tape will be applied. Use a clean cloth or sponge and make sure dirt, grease, wax etc., are completely removed. If substances cannot be removed, it may not adhere properly. In particular, avoid using leather wax, tire wax and also any type of organic solvent.
- When used in low temperatures, the adhesive substance tends to lose its strength. Use a drier or simply warm up the adhesive surface before applying. When using a drier, avoid moving it too close to the bumper as it may cause it to deform.
- After installation, avoid excess speeds and do not wash for 1 to 2 days.
- If applied incorrectly, a special double-sided adhesive tape is available at your local PIAA dealer.

◆ If screws are used.

- (1) Loosen the hexagon bolt with the wrench provided and remove the bracket from the lamp.
- (2) Peel off the protective sheet from the double-sided tape and apply it to the bracket.
- (3) Fix the bracket in place with the screws.
- (4) Install the lamp onto the bracket.



【4】 Caution When Replacing the Bulb.

Please thoroughly read the replacement procedures.

WARNING

- Because there is high-pressure inside the bulb, do not apply excess pressure or scratch or damage it in any way. Damage to the bulb may cause injury. It may also affect the overall performance of the lighting system.
- Lighting the lamp without protection may cause it to burst and can be potentially dangerous.
Do not activate without proper covering.
- Do not look directly into the light for long periods. Doing so may cause eye irritation or visual impairment.
- The lamp and bulb can radiate considerable heat while it is on or immediately after it is turned off. Considerable care must be taken to void getting burned. Do not touch with bare hands or make contact with skin.
When carrying out replacement procedures always switch the power OFF and allow adequate time for it to cool down.

CAUTION

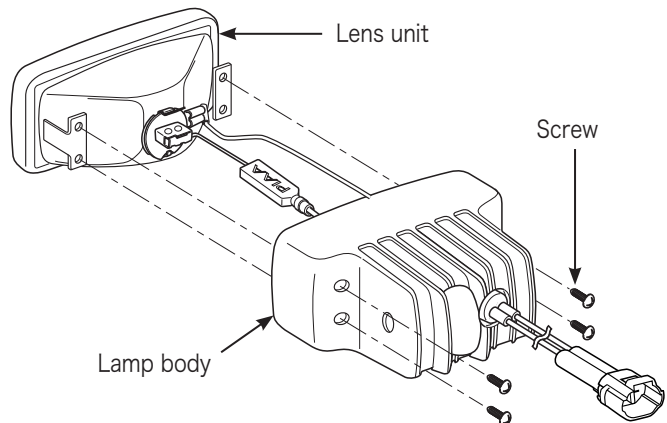
- Do not touch the glass section of the bulb or allow any grease or oil to get on to the glass. If it is not wiped clean it may cause the glass to crack or worse it may burst. If you touch it accidentally or if stained in any way, use alcohol to wipe it clean before use.
- Do not allow water to permeate the bulb. If the bulb is used under such conditions it may cause it to break. If there is any evidence of water, wipe it away and allow it to dry before using.
- All work procedures should be carried out in a location with adequate space. The surface area should also be flat and level. Place the shift lever in neutral or in the parking position. Turn off the engine and set the side brake.
- Always set the fog lamp switch to OFF when carrying out work procedures.
- If disassembling the lamp for replacement purposes, do not pull the harness with excessive force. If the connecting section of the harness is damaged it may overheat posing significant danger.
- Hold the main unit firmly when connecting or removing the connector or terminal. Faulty connection may cause unnecessary damage to the bulb. Pulling the cable itself may also cause damage and overheating.
- Remove or insert connector and terminals at a straight angle. If excessive force is applied, it may damage the terminal or bulb.
- Verify the shape of the bulb's metal fitting, and check the proper direction before inserting. Also, make sure to verify the harness connection. Improper installation may cause the bulb to come loose or overheat. It can also minimize the life of the bulb.
- After replacing the lamp and reassembling the unit, make sure the harness is not inadvertently caught in the assembly. Such conditions may cause a short.
- Dispose of used bulbs properly (non-combustible) and avoid breaking the unit.
- Do not use the bulb without its protective covering. Inflammable material placed near it may catch fire.

[5] Bulb Replacement Procedures

- 1** Loosen the 4 screws on the back of the lamp housing. Remove the lens unit from the housing unit.

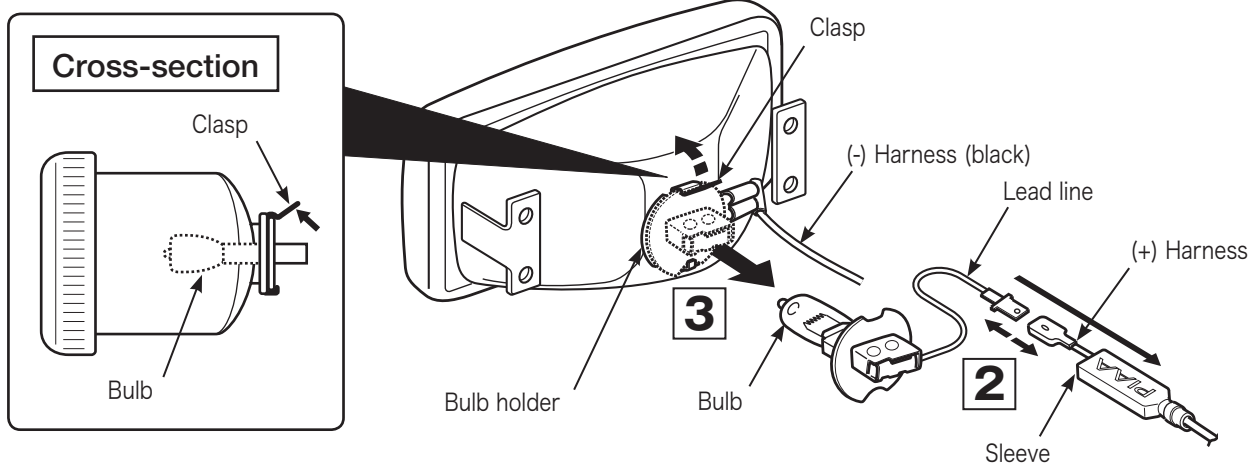
⚠ CAUTION

- When disassembling the lamp, do not pull with excessive force. If the harness section is damaged it may cause it to overheat.
- Make sure not to misplace the screws that were removed.

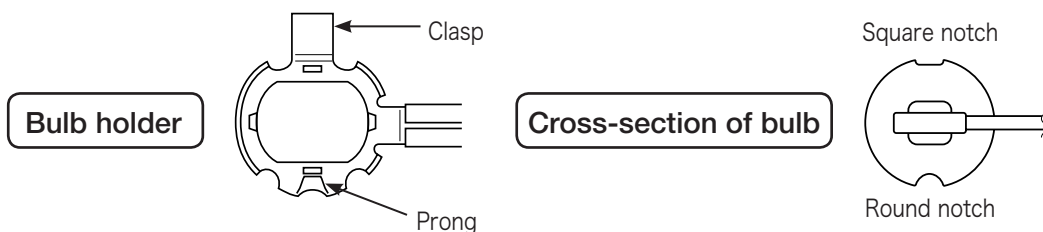


- 2** Move the sleeve aside and remove the (+) harness from the bulb's lead line.

- 3** While pushing the clasp holding the bulb holder, remove the bulb from the lens holder.



- 4** Set the end of the bulb holder to the round notch of the bulb's metal fitting. Set so that the clasp catches on the square notch located on the upper section of the bulb.



⚠ WARNING

- Do not touch the glass section of the bulb or allow any grease or oil to get on to the glass. If it is not wiped clean it may cause the glass to crack or worse it may burst. If you touch it accidentally or if stained in any way, use alcohol to wipe it clean before use.

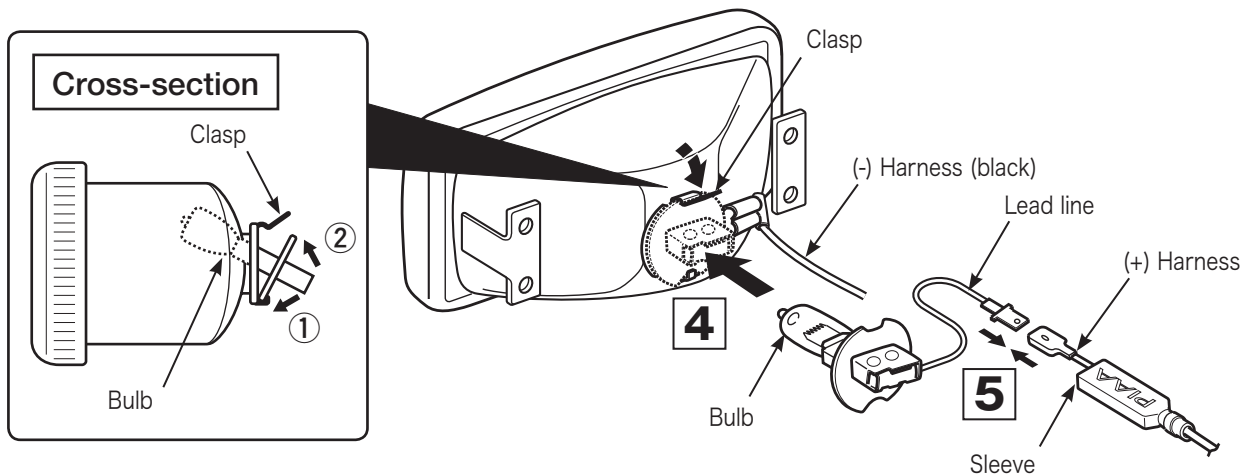
⚠ CAUTION

- Make sure to set according to the shape of the notches provided.

- 5** Connect the bulb's lead wire to the harness for the (+) terminal. Make sure the sleeve completely covers the terminal.

CAUTION

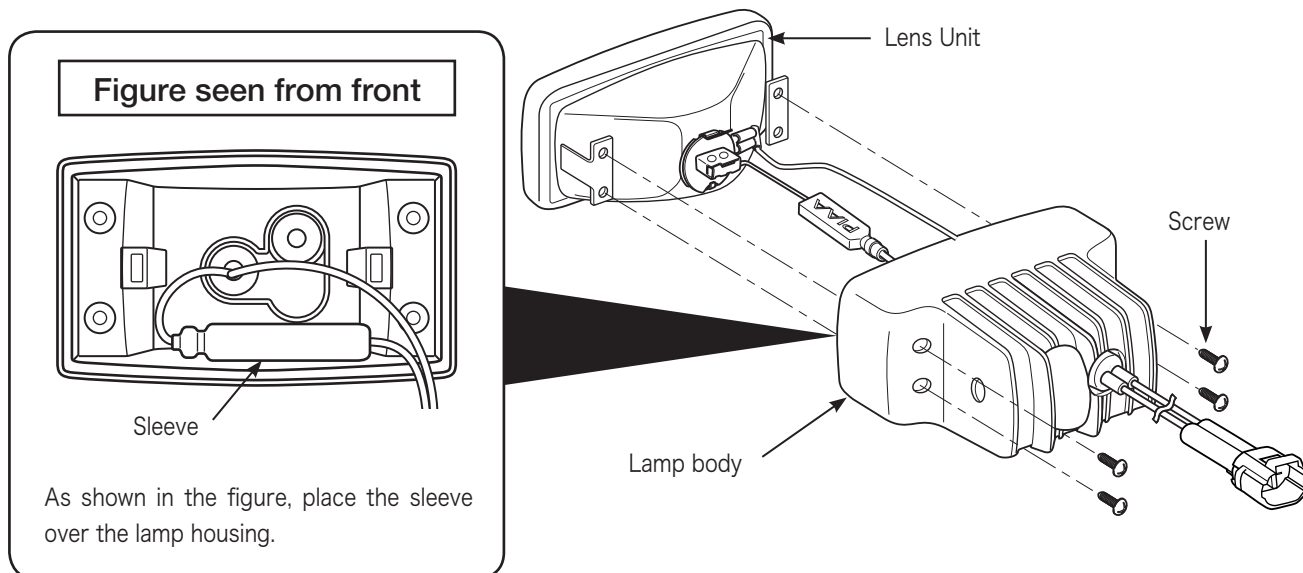
- Improper connection may lead to a short or can be a potential fire hazard.
- Make sure the sleeve covers the terminal section completely.



- 6** Combine the main unit of the lens and lamp housing. Use the 4 screws to firmly fix the unit into place.

CAUTION

- After reassembling the unit, make sure the harness is not inadvertently caught in the lamp assembly. Such conditions may cause a short. It may also cause water to seep into the unit.



- 7** Gently pull the lamp harness and pull out excess slack from inside the lamp.

- 8** Re-adjust the angle of the lamps beam

[6] Troubleshooting.....

Verify each section according to the following.

1 After installation, if the lamp does not activate

→ Check the wiring and make sure there are no faulty or irregular connections .

● If the switch illumination does not light up.

- Verify the (+) wire from the switch is properly connected. If it is not correctly connect it will not activate.
- Verify the fuse located on the vehicle' s wiring system. (the switch' s (+) wire should be connected to the fuse box). If it is burned out, connect it to another circuit.
- Check the fuse for the relay harness. If it is burned out, follow instructions indicated in [3] Fuse replacement Procedures].

● The switch illumination lights up but when operating it an audible "click" is not heard.

- If the switch itself is faulty, the same symptoms may exist. We recommend that the entire switch unit be replaced.

● The switch illumination lights up but when operating it an audible "click" can be heard.

- Check the bulb. If it is burned out replace it accordingly.

2 If the bulb suddenly fails to light up ...

- Check the bulb inside the housing and if it is burned out replace accordingly.
- Check the fuse located in the vehicle. If it is burned out, replace accordingly.
- Check the fuse for the relay harness. If it is burned out, follow instructions indicated in [3] Fuse replacement Procedures].
- There may be cases where each terminal related to specific sections may be incorrectly connected. Check for any loose wires and also for dirt or grime.
- Water or incorrect connection may cause an irregular electric current flow, which could damage the relay. Replace the relay and check each section of the relay installation position and wiring.
- Check the switch. If an abnormality is found, replace it accordingly.

3 Fuse replacement Procedures

- A short circuit may have occurred. Check the lamp interior and wiring system. If any type of damage is found replace accordingly. (Non-replacement may pose a potential danger) (Short circuits are mainly caused when wires are caught in the assembly or when there is a gap in the sleeve connected to the lamp harness. Be extremely careful when reassembling the lens unit or replacing a bulb.
- Verify the wattage capacity of the relay harness is accurate. Using a bulb that exceeds the relay harness wattage can be potentially dangerous. Always use bulbs that correspond to the wattage specified.

4 If light fails to turn off

- The relay may have been damaged due to permeation of water or faulty connection. Replace relay and make thorough check of installation and wiring system.
- Check the switch button. If an abnormality is found, replace accordingly.

5 If water permeates the interior of unit

- ※ The lamp goes through a "breathing" action. After the lamp is turned on, if it fogs up and then clears after 2 or 3 minutes there is no problem.
- Check the proper direction of lens. Always set lamp so that the PIAA logo is upright.
- Check to make sure that the ventilation on the rear section of the lamp is not rubbing against the bumper. Also check that it is not facing upwards. Make sure the ventilation faces downward and does not rub against the bumper.

【7】 PIAA LIMITED WARRANTY

With the exception of bulbs, PIAA Corporation, USA ("PIAA") warrants its products to be free from defects in workmanship and materials under normal use for as long as the original purchaser owns them.

EXCLUSIONS

This Limited Warranty specifically excludes defects resulting from misuse, abuse, neglect, alteration, modification, improper installation, unauthorized repairs, submersion, theft, vehicle crash, or by any other type of impact. Except for the Limited Warranty stated above, there are no warranties of PIAA products or any part thereof, whether express or implied. Any implied warranty of merchantability or any warranty of fitness for a particular purpose is expressly disclaimed. Some states do not permit the disclaimer of implied warranties.

LENS CRACKS

Crash or impact damage is not covered. This can be determined by a chip or scrape on the lens or the housing. Stress cracks sometimes occur when the lens is subjected to sudden and extreme temperature changes. A stress crack has no chip or other sign of impact. Stress cracks are covered under warranty.

EXCLUSION OF DAMAGES

In no event shall PIAA be liable for any damages whatsoever (including, without limitation, consequential damages, incidental damages, or damages for loss of use, loss of business profits, business interruption, loss of business information, loss of time, inconvenience, or other losses) arising out of the use, misuse, or inability to use a PIAA product. PIAA reserves the right to change the design its products without any obligation to modify any previous product. This warranty gives you specific legal rights. You may also have other rights that vary from state to state.

REPAIR AND REPLACEMENT

If a PIAA product is suspected of being defective, it must be submitted freight prepaid, to either an authorized dealer or distributor for warranty inspection. The receipt or other proof of purchase and a description of the problem must be included. The returned product will be inspected. If the product is found to be defective and covered by this Limited Warranty, the sole remedy is repair or replacement, at PIAA's option. A repaired or replacement product will be shipped back at no charge, and will be warranted to be free from defects in workmanship and materials under normal use for as long as the original purchaser owns it. Removal, installation, or reinstallation costs are not covered by this Limited Warranty.

PIAA CORPORATION

www.piaa.co.jp

PIAA CORPORATION, USA

For assistance call 503-489-6666 or 1-800-525-7422

www.piaa.com