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Guiding Light

Words & photos:
Nathan Clegg

Here's how to fit projector headlamps to one of the most notoriously under-lit cars of all – the classic-shape Impreza

Winter's dark mornings and even darker evenings may have persuaded you that negotiating your way around country lanes with normal crystal headlights is close to dangerous.

Well, there's a way to fix the problem, in a way that doesn't detract from your car's original appearance. I own a classic-shape Impreza and I'd toyed with the idea of Morette headlights but couldn't justify the cost. So I researched retrofitting projectors into the original crystal housing.

Projector headlamps are designed to have a much brighter and consistent spread of light and a wider output than OE projectors, along with a very sharp cut-off line giving a blue tint to the eye. The results look great and the conversion isn't that expensive.

After a few weeks of indecision, I purchased a pair of projectors from a US company called The Retrofit Source, which are designed and manufactured specifically for the retrofitting market, along with the HID bulbs and ballasts required. I also picked up a set of Hella driving lamps; when paired with a set of retrofitted HID bulbs, the output is truly awesome.

I've managed to stay close to the original crystal headlight and yet improve the output tenfold. I'd recommend this mod to anyone who is struggling with the standard lights. It is a daunting task to butcher your headlights but this step-by-step guide should give you confidence.

My advice? Read up and research what you are getting into, learn about the different types of projectors out there and how they work and perform, what bulbs to choose and remember projectors are left- and right-hand drive specific.

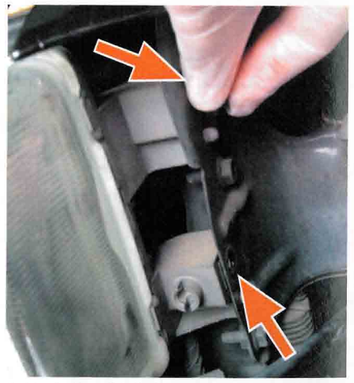
More info

Forums such as www.hidplanet.com and faqlight.carpassion.info are very useful. Our parts came from http://store.theretrofitsource.com

Headlight removal

1. Remove the grille by releasing the holding clips either side, push down and pull the grille towards you

2. Remove two 10mm bolts at the front of the headlight



3. Undo the sidelight screw and pop the unit out. Remove two 10mm bolts from the side of the headlight

4. Unplug the H4 connector from the lights and remove the unit, as well as the bulb

5. You can replace your lights with a spare set of headlights while doing the HID retrofit

Splitting the headlights

6. Carefully remove the glass holding clips (four in total)

7. Unscrew the up/down alignment adjuster and remove

8. Put the lights in a pre-heated oven at 200°C for 4–5 minutes

9. Keep checking whether the glue has gone soft

10. Once the glue is soft, the glass will pull away pretty easily, then unscrew the surround

11. Unscrew the left/right alignment adjuster with an 8mm spanner, then pop off the ball-joint type fixing to free the reflector

12. Put the surround to one side

Shaping the reflector

13. Mark up the reflector with a marker pen. It's very much a case of trimming, trying it and trimming some more

14. A Dremel or similar with a cutting wheel is perfect for the job

15. Once you're happy with the shape, sand all the edges so they are smooth

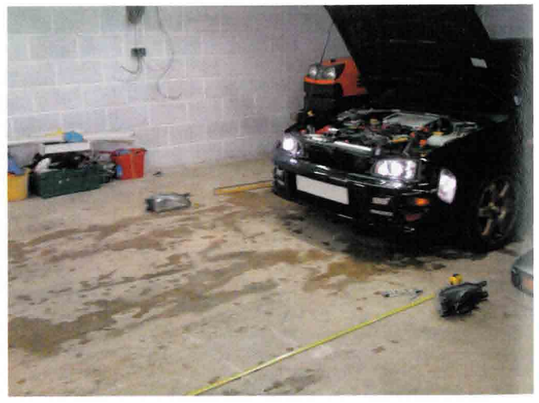
Fitting the projector

16. Fix the reflector back into the headlight casing and then place the projector in to see how it fits

17. Mark the holes and drill them. Bolt the projector in, but not too tight. Remember to angle the projector in the reflector so that it aims forwards. Be careful where you place the reflector in the projector so as not to restrict space in the engine bay or be too close to the headlamp glass

Checking alignment

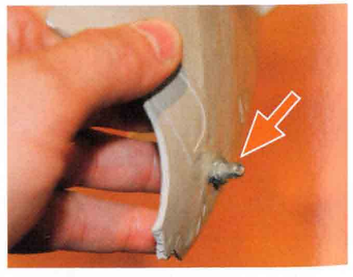
18. Fit the headlights back on to the car and connect up the harness



19. Make sure that the lights are perfectly level. If they are not level and won't twist, remove them and make the fastening holes larger, then try again

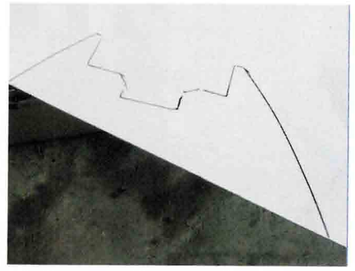
20. When we adjusted our headlights down, the projector that was sticking out of the back fouled on the headlight casing, so when we kept turning, the reflector broke in two

21. After sourcing another headlight from a scrapyard and going through the whole process again, we made the appropriate cut-out to the casing to accommodate the projector movement

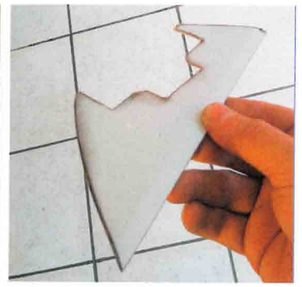


22. Carefully remove the lights from the car and the reflector from the casing and glue the nuts in place using Araldite. Trim off the excess thread so it doesn't catch the headlight housing

Repairing the reflector



23. Make a card template of the reflector base and then transfer it on to some mirrored stainless steel



24. Use a grinder to cut the steel and then a sanding wheel to clean up all the sharp edges

25. Putting a slight bend on the edge of the plate matches the profile of the reflector (it needs to fit snugly). Glue the steel in place with Araldite. Leave the protective plastic film on the steel till the end of the retrofit

Fitting the shroud

26. Because the shroud wouldn't fit into the reflector housing before being modified, we had to take a calculated guess as to where to cut it. Take a little bit off, then try it, take a bit more and try again

27. Once you are happy with the fit, sand the edges you have cut so they are nice and smooth, then paint the edges with silver paint so that the reflection of the cut ABS is not visible in the mirrored steel. Glue the shroud to the projector with Araldite

Final bits

28. The solenoid wires restricted the dust cover from being fitted back in place, so drill two holes in the casing to allow the wires to pass through

29. Try the dust cover to make sure it fits. You may have to trim this to suit. Remove again as you don't want this going back in the oven in the next stage

30. Refit the surround taken off at the beginning

31. Now clean all the fingerprints off the chrome and lens ready for the glass to be fitted back. We used a compressor airline to blow any dust from inside the projector out

Sealing up the headlights

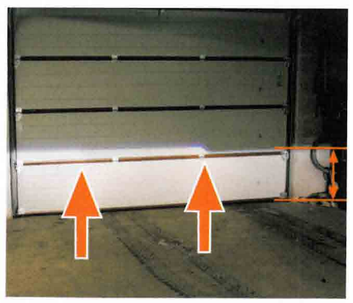
32. Pop the lights back in the oven and wait a few minutes until the glue softens

33. Then clamp the glass to the headlight casing and leave until it cools down. Repeat with the other headlight

34. Put back the metal clips, reflector adjustment screws and the dust seals on the back. Fit the lights back on the car and plug in the harness

Levelling the headlights

35. Position the car 25 feet away from a wall. Make sure the car is level and then put your lights on. Measure the distance from the ground to the projector. Go to the wall and measure where the beam hits – it should be 2in lower



36. The cut-off steps should be set to be three to four feet apart and level like this ●