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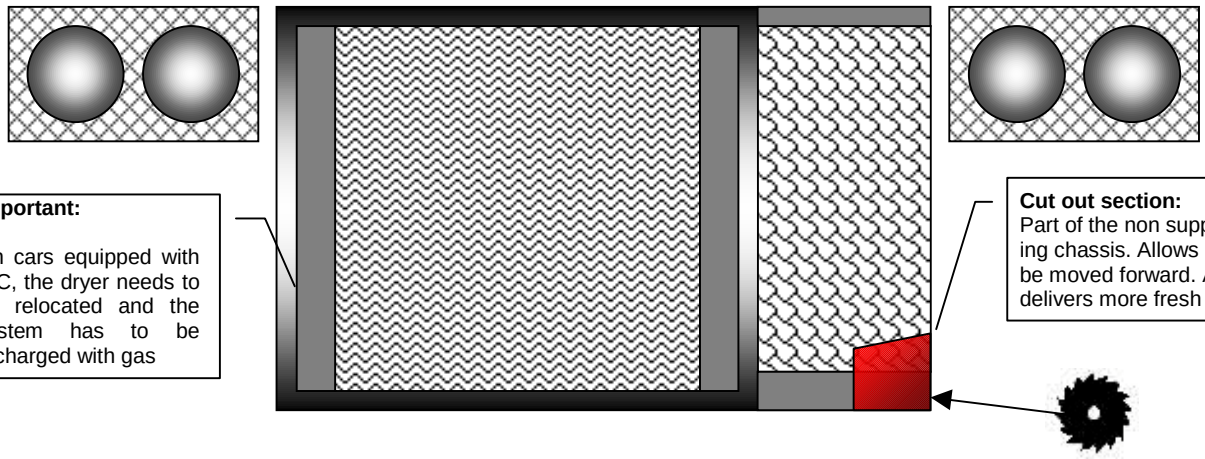
How to kill a duck pecker

Lancia Delta Integrale tuning guide

Front view

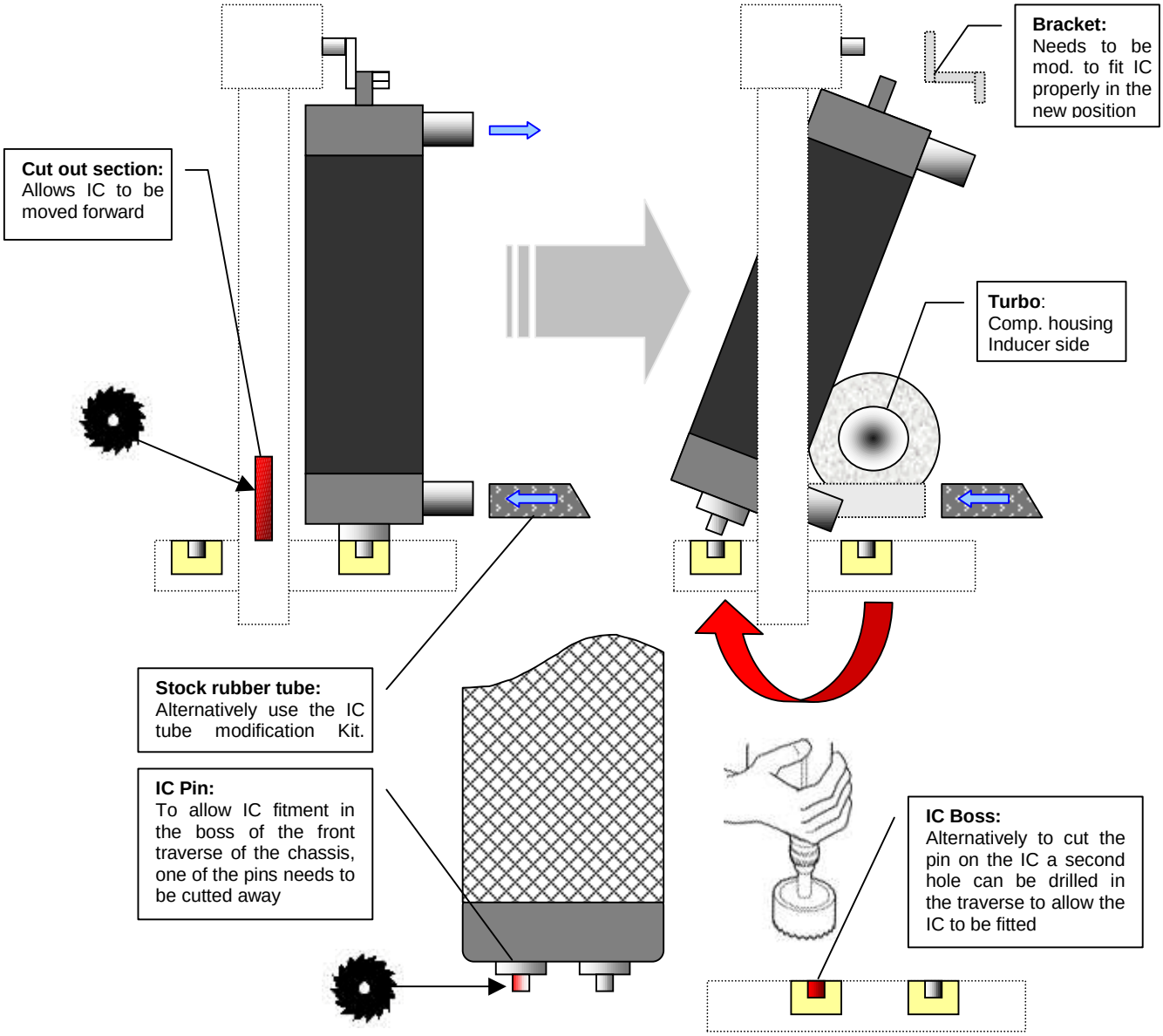


Important:

On cars equipped with A/C, the dryer needs to be relocated and the system has to be recharged with gas

Cut out section:
Part of the non support-ing chassis. Allows IC to be moved forward. And delivers more fresh air.

Side view



Cut out section:
Allows IC to be moved forward

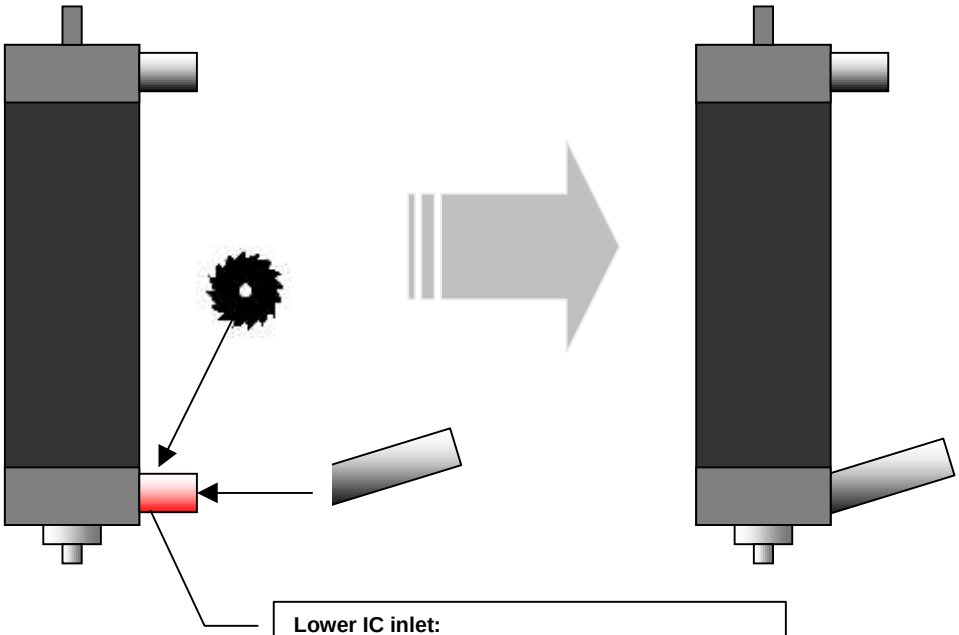
Bracket:
Needs to be mod. to fit IC properly in the new position

Turbo:
Comp. housing Inducer side

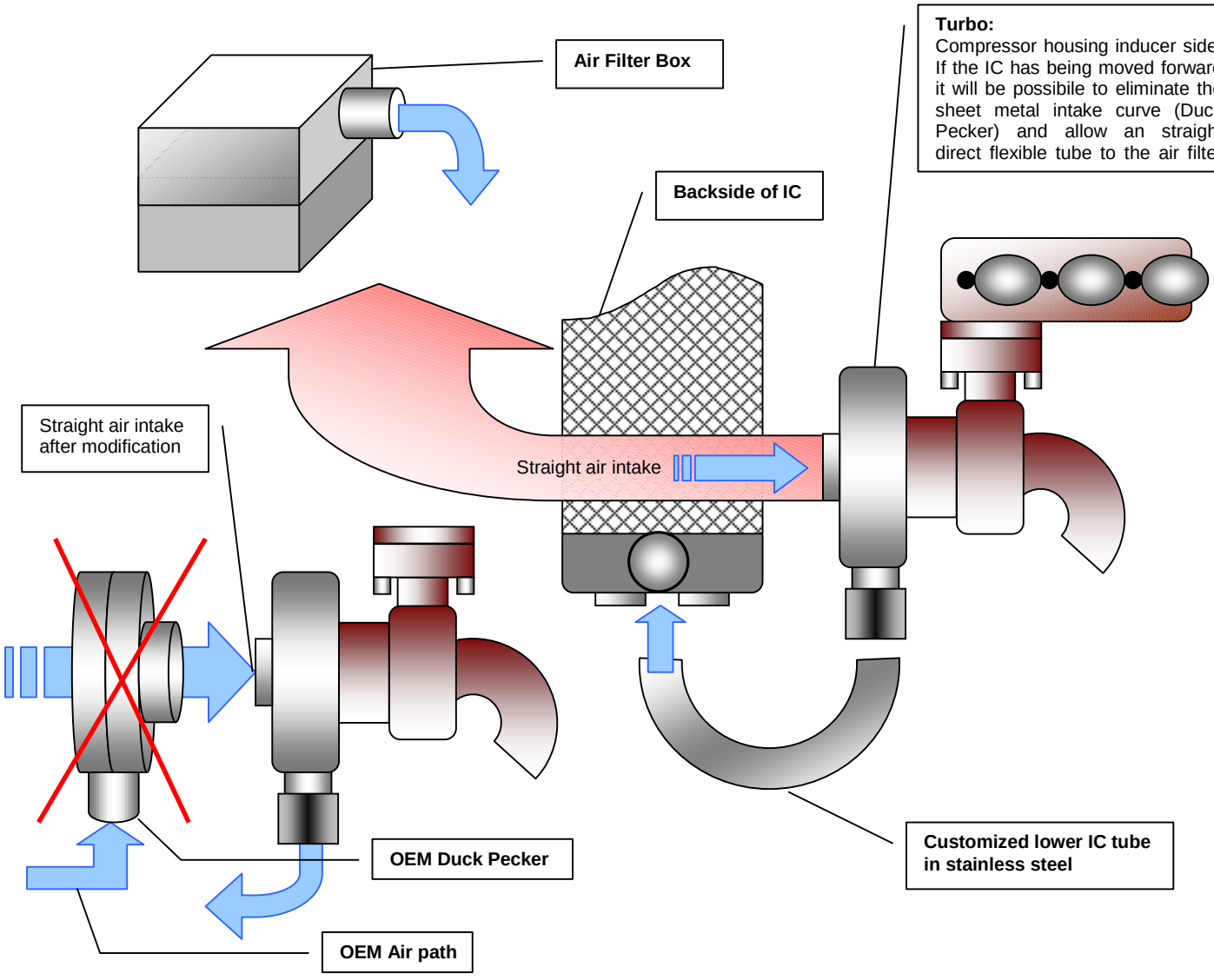
Stock rubber tube:
Alternatively use the IC tube modification Kit.

IC Pin:
To allow IC fitment in the boss of the front traverse of the chassis, one of the pins needs to be cutted away

IC Boss:
Alternatively to cut the pin on the IC a second hole can be drilled in the traverse to allow the IC to be fitted



Lower IC inlet:
The stock tube needs to be cutted and a new longer tube needs to be TIG welded to the IC in a approx. 30° angle. **Important note:** Tube length and angle needs to be determined previously, taking into consideration the actual IC/Turbo peripherie and the tubings you gonna use.



Task

This modification will allow to eliminate the sheet metal duck pecker wich is installed in a OEM Lancia Delta Integrale on the inducer side of the turbo compressor.

Theory

The intake in OEM configuration has a few drawbacks due to the sheet metal duck pecker. The air flow in some driving conditions tends to stall due to the low volume and sharp angle of the pecker itself. This will cause a lack of air especially in spool up, kick down situations and at high RPMs, with larger turbo units the stall will cause noticable performance losses. The elimination of the this sharp bend will eliminate all the above mentioned problems.

Pro

Main benefit and immediately noticable is the better throttle response in all driving conditions. Also noticable is the lowered turbo lag. Perfomance wise on a stock car power gains are measurable in the 3-5 kW range. This gains are depending also on the other modifications that will be carried out together with the relocation of the IC. We always recommend to switch to a large bore exhaust Ø 65 mm / 70 mm, on cars equipped with catalitic converter we recommend to replace the stock unit with a 200 CPSI cat. converter -280 hp and a 100 CPSI on +280 hp applications. Measurements showed that on stock EVO II 16V cat. where this modification has being carried out, including a large bore exhaust system, 100 CPSI cat. converter and 4-1 exhaust manifold, the cars already have being able to deliver a power output in the range of 235-240 DIN hp, wich is a plus of about 20 DIN hp to stock output without any modifications to boost control or ECU map.

Con

Parts of the chassis sheet metal needs to be cutted. Time expensive work if carried out with care, some parts machining and TIG welding needed.

Side effects

On almost any car we carried out this modification we noticed short boost spikes due the faster turbo spool up, this is normal and not harmful if the OEM base and peak boost has not being modified previously, if this has already being done pls. check the boost with a precise manometer.

Material and tools needed

- Longer Al Tubing for lower IC intake 30°/90° cutted and flanged on 90° side
- Lower 90° steel tube (Turbo to IC)
- Upper straight tube (IC to throttle bodie)
- Straight silicone tubings to fit steel tubings
- Flexible heat resistant tubing (Air filter box to Turbo inducer)
- Hose clamps to fit tubings
- Free flow air filter (K&N, J&R, etc.)
- Sheet metal to fabicate upper IC bracket
- Silicone chassis sealing compound
- Zinc spray or rost stop primer
- Touch up pencil with car color
- Angle grinder with cutter
- TIG Al welder

Short instruction

1. Disassemble: Front bumper, Hood and IC
2. Eliminate the sheet metal piece in the chassis front. See red section in the pic above
3. Cut lower IC pin to be able to set the IC in boss of forward position on A/C equip. cars you'll need to relocate the dryer element.
4. Measure all positions and cut the lower IC tubings to the right angles and dimensions
5. TIG weld the longer lower IC tubing on to the IC
6. Assemble with care, we recommend silicone and steel tubings see speedshop.ch for more info
7. Test drive and check peak boost pressure

If necessary we can carry out all the work for you here in switzerland, we can deliver also IC's modified on exchange base and supplie you all the tubings needed to carry out the whole work with the minimum hassle.

Pictures

The picture shows a modified Lancia Delta EVO II with the plug'n'play ball bearing GT31SS this turbo has being customized to be used on Lancia Delta Integrale engines and good for power outputs in the 350 hp range. Spool up starts already at 1700-1800 RPM and 0.5 Bar are reached at 2400-2500 RPM on a stock engine.

There are also slightly modified versions available for HPE, Q4 and Thema engines and if needed we can supply also customized large frame turbos for high hp outputs.

The 4-1 exhaust manifold has being heat wrapped, to reduce under bonnet temperatures and improve gas flow to the turbo.

In this special case we've drilled an additional hole in the lower front traverse to be able to install the IC w/o cutting one of the pins. Also the straight air intake can be seen very good in this picture.

Goodies

IC upper and lower tubing in stainless steel

Eliminates the delicate upper rubber tube completely. Can be fitted also on a stock 16V Integrale where the stock upper is not longer available. On 8V there's are replacement for the plastic T-piece.

The lower tube is curved to be fitted with the IC in front position, modification of the IC is req.

Free flow exhaust system in Ø 65 & Ø 70 mm

Picture at the left shows the Ø 65 mm exh. line with the brass „Limited Edition" badge. The muffler has a stainless steel cover, the rest of the exh. line is made in mild steel.

The Ø 70 mm exh. line is made completly out of stainless steel and only available w/o badge. Pic shows also the two exit Integrale version. The exh. can be ordered for catalitic and non catalitic cars. The catalitic version allows the installation of a cat. converter inline (welding required)