

Press Release No. 05/2008

Page 1/2

April 2008

Sporting Sound and Plenty of Power at AC Schnitzer

Tuning the exhaust system is a complex process but well worth it

When you were young, was there a sports car in the neighbourhood which you could pick out from a hundred other cars when, out of your sight, it thundered along the road? A sound which gets under your skin is an essential element in our fascination for fast cars, and we remember such an exciting sound all our lives. The "sonorous" note however is produced not only by the engine but above all by the exhaust. So BMW tuner **AC Schnitzer** devotes particular attention to the exhaust system on its vehicles. Not just for acoustic reasons, but also because the power of a vehicle is affected by it. A look at the fundamental function of the exhaust system shows why. The aim is to extract the combustion gases from the engine and expel them at the other end, preferably with an attractive sound. Eddies in the pipe system lead to a flow resistance which restricts the potential power of the engine. Consider how a chimney stack does not draw well if the ventilation flap is not fully open. By optimising the individual exhaust components, **AC Schnitzer** succeeds in decisively increasing the exhaust gas through-flow. In some cases, the resulting suction can be so strong that it not only evacuates gases more easily from the engine cylinders but also supports the inflow of fresh gases. And in addition, every **AC Schnitzer** exhaust system is a masterpiece of acoustics which gives vehicle occupants and passers-by a frisson of excitement. The complex engineering which lies behind all this is revealed by the following explanation of the individual components, arranged in their order on the vehicle.

Central Components of the Exhaust System and Optimisation Potential:

Exhaust manifold: The path of the combustion gases starts immediately after the cylinder head, which is directly connected with the cast iron or stainless steel manifold. Simple variants are often designed as simple collector pipes; on more powerful engines, they are usually more complex designs. In the tuning sector, such manifolds are an important element. Here the exhaust headers should if possible be equal length up to the junction point, to improve power and torque curve due to the Venturi effect. During the engine exhaust stroke, a vacuum is created in the manifold which draws the exhaust gases evenly out of the cylinder. The engine can run more smoothly because the movement of the piston is not retarded so heavily.

Y-pipe: This element connects the exhaust manifold with the remainder of the system. The term Y-pipe arises from the twin-channel Y-shaped construction, which however only exists as such on V-engines. The BMW four- and six-cylinder in-line engines have two separate pipes, one for each bank of cylinders. A flexible connection on the end ensures that no engine vibrations are transmitted to the remainder of the system.

AC Schnitzer
Ein Geschäftszweig der
KOHL automobile GmbH

...

Hausanschrift
Neuenhofstraße 160
D-52078 Aachen

Telefon
++ 49/(0)700AC Schnitzer
++ 49/(0)241/5688-130

Telefax
++ 49/(0)241/5688-135

e-mail
info@ac-schnitzer.de

web
www.ac-schnitzer.de

Geschäftsführung
Rainer Vogel

Öffentlichkeitsarbeit
Susanne Müllejeans



**Press Contact: IKmedia GmbH; Oliver Schielein; Andreas Hempfling; Hansastr. 4a; D-91126 Schwabach;
Phone: +49-(0)9122/985-181; Fax: +49-(0)9122/985-255; Email: info@ikmedia.de; Internet: www.ikmedia.de**

Press Release No. 05/2008

Page 2/2

April 2008

Catalytic converter: This cleans the exhaust gases, and takes the form of a cylindrical component with tapered inlet and outlet. Its effect is achieved by a block of ceramic honeycombs coated with various precious metals, such as platinum. These serve as catalysts for the chemical decomposition of the pollutants. From a performance aspect however, catalytic converters have one decisive disadvantage: their high flow resistance chokes the efficiency of the drive.

AC Schnitzer has therefore developed sports catalysts for some of its vehicles with a higher gas flow and an interior of special steel. In comparison with ceramic, this will tolerate much higher vibrations without breaking. So there are no problems even when fitted to race-sports suspension systems.

Rear silencer: Depending on system design – single or twin pipe – there are one or two rear silencers. Inside the housing the silencer is divided into several chambers insulated from the outside. The gas is forced to split into several part flows, so that the sound waves partly cancel each other out (phase-shifted overlay). By altering the cross-section and geometry, tuners such as **AC Schnitzer** can influence engine performance at this point and create a solid sound. The next paragraph explains the mechanism behind this.

Acoustic tuning of the tailpipe sound: Like a musical instrument, the correct note of an exhaust system is very complex. The sound spectrum can be varied further with a range of other components. An exhaust branch filter, also called a Helmholtz resonator, can be used to damp out certain frequency ranges. Another possibility is perforated panels, i.e. pipes perforated on the walls, which at their ends are fully or partly closed in cross-section. Reflection baffles can also be used, e.g. in whistle form. A further option are Venturi sections which, by constricting the exhaust path and the resulting increase in flow speed, filter out low-frequency sound elements.

Exhaust tailpipe: For aesthetic reasons, the exhaust pipe is usually decorated with an attractive tailpipe. Widely varying forms are available such as single or twin-pipe design. For BMW and Mini vehicles, **AC Schnitzer** offers various designs of chromed tailpipe: Oval, Racing, Sports Trim and Trap-Ment.

How good a well-tuned exhaust orchestra sounds can be best experienced on the **AC Schnitzer** website. There you can listen to numerous vehicles. The Aachen-based tuner offers a very wide range of optimised components for BMW and MINI exhaust systems, from chromed tailpipe trims to complete systems. In many cases, the "exhaust" is also an essential element of an **AC Schnitzer** performance upgrade.

AC Schnitzer
Ein Geschäftszweig der
KÖHL automobile GmbH

Hausanschrift
Neuenhofstraße 160
D-52078 Aachen

Telefon
++ 49/(0)700AC Schnitzer
++ 49/(0)241/5688-130

Telefax
++ 49/(0)241/5688-135

e-mail
info@ac-schnitzer.de

web
www.ac-schnitzer.de

Geschäftsführung
Rainer Vogel

Öffentlichkeitsarbeit
Susanne Müllejan

Copies free! Please send us a proof copy! Thank you!
AC Schnitzer is certified to DIN EN ISO 9001:2000
Further information on AC Schnitzer and print-quality photos
are available from the website
<http://www.ac-schnitzer.de>



Presse-Kontakt: IKmedia GmbH; Oliver Schielein; Andreas Hempfling; Hansastr. 4a; 91126 Schwabach;
Tel.: +49-(0)9122/985-181; Fax: +49-(0)9122/985-255; Email: info@ikmedia.de; Internet: www.ikmedia.de