

E39 Auto To Manual Swap

E39 Auto to Manual Swap: A Comprehensive Guide

The BMW E39 5-series, a classic in its own right, often leaves enthusiasts wanting more. One common desire? Converting the automatic transmission to a manual gearbox. An E39 auto to manual swap is a significant undertaking, but the rewards for dedicated BMW drivers are undeniable. This comprehensive guide delves into the intricacies of this popular modification, covering everything from the benefits and considerations to the practical steps involved and frequently asked questions.

Benefits of an E39 Auto to Manual Conversion

The allure of swapping an automatic transmission for a manual in an E39 isn't just about aesthetics; it offers several tangible advantages. This transformation directly impacts the driving experience, offering a more engaging and rewarding connection to the machine.

- **Enhanced Driving Experience:** The most significant benefit is the increased driver engagement. Manual transmissions provide a more direct and visceral connection to the car, allowing for precise control over gear selection and engine speed. This translates to a more rewarding and enjoyable driving experience, especially for enthusiasts who appreciate the art of driving. The E39's already capable handling is further amplified with the manual gearbox.
- **Improved Performance:** While not always a dramatic increase, a manual transmission can, in some cases, lead to marginally improved performance. Automatic transmissions inherently have some power loss through the torque converter. A manual eliminates this loss, resulting in a potentially quicker 0-60 mph time and a more responsive throttle. This is particularly noticeable during spirited driving.
- **Increased Fuel Efficiency (Potentially):** While not guaranteed, a manual transmission can sometimes lead to better fuel economy. This

depends on driving style and the specific configuration of the vehicle. Careful gear selection in a manual allows for optimization of engine RPM, which can lead to better fuel consumption.

- **Increased Resale Value:** For those planning to sell their E39 later, a successful and professionally executed manual conversion can significantly enhance the car's resale value. Many enthusiasts actively seek out manual transmission E39s, making a converted car a more desirable purchase.

The E39 Auto to Manual Swap: A Complex Undertaking

The process of converting an E39 from automatic to manual is far from simple. It's a significant undertaking requiring mechanical expertise, specialized tools, and a considerable amount of time and patience. This is not a weekend project.

Key Components and Considerations:

- **Transmission:** Sourcing a suitable manual transmission is paramount. This requires careful consideration of the year and model of your E39, ensuring compatibility with the differential and other drivetrain components. Popular choices often include transmissions from other BMW models of a similar era. Consider the *ZF S5D 310Z* as an often-used transmission.
- **Clutch, Flywheel, and Pressure Plate:** These components are essential for the manual transmission to function correctly. A proper clutch setup ensures smooth gear changes and efficient power transfer.
- **Driveshaft:** The driveshaft may need modification or replacement to accommodate the manual transmission.
- **Pedal Assembly:** You'll need to install a clutch pedal, and modify or replace the existing brake and gas pedals to accommodate the new setup.
- **Wiring and Electronics:** Extensive rewiring is required to adapt the car's electronic systems to the manual transmission. This includes adjusting the computer and various sensors.
- **Shift Linkage and Cables:** These components allow for smooth and

accurate gear shifting. Proper installation is critical for a positive shifting experience.

- **Hydraulic System:** A hydraulic clutch system requires careful bleeding to ensure proper operation.

Planning and Preparation:

- **Research and Planning:** Thorough research is crucial. Numerous online forums and communities dedicated to BMW E39 modifications offer invaluable insights, tips, and advice.
- **Gather Tools and Parts:** Compile a comprehensive list of all the necessary tools and components before starting the swap. This minimizes downtime and ensures a smoother process.
- **Professional Help:** Unless you possess significant mechanical experience, consider seeking professional help, especially for aspects such as wiring and ECU tuning. A professional mechanic familiar with E39s can greatly reduce the risk of errors.

Choosing the Right Parts for Your E39 Auto to Manual Swap

Selecting the correct components is crucial for a successful conversion. Using incompatible parts can lead to complications and potentially damage other parts of your vehicle.

- **Transmission Selection:** The transmission choice depends on the specific E39 model and personal preference. Research various options to find a suitable match in terms of gear ratios and overall durability.
- **Clutch System:** Opt for a high-quality clutch kit designed for the chosen transmission and engine. A reputable brand will offer better performance and longevity.
- **Other Components:** Similarly, choosing high-quality components for the driveshaft, shift linkage, and hydraulic system is vital for ensuring the reliability and performance of the conversion.

Post-Swap Considerations and Testing

Once the swap is complete, thorough testing is essential. This involves checking for proper functionality of the clutch, gear shifting, and the overall drivetrain. A professional alignment is also advisable. Regular maintenance is critical to ensure the longevity and reliability of the manual transmission.

Remember that an E39 auto to manual swap requires mechanical expertise. A poorly executed conversion can lead to significant issues. Proper planning, the right parts, and potentially professional assistance are key to a successful outcome.

FAQ: E39 Auto to Manual Swap

Q1: How much does an E39 auto to manual swap cost?

A1: The cost varies significantly depending on factors like the parts used, labor costs (if hiring a mechanic), and the complexity of the installation. Expect to invest several thousand dollars, potentially more depending on the scope of the project.

Q2: How long does an E39 auto to manual swap take?

A2: The duration can range from several weeks to several months, depending on mechanical expertise and availability of parts. A professional shop may complete the swap quicker, but independent conversions often take considerably longer.

Q3: What are the potential problems I might encounter during the swap?

A3: Potential problems include incorrect wiring, incompatible parts, clutch issues, and problems with the driveshaft. Careful planning and attention to detail help minimize these risks.

Q4: Can I do this myself?

A4: It is possible, but it's highly recommended only for individuals with significant mechanical experience. The complexity of the project makes it a challenging undertaking for beginners.

Q5: Will my E39's electronics need reprogramming?

A5: Yes, the car's computer system needs to be adjusted to accommodate the manual transmission. This often requires specialized software and knowledge.

Q6: Will the swap affect my car's warranty?

A6: Any modifications to your car will likely void any remaining factory warranty. This applies particularly to significant changes such as a transmission swap.

Q7: What are the best resources for information on this conversion?

A7: Online forums dedicated to BMW E39 modifications, like the various BMW enthusiast forums, are excellent resources. These communities offer invaluable advice, tips, and troubleshooting assistance.

Q8: Is it worth doing an E39 auto to manual swap?

A8: Whether or not the swap is "worth it" depends entirely on your priorities and personal preferences. If you prioritize a more engaging and rewarding driving experience, the effort and cost may be justified. However, it is a significant undertaking requiring considerable investment of time, effort, and money.

Conquering the Undertaking of an E39 Auto to Manual Swap

The BMW E39 5-Series, a classic machine known for its precise handling and robust engines, often leaves enthusiasts longing for a more engaging driving feel. Many believe that this feel is best achieved through the precise control of a manual transmission. This article delves into the complex process of converting an automatic E39 to a manual transmission, highlighting the essential steps, potential pitfalls, and rewards of this challenging project.

The allure of a manual swap extends beyond pure driving pleasure. It offers a more intimate connection with the car, allowing for a finer control over acceleration and deceleration. This translates to better fuel economy in skilled hands and a more involved driving experience, especially on winding roads. Moreover, a manual transmission often commands a higher resale value due to its appeal amongst enthusiasts.

However, undertaking an E39 auto to manual swap is no walk in the park. It's

a substantial undertaking that demands considerable mechanical aptitude, perseverance, and a substantial investment of both time and resources. Simply bolting a manual transmission to the existing drivetrain isn't sufficient; it's a multifaceted process requiring a multitude of modifications and replacements.

Key Components and Considerations:

The core of the swap involves acquiring the necessary pieces. This includes a appropriate manual transmission (typically an S5D 310Z or Getrag 280), a appropriate clutch, flywheel, pressure plate, throw-out bearing, applicable driveshaft, shifter linkage, pedal assembly (clutch, brake, and accelerator), and a complete wiring harness alteration to integrate the manual transmission's control system. Furthermore, you'll likely need a new clutch slave cylinder, a adapted driveshaft, and potentially a custom shifter assembly.

Beyond the pieces themselves, planning and preparation are vital. This involves thoroughly researching appropriate parts and their corresponding compatibility. A thorough parts list and sourcing strategy are critical. Many enthusiasts decide to purchase a supply car to obtain many of the required components.

The actual assembly process is intensive and needs a great degree of mechanical expertise. It involves removing the automatic transmission, installing the manual transmission, connecting the clutch system, adapting the driveshaft, modifying the wiring harness, and configuring the pedal unit. Accuracy is critical to prevent damage to the components and ensure smooth operation. Consulting detailed tutorials and forums dedicated to this specific alteration is highly recommended.

Challenges and Potential Pitfalls:

This undertaking presents a number of potential difficulties. Incorrect installation can lead to transmission failure, clutch slippage, or other mechanical problems. Incorrect wiring can result in electrical issues and even damage to the car's electronic system. Furthermore, the expense of parts and the time investment can quickly escalate beyond initial expectations.

Careful planning and a gradual approach are crucial for success. Working systematically through each stage, verifying each connection and component

before proceeding, significantly reduces the risk of failures. Utilizing a detailed checklist and consulting with experienced mechanics can also provide valuable assistance.

Rewards and Conclusion:

Despite the obstacles, the rewards of a successful E39 auto to manual swap are immense. The heightened driving experience, the increased control, and the enhanced connection to the car make it a worthwhile project for dedicated enthusiasts. The satisfaction of completing such a demanding task is an unmatched reward in itself.

In conclusion, the E39 auto to manual swap is a demanding yet gratifying project. With careful planning, meticulous execution, and a substantial dose of patience, it can transform a capable sedan into a genuinely exhilarating driving machine. Remember, this is a project best attempted by those with significant mechanical aptitude. Seeking professional guidance is often advisable.

Frequently Asked Questions (FAQ):

Q1: How much does an E39 auto to manual swap cost?

A1: The cost varies greatly depending on the parts sourcing (new vs. used), labor costs (DIY vs. professional), and any unforeseen issues. Expect to invest several thousand pounds.

Q2: What are the legal implications of this modification?

A2: Legality varies by region. It's essential to check local vehicle regulations and ensure the modified car meets all safety and emissions standards before operating it on public roads.

Q3: Is it possible to do this swap completely DIY?

A3: Yes, but it's a challenging project requiring significant mechanical skills and knowledge. Many people find it beneficial to have access to resources and the expertise of experienced mechanics, even if just for advice.

Q4: What are some common mistakes to avoid?

A4: Rushing the process, not properly torquing bolts, incorrectly wiring the transmission control systems, and overlooking the importance of proper

clutch alignment are all common pitfalls to avoid.

Q5: Can I use any manual transmission?

A5: No, only certain manual transmissions are compatible with the E39's drivetrain. Careful research and selection of the correct transmission are essential for a successful swap.

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