



Power Tips:

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What About Exhaust?

When repairing or replacing an exhaust system there are several things to keep in mind. Although on the surface an exhaust system seems pretty simple and not that important it actually does quite a bit. It removes the exhaust gases from the engine to atmosphere in a place that is safe so that the fumes from the engine do not enter the operators compartment or the sleeper. When assembled according to Federal Motor Vehicle standards, it quiets the sound from the engine to the legal limit. This provides the necessary back pressure to the system to control exhaust temperatures and prevent damage to the turbo and the engine.

Diesel exhaust is pretty nasty but there are two principle elements that cause the most damage to an exhaust system, particulates and acids. The particulates act like a sponge to absorb moisture and acids which corrodes the system from the inside out. It is important when routing an exhaust system to eliminate as many bends and kinks as possible. It is also important to eliminate as many joints as possible. Introduction of water into the exhaust system can accelerate the corrosion of the system therefore it is also important to use raincaps, mitred, or curved exhaust to limit the amount of water introduced.

Another cause of premature system failure is vibration damage. Older trucks had the mufflers attached to the cab. With the extreme flexibility of the cabs and the frames there was potential for a wide movement in the exhaust system and stress on the joints. Newer trucks have the exhaust system entirely isolated from the cabs and attached to the frame. This frame attachment allows more rigidity in the system. Flex pipe allows for variations in movement of the engine and frame as well as frame flex.

One of the principle jobs of the exhaust system is to 'muffle' the engine noise. The federal government caps the sound pressure or decibel level of truck exhaust at 80db. A good quality muffler is essential to meet this level and also provide correct backpressure and evacuation of the gases an engine produces.

So how do you choose the right parts? There are guillotine clamps, saddle clamps, flat band clamps, easy seal clamps™. There is stainless flex pipe, aluminized flex pipe, galvanized flex pipe. There is mild steel pipe, aluminized pipe, stainless pipe, chrome pipe, etc. It depends on several factors. Obviously cost is the principle factor, but there are others. Is the joint going to have significant stress? Then consider using a guillotine or a saddle clamp. Is the sealing of the joint the most important issue? Use a flat band clamp. Is the pipe under the cab to be replaced? Then it would probably be best to use aluminized pipe. Are you replacing the stack due to impact damage? It would be a good idea to look at the top of the muffler because it is usually damaged too. Replace both the muffler and the stack is probably best in most cases.

What about stainless vs. galvanized? As was noted earlier corrosion from the gases is what usually causes failed exhaust systems so it would stand to reason that Stainless would be best for longevity. There are several thicknesses of flex though, the thinner the less expensive. There are also different grades of stainless. There are two available in Power Products the 304 and 430. A magnet won't stick to 304, but it will stick to 430, and the 430 is the premium stainless! The newest trucks use nothing but stainless all the way from the turbo to the stack due to the amount of heat being generated by the new engines.

So the exhaust system is extremely important, but if you keep the guidelines listed in mind it should be easy and inexpensive to maintain.

