

INSTALLING A B21/23 IN AN 1800

At the time this article is written (March 1995), I only know of three 1800's that have a B21 /23 engine. Frank Derks, a car in Europe and my 66. The European car has dual two barrel Weber or Solex sidedraft carburetors, with the engine tilted as it is in the sedans. Frank's engine is also tilted over but uses the K-Jetronic fuel injection system that the engine came with. My car has the engine vertical, like a B 18 / 20 is installed. The point of this article is to go over some of the pros/cons of such a conversion.

BENEFITS: The B21 /23/230 is used in all Volvos made since 1976 to today, assuring a large supply of engines and parts. The last B20 was made in 1975, 20 years ago, parts will start to become rare, just ask about B 16 parts. The early B21's had about the same horsepower output as the best of the 1800 engines, but they are better in the torque department. This translates in to a better performing car. My car with a B21 F has a 4.3:1 rear and it has more than enough torque to chirp the tires if you are so inclined. A 4.1:1 would still be great and would even reduce the noise even more than getting rid of the B20's pushrod's did. The 1800 is much more enjoyable to drive without the clickity-clack of the rockers. Frank's car has a B23E and is really awesome. If you really want to increase the power, I tried a TURBO exhaust manifold on my car and it would fit. Eat your heart out Frank!

AT AN ANGLE CON: At least in the Derks installation the front cross member was cut away to clear the oil pan. The engine was installed in an early 'S' and it appears to me that in order to get some clearance for the radiator, the engine was put in about an inch further back. Some clearance for the M46 gearbox was also required, and I believe this necessitated the lowering of the engine. I am only speculating that this is the reason the crossmember was modified. The stock exhaust manifold could not be used and one was fabricated. The clearances to the suspension are small and the manifold even hits on acceleration. New transmission supports also had to be fabricated.

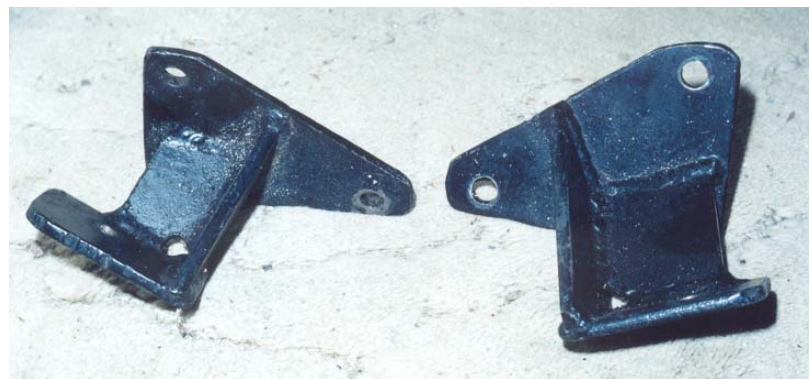
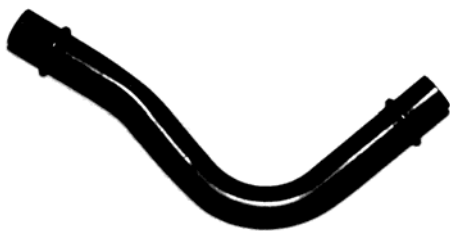
AT AN ANGLE PRO: The existing intake manifold and all the fuel injection components were usable and they even cleared the added E/ES brake booster. The latter transmission was used.

UPRIGHT: CON: Clearance for an intake manifold is limited. I had to relocate the vacuum booster to a spot near the battery. No stock intake manifold will fit, although some thing from Volvo Penta might. Tony Davey modified a manifold for me by cutting it and then welding it back together. I have a two barrel progressive downdraft Weber carburetor on it. **PRO:** The exhaust manifold is usable as is; only a new head pipe needed to be fabricated. Standard transmissions and their mounts originally used on an 1800 could be used. My car has a B18 bell housing with a hydraulic clutch, a M41 with a D overdrive. As an aside to this, I was warned about possible cam damage with the engine vertical. The cam cover was pulled after the engine was run and there was plenty of oil on the cam. I put about 2,000 miles on the engine and there is no sign of cam wear.

OTHER PROBLEMS: In either installation a radiator has to be modified. I had a 140 radiator cut down, this would even be helpful for all 1800 owners as this is a cross flow unit and is more efficient. I believe there is some room on the Derks method for an AC compressor, if my memory and photos are correct. Although there is some room in my method, mounting the compressor is a problem, as there is little room for brackets; the compressor may have to be mounted on the exhaust side of the engine--not a good thing.



WHAT IS NEEDED: If you want to install a B21 in an 1800, like I did, you need one very important piece for the engine. It is Volvo p / n 1266945-3 the pipe that delivers the off from the oil pump to the engine. It was used in the early B21's as these oil pumps are basically a B20 oil pump with a different pickup screen. The availability of these pipes may get scarce, so if you want to do this kind of conversion, scrounge up a pipe now! This pipe allows you to use a B20 oil pump on the B21 and then you can use a B20 oil pan on the engine. I have a jig for making up more engine mounts, get in touch with me if you're interested in purchasing a set.



IN CLOSING: I am determined to get an AC compressor on the car yet so I haven't given up on this project yet. There are some things I want to investigate further.

1. Changing over to fuel injection. While I have a modified FI intake manifold that would fit my car, it could not be used on an E/ES. I'm going to see about a manifold for these cars for those interested in such a conversion.
2. I would like to try installing a tilted engine in a latter car that has the latter radiator support (my '66 was modified to this). The cutting of the front crossmember might not be necessary, or at least less than the inch necessary on Frank's car. The exhaust manifold still would not be usable but I believe a header could be made up that would clear the upper suspension mount.

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Changes since article was written.

1. It was found that the manner the intake manifold was made caused a lumpy idle and had to run too rich. The passages were not smooth and there was no way to fix that. A new manifold was made up using a B21A manifold from Canada. It was used with a single side draft Stromberg; A local machine shop modified it and was able to leave the coolant passage intact. This means that in cooler weather the car will run better. This made a huge difference in how the engine idled and started.
2. I am in the process of putting AC in the car. The compressor is mounted and hoses connected under the hood. I still have to connect them at the evaporator. I put a three tube radiator in and an electric fan in front of the condenser.

The photos below show what's been done so far. Some body work is also in process as the rocker panels had to be replaced and the nose worked on.



