Nostalgic Motor Cars Unlocks the History & Mysteries of the 1963-1985 Avantis

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Nostalgic Motor Cars

The Avanti Exhaust Systems

One of the most difficult systems to install correctly

This article on 1963-1985 Avanti exhaust systems has been a much requested one. It will make a very difficult installation, much easier.

If you understand how exhaust systems are made. It will be supplying you with information, part numbers and exhaust parts that nobody else in the world has. This knowledge can only come from over 46 years of 1963-1985 Avanti service, not Studebakers, only Avantis and being the oldest franchised, new Avanti dealership (over 41 years, in the world.

I will have every exhaust part ever made in stock. (in multiples) for the 1963-1985 Avantis, except the exhaust deflectors. When you order a system it is pulled from my inventory. When I bend a needed part number, I will bend 5, 10 or 15 each at a time and put them on my shelves. I will supply first hand information, on how production pipes are made, and comparing that to tubing benders that muffler shops and I have.

I will compare the difference of a plain steel, aluminized or 409 stainless tubing with the history and pros and cons of each, so you can spend your money wisely. I hope this much needed article will clarify the knowledge that some have on how production exhaust is made, compared to manual made pipes with a tubing bender. I have also included a section on how one new customer tried to pull the wool over my eyes and collect $150.

The most important part of this article is that the exhaust systems I supply are made from the original Studebaker and Avanti Motors blueprints. The second most important information is the blue prints were drawn for a new car with all new parts. Not an Avanti that's 38-60 years old. Your Avanti may have worn, wrong, missing and above all, reproduction parts that were not made from the original blueprints and etc. I will also be supplying you with tips and tricks, I have learned in over 46 years of 1963-1985 Avanti service.

The 1963-64 Studebaker Avanti and all 1965 through 1974 Avantis exhaust system pipes were just plain steel. The aluminized pipes started showing up about1975, along with the catalytic converter. Aluminized steel is steel that has been plated with aluminum or aluminum-silicone alloy in a process analogous to hot-dip galvanizing. The steel workpiece is simmered in molten aluminum, to produce a tight metallic bond between the steel and coating The aluminized pipe will outlast the plain steel pipe by a very long time.

It was not uncommon for a 1975 aluminized system, and later Avanti exhaust system to last 10 plus years. This was for an Avanti that was a daily driver, on the salty winter roads of Michigan and other salty states. The tail pipes would rust out where they are inside the back of the muffler outlet, the balance of the tail pipe was still good, but it would look a little crusty, but still good.

The only reason the aluminized tail pipe would rust out at this point was, Studebaker designed the tail pipe (male end) to slide into the resonator eliminator pipe, resonator, or muffler (female end). I believe this was done because of the very tight restraints of the relationship of the exhaust and the X member frame at the rear axle.

There is also a very difficult, about 90 degree bend in the very short section of the front of the tail pipe.

It would also be very difficult to expand the diameter of the tail pipe being so close to the bend. Most other auto manufacturer would have the tail pipe being the female end, so moisture might not collect between the pipes.

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In early 2022 I had an Avanti restoration shop order a 1975 Avanti system from the catalytic converter back, in aluminized steel. After receiving the system the owner of this shop called me and stated that I made the exhaust system tail pipes incorrectly, that the mufflers should slide into the tail pipes. I told him that's not what the original Studebaker and Avanti Motors blueprints specify for all 1963-1985 Avantis produced by Studebaker and Avanti Motors. The tail pipe slides into the resonator, or a resonator eliminator pipe or mufflers. To the best of my knowledge, Studebaker and Avanti Motors never offered stainless exhaust pipes in their Production of the Avantis from 1963-1985.

I started supplying Avanti Motors with plain steel and aluminized service exhaust pipes in about 1977. In about 1979 stainless steel tubing became available to me. It was from the family of 409 stainless, which looks like aluminized steel, it's not very shiny like the family of 300 stainless steel. The 409 stainless pipe seems to be heavier than aluminized steel and much harder to bend. It wants to tear open when bending. The bender will also let you know it's stainless pipe, as it has to strain a little to bend it.

The cost of the 409 stainless is substantially more then the same gauge aluminized pipe.

The life expectancy of plain steel as you know, is very

short as it rusts from inside out and outside in. I have not offered plain steel exhaust for over 30 years, except for the very rare N.O.S resonators part number 1556317 at $175 each and the very rare N.O.S 1st pipes, installed with 2½-inch exhaust manifolds part number 1700066 and 1700067 on the very early Avantis. I don't sell these first 2 ½-inch pipes separately, they are sold as a kit. I have a very limited number of these kits. This 2½-inch kit will fit all 1965-1985 Avantis.

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I also have a very limited number of the number 2 position H-pipes—balance pipes—1560001 and 1560002 at $140 each.

The life expectancy of the 409 stainless Avanti pipes is longer than the aluminized pipes. They both will change color and show some corrosion, but what I have read, on the internet is that stainless will hold a lot more heat. Some Corvette owners state that the 409 stainless pipes will glow in the dark.

The main question between aluminized and 409 stainless is cost and longevity. The 409 stainless is more expensive than the aluminized pipes. But can you justify the additional cost for stainless? When you stop and think about the pampered life your Avanti will have. Is your Avanti going to be exposed to salty roads like it may have been when it was new, or be left out in the wet nasty weather as it might have been when it was new? Your answer is probably not. So why do you want to spend the extra money for stainless system?

I doubt that you will ever replace the aluminized exhaust system that I manufacture and sell. The original exhaust systems installed from 1963-1974 were 95 percent 2-inch tubing. I do not offer 2¼-inch Avanti exhaust systems. I agree with the Studebaker and Avanti Motors engineering. The 2-inch system just barely has enough clearance for the tight confines of the X member Avanti frame. To prove my point the nine factory built R-3 Avantis had the same 2-inch exhaust systems as the R-1 and R-2 Avantis except for the exhaust manifolds and first left and right pipes, but those 1st left and right R-3 pipes were 2-inches.

Here is something that most don't know. The first left pipes on the 63-64 Studebaker Avanti and the first left pipes on the 1966-1974 were 1-7/8-inch pipes. Not 2-inch pipe. I make them in 1 7/8-inch or 2-inch Avanti exhaust.

EXHAUST SYSTEMS

The Avanti 1963-1985 exhaust systems are very difficult to install correctly.
The problem areas are the pitmen arm, power steering control valve, power steering hoses and the tie rods. Studebaker and Avanti Motors specified how the pipes are to be bent and where any flats are to be installed for clearance.
If the pipes are not bent, per Studebaker and Avanti Motors blueprints, and the flats will not in the correct spots. This can effect the removal and installation of other parts, with the exhaust system in place.

!st pipes (Head Pipes) Studebaker

R-1 / R-2
1556359 L
1555718R
Aluminized or Stainless

Studebaker's 1st pipe (head pipes) have a flange welded to the pipe that bolts to the exhaust manifold. It has absolutely no adjustment, up, down or side to side.

R-3 / R-4
1558641 L
1558640 R
R-3/ R-4 pipes
Aluminized or Stainless

1701166 R 1701167 L
with 2-inch exhaust manifold, aluminized or stainless 1966-1974

Avanti Repair

The 1st pipes for the 1965-85 Avantis with a Chevy engine were designed with a female ball flange, that allowed the pipe to rotate, up, down and from side to side. The exhaust manifold and heat riser have a male ball shape.

The first pipes 1700066 and 1700067 were installed on the first Avanti II's produced with 2 1/2" exhaust manifolds.

With 2 1/2 " exhaust manifolds plain steel

N.O.S. 2 1/2" exhaust manifolds, first pipes, heat risers, flanges in stock Sold as a kit only this N.O.S. kit will fit 1965-1985 Avantis

Kit Contains:

1700069
2 1/2" Exhaust Manifold Kit
High Performance

1 - Left 2 1/2" Rams Horn exhaust manifold
1 - Right 2 1/2" Rams Horn exhaust manifold
1 - 1700067 N.O.S. 2 1/ 2" 1st exhaust pipe left
1 - 1700068 N.O.S. 2 1/ 2" 1st exhaust pipe Right
1 - 2 1/2" heat riser or 1 - 2 1/2" spacer
2 - 2 1/2" exhaust pipe flange
2 - manifold stud kits
2- 2 1/2" donuts

When I write articles, for *Avanti Magazine*, I like to give you 1963-1985 Avanti facts, that are not known by most Avanti enthusiasts and/or restoration shops.

The early Avantis produced by Avanti Motors were produced with 2½-inch rams horn exhaust manifolds and 2½ -inch 1st pipes.
You could also order your new Avanti with 2½-inch exhaust manifolds, through the end of the 1974 production run. Avanti Motors parts department offered all the components to convert your Avanti to the performance 2½-inch rams horn manifolds. This 2½-inch performance kit part number 1700069 will fit all 1965-1985 Avantis and doesn't have the clearance problems that you may have with the many different aftermarket designed headers

Single clamp on female pipe with other half as support.

Studebaker designed a double clamp Illustration number 0401-22, part number1547588R, that pinches the 1st pipe (head pipe) to the second pipe. It's purpose was to serve as a clamp to pinch the two pipes together and a support to keep the pipes from moving around.

Double clamp on female pipe Two different ways to install the special double clamp.

The double saddle is only over the 2nd pipe only to pinch it in two places. I prefer the first as it holds the pipe and keeps the 2nd pipe from rotating down and I think that's what the drawing shows, you be the judge.

This clamp 1547588 was installed on all 1963-1964 Studebaker Avantis and most all 1965-1974 Avantis. The Avanti system from 1963-1974 was what I refer to as a 5 place exhaust system. The 1st pipe is what some call the head pipe. The 2nd pipe connect the 1st pipe to the muffler which is 3rd. The 4th pipe is the resonator or the resonator eliminator pipe, which connect the muffler to the tail pipe and the tail pipe is the 5th. This 1-5 system makes it much easier to explain your exhaust system needs.

Avanti Repair

Illustration numbers
#0401-4 & 0401-3
Part number's 1556360 & 361
Aluminized or Stainless

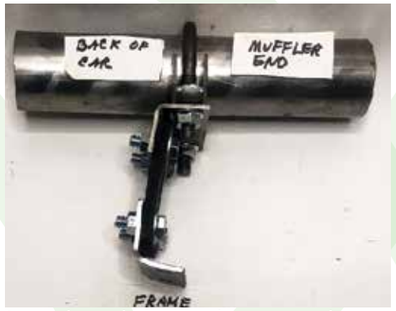
Illustration numbers 0401-4 and 0401-3
Part number's 1560001 and 002 $140 ea.

There were two different 2nd pipes, for 1963-1964 Illustration number 0401-3 Part number1556360 and Illustration number 0401-4 Part number1556361 were the standard pipes that connected the 1st pipe to the muffler. There was also "H" pipes (balance pipes), which were installed with quiet tone or glass pack mufflers. The "H" pipe was suppose to give you between 7-15 more H.P., from what I have read.
The big problem was they were very difficult to install on a new Studebaker Avanti with all new parts and almost impossible to make any adjustments to the exhaust system as it snaked through the frame X member.

I used to offer Illustration number 0401-3 1560601 and Illustration number 0401-4 1560602 in aluminized or 409 stainless, but some customers didn't understand they may have to cut and weld on the pipes to fit on anything, other than a new car.

I still have some N.O.S. Illustration number 0401-3 Part number1560601 and Illustration number 0401-4 Part number1560602 H-pipes in stock at $140 each. Then you can blame Studebaker for not making the pipes correctly, don't forget these N.O.S. pipes were made to fit a totally new car with all new parts, not a 60 year old car with unknown parts that have been installed over the years.

The **3rd** position is for the mufflers on 1963-1974 Avanti. The glass pack mufflers were standard with the quiet tone muffler as an option Illustration 0402-1 Part number 1557754R, Glass packs $70 each or 1560065R quiet tone muffler at $70 each.
The glass pack mufflers were round and left room to spare at the back end of the muffler and the frame.
The quiet tone mufflers were an oval and problematic to getting enough clearance between the muffler and the frame.
The only support for the exhaust system from the engine, back was located at the very back end of the muffler. It was a double wide, rubber strap Illustration number 0402-19 Part number 1553904. It worked well when new, but as it aged it would not hold it's original shape.



This picture shows the proper placement as they are assembled. All parts of driver side of car.

The **4th** position is the resonators, Illustration number 0403-4 Part number 1556317, N.O.S. $140.00 each or the resonator eliminator pipes, Illustration number 0403-3 Part number1557181.

The 5th position are the tail pipes, which are difficult to adjust. The tail pipes must clear the fiberglass floor and rear shock cross members as they also have to clear the rear brake rubber flex hose. The last part of the tail pipe has to clear the rear spring and spare tire well so when they exit below the tail pan, and they are both straight back and level with each other. This can all be achieved by twisting and moving the tail pipes. Don't forget, if the exhaust system was installed with the rear axle hanging down. After getting the Avanti on the ground you must check to see if you have adequate clearance between the tail pipe and the rear brake rubber flex hose. Most don't think of this.

Avanti Repair

The 1975-1985 Avanti Exhaust System is what I call, For easy explanation, a 6-place system.
The 1963-1974 is a 5 place system.

The 1st pipe is a Y-pipe that connects the left exhaust manifold to the right side. There was 3 different front Y-pipes for the 1975-1985

Part number 1701052 1975-80 $320.
Part number 1701672 1981-84 (early Non H.O.) $325.
Part number 1702041 1984-85 (H.O.) $325.
Not offered in stainless

The 2nd pipe is a large diameter feeder pipe, which connect the 1st Y-pipe to the catalytic converter There were 5 different feeder pipes for 1975-1985

Part number 1701053 1975-80 $110.
Part number 1701758 1981-82 $110.
Part number 1701905 1983 (California only) $110.
Part number 1701931 1983 $110.
Part number1702042 1984-85 H.O. $110.
Not offered in stainless
The 3rd position is occupied by the catalytic converter. The catalytic converter connected the feeder pipe to the rear Y-pipe. The catalytic converter was located where the passenger side muffler was installed from 1963-1974.
Above all the different cat converters that Avanti installed they all had a fiberglass pad that was attached to the fiberglass floor pan. Avanti Motors manufactured their own cat converter heat shields and bracket that were attached to the top of the frame. These heat shield designs were made to match the size and shape of the cat converter. Believe it or not, I still have at least 3 different styles heat shields in stock. I have stated before I have more N.O.S. Avanti parts in my inventory than anybody else in the world! Call for pricing on these heat shields I only have 2 of the late style cat converters left on my shelves.
Part number 1701928 1983-84 early $385.
Part number 1702024 1984-85 H.O. $450.

The 4th position is what I call the rear Y-pipe there were 3 different rear pipes installed by Avanti Motor for 1975-1985. The rear Y-pipe connects the cat converter to the mufflers.
Part number 1701055 1975-82 aluminized $205. Stainless $245.
Part number1701941 1983-84 Early aluminized $205. Stainless $245.
Part number 1702045 1984-85 H.O. aluminized $225. stainless $290.
Part number 1701758 1981-82 $110. Part number1701905 1983 (california only) $110.

The 5th position is where the mufflers got moved to: for 1975-85 the mufflers are now beneath the rear seat. The mufflers connect the Y-pipe to the tail pipes. The factory mufflers Avanti Motors installed was an oval quiet tone, from 1975-1983 or glass pack mufflers could be ordered as a no cost option on your new Avanti. Starting with the 1983 Anniversary through 1985 Avanti. Glass pack mufflers were installed with quiet tone mufflers at a no cost option. Some time in very late 1984or 1985 they switched back to the quiet tone mufflers. I suspect they ran out of the glass pack mufflers and did not have the means to purchase more glass pack mufflers. This is when the Avanti Motors suppliers had cut them off for lack of payment for parts Avanti Motors had already received. I have 2 round, custom made mufflers manufactured for me. They are both aluminized with about a 4" diameter case. They are the correct length. One is a glass pack Part number1557754R @$70.00 each The other is a quiet tone with 2 chambers Part number 1560065R @70.00 each.

The 6th position is a left tail pipe Part number1701027 and right tail pipe Part number1701028. The are different than the tail pipes that were installed on the 1963-74.

If you want to eliminate the 1975-85 Avanti Exhaust System. I have a system that will fit your 1975-85 with true dual exhaust from front exhaust manifold to the tail pipes, and you can source your cat converters.

Nostalgic Motor Cars is also the only one who offers a complete factory correct exhaust system installation kit. These are 3 different kits available.
Part number 63-64ESHK $99
Part number 66-74ESHK $99
Part number 75-85ESHK $65

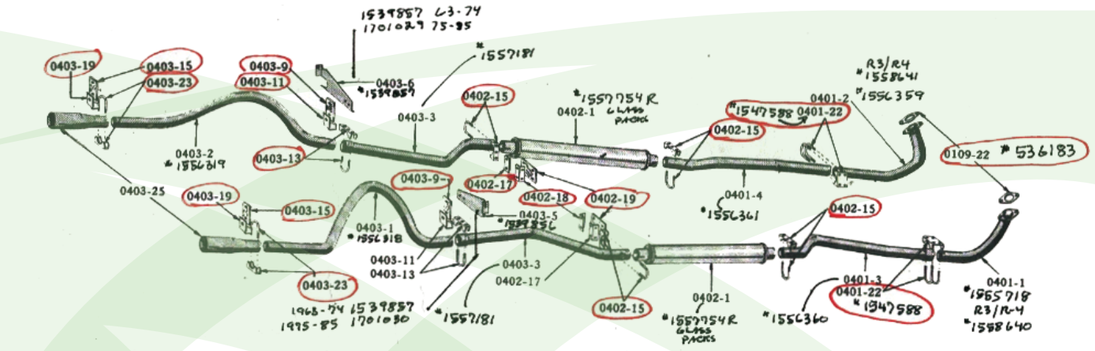
These factory correct kits contain heavy duty U-Bolts and saddles, 2 special double U-Bolt and saddle clamps, special brackets, special single straps, special double straps, special supports and gaskets everything you need except the nuts and bolts for the factory correct installation. Each kit contains the correct parts needed for the specified year of the Avanti.

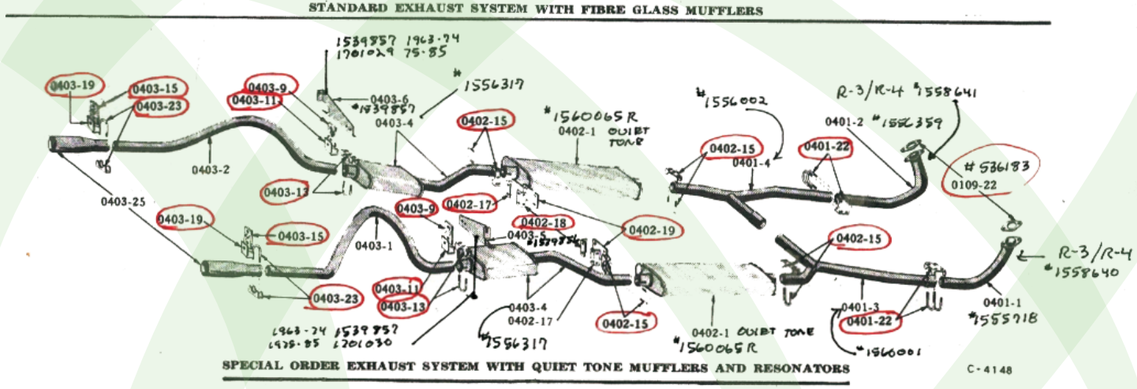

Part number63-64ESHK $99


Part number66-74ESHK $99


Part number 75-85ESHK $65

Avanti Repair





DUAL EXHAUST SYSTEM

All parts circled, in red, are included in the installation kit Part number63-64ESHK $99 will fit all 1963-64 Avanti factory exhaust systems.

It has been requested to explain how the Avanti exhaust systems are made and what type of pipe were used on 1963-1985 Avantis

To the best of my knowledge, Studebaker and Avanti motor from 1963-1974 used plain, uncoated steel tubing to make their exhaust systems. about 1975 aluminized tubing became available at a reasonable price and the production Avantis had aluminized tubing to make their pipes.
I am unaware if Studebaker bent their own exhaust pipes, in house. I know Pontiac Motors bent some, or maybe all for their pipes in house.
I was a journeyman toolmaker at Pontiac Motors in Pontiac, Michigan. The toolmaker trade at Pontiac Motors basically had 5 different jobs, within our trade

1. Working in the tool room, making or repairing tooling
2. Servicing production machinery
3. Gauge repair (servicing or repairing the inspection gauges for production parts)
4. Scale repair (servicing and repairing the automated production scales along with regular shipping weighing scales)
5. Balancer repair (servicing the balancers that balanced pulleys, flywheels and etc, along with the balancers that balanced the assembled engine block with pistons, rods and cranks shafts.

I was one of only two that were schooled and trained to do all five jobs within the toolmaker classification. My job took me to all the plants at Pontiac Motors, and I got to see first hand on how things were done.
This production method that I'm going to describe is totally different than the way I, and most shops bend tubing.

In the tubing bending department, an operator would place a piece of cut to length tubing into a bender. He or she would push a button, with each hand, the bender would automatically move around the tubing. It would stop a preset location through the use of a limit switch and then return to it's original open position.

The operator would then walk to second bender, place the bent tubing into the second bender and repeat the formal process for the second bend. The operator may have a third or fourth bend to make. All the bends were controlled by limit switches, so the pipe was accurately bent. If the pipe required brackets to be welded to the pipe, he or she would place the bent pipe in a welding jig. the operator would load in the part to be welded to the pipe, they would hit two buttons and clamps would lock both in place. Then the welder would do it's job. The operator would unload the completed pipe assembly and hang it on a conveyor or place in a basket for transportation.

I believe the operator was to check his or her finished pipe assembly to a fitment jig (gauge) a couple times per their shift. If a limit switch was out of adjustment the pipes could become scrap, that's why they had the inspection fitment jig. Not all pipes were placed in a fitment jig, so pipes can vary.

I have two tubing bending machines, whereas most shops only have one. I need two, because I only bend Avanti exhaust pipes and I may bend 10 or 15 of the same pipes at the same time, which saves me time, and which saves you money.
This is how I and others bend exhaust tubing, making them into completed pipe assembly.

1. Tubing is cut to length
2. The cut piece of tubing is marked at the locations for the different bends required.
3. The piece of tubing is clamped in the bender at one of the marks.
4. A protractor device is installed on one end of the tubing at zero degrees
5. A button is pushed as the operator watches a pointer on a plate that has degrees marked on it. The operator has to release the button a the predetermined degree reading. The operator then pushes a different button, which releases the bender from the tubing and returns to original location
6. Most Avanti pipes require tooling to be changed to a different radius, for the different bends.
7. After the radius tooling is changed. The operator places the tubing in the bender for the second bend on the second mark. The tubing is rotated to the predetermined degree, located on the protractor on the end of the pipe. The button is pushed and again the operator watches a pointer on the plate, and stops a the predetermined degree. The release button is pushed so the bender will return to it starting point. This is repeated until the tubing has all it's bends.
8. The tubing is now cut to length
9. Some pipes require to be expanded on one or both ends.
10. This is how most shops bend tubing. If the operator left his or her finger or foot to long, or not long enough the pipe may not fit.
11. If the operator didn't read the protractor on the end of the tubing correctly or the protractor got bumped and moved between bends. The pipe may not fit correctly. Both of these happen quite often especially when the end protractor gets moved without the operator knowing it, as the end protractor is only lightly clamped on the pipe.
12. I have eliminated the possibility, of mis bending pipes, by building fitment jigs, back in 1977 from the original Studebaker and Avanti Motor Blue prints. Every part has it's own fitment jig with a master pipe painted red, that stays in the jig. All finished pipes are placed in their jig. If the pipe doesn't fit the jig. It's cut up and becomes scrap steel. If it fits the fitment jig, It will fit your Avanti. Don't forget the blue prints were drawn for a new cars with all new parts. When an Avanti that's 38-60 years old. A new exhaust system may require some slight tweaking for that perfect fit, but normally that has not been an issue in the last 46 years.

I first started making exhaust systems for Avanti service in about 1976 or77. I was complaining to them on how some of their pipes were not bent in a consistent manor and I suggested that all their pipes should be from ½-inch to 1-inch longer, as I could always shorten a pipe, but it's very difficult to lengthen a pipe.

The 2nd pipe is a very critical pipe to be longer and bent correctly. The only adjustment you have on the 2nd pipe is to move it from front to the back as you rotate it through the X member of the frame. This is a lot harder than you may think, as gravity comes into play and the 2nd pipes want to rotate down and start to rattle. That's why the double clamp 1547588R is needed to minimize that pipe from rotating. I suggested to Avant Motors their pipes should all be jig fit, after bending , for consistency. They jokingly said "Dan, if you don't like our pipes, why don't you purchase a bender and we will purchase the service pipes from you." I believe their pipes were being bent by a muffler shop. I took a jokingly smart remark and saw an opportunity to improve their product, by simply making the pipes longer. Which would allow for more adjustment and as a journeyman toolmaker, I made up fitment jigs for all the pipes from the original blue prints.

I purchased a new bender in about 1976 or 77. I called them and said " I purchased a bender, as they suggested, and was ready to start making pipes for Avanti service. I asked them to send me the blue prints, and I would make a fitment jig (gauge) so all pipes would be placed

in the fitment jig after bending, for a consistently, correct fitting pipe, every time. The pipe would also be longer, than the print. As they say; the rest is history.

They started stocking my exhaust service pipes. If they were out of stock and a customer need a system. They would call me and I would drop ship the system to the customer. I would bill Avanti Motors for the system and shipping, but the customer would pay them.
I have never, in over 45 years of making Avanti exhaust systems, ever had a legitimate complaint about my exhaust systems fitment. Since a stainless pipe is a much more difficult pipe to compress (clamp). My tolerances for the female pipe were closer than the aluminized pipes.

The rule that my wife Betty, daughter Angela and I followed when shipping exhaust was that all male pipes were slid inside the female pipe before shipping. What that close tolerance did not allow for was some pipes were getting slightly tweaked on the ends, in shipping. I have eliminated that problem that some had and have made the female opening a little larger. About 15-20 years ago, I had a customer send back one of my exhaust pipes, along with a N.O.S. Studebaker Avanti plain steel pipe that had a paper label with the Studebaker part number printed on it. He stated that my pipe did not match his N.O.S. plain steel pipe. I explained that my pipe fit the fitment jig, that I built, using the original blue prints and my pipes have already correctly fit hundreds and hundreds of Avantis. What this customer failed to understand is in the production pipe world, that you may have more than one pipe bender and more than one operator of those benders, with more than one shift. Not all pipes are checked in a fitment jig. Maybe the start of a shift or just after lunch, they were checked. That's the way it was at Pontiac Motors, as a toolmaker, I serviced some of these machines. I also must tell you, that when these blue prints were drawn up, they were for a new car, going down the assembly line, where every pipe must fit correctly, every time. When you take a Avanti that's 20, 30, 40, 50 years old, it may have old worn out parts, wrong parts, misalignment parts or, all of the above. Reproduction parts that were not made from the original blue prints or tooling.
Avanti Motors would have told you that you may have to tweak a pipe to make it fit your Avanti or install a flat where needed.

In about 2021 I had a new customer order a stainless exhaust system for a 1963 Avanti he had just purchased. I have always suggested if you are not going to install the system yourself, that you find a shop that DOES NOT have an exhaust tubing bender. The shop with a bender is already ticked off at you because he or she thinks they have the ability to bend the system for your car and maybe they do. Some of these after market shops have the idea of their better designs for the pipes, than what has been proven with thousands of exhaust systems before their ideas. They fail to take into account for removal and re-installment of other parts with out the removal of the exhaust system, that the engineers thought about when they designed the system. This particular customer took my stainless system to a shop that bent systems for cars and trucks. This customer called and stated the 1st pipes were not bent correctly. I asked him to send a picture of the problem pipe bolted in place. I received a picture of the 1st left pipe on the engine. The picture showed the 1st left pipe, sloping down enough that the 2nd pipe could not be installed.
When I saw the picture, I knew something was very wrong. I suggested that he send back the 1st left and right pipes to me. I stated if the pipes were not bent correctly I would send him the correct pipes and I would pay the shipping, both ways. I also stated that if the pipes fit my fitment jig, that they would be correct and he would have to pay the two way shipping, he refused to do that. I asked him if he had any reproduction parts on this car. He stated the exhaust manifolds were reproductions. I told him this might be part of the problem, along with a list of other parts that could be wrong, or worn out such as motor and trans mount and etc. He stated that the pipes were bent wrong, and the reproduction exhaust manifolds were made correctly I don't know how you can tell if a reproduction exhaust manifold is correct, unless you have an original blue print and./or an original exhaust manifold along with a surface plate, height gauge, gauge blocks and dial indicator.

When I saw the picture, I knew this Avanti had a lot of parts that were not correct or somebody was trying to pull the wool over my eyes. I explained to him how the pipes were made. The first pipe is marked for bending. The second is bent to the blue print, and third is now placed in a fitment jig, is marked to be cut off for welding on the flange. Next, the flange is nutted down on two studs on the fitment jig, and the pipe is now clamped in the jig and gets welded. Once it cools, it's marked to be cut for length and cut. so if the pipe fits the jig, its correct as over 500 have been before his pipe.

The picture showed it wasn't bent far enough on the big bend. My suggestion was to have the shop call me, which the shop would not do. I suggested to have the shop slightly tweak the bend on their bender or better yet to pie cut (cut a slot like a section of an orange) the inside of the bend. Tap the pipe into the correct alignment and weld up the cut. I told him I would pay for this and It should only take about 15 minutes each at his shop's hourly rate, which would come out to about $25per pipe. He called a couple days later and said his shop charged

him $75.00 each and wanted me to send him a check for $150 which I declined, as I now knew that what probably took place. If a shop has a bender, all he or she has to do is slightly back bend the pipe.
This is where a bent pipe is place in a bender to slightly reverse the bend. I have to do this sometime to make the pipes fit the jig precisely.

Now the shop calls the customer to come look at a improperly bent pipe. Then after you leave (unless he was in on it from the beginning) he or she will re-bend the pipe to fit and he or she just made $150. This has only happed this one time. One of my customers that installed my system on his Avanti was totally surprised at his comments, as he had no problems with his system and wanted to make sure I was aware of the guys comment on one of the Avanti forums. I don't visit these forums, as there are too many totally wrong answers, given by unknowledgeable sources.

Dan Booth's and Nostalgic Motor Cars Tips & Tricks when installing a correctly made N.O.S. Avanti exhaust system.

1. The 1st left pipe on the 1963-64 Studebaker Avanti is the most problematic in the system. When it's bolted down to an original exhaust manifold, it has absolutely no adjustment to help it line up to the 2nd pipe. Depending on how much your Avanti's original tolerances are off, compared to when it was new. Occasionally some slight tweaking may be required for the left and/or the right.
2. The 1966-1974 Avantis 1st left pipe lends itself to adjustment, as GM designed it exhaust manifold with a male style ball end on the left exhaust manifold and a male ball style on the right heat riser on the 2" and the 2 1/2"' exhaust manifolds. This allows the pipes to have some adjustment. Avanti Motors asked me to stop putting a clearance flats for the pitman arms on the left pipes. They requested that I mark them "Install a flat as need for pitman arm clearance." That was over 40 years ago, as the flat may be just a little off location. Because the car was out of the original new car specifications.
3. When installing the first pipe on a Chevy engine, Chevy exhaust manifolds have 3 studs, and a 3 stud flange that holds the 1st pipes. Slide the 2nd pipe on the 1st pipe. Make this 1st pipe (left only) hug the block as close as possible. Slightly snug up your 3 nuts. Remove the 2nd pipe, rotate the1st pipe away, but it should retain the tight fit at the block. Now you can tight up the inside nut. Now you should still be able to rotate the first pipe back into the correct alignment for the 2nd pipe when you are all done hanging the balance of the system. You can now tight up the other two nuts. This will move the pipe slightly away from the engine block. If you are installing a front Y-pipe, from 1975-1985, you will have to make up a special open end wrench, to tighten the inside nut which is a real pain. After the total system is installed the 1966-74 !st left pipe and possible the Y-pipe on 1975-85 must be modified for pitman arm clearance. Turn the steering wheel from total left to total right, the pitman arm may rub against the left pipe. Remember I told you that Avanti Motors asked me to stop installing this flat on the 1966-74 1st left pipe. The y-pipe has clearance flats all over it, so it should be ok. If you need to install clearance flats for pitman arm, just heat the pipe up until it's cherry red and make your flat. It's that simple.
4. All my pipes are about ½ to 1-inch longer than required
5. I always mark the male end of all pipes with a felt tip pen 1"', 2" and 3", then I put a file make where the felt tip marks are. This allows me to know how far the male pipe is inside the female pipe. so when I tighten down the heavy duty muffler clamp, it will be pinching the two pipes together and not collapsing the single wall of the female pipe, which can screw up future adjustments of this joint.
6. Studebaker designed a special double clamp that gets installed between the 1st pipe and 2nd pipe it's purpose is not to double up the clamping pressure on the 2nd pipes where they meet the 1st pipes. The purpose is one side of the clamp is to pinch the two pipes together and the other half is tightened down on the 1st pipe as a support. The support from the 1st pipe will help keep the 2nd pipe from gravity taking it out of it's original non rattle position. to prove my point. If you look on page 45 of the parts manual (included in this article) and study the very accurate drawing of Illustration number 0401-22 Part number1547588 you will notice what I just mentioned. You can install the double clamp so it's clamping on two places on the female pipe, but the 2nd pipe will rotate down out of position a lot easier due to gravity.
7. When I worked on the assembly line, at Pontiac Motors, I learned when you install a muffler clamp on a pipe, the outside end of the clamp saddle should only be 1/8"' from the end of the female pipe. Avanti never had reliefs (slots) cut into the female end of the pipes, which would make easier to clamp the two pipes together. I also only have heavy duty clamps, in my installation kits, as a standard muffler clamp is not stout enough to clamp the two pipes together, without stripping the threads or breaking the U-bolt. Most installers install a muffler clamp further back than 1/8" from the end of the female pipe. What this does if the male pipe is only in a short (unknown) distance, when the clamp is tightened down, it's only pinching the two pipes together at one spot and collapsing the female pipe where it is just a single wall, not two pipes. What this does is restrict any further adjustment that may be needed with out removing he female pipe and trying to correct that collapsed pipe.
8. The 4 single rubber straps, Illustration number 0403, Part number1544725 in my installation kits are all the same.. the 2 supports, Illustration number 0403-11 Part number 526459 are the larger of the four supports, in the kit, and are at the back of the resonator, or resonator eliminator pipe, where it meets the tail pipe on 1963-1974. the same supports are used on the 1975-1985 where the mufflers meet the tail pipes. The other 2 supports, Illustration number 0403-19 Part number 526486 are the smaller of the four supports and are located where the tail pipe meets the exhaust deflectors, Illustration number 0403-25 and are the same location for 1963-1985
9. If you study the drawing on page 45 from the parts book *(included in this article)* and look at Illustration numbers 0403-11 and 0403-19 it will clearly show you which side for the bracket Illustration numbers 0403-5 and 0403-4 the rubber strap is to be located on. It also shows you which side the rubber strip is to be on the supports. Don't forget to have a large flat washer on top of the rubber straps. Always install the bolts through the rubber strap and support, so the head of the bolt is on the bent end of the support. If you install the bolt backwards, you can not get the U-bolt of the clamp to sit down on the support.
10. This drawing also shows what direction the U-bolts will be facing for maximum clearance. if you have any questions on my 1963-1985 Avanti N.O.S. Exhaust system, or the installation kits, please call me.

1700069
2 ½" Exhaust Manifold Kit
High Performance $625.00

1 - Left 2½" Rams Horn exhaust manifold
1 - Right 2 ½" Rams Horn exhaust manifold
1 - 1700067 N.O.S. 2 1/ 2" 1st exhaust pipe left
1 - 1700068 N.O.S. 2 1/ 2" 1st exhaust pipe Right
1 - 2 ½" heat riser or 1 - 2 ½" spacer
2 - 2 ½" exhaust pipe flange
2 - manifold stud kits
2- 2 ½" donuts

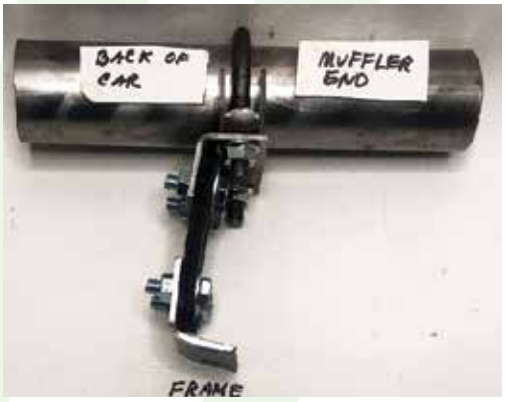
When I write articles, for Avanti Magazine, I like to give you 1963-1985 Avanti facts, that are not known by most Avanti enthusiasts and/or restoration shops.
The early Avantis produced by Avanti Motors were produced with 2 ½" rams horn exhaust manifolds and 2 ½" 1st pipes.
You could also order your new Avanti with 2 ½" exhaust manifolds, through the end of the 1974 production run..
Avanti Motors parts department offered all the components to convert your Avanti to the performance 2 ½" Rams horn manifolds. This 2 ½" performance kit part # 1700069 will fit all 1965-1985 Avantis and doesn't have the clearance problems that you may have with the many different aftermarket designed headers

Avanti Repair

Now, for the installation of 1963-1985 Avanti exhaust systems. I am sure you will agree with me, when I say not all installers are equal. If you install the Avanti exhaust system with the original Studebaker and Avanti Motors correct bracket, straps, clamps and etc, believe it or not, it makes it a lot easier. Now if all these brackets, straps, clamps are assembled the way Studebaker and Avanti Motors did, when the car was built. This also contributes to an easier installation.

I have always wondered why some installers weld a system together. They normally say to clean up the looks. The 1963-1985 Avanti frame is not a work of a art. It actually ugly to look at, so why do they weld it? After all how long does it take to tighten a muffler clamp? It actual take less time than to weld the pipe. They still need muffler clamps to hold the system in place.

They weld a system because they don't want to take the time needed, to fit and adjust it properly, or they bent the system and it doesn't fit properly. They can now force the system to comply to their needs, and weld the joints. I am showing you how all the correct parts included in my installation kit were assembled when your Avanti was built. Earlier, in this article, I showed you how the special double clamp Illust # 0401-22 Part number 1547588 was to be installed. I also showed you how to install a muffler U-bolt and saddle so it would clamp tight with out collapsing the female pipe, where it might only be a single wall.



This picture shows the proper sequence of assembly, for the parts at the back of the mufflers. Illust #0402-17 Part number 1556371 bracket (muffler end), Illustration number 0402-19 Part number1553904 strap (muffler rear support) and Illustration number 0402-18 Part number1553886 bracket (frame end)

There were 2 different styles of the brackets, at the front of the tail pipes. These brackets from 1963-1985 will rust out, and as the picture shows, they changed styles for 1975-1985

1963-1974
Illustration number 0403-5 Part number 1539856 R $35
Illustration number 0403-6 Part number 1539857 L $35

1975-1985
Illustration number 0403-5 Part number 1701030 R $35
Illustration number 0403-6 Part number 1701029 L $35

This picture shows which side of the rubber strap will be placed on which side of the steel brackets. This allows for a much easier installation of the exhaust system. It also shows you that the larger of the 2 pipes, support brackets is for this location.

Strap Illustration, above, number 0403-9 Part number 1544725; Support Illustratoin number 0403-11 Part number 526459 (longer of the two) Bolt/saddle Illustration number 0403-13 Part number1557634

This picture, at right, shows the strap and the support (small or the two) that holds the tail pipe and exhaust deflector.
Again which side the strap is located on the support.
Strap Illustration number 0403-9 Part number1544725
Support Illustration number 0403-15 Part number 1544725 (shorter of the two)
If you assemble all the parts in the exhaust hanging kit, as the photos show, including which way the bolts are installed allows the U-bolt and saddle in their correct location, for an easier installation of the entire exhaust system.