

News & Updates

JULY 2004

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Be Car Care Aware™

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JASPER Opens Missouri Remanufacturing Facility

Jasper Engines & Transmissions has purchased the assets of a former remanufacturer of gasoline engines.

JASPER has purchased an 83,000 square foot engine remanufacturing plant in Willow Springs, Missouri. The facility, located approximately 60 miles east of Springfield, has been closed since December of 2003. JASPER's goal is to restart the facility by July 5th.

With the increase in sales of JASPER's quality remanufactured products comes the need for increased production which the Willow Springs plant will help fill. "Initially Willow Springs will do complete engine disassembly, cleaning, machining, assembly and then testing," says Jasper Engines & Transmissions President Doug Bawel. "Our plan is for them to begin doing 50 engines a day and ramping that up as sales continue to grow. At one time, this facility was producing over 300 units a day so there is room to grow. Sometime during the 3rd quarter we would like to begin remanufacturing transmissions here."

"Due to the great support and sales

success of JASPER's many independent repair facilities that sell our products, the demand for our products is at an all time high. The opportunity to develop the Willow Springs remanufacturing facility is definitely a WIN-WIN for our many loyal customers and the community," commented Tom Schrader, Vice President of Marketing and Strategic Development.

Another reason for JASPER going to Willow Springs was the availability of a trained workforce. "The deal really came about very quickly, in less than ten days," says Bawel. "We called about some equipment that was for sale, and when hearing the Willow Springs Economic Development Commission owned the equipment, and the City the building, we got a little excited."

"The day we toured the operation, three of the previous supervisors encouraged us to move there," said Bawel. "The response from the community has been overwhelming. We received over 200 applications in our first two weeks and they keep coming."

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The New Willow Springs, Missouri, facility is expected to produce 50 engines a day when it opens in early July.

West Service Center

West Service Center, a full service auto and truck repair facility, was started in 1987 by a man who loved to tinker with anything mechanical, and had an early understanding about customer service.

Robert West left high school and served as a diesel and Jeep mechanic in the Army. He later worked several jobs including a five year stint at a Naval Air Station repairing F-14 jet engines. Robert started his business because he needed a place to fix cars. Every evening for one year, he would leave the Air Station and go to the garage, and work on friend's and neighbor's cars until late at night. When the F-14's relocated to Florida, Robert resigned from the Air Station and started at the garage full-time.

West Service Center has grown over the years from a six-bay shop to a 12-bay facility located at 904 Cavalier Blvd. in Chesapeake. There are 18 employees at West that take care of the customer's needs, including six ASE Certified technicians.

Robert learned from the beginning that customers are what would make the business thrive. Several customer programs are offered, including the *Greeting 2U* program, in which West offers a complimentary oil change/state inspection coupon to families new to his area. West also offers 24-hour towing and



West Service Center provides free shuttle service to and from work or home for customers.

free transportation to and from work or home. They even send out letters to new and repeat customers thanking them for their business.

West Service Center has purchased JASPER quality remanufactured engines and transmissions for the past five years. "We like JASPER's piece of mind warranty," says Robert West. "There are no hassles when we use JASPER."

West Service Center is also heavily involved in the community. They participate in a Teenage Driver Safety Program designed to improve teenage driving habits and reduce the number of accidents that involve teen drivers. They are also involved with area social clubs and law enforcement agencies.

West Service Center has come a long way in a short period of time. By treating the customer right, they have learned that the customer will keep coming back.



West Service Center at 904 Cavalier Blvd. in Chesapeake, Virginia, boasts 12 service bays and 3,000 square feet of service space for customer vehicles.

On the Technical Side: The Heart of the Cooling System

by Brian Campbell, JASPER Quality Control Captain

Brian Campbell

is a 1991 graduate of Vincennes University with a degree in business.

Brian came to JASPER in 1992 and started in Gasoline Engine Assembly. He later advanced to New Product Development and has been a Quality Control Captain for the past 3 1/2 years. He is an ASE Certified head and assembly technician.



The water pump has been called the heart of the cooling system. As in your own body, your performance depends on the ability of the heart to circulate the vital fluid through the circulatory system. This is no different than the role of the water pump in the cooling system. As with your heart, the health of the water pump depends on the amount care it is given.

The environment that the water pump must operate in is very unforgiving. It must be able to deal with outside elements, stress from the drive belts and the extreme heat from the engine. The cooling system is responsible for removing roughly 1/3 of the total engine heat produced. The remaining 2/3 is used to generate power and carried off by the exhaust.

There are many important components of your cooling system such as the coolant, pressure cap, thermostat, radiator, hoses, fans and, of course, the water pump. Each of these components plays a crucial role in fulfilling the job of the water pump. Now let's take a look at the parts of the water pump itself.

The water pump has 5 basic components. Starting from the front and working our way toward the

engine. The hub is first. This is where the drive pulleys will mount. Then comes the bearing assembly, which is the support for the shaft that is connected to the hub and impeller. Next is the housing, it is the shell of the pump, which contains the components and water passages. Then comes the seal, the most vulnerable part of the water pump. The seal is what protects the bearing assembly from coolant and contaminants. Last is the impeller, which spins and distributes the coolant throughout the cooling system. Let's look a little closer at each component.

The hub is pressed onto the bearing shaft. You need to ensure that the pulley, fan, fan clutch and all other accessories are in good working order. Any out of balance or wobble will lead to trouble down the road. These harmonics will be transferred through the shaft to the bearing, which then will lead to bearing and/or shaft failure. You should make sure that everything is square and working properly.

The bearing itself is a dual supporting bearing. This means that it has a set of bearings on each end of the assembly. This allows for a greater load capacity and distributes the load created by the front-end drives. The bearing is sealed, however water can still penetrate into the bearing causing a failure.

The housing is the shell of the water pump, it can be made of cast iron, aluminum or stamped steel. This is what contains all the components of the pump. The dimensions of the housings are critical to providing proper coolant flow.

The seal is arguably one of the most important pieces in the water pump. The seal is there to protect the bearing assembly from coolant and contaminants that could lead to a failure. The seal can be either sintered iron or ceramic. One surface will be stationary as the mating surface rotates with the bearing shaft. This area of contact is what seals the

water from leaking out of the pump. Due to friction it is crucial to have coolant/seal contact. This will cool the seal assembly in addition to lubricating the seal face. With this in mind, it is normal for a seal to allow a small amount of coolant pass. The seal does go through a lapping in period that will occur when a new water pump is installed. Until the seal faces are conditioned, you may see a noticeable amount of coolant leaking out the weep hole. If the unit has been in service for a long period of time and you notice staining from the weep hole area don't panic. This doesn't mean the water pump is bad. Remember that some leakage is normal. So normal, in fact, new water pump designers will try to incorporate a reservoir to capture the coolant. This is not always possible in every pump design. So make sure to monitor the seepage to see if it is a valid concern. If there is a seal failure, what could have gone wrong? There are two major reasons for a seal failure; contaminants and thermal shock. Thermal shock can occur when adding cold coolant to an overheated engine or by starting the engine before adding the coolant. This is more common on a seal that is made of ceramic. Sintered iron seals are more resistant to this problem, however they are still vulnerable to thermal shock.

Another reason for failure is to have trapped air in the system. The air will be drawn towards the seal area. This will result in the seal running without coolant, which in turn will cause the seal to overheat. The most common seal failure is due to contaminants. As the water pump turns, the water is thrown out and away from the center of the pump. As the water moves outward this creates a

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Engine Oil Systems: Pressure vs. Flow

by Gary Cross, Marketing Services Manager, Melling Automotive Products



The subject of pressure versus flow can be confusing because it is hidden inside the engine. So let's consider this principle in something we all use daily - the water system in a house. The maximum amount of flow is determined by the size of the line into your house if you have city water, or by the size of the pump if you have a well. The upper and lower limits of pressure are regulated by the city or by two electronic pressure switches on your pump.

Everything works fine, and you have water when you need it. But have you ever opened every faucet, including those outside? If you did, the pressure drops considerably. The maximum flow available has not changed. With all the faucets open the resistance is very small, but the flow is maximum and the pressure is slim to none (Figure 1).

Pressure, relative to your house, is created by the resistance to flow, i.e., the faucets being closed (Figure 2). When you have total resistance, all faucets are closed, the upper pressure is limited by the city or the electronic switch and the flow is zero.

Now let's consider pressure vs. flow inside an engine. The size of any oil pump is designed to supply the correct amount of oil to meet the engine's requirements. It produces a specific amount of flow at a given

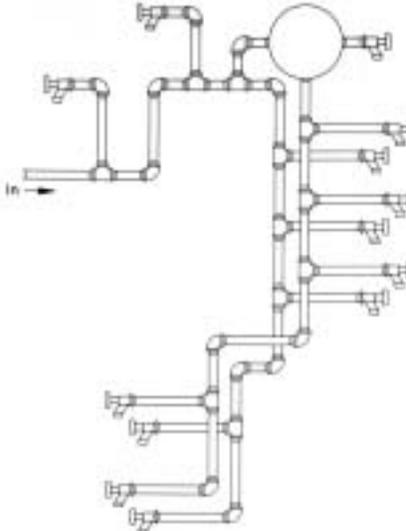


Figure 2 - House water system, maximum pressure, zero flow.

rpm. The resistance to that flow produces the pressure. There is never a time that duplicates all the faucets closed (maximum pressure/zero flow). The resistance to the oil flow is from the bearing and lifter bore clearances.

When an engine is new, the clearances are tight and the pressure is good (Figure 3), just like a faucet that is cracked open enough to produce a small stream of water. As the bearings and lifter bores wear, clearances increase, resistance to flow decreases and oil pressure starts to drop (Figure 4).

When the pressure drops, we get our first signal that something is wrong in the engine. With the increased clearances/decreased resistance, the flow from the pump is at its maximum. This is like opening all the faucets in your house. Pressure is down, but flow is at a maximum. If we used a flow meter instead of a pressure gauge, we would see a gradual increase in flow as the bearing clearances increase with wear. But flow meters are more expensive and more bulky than oil pressure switches, making this method impractical.

A few comments about the relief valve in an oil pump. The spring pressure behind the valve determines when it will open. If it is designed to

open at 60-psi, it does not have an effect on anything below 60-psi, unless it sticks open. If it does stick open, the pressure is low at idle, but builds up to 60-psi at the point the valve opens.

If an engine has excessive clearances in anything but rod bearings, the oil pressure will be uniformly low throughout the rpm range. If the rod bearings have excessive clearances, the oil pressure will be low at idle and will get worse as the rpm increases. Rod bearings turn in a circle rather than on an axis, so they are subject to centrifugal force trying to pull the oil out of the bearing. The amount of loss will vary depending on the actual clearances in every bearing and lifter bore.

This gives you an idea of how much flow increases with a small increase in clearances, and how pressure can drop when we exceed the flow available from the pump.

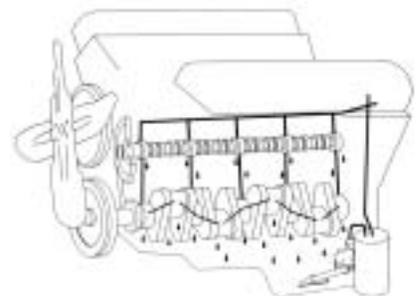


Figure 3 - Engine, maximum pressure, minimum flow.

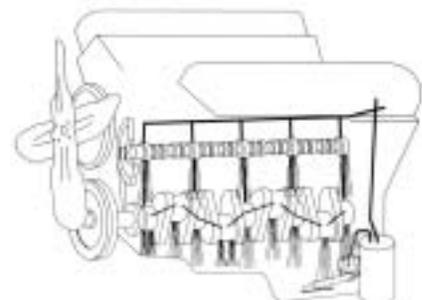


Figure 4 - Engine, minimum pressure, maximum flow.

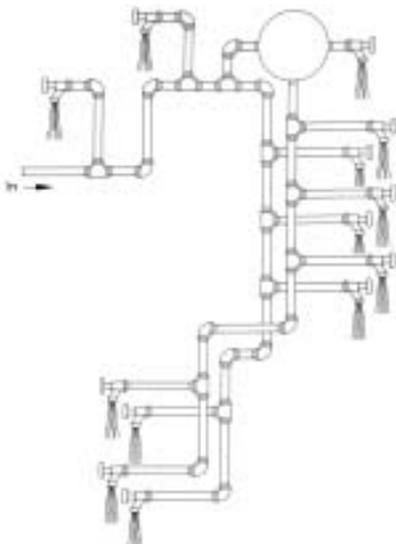


Figure 1 - House water system, minimum pressure, maximum flow.

(Continued from page 3)

low-pressure area around the center of the shaft where the seal is located. This means that all contaminants will migrate towards the seal. As the contaminants reach the seal they will slowly be pulled in between the seal faces causing damage which will lead to a leak.

How do you prevent this? The first thing is to maintain your cooling system. Just checking the freezing point is not enough. You must flush the system and maintain the proper coolant level. Remember if you are changing the pump, flush the system before removing the old pump. This ensures that the deposits, which are flowing through the system, will not contaminate the new water pump. A seal can also be destroyed by the use of too much (RTV) silicone. Only use a very thin film, just enough to hold the gasket in place. Any extra sealant will be squeezed inward where the coolant will loosen it and then the silicone will migrate towards the low-pressure area eventually destroying the seal. So remember,

the most important thing to extend the life of the seal is CLEAN, CLEAN, CLEAN.

Finally, the impeller is what will circulate the water through the cooling system. The material used to make impellers can vary from cast iron, bronze, steel and plastics. There are many different impeller designs that the water pump manufacturers are using today. The impeller design used is matched to the overall design of the pump. So don't be too alarmed if the impeller looks slightly different than the one you have taken off your vehicle.

One last thing to remember is to always use the proper antifreeze/water mixture. The recommended blend is 50/50 but most antifreeze manufactures say that up to a 70/30 mixture is acceptable. Just remember that the ratio is a balancing act. Why? Let's start with the water. Actually water is better than antifreeze for transferring the heat from the engine block. But straight water will not protect the cooling system from the buildup of rust and scale. In addition, the boil point

would be much lower. Keep in mind that 1/16 of an inch of scale can reduce the heat dissipation by 40%, which is comparable to 3 inches of cast iron.

What if you ran straight antifreeze? There are many problems with this. First the heat transfer ability of antifreeze is very poor and you could run into an overheating condition. Second, the freezing point of antifreeze mixed with water is considerably lower than just straight antifreeze. Remember to follow the manufacturer recommendations for your vehicle.

The performance of today's engines requires them to operate on the verge of overheating. This is done to improve efficiency and decreases the amount of emissions levels. The water pump is just one of the important parts of your cooling system, but its health is crucial to the longevity of the life of your vehicle. Proper maintenance of the cooling system has become more important than ever.

And remember: keep it cool!

2005 Calendar Contest Deadline September 1st

Is your vehicle calendar worthy? Send it in! JASPER is once again seeking quality color photographs of vehicles and equipment in which a JASPER gas or diesel engine, transmission, differential, or stern drive has been installed, for its 2005 Calendar Contest. Photo categories are unique vehicles and performance oriented cars and trucks.

Entrants must submit a color photograph, (35mm or larger) and information about the vehicle along with the JASPER product that has been installed. Vehicles should be placed in a "show" type setting when photographed. Polaroid pictures and digital pictures transferred onto photo paper *cannot* be accepted.

Every qualified entrant will receive a JASPER Brendan Gaughan autographed race hat. All entries

will be judged based on adherence to the category, equipment appearance and the quality of the photograph. Winners will be required to sign a release consent form for photograph and name publication.

All entrants whose work appears in the calendar will receive a \$100 gift certificate which can be used to purchase JASPER remanufactured products or wearable items, 24 com-

plementary calendars and a special JASPER Gift Package.

The entry deadline to September 1st, 2004 and is open to all JASPER customers, distributors and associates. Entries should be mailed to:

**Jasper Engines & Transmissions
P.O. Box 650
Jasper, Indiana 47547-0650
Attn: Abby Brelage**



Here's a pair of our 2004 contest winners. Send in your photo for a chance to be in the 2005 Jasper Engines & Transmissions calendar.

Car Debt Getting Out of Hand?

Editor's Note: The following article is a great way for your customers to compare the cost of purchasing a remanufactured product for their present vehicle, versus the cost of a new vehicle.



Credit card debt was bad enough. Now people are running financial red lights in automobiles. Nearly three in 10 new car buyers are discovering they are "upside down" - they owe more money on their current cars than they're worth in trade.

How does that happen? Buyers are putting less money down and taking longer-term loans to get classier cars. Not the worst move - until you decide, barely into an epic loan on that Terrorizer XE, that you can't wait another day for the latest Terrorizer XEL. Having built up no real equity, you simply roll the outstanding debt into another car loan.

That sucking sound? Ask anyone drowning in credit-card payments.

Used-car values do play a role in all this. They're below traditional levels and remain critical in figuring long-term ownership costs. But they're hardly the culprit behind crushing debt. For one, even owners of Hondas and other top resale brands can find themselves upside

down. And even models with wretched resale values are still worth substantial cash after three or five years.

So pay off the loan, regardless of the model, and your remaining balance sheet will be black like limousine leather. No debt. An asset owned in full.

The real problem is, people get the new car itch years before they scratch the old loan. Upside down buyers are rolling an average of \$3,700 in old debt into their next car. In California, 40% of buyers are upside down (and by an average of \$4,700).

Token down payments make things worse: They've shrunk to 5 percent from a historical 10 percent to 15 percent.

Dealers and lenders enable all this by happily refinancing, say, \$3,000 in old debt and writing a loan for the full retail price of \$30,000, knowing that the buyer really paid \$27,000 post-discount.

Big incentives and endless loans

helped cut the average monthly payment to \$453 in November, down from \$470 a year earlier, even as the price of the average car rose slightly to \$25,523.

"Consumers are just delaying the time bomb for a couple of years," says Bob Kurilko of auto website Edmunds.com.

And this bomb has one long fuse: Nearly 40 percent of new car buyers took loans longer than 60 months last fall, up from 24 percent the year before. The average term now stands at 63 months, but almost 30 percent of buyers opt for 72 months. Some banks are floating 96-month car loans.

It's hard to avoid the conclusion that too many people are driving Benzes on a Buick budget.

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(Continued from page 1)

Over the last several years, Jasper Engines & Transmissions has aggressively added new branch offices in the United States and today is coast to coast with 35 branch and distribution facilities. "Although the last several years have been quite tough for all," says Schrader, "we have worked very hard to continue our tradition of 62 years with NO LAY OFFS. We are proud of our people and our customers."

Jasper Engines & Transmissions is making significant upgrades to the facility and equipment. "We will invest over \$1,000,000 in new equipment at Willow Springs," says Bawel. "We will upgrade existing equipment, infrastructure and the building over the next three months to get the facility upgraded to our standards."

In addition to its corporate offices and remanufacturing facility in Jasper, the company operates a remanufacturing facility and distribu-

tion center in Crawford County, Indiana, along with facilities in Bellingham, Washington; Altoona, Pennsylvania; and now Willow Springs, Missouri.



Honda & Acura Manual Performance Transmissions Available Through JASPER

Jasper Engines & Transmissions now has custom manual transmissions for Honda and Acura automobiles. There are five different stages of performance available, designed for both show and racing applications.

TYPE I:

- Custom colored case, or polished to a chrome-like finish.
- New bearings & seals.
- Carbon coated synchros to reduce quick-shift grinding.

Applications:

- Accord
- Prelude
- Civic SOHC
- Integra/Civic DOHC

TYPE II:

- Same as Type I units, but with a limited slip differential OR optional drag racing spool for '90-'91 Integra/Civic DOHC.



Whether it's for the show, the street or the strip, JASPER has the manual performance transmission for your Honda or Acura tuner project.

Applications:

- '90-'97 Accord
- '92-'01 Prelude (except S-H model)
- '88-'00 Civic SOHC
- '90-'01 Integra/Civic DOHC

TYPE III:

- Same as our Type II units, but with a 4.78 Type R final drive ring and pinion set.

Applications:

- '92-'01 Integra/Civic DOHC (B-Series)

TYPE IV:

- Same as our Type II units, but with an ultra-low 4.92 final drive ring and pinion set.

Applications:

- '92-'01 Integra/Civic DOHC (B-Series)

TYPE V:

- Chrome-like polished cases.
- Custom final drive ratios up to 5.0.
- Straight cut dogshift gears.
- Custom gear ratios.
- Choice of limited slip differential or spool.

Applications:

- '92-'01 Integra/Civic DOHC (B-Series)

TYPE I manual performance transmissions are designed for normal street driving and show car display, NOT FOR RACING. They are covered by a one year/unlimited mileage warranty. TYPE II, III, IV & V units are for racing applications only, and ARE NOT covered by warranty.

Contact JASPER at 1-800-827-7455 for more information.

JASPER Wins ZF Award of Excellence



Tom Schrader and Leo Siewers, at left, accept the Award of Excellence from ZF Corporation representatives Mark Cali and Shawn Hoklas.

ZF Corporation representatives, Mark Cali and Shawn Hoklas, presented the 2003 ZF Award for Excellence to JASPER Vice President of Marketing, Tom Schrader, and Inside Sales Group Leader, Leo Siewers. The award is presented to JASPER as the #1 distributor of the remanufactured standard transmission product line in North America.

Congratulations goes out to everyone involved in making Jasper Engines & Transmissions #1!

ARAMARK Uniform Program Available

If you've been thinking about providing uniforms or need mats, mops or towels, now is an excellent time to talk to ARAMARK. Jasper Engines & Transmissions has partnered with ARAMARK Uniform Services, a leading provider of uniforms and career apparel, to bring outstanding offers to JASPER's Preferred Installers.

ARAMARK is a national company utilizing state of the art laundry and distribution centers throughout the country allowing them to provide great service and supplies.

ARAMARK's uniforms are extremely breathable, functional and just plain good looking. Their extensive assortment of apparel offerings allows businesses of all types and sizes to create a customized look that sets them apart from similar companies. Their uniforms and career apparel inspire confidence in customers and employees alike.

Besides uniforms they also provide a huge array of non-garment items such as mats, mops, shop towels and even hygiene products. Best of all, ARAMARK is committed to providing all Jasper Engines and Transmissions Preferred Installers with the highest level of service.

A JASPER Factory Representative will provide you with further information on the Uniform Program and an ARAMARK Representative will also schedule an appointment to discuss a specialized Uniform Program for your business.

For details on other services offered, call the ARAMARK National Accounts Department at (800) 332-8676 or log onto www.ARAMARK-Uniform.com.





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