

# News & Updates

JULY 2002

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## JASPER Enters Partnership with NASCAR Automotive School

Jasper Engines & Transmissions, the Officially Licensed Remanufactured Engines and Transmissions of NASCAR, has signed on as an aftermarket partner of the new NASCAR Technical Institute.

The Institute is a \$12 million, 146,000 square foot, state-of-the-art training facility located in Mooresville, North Carolina. The facility includes more than 40 classrooms and more than 49,000 square feet of hands-on training space, a welding/fabrication lab, a shock lab and dynamometer, an engine lab and dynamometer, a transmission lab with dynamometer, a separate chassis dynamometer building and two custom training programs.

The institute was created through NASCAR and the Universal Technical Institute, the nation's leading provider of automotive technical training. When classes begin in July, the NASCAR Technical Institute will be the first technical training school in the country to combine a complete automotive and

motorsports technology program and carry the NASCAR name.

As one of the first aftermarket partners of the school, JASPER received considerable recognition during a grand opening ceremony May 20th, and at the NASCAR Brand Summit the following day.

Students enrolled in the 57 or 69-week programs will receive the training necessary to excel as an entry-level automotive service technician - with additional training provided for the skills needed to enter the motorsports industry. To help in student training, JASPER provided 50 engines and transmissions for the program. JASPER will also help with participation in special events at the school.

Applicants to the NASCAR Technical Institute need to be at least 16 years of age and have a high school diploma or GED, and the desire to exceed in the automotive industry.



*Jasper Engines & Transmissions provided 50 engines and transmissions to NASCAR Technical Institute, which officially begins classes in July.*

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## Roger's Marine Service

In past issues of News & Updates, we have highlighted the independent garage owner, and their use of JASPER quality remanufactured products. In this installment of *Customer Profile*, we look at Roger Schafer of Roger's Marine Service of Bowleys Quarters, Maryland.

Located near Chesapeake Bay, east of Baltimore, Roger's Marine Service has taken care of boat and mechanical repair work full time for over 20 years.

Roger worked full-time in the Maryland Air National Guard starting in 1971. During his tenure with the Guard, he picked up part-time boat repair work at local marinas in his area. Roger then opened his own business in 1981 at 1700 Bowleys Quarters Road. Roger and his technician Lee operate out of a 30 foot by 40 foot building with two service bays. Though the facility is small, Roger's Marine is part of a huge 500 slip marina capable of handling cabin cruisers and sailboats up to 60 feet in length.

Each year, the people at Roger's Marine Service attend many Mercruiser and Crusader classes to keep up in the latest marine technology. Roger himself is an OMC, Mercruiser and Crusader certified technician.

Roger's Marine Service has purchased JASPER remanufactured products for the past eight years. Roger purchases 10 to 12 gasoline marine engines and four stern drives each year. Why does he purchase from JASPER? Because of the quality of the product, and the



***Roger Schafer of Roger's Marine Service has been well respected in the marine business for over 20 years. He uses JASPER Marine engines for their quality and their warranty.***

warranty. Those feelings were solidified when Roger recently took a tour of the Jasper facility. "The tour really opened my eyes as to the quality of the JASPER product," says Roger. He added, "JASPER has always taken care of any situations I've had." And he feels very confident recommending JASPER to his customers.

The business philosophy of Roger's Marine Service is to provide the highest quality mechanical services, with a focus on customer relationships. Roger wants to maintain his level of quality service, and grow at the same time. But he wants to control his growth, so it won't jeopardize his current relationships with his customers.

Roger's Marine Service and JASPER. Two companies well respected in the marine business.

# JASPER's Cleaning Program - Part 1

by Mark Hewitt, Quality Captain Gas Engine Division, Crawford County Facility

## Mark Hewitt

is a 1999 graduate of Oakland City University with an Associate's degree in Business, and a Bachelor of Science degree in Management. Mark has 16 total years experience with Jasper Engines & Transmissions, including 2 years Gas Assembly, 9 years Gas Warranty, 2 years Diesel Assembly and 3 years Quality Captain. Mark is ASE certified in Engine Repair, Block Machinist and Head Machinist.



Many of you have been introduced in some manner to JASPER's commitment to The Perfect Product. The Perfect Product program is designed to provide the customer with the finest possible service through delivery of the perfect product, technical assistance, and customer service. JASPER's associates take this Perfect Product challenge very seriously. They are constantly focusing on ways to improve the product through innovation in tooling, consumables, and process development.

The focus of this article is the cleaning of engine cores at JASPER's production facilities and to share some of the information that has been acquired during our search for the Perfect Product.

## Jasper's Cleaning Procedure

It is no secret that cleaning methods have changed dramatically over the past few years, due to the concern for the environment. Jasper is committed to environmental steward-

ship and uses no solvents in the cleaning processes for core processing. This presents a challenge in how to properly remove organic compounds from the core parts and prepare them for repair and machining. Jasper uses the most common equipment to our industry as well as some not-so-ordinary equipment.

## Equipment – Jasper and Crawford Facilities

- **Pre-wash:** All cores pass through a medium-high pressure spray cabinet during the disassembly process. Much of the loose soil is removed at this time.
- **Kolene:** Following disassembly, all cast iron, most steel, and some aluminum parts are processed through a Kolene molten salt bath system, which burns the organic materials from the surface of the part. The process uses temperatures ranging from 630 to 750 degrees Fahrenheit, depending on the product. Following the salt bath is a group of tanks performing rinse and de-rust processes.
- **Submersion and Agitation:** Parts not compatible with the Kolene system are cleaned in an aqueous solution, generally a submersion tank, with mechanical agitation performed. Hand detailing is often necessary before forwarding these parts in the process.
- **Spray Cabinet:** Some trim parts are washed in medium pressure spray washers following submersion in the before-mentioned systems, generally as a rinse process. Hand detailing may also follow the spray wash.
- **Vibratory Cleaners and Tumblers:** Many small parts are processed through an aqueous cleaner and rotating, vibrating ceramic media. Also, a tumbler with an aqueous cleaner is still included in our process on a limited basis.

- **Rotary Media Blast:** Using steel shot and nicknamed "Roto-Blast," this machine has been a very important addition to the small parts cleaning area during the past two years. The standard Peen-a-matic machine is also used extensively for cleaning certain trim parts.
- **Ultrasonics:** As a final process to remove fine dirt from hidden areas, ultrasonics is becoming more popular in the engine and transmission divisions. New uses for ultrasonics are being discovered each day.



This filtration system at JASPER's Crawford County facility removes particles as small as 200 microns in diameter.

Enhancements to the equipment are being performed as the cleanliness requirements are studied. A new concept filtration system is being tested at the Crawford facility and several units have been purchased and are being installed.

(Continued on page 4)

### (Cleaning Program Continued)

The filter used on the cylinder block and head submersion tanks (mechanical agitation) removes particles as small as 200 microns in diameter, flows 20+ gallons per minute, requires no bag or element, and maintenance is almost eliminated. A variety of sizes and flow rates are available and are likely to be included in our systems in the future.

A simple but extremely successful equipment change was accomplished by adding a self-siphoning spray nozzle to the block washing process, after Kolene and ahead of the agitation tank. The associate sprays heated chemical from the tank into the block bolt holes, flushing away any residue still present. The over-spray from the gun is collected back into the agitation tank below.

### Quality Control

Jasper has established cleanliness standards, both qualitative and quantitative. Measurement of Chemical titration (concentration), pH, temperature, Total Suspended Solids (TSS), sediment weight in solution, and conductivity are collected to regulate cleaning solution quality. Visual inspection (the white glove) alone is often the basis for disposal or treatment of cleaning tank solutions.

Testing for total residual sediment weight in finished parts is performed regularly. The casting or part is selected from the assembly area, after the final wash and prior to any assembly process. All internal areas are brushed and rinsed with acetone and the residual particles are collected in solution. The solution is filtered through 20-micron filter paper and dried to record the sediment weight.

### Chemistry

With so many new aqueous cleaning products on the market,



**Residual particles collected in solution are filtered through 20 micron filter paper, then dried to record sediment weight.**

Jasper is actively pursuing ways to affect chemistries, often breaking from the "old standard" product lines and processes. Jasper has brought in suppliers capable of building chemistries to match the specific situation. Some aspects of the cleaning processes positively changed are:

- Changing Kolene de-rust products to provide more consistent cleaning and extended tank life.
- Development of a chemical filtering system for the Kolene rinse process.

### Abrasives

Jasper has been actively involved in product development studies concerning abrasive products. Brushes constitute a tremendous investment each year.

- Use of specialized brushes, coupled with reversing drills, have improved the final condition of bolt holes and have eliminated

tapping in most cases.

- Micro-abrasive brushes are used to remove residues from all crankshaft and block oil passages. The addition of 600-grit aluminum oxide to the bristle, scours the rust or residue from the passage and greatly reduces the risk of abrasive material failures during the initial life of the engine.
- Rectangular abrasive nylon internal brushes are now used to polish and de-burr camshaft bores. The process was previously performed with an abrasive sandpaper flap wheel, but too often the wheel became worn and did not contact the entire surface. The new brush is aluminum oxide impregnated and creates less residual dirt following use.

*Part two of this story will be  
in the August issue of  
News & Updates.*

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# Modern Technology Meets the Thrust Bearing

by Jeff Richardson, Product Manager - Engine Bearings Federal-Mogul Corporation

Few automotive professionals would question the impressive level of technology represented in today's engines. But the rapid evolution of technology has bypassed some internal components, in spite of the fact that these parts today face significantly greater demands.

A perfect example is the crankshaft thrust bearing, or flange bearing, which must absorb forward thrust loads delivered by the transmission, torque converter or clutch. Years ago, it was unusual to find any perceptible wear on a thrust bearing (or washer), as maximum thrust loads usually were less than 330 pounds of torque.

Times (and technology) have changed, however. Today's engines place significantly greater thrust loads – commonly in excess of 2,000 lbs. – on the bearing flange. As a result, traditional thrust bearing designs have become increasingly problematical in O.E. and aftermarket applications.

Why the exponential increase in thrust loads? In the never-ending quest for increased fuel economy, reduced weight, improved component/system durability and minimal "NVH" (noise, vibration and harshness), manufacturers of automatic transmissions have significantly increased forward thrust loads delivered through the torque converter.

Another culprit has been the adoption of the engine starter lock-out system on vehicles with manual

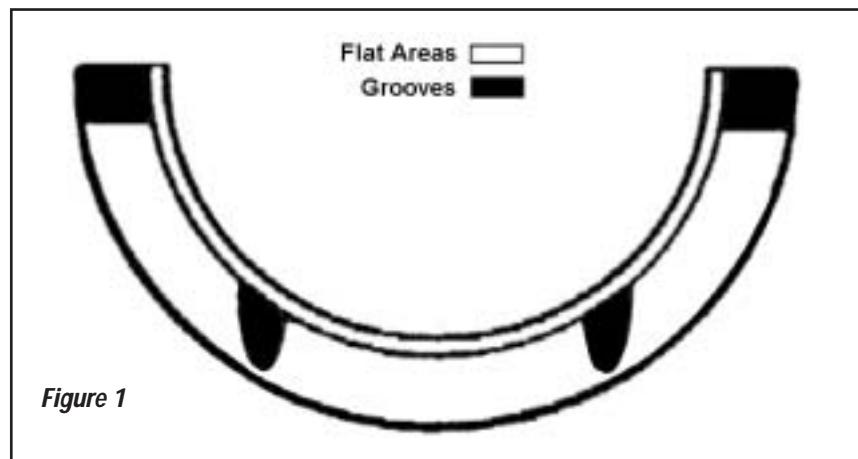


Figure 1

transmissions (these systems require that the clutch pedal be depressed in order to activate the starter). This technology exerts maximum load on the thrust bearing at zero crank rotational velocity, when there is little or no oil film protecting the thrust face.

One additional cause of premature thrust bearing wear is the effectiveness of today's electronic and fuel injection systems, which often fire the engine before an initial supply of oil can be supplied to the bearing.

## Solving the Problem...or Not.

Engine bearing manufacturers have approached the increased rate of thrust bearing failures in two very different ways: by ignoring the problem and clinging to traditional thrust bearing technologies; or by developing entirely new bearing designs that solve the issue.

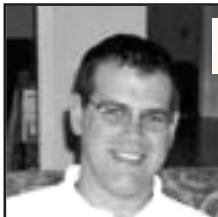
Federal-Mogul has chosen the latter approach. The result has

been the virtual elimination of premature thrust bearing failure in engines featuring this new technology.

Traditional thrust bearing designs feature two partial "fingernail" flange grooves intended to hold a supply of oil that will be fed to the thrust face by the rotating crankshaft (See Figure 1). Federal-Mogul researchers discovered, however, that these grooves (still widely used by other bearing manufacturers) actually become closed off under load, thereby starving the thrust face.

In designing a solution to thrust bearing failure, Federal-Mogul engineers attacked both component formulation and architecture. The material formulation was changed to an advanced "bi-metal" aluminum alloy containing finely dispersed particles of silicon.

(Continued on Page 6)



**Jeff Richardson**

*Timing and Oil Pumps for the North American aftermarket. He has worked for Federal-Mogul for the past six years. Prior to that, Jeff was an auto technician for ten years. Richardson keeps his ASE Master certification up-to-date and also teaches Auto Shop in the local adult continuing education program.*

### (Thrust Bearings Continued)

This patented material, available in all "A-Series" bearings from Federal-Mogul and its Sealed Power engine parts brand, is highly resistant to wear and seizure—an ideal characteristic in today's more demanding engines.

The most significant change in thrust bearing technology, however, is Federal-Mogul's use of a contoured thrust face featuring multiple "ramp-and-flat" areas. This patented design utilizes grooves that, unlike "fingernail" designs, extend through the full width of the bearing face, thereby dividing the face into four load-bearing pads (See Figure 2).

Within each pad area is a shallow ramp which, combined with the rotating crankshaft, becomes a hydrodynamic pump that feeds oil to the pad's flat area. This sophisticated system creates a powerful oil wedge that doubles

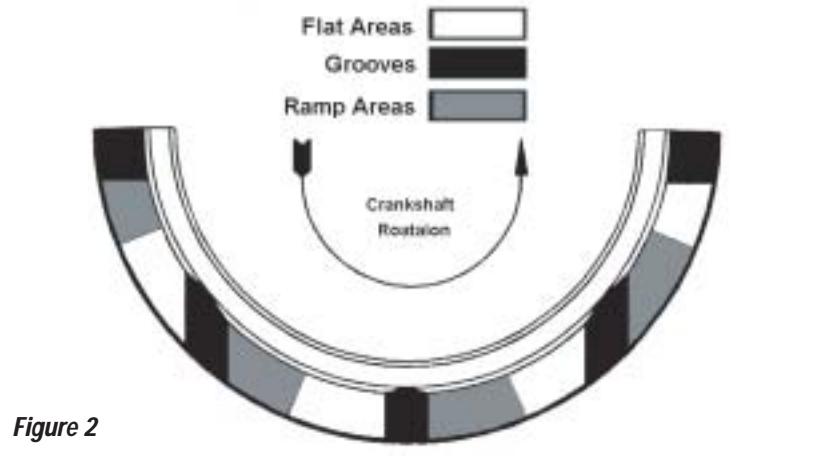


Figure 2

the bearing's thrust load capacity and greatly reduces friction between the flange face and thrust surface.

Federal-Mogul has assisted aftermarket customers in the use of this new technology by developing bearings with oversize flange lengths, which allow engine builders to compensate for worn thrust surfaces without the need for major machining work

or crankshaft replacement.

#### Another Jasper Advantage.

Jasper Engines & Transmissions was among the first production engine remanufacturers to recognize the value of and adopt this latest technology for a wide range of engines of virtually any vintage.

## 2003 Calendar Contest Deadline August 31st

We need your help! JASPER is 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 2003 Calendar Contest. Photo categories are vehicles and performance oriented cars and trucks.

Entrants must submit a color photograph, (35mm or larger) and a description of the vehicle or application 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 *will not* be accepted.

Every qualified entrant will receive an autographed JASPER race hat. All entries will be judged based on adherence to 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 JASPER stadium jacket and a \$100 credit toward their next purchase of an engine, transmission, differential or stern drive. Honorable mentions will receive a JASPER race T-shirt and a \$50 credit toward their next

purchase of one of the aforementioned products.

Entry deadline is August 31st, 2002. The contest 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 the 2002 contest winners. These are examples of the type of setting and background we look for in choosing a winning entry.*



# "Associate Sponsor Spotlight"

## Hannay Reels

Clifford B. Hannay, an electrician and owner of a gas station/luncheonette in Westerlo, New York, had a chance encounter with a local fuel-oil delivery man who was tired of delivering his customers' oil in five-gallon cans. The delivery man wanted to have a pump and hose installed on his truck. This gave rise to the thought of winding the hose back up on a reel after each delivery. Although Clifford was an electrician, he was also known as a very clever man with his hands. So the delivery man brought him a bag full of parts which he himself had failed to make into a hose reel. Clifford then went to a local junkyard and picked up a few additional parts. He set to work and the rest, as they say, is history.

In 1933, Clifford formed an association with Ken Morrissey known as "Cliff-Ken Reels", but within a couple of years, Mr. Morrissey decided there was "no future" in the reel business and sold out his share for \$250. Shortly thereafter, Clifford's oldest son, Dwight, joined the business. Later on, the younger son, George, also joined. In 1946, the partnership was incorporated as Clifford B. Hannay & Son, Inc. The name was later changed to Hannay Reels, Inc. Roger Hannay, one of the third generation family members, began his career in 1966. He became President/CEO in 1990. The fourth generation is now active as full-time employees.

By 1940, this new business was producing 25 reels each month. In the early 1950's, production increased to nearly 300 reels per month. Today Hannay Reels' monthly production averages over 6,000 reels and serves several markets including fuel delivery, LP gas, pest control, steam cleaning, lawn care, pressure washers, and fire and rescue service markets all over the world. Clifford passed away in 1962, Dwight in 1965, and George in 1997, but the growth has continued and Hannay Reels is now the foremost manufacturer of reels in the world for virtually every hose and cable handling application.



## Ruxer Ford Lincoln Mercury

Ruxer Ford Lincoln Mercury started as a Ford franchise in St. Meinrad, Indiana in 1932. The original dealer was Hubert Ruxer, brother of Alvin C. Ruxer. Alvin C. Ruxer became the dealer in 1936 and moved the dealership to an existing garage facility in downtown Jasper, Indiana. At 21 years of age, Mr. Ruxer was the youngest Ford dealer in the country. The original crew at the garage included five parts and service employees, two salesmen and Mrs. Hilda Ruxer as the bookkeeper.

The business grew and at the beginning of World War II, Ford Motor Company encouraged dealers to become authorized engine rebuilders due to the shortage of new products. Mr. Ruxer started rebuilding engines in the wash bay of the Ford dealership and it became a good part of his business. At the end of the war, Ford disbanded most of the rebuilders but Mr. Ruxer decided to continue the rebuilding process enhancing procedures to build a remanufactured product (the beginning of what is now known as Jasper Engines & Transmissions).

During the 1940's and 50's Mr. Ruxer had the Ford Tractor, Lincoln, Mercury and Edsel franchises as part of the dealership. His brothers, Jacob and Oliver, worked with him in the business over the years. Alvin had developed a large American Saddlebred breeding and training farm in the 1960's and decided to sell the Ford dealership to his managers in 1977 in order to devote more time to his engine remanufacturing and horse businesses.

During the 1970's, medium and heavy-duty truck sales became a good part of the business. In 1999, Ruxer Ford Lincoln Mercury was awarded a Sterling medium and heavy-duty truck franchise for Southwestern Indiana and several counties in Northern Kentucky. In addition, a new Sterling Truck sales and service facility was opened in Evansville, Indiana, in 2001.

Ruxer Ford Lincoln Mercury currently serves individuals and businesses in Southwestern Indiana from its 60,000 square foot facility in Jasper, and its Sterling Truck location in Evansville. The company employs approximately 120 associates at its two locations.



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