Rev’ing Up! This term is used to describe the newest and most exciting product to enter the MAHLE Clevite portfolio – turbochargers – but it also serves as a theme that runs throughout the entire organization. This issue of MAHLE Aftermarket news is dedicated to these exciting times and how we are Rev’ing Up with new products and capabilities to keep customers on the leading edge. Last issue outlined multiple organizational changes on the horizon – now we’ll focus on these changes in a bit more detail. None of the organizational changes are bigger than what is going on throughout Mexico – from a dynamic new facility to providing first-rate service to customers; MAHLE Componentes de Motor de México is poised for a very successful future. Enjoy the many other great articles featuring some of our hot new products, a 2008 motorsports review, rounded out by updating our leading edge eCapabilities. Join us now in “Rev’ing Up” for a successful 2009 and looking to even better things in 2010.
THE MAN BEHIND “ONE FACE” TO THE CUSTOMER.

The best part of being in sales are the customer relationships you develop. Although industry events such as trade shows, conferences, and receptions certainly help you reconnect with your customers, it is visiting the customer at their place of business that provides the personalized forum to establish the strongest bonds of understanding and relations. Interestingly, one thing that remains constant is that all of these businesses are as different as the people that own and operate them. Most of them have remained true to MAHLE Clevite through good times and bad because they have the confidence in our abilities and our integrity. Through it all we have emerged, with stronger relationships. We fully expect that these demanding times will be no different.

We face a unique problem in our industry today – a problem that is exacerbated by the urgency for positive financial results at any cost. In today’s market we see more off-shore and other short-line manufacturers squeezing full line suppliers, like MAHLE Clevite, by offering lower prices with less support. We have set up an infrastructure that contains essential supply elements that support our customers on many different levels. Catalog, sales, customer service, and technical support are just a few elements that are hallmarks of our operation that are being used against us. Remember that these support elements have costs associated with them! Most of these off-brand competitors do not try to compete on quality because they know they can’t; they do not try to compete on service and value added components because they know they can’t. All they have is price – but at what cost to the customer? Hopefully our customers will continue to recognize our overall value and support us. We will continue our focus on the customer and providing all the tools to make business easier for them.

However being customer-focused is only one component of success today. Offering quality products, providing a competitive program, making it easy to order, and to provide those in a timely fashion are all vital to excellence in the supply chain.

The MAHLE Clevite product line provides our sales team the ability to walk into a customer and talk about products like Clevite® engine bearings, MAHLE Original® pistons, filters and engine parts, Victor Reinz® gaskets, and Perfect Circle® piston rings grants us instant credibility. I know that our customers, and their customers, are not going to take a chance on the cost of failure associated with engine parts for a matter of a few dollars. Sure MAHLE Clevite is not the cheapest, but included in the price is peace of mind in knowing that our parts will do the job every time.

36 years in this business have taught me that people want to do business with those they trust and that make it easy to do business. We have IT resources in-house that enabled our transition to the digital age totally seamless. Every day on the road I face questions about data, Web compatibility, and eCapabilities.

I am proud to say that we lead the charge in industry standards relating to data. ACES and PIES may not mean a whole lot to some – but those that recognize them know their lives are substantially easier because of them. Our Web page (www.mahleclevite.com) receives thousands of visitors every day searching for and finding the latest product and technical information. Our eLearning™ programs continue to be benchmarked by customers and competitors alike. Customer training has always been a high priority, and through early recognition of strained resources in shops, we developed our curriculum and tailored it to customer needs. Our home page also introduced the “Ask MAHLE Clevite” tool where visitors can ask a question, and in most cases, receives a personal answer in 24 hours or less.

MAHLECleviteorder.com provides customers with a dynamic tool to research, place, and track orders made directly through the Site. In fact the ease of the system enables a look-up by competitor part number, and an ability to see inventory in all of our warehouses nationwide so customers can be sure they are getting the right product at the right price, from one location.

Expanding the advantage of distribution and availability, no other manufacturer is committed to forward-deployed inventory like MAHLE Clevite. We offer more points of distribution than any of our competitors. Resulting in an overwhelming majority of the country still with next day availability via ground service – something our competitors cannot claim.

Regardless of anyone’s place in the supply chain – everyone is feeling sizeable pressure to grow the bottom line. My disposition has remained positive for over 36 years because look at issues that many would like to avoid as opportunities to strengthen customer relationships. This is not the first instance where times have been difficult – and American ingenuity always perseveres. I maintain the positive faith in knowing that we did not build a valued infrastructure like we have just so our customers would source parts from short-line manufacturers and use our value added proposition against us. We share a commitment with our customers, a commitment to a strong relationship. Two sides working together for the betterment of both; and nothing gives me more satisfaction than helping my customers and their customers succeed.

Sincerely,

Ken Carter
National Sales Manager
MAHLE Clevite Inc.
MAHLE CLEVITE INC.
IN THE TRENCHES

DAN MOODY NAMED NEW GENERAL MANAGER
On July 1, 2009, Dan Moody assumed responsibility for MAHLE Clevite Incorporated, which includes all North American aftermarket activities.

Mr. Moody most recently led the MAHLE global bearing business; he has been a key coordinator of several acquisition projects, including Dana’s engine parts business. Dan has an extensive background in engine components sales and manufacturing, beginning his career with Sealed Power Corporation (later SPX). He eventually served as President for Dana’s Sealed Power / Perfect Circle group and was Group Vice President of Dana’s Engine Products Group before moving to the MAHLE Group.

Mr. Moody’s experience strengthens MAHLE Clevite as the premier supplier of engine system components in North America.

“FIND CLEVITE” PROMOTION WINNER
Early in 2008, MAHLE Clevite announced plans to launch a promotion geared at publicizing the transition from Clevite to MAHLE in NASCAR®. Even though Clevite engine bearings are still the only bearing NASCAR teams trust, after the acquisition by MAHLE, the decision was made to promote MAHLE in North America. While MAHLE has a definite global footprint, as well as success in Motorsports around the world, it is basically new to NASCAR. The switch in the Contingency identity became the perfect way to transfer equity – and the “Find Clevite” Promotion became the perfect way to showcase it.

The contest, held online at a designated promotional Web site, started in May and concluded on October 25. The program was very simple, an initial visit to the Web Site to register, and the participant could come back once a day to try and win one of many prizes. The page featured the front of a Sprint® Cup car sporting the familiar Clevite decal, with a click of the mouse, the decal switched to the new MAHLE decal and the contestant found out if they won or not.

Mark Williams, a dedicated NASCAR fan from Palmyra, VA., was the grand prize winner. Mark and his wife were awarded a NASCAR VIP Weekend for two to the final race of the 2008 NASCAR Sprint Cup Series. They flew into Miami International Airport and were provided accommodations in famed South Beach. The Williams’ had an up close view of Jimmie Johnson’s historic run to a third consecutive Sprint Cup Championship.

“We congratulate Mark, a dedicated Jimmie Johnson fan, on his prize package,” said Ted Hughes, Team Leader – Program Development for MAHLE Clevite. “This special promotion has more than exceeded our expectations and provided us with the opportunity to announce to the aftermarket that Clevite is now part of MAHLE. Our goal was to let people to know that our acquisition by MAHLE Clevite engine bearings are still the only bearing NASCAR teams trust, after the switch in the Contingency identity became the perfect way to transfer equity – and the “Find Clevite” Promotion became the perfect way to showcase it.

In addition to the grand prize, nearly 100 prizes were awarded during the contest including: GPS systems, MAHLE Clevite die cast cars, and MAHLE Clevite prize packs. A total of 418,000 entries were received, in a contest that succeeded on multiple levels.

2008 TECHNICIAN OF THE YEAR – DAVID LEWIS
The Technician of the Year Award program is designed to acknowledge an outstanding technician or heavy duty machinist who exemplifies the best qualities of the commercial vehicle maintenance profession. Created in 2005, the award is to recognize vehicle maintenance professionals for taking part in the industry’s best practices, technologies and safety initiatives.

MAHLE Clevite, as well as several other industry-related companies, recently announced David Bryan Lewis as the 2008 Technician of the Year award recipient at the Heavy Duty Aftermarket Week awards luncheon. Lewis is a lead technician and supervisor for Wal-Mart Transportation’s fleet maintenance facility in Sutherland, VA, where he has served for more than 16 years.

Lewis has achieved many successes during his 25-years of service to the heavy duty industry that qualifies him for this prestigious award. He is an Automotive Service Excellence (ASE) Master Truck Technician with T2-T8 certifications, and is L-2 certified in Advanced Medium/Heavy Duty Electronic Diesel Engine Diagnostics. He serves on the American Trucking Association’s Technology Maintenance Council (TMC), and has participated in all four TMC SuperTech competitions, leading his team to three top-five finishes. Lewis is the only technician in competition history to be awarded the competition’s highest honor, “Overall Grand Champion,” back-to-back. In addition, he was also named “Top Performer of the Repair Order Skill Station” at the TMC SuperTech 2008 competition. Other accomplishments include five consecutive Wal-Mart National Technician Champion titles (six titles overall), and the February 2008 “Associate of the Month” award for exhibiting outstanding troubleshooting abilities.

Lewis’ nomination form cited his ability to identify the root causes of challenging maintenance issues, and willingness to provide solutions that prevent future problems. At the facility where he works, the conventional shop tooling was creating too much movement when performing tandem alignments. So, Lewis designed a one-piece frame jig that removes the slack at the ends of the tool, where the alignment measurements are referenced, resulting in more accurate alignments the first time, and increased user confidence.

“Bryan constantly studies and researches the industry’s ever changing equipment, utilizing all types of resources not only to benefit himself, but to make the fleet better as a whole,” said Eric Benge, Regional Maintenance Manager for Wal-Mart Transportation. “He has a strong passion for training and utilizes all resources available to gain and share knowledge.”

In May 2008, Lewis graduated with Summa Cum Laude honors from Southside Virginia Community College (SVCC), receiving degrees in both Automotive and Diesel Technology. Today, he gives back to the community as an instructional assistant for SVCC’s Diesel Technology Program.

An independent panel of judges extensively reviewed the pool of nominations. The panel consisted of heavy duty trucking experts holding backgrounds in various areas of the industry – from nationally recognized heavy duty trucking magazine editors to former fleet managers to heavy duty aftermarket product manufacturers. This year’s judge’s panel included Derek Smith, Denise Rondini, Bill Wilhelm, Paul Abelson and Tom Geinas.
TURBO-CHARGING OUR PRODUCT OFFERING!
The story of turbochargers seems one that has only begun in recent years; however it actually dates back nearly a century. Dr. Alfred J. Buchi of Switzerland produced the first exhaust-driven supercharger between 1909 and 1912, Dr. Buchi, the Chief Engineer of Sulzer Brothers Research Department, proposed the first prototype of a turbocharged diesel engine in 1915. Little did the people in his day realize that the doctor was way ahead of his time.

The internal combustion engine centers on air-consumption. The fuel that is burned requires air to mix and complete the combustion cycle. Once the air/fuel ratio reaches its peak, adding more fuel does not produce more power, only black smoke from unburned fuel. The denser the smoke, the more the engine is being over fueled – and operating more inefficiently.

Producing engines with turbochargers really increased after the first oil crisis in 1973, especially in commercial diesel applications. The high costs of productive turbocharging were offset by only minimal fuel cost savings. As fuel prices soared, and emission regulations became increasingly strict. The result was an increase in the number of turbocharged truck engines. Today virtually every truck engine is turbocharged.

Turbochargers took hold in motorsports in the 1970’s, especially in Formula 1 racing. Likewise, the turbocharged passenger car engine became very popular with the word “turbo” becoming very trendy. Virtually every automobile manufacturer offered at least one vehicle equipped with a turbocharged gasoline engine. However, this trend quickly faded after a few years because despite the power produced by the turbocharged engine, it was not economical. Moreover, the delayed response of the turbochargers (called turbo-lag) was still relatively large and not acceptable to consumers.

This changed in 1978 when Mercedes-Benz introduced the first turbocharged diesel passenger car with their 300 SD. Volkswagen followed with the Golf Turbodiesel in 1981. Because of the turbocharger, the car’s efficiency could be increased, with nearly gasoline engine performance, and engine emissions were greatly reduced.

Today, the turbocharging of gasoline engines is no longer for performance applications, but now a manner of increasing horsepower while consuming less fuel and lowering emissions. Exhaust driven turbochargers are becoming the norm in new engine design, thus producing a growing need for replacement turbochargers.

MAHLE Clevite is launching a major initiative by adding aftermarket turbochargers to an already extensive line of engine parts. Jesse Jones, Manager – Marketing for MAHLE Clevite believes this is an essential addition. “Turbochargers, although relatively new to U.S. production automobiles, are taking an increasing prevalence today and in future years.

“MAHLE is based on principles of technological innovation in all aspects of internal combustion engines. Investing in a new product line like turbochargers is the next logical step in the evolution of MAHLE Clevite,” Jones went on to say.

For additional information, visit www.mahleclevite.com, or contact any MAHLE Clevite Account Manager.

While turbochargers are relatively simple in design, the operating conditions are severe. Hot exhaust gas which can reach 1000°F drives a turbine wheel or impeller. That impeller adds positive pressure to the inlet air. Turbine speeds reach over 300,000 RPMs (that’s 5,000 revolutions of the impeller and shaft per second). Clean air and clean, pressurized oil are very important to the life of the turbocharger.

The positive pressure on the air, referred to as boost, allows the engine to burn the fuel more efficiently. This allows the engine to burn more fuel, and when needed, produce more power. Since unlimited boost is hard on internal engine components, a wastegate is used to limit maximum boost and prevent engine damage.
For the 24th consecutive year, MAHLE Clevite, Inc. presented the “MAHLE Engine Builder of the Year” awards for NASCAR’s top three series. One thing was evident – race victories and success on the track played a large role in this year’s award winners.

The MAHLE Clevite Engine Builders recorded 22 victories throughout the 2008 NASCAR Sprint Cup, Nationwide and Camping World Series seasons.

SPRINT CUP SERIES
Jay Wiles, engine builder for Hendrick Motorsports, received the coveted award in December during the NASCAR® Sprint® Cup Series banquet week in New York City. He was presented a cash prize in the amount of $100,000. 2008 was the 12th time that a Hendrick engine builder captured the title.

"Being the 2008 MAHLE engine Builder of the Year for the Sprint Cup Series is a huge honor," said Wiles about his first engine Builder of the Year award. "In my profession, it doesn’t get any bigger than this. Anyone who builds engines dreams of one day achieving this success. It’s definitely the biggest accomplishment of my career."

"Hendrick Motorsports is an amazing place with remarkable individuals," added Wiles. "It starts with Rick (Hendrick) and continues with the guys replacing parts and sweeping floors. I’m very fortunate to work here. It’s a special place and it all starts with Rick and the example he sets."

"The relationship with MAHLE Clevite and Hendrick Motorsports over the years has enabled us to be so successful. MAHLE provides the very best parts for an engine builder, and we couldn’t achieve what we do without their support."

NATIONWIDE SERIES
MAHLE Engine Builder of the Year, Nationwide Series, had similar incredible statistics. For the fourth time in his career, Mark Cronquist of Joe Gibbs Racing took home the top honor in December during the NASCAR Nationwide Series banquet.

The No. 20 team dominated for much of the season, winning nine races with four different drivers (Tony Stewart: 4, Denny Hamlin: 2, Kyle Busch: 1 and Joey Lagano: 1) on route to the 2008 NASCAR Nationwide Series Owners Championship.

"It’s an honor for me to receive this award and it is a reflection of all the employees at Joe Gibbs Racing," said Cronquist. "I’d like to thank MAHLE Clevite for their recognition, and I’d like to recognize all the guys in the engine shop who contribute a tremendous effort to the team."

The No. 20 Toyota had 16 top-five and 26 top-10 finishes in 35 events, and edged Clint Bowyer of the Richard Childress Racing team by 12 points for the owner’s title.

CAMPING WORLD SERIES
In the NASCAR Camping World Series, Mark Smith of pme engines earned the MAHLE Engine Builder of the Year Award for his efforts in helping Ron Hornaday (Kevin Harvick-owned No. 33 Chevrolet Silverado) finish second in the championship chase.

The veteran garnered six victories as the championship came down to the last turn of the last lap at Homestead-Miami Speedway in November. He lost the title by a mere seven points to Johnny Benson.

"MAHLE is extremely proud of the three MAHLE Engine Builder of the Year recipients," said Jesse Jones, Manager – Marketing for MAHLE Clevite Inc. "They are all great representatives of the industry and we are thrilled they use MAHLE products in their winning engines. Congratulations to three true professionals."

Clevite® engine bearings are preferred by every NASCAR engine builder and have been on the engine of every single NASCAR Champion from NASCAR’s inaugural 1948 season to the present. Since then, the presence of MAHLE Original® pistons, Perfect Circle® piston rings, and Victor Reinz® gaskets continues to grow.

MAHLE Clevite has presented the Engine Builder of the Year award since 1984, and in doing so, has recognized many of the sport’s greatest innovators that may have otherwise been overshadowed – the engine builders. In addition to the Engine Builder of the Year, MAHLE is a NASCAR Contingency sponsor with the highest participation level of any Contingency sponsor. Clevite® engine bearings, Victor Reinz® gaskets, Perfect Circle® piston rings and many other MAHLE Original® brand engine parts are exclusive NASCAR Performance products.
A LOOK BACK AT DRAG RACING IN 2008!

The 2008 NHRA Drag Racing Series ended in Pomona, CA with a few surprises and some forgone conclusions.

THE SURPRISE

After winning big at the NHRA Funny Car Nationals in Las Vegas and surpassing Tim Wilkerson in the point standings, Cruz Pedregon headed to the finals in Pomona, CA to cash in.

Wilkerson led most of the season, and was still leading when the lights flashed in Pomona, but everything seemed to come together at just the right time for the late-charging Pedregon. A fast car, a solid crew, and some help from his brother Tony was all Cruz needed to get inside the winner’s circle. Sixteen years after winning his first title, Pedregon took home the NHRA Drag Racing Series Funny Car Title, and the cash prize of $500,000.

The win comes as good news for Pedregon and his crew chief Rahn Tobler who rely exclusively on Clevite® engine bearings and Perfect Circle® piston rings to keep the team’s 8,000 horsepower engine together and running strong.

THE FOREGONE CONCLUSION

Tony Schumacher, driving the US Army car won the NHRA Top Fuel championship so convincingly that records were falling almost every weekend. Recording 15 wins this season, Schumacher clinched his fifth consecutive championship during the qualifying session in Las Vegas two weeks before the finals.

Schumacher relies on the performance Clevite® engine bearings and Perfect Circle® piston rings, to lead him to his many victories. He is now the winningest driver in NHRA Top Fuel history, which says a lot about MAHLE Clevite’s high performance products.

WHAT THIS MEANS FOR MAHLE CLEVITE

Clevite® high performance engine bearings are used in every NHRA every Top Fuel and Funny Car. Nearly all of these cars also use Perfect Circle® piston rings. Yet another example that winners put their trust in MAHLE Clevite.

A DREAM SEASON FOR SPENCER MASSEY

At 25-years-old, get a license to drive a Top Fuel car 330 mph. The following weekend, he wins the IHRA season opener in San Antonio. He went on to win a second pro race and ultimately became the 2008 IHRA World Champion. One would think this would be the ultimate season for Spencer Massey, but it got even better.

Massey was contacted by legend Don “The Snake” Prudhomme, and was signed as the back-up driver for “Snake’s” US Smokeless NHRA Top Fuel car driven by Larry Dixon. When Dixon signed on to drive the Al-Anabi Racing car co-owned by Alan Johnson and Sheikh Khalid Bin Hamad Al Thani, Spencer Massey took the driver’s seat of the #2 Top Fuel car in the world.

Although this sounds too good to be true, it’s a reality for the young Spencer Massey. MAHLE Clevite products and support contributed to Massey’s quick trip down the road to success. Mitch King, owner of the IHRA car, and Don Prudhomme, owner of the US Smokeless car, are both former racers and long-time customers who put their trust in MAHLE Clevite, using exclusively Clevite® engine bearings and Perfect Circle® piston rings.
GM 2.2L ECOTEC 4-CYL. 2000-2008 GASKET SET
MAHLE Clevite offers a full coverage line of engine gaskets for the 2.2L Ecotec used in GM applications. There are over 3,000,000 vehicle registrations in North America alone. The 2.2L Ecotec is used in the following cars: Chevrolet Cavalier, Chevrolet Classic (Malibu), Chevrolet Cobalt, Oldsmobile Alero, Pontiac Grand Am, Pontiac G5, Saturn L-Series, and the Saturn Ion. You can expect Victor Reinz® application-engineered gaskets in these sets, along with everything else you need to save you time, money, and to get the repair done right the first time!

NEW CUSTOM PERFORMANCE CONNECTING ROD BEARING
MAHLE Clevite Inc. introduces a new H-Series Performance connecting rod bearing designed to fit engines using a 1.9990 - 2.0000” crank journal and a 2.2247 - 2.2252” connecting rod housing bore. Our premium H-Series TriMetal™ bearing offers excellent embedability, conformability and can withstand a much higher load compared to the aluminum bearing currently being offered. This new bearing is narrowed on one side for greater crankshaft fillet clearance when using high performance crankshafts. It’s available in Std., -X, -1 and -10 undersizes.

FORD 6.0L V8 TURBO DIESEL
MAHLE offers pistons for these 6.0L engines in both standard compression height and in 0.010” reduced compression height to accommodate block surfacing. MAHLE’S standard procedure is utilized to reduce the piston compression height by adjusting the pin height in the piston. This maintains the important 31.89cc combustion bowl volume of this piston. The top ring groove on the piston utilizes MAHLE’s special alloy Ni-Resist material which is required to maintain long term piston ring to groove sealing in this heavy loaded diesel application. Part nos. 224-3454 & 224-3455 and 224-3503 & 224-3504. Please see catalog for specific application information.

H-SERIES FOR OLDSMOBILE V8, 400-425-455, 1965-1976 ENGINES
MAHLE Clevite Inc. is proud to announce new Clevite® High Performance H-Series rod and main bearings for Big Block Oldsmobile engines. These new rod bearings are narrowed on one side for increased crank fillet clearance and don’t contain any dowel holes. The main bearings for positions 2, 3, 4, and 5 are full annular grooved, bearings for position 1 have a grooved upper half and plain lower half.

MIS16191 & MIS16203A
Victor Reinz has added even more MIS sets for your intake manifold replacement needs. These two were designed specifically with your car’s 3.8L engine in mind. Technicians won’t have to worry about making multiple trips to the parts store when picking up these MIS offerings, as they have everything needed to do an intake manifold repair; including everything from the lower intake manifold gasket to the fuel injection o-rings. MIS16191 fits model years 1995-1997 (first design without locating pins), while MIS16203A fits those cars made from 1997-2008 (second design with locating pins).

CHRYSLER 3.7L 2002-2005
When the pistons say “MAHLE”, use the one option for replacement parts you know will meet the original manufacturer’s specifications for fit, function, and performance. The 224-3443 piston will now be packaged exclusively as an 8-cyl engine set for the DCX 4.7L V8. The 224-3564 is the same quality piston, packaged in a 6-cyl set for your convenience when rebuilding the DCX 3.7L V6.
AFTERMARKET

GM GEN III & IV V8 MLS CYLINDER HEAD GASKETS
The recess in cylinder heads on GM 4.8L / 5.3L 1999-2001 and 6.0L 1999-2000 will allow coolant to leak to the outside of the engine if you use the later model MLS gaskets in place of the old composite gaskets. Many re-builders found this out the hard way trying to use the premium MLS on older applications. Fortunately, Victor Reinz developed application-engineered MLS gaskets to save the day! Part nos. 54441 & 54442 and 54445 & 54446. See catalog for specific application information.

H-SERIES FOR PONTIAC V8, 421-428-455, 1963-1976 ENGINES
MAHLE Clevite Inc. is pleased to introduce new Clevite® High Performance H-Series rod and main bearings for Big Block Pontiac engines. These new rod bearings are narrowed on one side for increased crank fillet clearance and don’t contain any dowel holes. The main bearings for positions 4 and 5 are full annular grooved, bearings for position 1, 2, and 3 have grooved upper halves and plain lower halves.

EXPANDED 3406E CAT COVERAGE
MAHLE Clevite has expanded the coverage for the 3406E Caterpillar engine which includes four (4) new forged steel crowns and two (2) skirts to accompany these crowns. The patented MAHLE FERROTHERM® piston design, which uses forged steel crowns and a separate aluminum skirt, is employed in these new pistons. This innovative design serves to increase the piston crown durability resulting in a longer engine life. Clevite® pistons from MAHLE are the ONLY forged steel crown available in the Aftermarket for this application.

FEATUR ED P RODUCTS

EXPANDED 3406E CAT COVERAGE

LX1005 AIR FILTER
MAHLE has been producing the LX1005 round air filter element for the GMT355 platform as OE supplier of the entire air induction system to GM. This filter element has multiple unique features, which sets it apart from our competitors. The seal from the filter element to the throttle-body is integrated into the plastic endplate and consists of a special patented design. The cellulose filter media has an additional melt-blown fiber layer on the dirty side of the filter, which drastically increases the dust holding capacity to the manufacturer’s specified amount for the current Colorado, Canyon and Hummer H3 vehicles.

PERFECT CIRCLE PISTON RINGS
Perfect Circle makes the best piston rings out there! Coverage is available for such popular applications as: Ford’s Powerstroke® (41940); GM’s 4.8L, 5.3L and 6.0L V8 (41858CP & 41859CP); Dodge’s 2003-2005 5.7 Hemi (41904CP). With coverage like this, it’s no wonder that Perfect Circle® piston ring sets offer the performance advantages you need, along with the quality you expect from the industry leader.
MAHLE Componentes de Motor de México initiated operations in 1984 with both a piston and filter plant. After the MAHLE purchase of the Dana engine parts business in 2007, MAHLE purchased total shares of Sealed Power Mexico. In addition to being the market leader in piston rings, the organization was also a liner manufacturer with three plants: Aguascalientes, Naucalpan and Saltillo.

In January 2008, the Mexican Aftermarket division was integrated into the MAHLE NAFTA operation to fully service the Aftermarket in Mexico with all MAHLE Clevite product lines available for engine parts light and heavy duty. Still looking to grow, MAHLE completed the purchase of Clevite de México in July 2008. Manufactured under the Clemex brand, Clevite de México was also a market leader in engine bearings with a plant in Toluca Estado de México.

With the goal of establishing a successful, long-term operation in Mexico - MAHLE Componentes de Motor de México (MAHLE Mexico) opened a brand new 11,000 m² warehouse in Toluca. The purpose of this facility is to position MAHLE as the leader in engine parts in light and heavy duty markets throughout Mexico.

The opening of the Toluca facility signals a new beginning for MAHLE operations in Mexico. To coincide with the new facility, MAHLE Mexico is unveiling an ambitious new brand strategy designed to streamline business throughout North America, as well as leverage brand strengths within MAHLE. Both CARPRO® and Clemex® have tremendous equity in Mexico based on the quality and service of each. Yet the two also stand to gain a substantial synergies within the separate organizations in Mexico.

Emblematic of the new MAHLE Mexico, and to fall in line with the rest of North America, CARPRO piston rings will move to the new MAHLE Original brand for light vehicle and Clevite brand for heavy duty applications. Clemex engine bearings will receive a face-lift and now be sold under the Clevite® engine bearings brand. Both transitions are set to occur throughout 2009.

Success in engine parts consists of manufacturing quality products, and having the ability to get them to the customers and to the people who use them. The ability to offer reputable and strong brands that are backed by leading edge customer service makes these capabilities that much stronger. Through the acquisitions and the new state-of-the-art warehouse, MAHLE Mexico will prove to be an integral component of success for MAHLE – after all, dedicated people is the difference in success and failure.
Distribuidora de Refacciones Chavitar was established 25 years ago in Mexico State of Chihuahua. Chavitar markets & distributes spare parts to different locations all around Mexico – Coahuila, Zacatecas, San Luis Potosi, Durango and Tamaulipas. The main branch is located in Chihuahua. The Chavitar policy is to offer superior service and the highest quality products such as the MAHLE family of products. That’s why Chavitar is one of the leading automotive spare parts store of the State.

160 committed employees work day after day to achieve major growth objectives. In addition, Chavitar relies on quality suppliers, like MAHLE, in order to achieve and maintain optimum customer satisfaction levels.

Chavitar holds a leading position in the market by always maintaining the best customer service along with an inventory of engine parts accessories, chemical products, lubricants, wheels, tools, etc.

Founder, Pedro Oviedo Chavira Sepulveda, is a testament of dreams coming true. Born amid struggles common throughout Mexico, Sepulveda’s hard work and effort provided the example leading to success. Today, Distribuidora de Refacciones Chavitar is a 100% Mexican company striving to improve everyday and continue the contribution to community development.

For more than 15 years, Chavitar has been an important distributor of all MAHLE products – piston rings, bearings, camshafts, valves, pistons, and gaskets, primarily in the light duty market. The product range offered by MAHLE, and the quality and availability we provide, offer support for the aggressive growth opportunities in the Mexican Market.

MAHLE Componentes de Motor de México is committed to Chavitar and believes in fully supporting all of Chavitar’s distributors in order to establish long-term business relationships that will help to maintain joint leadership in the Mexican Aftermarket.
Air filters serve multiple functions. They take care of clean intake air, prevent premature wear of engine components, ensure optimal air/fuel mixture – and when equipped accordingly, can even extinguish fires.
THE ESSENCE OF A GOOD AIR FILTER

An important quality characteristic is the so-called “collection efficiency”. It is measured in percentage and indicates the proportion of particles from the intake air that remain in the filter. MAHLE Original® air filters achieve up to 99.9%. This means that practically everything that can affect the function and service life of the engine is filtered out by them – and this creates the conditions for long engine service life even under extreme temperatures or chemical effects.

FIRE HAZARD: THE DISCARDED CIGARETTE

Air filters are subject to not only dust, soot, heat, cold and various chemicals during their operation – there is the threat of another hazard of catching fire. This can be caused by the widespread nuisance by some drivers disposing of a burning cigarette through the open window of the moving vehicle. If the burning heat of 932°F gets into the intake system of a vehicle traveling behind, its air filter can be set on fire – with the disastrous result of a fire in the engine compartment.

A survey of workshops indicated that the majority of engine compartment fires are smoldering fires that are often not recognized as such when they are taking place. In the event of such a fire, parts of the air intake system, which is mainly made from plastic – will generally melt. When the vehicle does not start the next morning, only a glance under the hood will often explain that there has been a fire.

THE FLAME-RETARDANT DESIGN: FOR INCREASED ROAD SAFETY

In order to prevent engine compartment fires, the car manufacturers have taken special design measures. These include grids in front of the air intake opening or suitable positioning of the air intake duct. Another option for fire prevention is the design of filter elements with flame retardant properties such as those developed by MAHLE, in cooperation with car manufacturers and paper makers. Such filter media with flame retardant properties are mandatory in the specifications of car manufacturers for future vehicle generations.

THE THREEFOLD SAFE EFFECT

The basis for achieving flame retardant properties is a special resin used to impregnate the filter paper. The resin proportion for filter media with flame retardant treatment is between 25 and 30% (for normal filter paper this is only 15 to 20%). The paper treated in this way can catch fire, but extinguishes very soon afterwards. The effect is based on three fire extinguishing measures:

- Release of nitrogen (N₂) to smother the fire as an inert gas
- Release of water to quench the temperature below the combustion point
- Release of acid to oxidize the cellulose fibers so that they become incombustible

One of the most important requirements for optimum engine performance, high torques, low fuel consumption and minimized pollutant emission is clean intake air. This, however, depends very much on the air filter, which has to prevent dust, soot and tire wear particles from entering the intake system.
Increased oil consumption in the engine can be contributed to wear caused by contamination of the oil with particles. It can also be due to dilution of the oil with unburned fuel. In addition, several other causes are known. Here, you find a listing of the most common causes.

This smells like SALES.

INCREASED OIL CONSUMPTION AND BLUE SMOKE FROM THE EXHAUST – OFTEN A SIGN OF ENGINE OIL IN THE COMBUSTION CHAMBERS . . . AND THEREFORE OF WORN ENGINE PARTS.
WORN TURBO BEARINGS
If the bearings in the turbocharger are worn-out, oil leakage can be the result. This oil is then carried via the fresh air supply into the combustion area, where it is burned producing heavy smoke (see detailed description “Two significant types of damage”).

OIL RETURN LINE AT THE TURBOCHARGER IS BLOCKED
This can lead to a build-up of oil pressure in the turbocharger, which can again press the oil out of the bearings.

WORN INJECTION PUMP
When the injection pump is defective, oil can get into the fuel with the movement of the pump plunger – and the fuel-oil mixture burns, developing smoke and odor.

OIL LEVEL TOO HIGH
This causes the crankshaft to dip deeper into the oil bath. The result: significantly increased oil mist. When the oil is of low quality or old, there is the additional risk that the oil starts foaming. This oil mist and oil foam can then reach the intake passage via the crankcase ventilation and is finally burned in the combustion chambers of the engine.

PISTON PROTRUSION NOT CORRECT
Due to incorrect piston protrusion, the piston can impact with the cylinder head. This causes vibrations that can also affect the injection nozzles, preventing them from closing completely. This leads to more fuel reaching the combustion chamber, which results in dilution of the oil film and therefore increased wear of the piston, rings and cylinder surface. When these components exceed a certain wear limit, oil consumption is increased significantly.

LOAD-BEARING ABILITY OF OIL IS TOO LOW
When oil change intervals are too long, and/or low-quality oil is used, the load-bearing ability of the oil decreases. This results in increased wear of all moving parts. Due to the reduced seal of the crankcase, oil consumption can increase.

CYLINDER HEAD WARPAGE
When the cylinder head is fit incorrectly, warpage of the cylinder head can result, for instance, when the tightening torque and/or sequence of the bolts are not observed. The same can happen when the old bolts are used again for retfitting the cylinder head, since their tensile characteristics can change when tightened again (some manufacturers stipulate the use of new bolts for every retfitting of the cylinder head). The result: bores in the cylinder head lose their circular shape and can no longer be sealed by the rings, allowing oil to enter the combustion chamber (see detailed description “Two significant types of damage”).

WORN OR DAMAGED PISTON RINGS
If the piston rings are broken, jammed or fit incorrectly, the seal to the crankcase becomes insufficient. The result: oil reaches the combustion chamber and is burned.

TWO SIGNIFICANT TYPES OF DAMAGE

LEAKING TURBOCHARGER
When the axial or radial bearing of the turbocharger is badly worn, the oil that lubricates and cools the bearings can get into the airstream via the connecting shaft of the vane wheels (see fig. 1). If it reaches the exhaust system, it goes directly outside via the exhaust system. At the fresh air side, it is blown into the combustion chambers and is combusted together with the air-fuel mixture. Both cases result in blue smoke from the exhaust.

WARPAGE IN THE CYLINDER
When the cylinder bolts are tightened in the wrong sequence or with the wrong torque, the cylinders can warp (see fig. 2). Even though this warpage is mostly limited to the μm range, it can no longer be compensated for by the piston rings. This allows the oil from the crankcase to get up into the combustion chamber, where it is finally burned – leading to blue smoke from the exhaust system.

---

Fig. 1: A leaking turbocharger (green line: area with oil under normal operating conditions, red line: oil leakage when bearings are worn)

Fig. 2: Warpage of the cylinder
ecAPAbiLiTiEs
MAhlE clEviTE
AnD SUPPoRtonlinE TRAining

ONLINE BEARING DISTRESS GUIDE
At MAHLE Clevite, we realize that relying on printed failure analysis guides or posters is not always the best way to identify and diagnose a failed part. That’s why Bill McKnight, Team Leader - Training and retired bearing engineer John Havel collaborated to produce the industry’s first-ever online Bearing Distress Guide, now available at www.mahleclevite.com. Together McKnight and Havel bring over 70 years of engine building and bearing engineering experience to the project.

“Bearing failure guides have existed in print form for many years, but were costly to distribute. Often, the picture quality was mediocre, which could make it difficult for the user to determine if the bearing in hand matched the picture correctly,” said McKnight. “The online Bearing Distress Guide offers higher quality images, and allows for more frequent updates than the printed guide.”

The online guide identifies more than 20 different distress and failure symptoms, and displays the appearance of the distressed part with multiple, high quality images to assist in diagnosing the problem correctly. Possible causes and recommendations for corrective action are also included.

Unusual failed bearings or bearings representing failure modes outlined in the guide require additional photography. As more images are displayed, the better the chance of matching bearing failure to the guide’s description of the problem. If you are interested in supplying photography for the MAHLE Clevite Online Bearing Distress Guide, please contact Bill McKnight via e-mail at bill.mcknight@us.mahle.com.

WHEN YOU HAVE QUESTIONS, ASK MAHLE CLEVITE!
As part of an on-going effort to provide the best product support in the industry, MAHLE Clevite offers a number of Web-based tools to give customers what they want – answers to questions and on-site technical support.

Ask MAHLE Clevite is a Web-based, customer relationship management (CRM) tool that provides 24/7 access to expert engine professionals. Our support team has the resources to answer questions about part numbers and applications, technical questions, product availability, and general product inquiries. With expert resources available at our fingertips, we can find the answers to even the most difficult questions.

“The advantages of a tool like this are numerous,” said Bill McKnight, Team Leader-Training, and Ask MAHLE Clevite Administrator. “With Ask MAHLE Clevite, the customer receives expert information and advice, documentation of the inquiry and response, and can pose follow-up questions if needed. Most importantly, the feedback we’ve received shows that the vast majority of users are happy with their experience.”

In 2008, Ask MAHLE Clevite received a total of 2,004 inquiries. The CRM software allowed MAHLE Clevite experts to resolve the majority of these inquiries in less than 24 hours. Of these inquiries, over 1,300 were product-oriented with questions ranging from part numbers and applications, to installation issues and general product questions such as “Which bearing should I use?” and “What’s the difference between an ‘H’ and an ‘HN’ bearing?” The system also received requests for other technical resources as well as location requests for a place to purchase MAHLE Clevite products.

If you are interested in finding a retailer, Ask MAHLE Clevite has a “Where to Buy” section, that offers a quick and easy way to find area retailers by zip code, state and city or country. Filters also allow searches by product line and by online, phone or shop retailers.

Visit www.mahleclevite.com and experience the benefits of MAHLE Clevite’s online technical support today.