AMSOIL MAGAZINE

▸ DISTRIBUTOR EDITION

JUNE 2023

Zero-Turn Mower Maintenance

| PAGE 8

AMSOIL Torque-Drive® Reformulated for Expanded Applications | PAGE 10

MORE PLAYTIME in One Box

AMSOIL®

The First in Synthetics®

AMSOIL delivers everything you need to change oil in one convenient kit so you can spend more time playing and less time wrenching.

AMSOIL MAGAZINE

DISTRIBUTOR EDITION

JUNE 2023

Excavation Contractor Market Breakdown | PAGE 8

FEATURES

DEPARTMENTS

ADVERTISEMENTS

STAFF

International Department
Laurent Leduc
Amber Repensky
John Zhang - Asia
Rachid Fatmi - Middle East/India
Lucy Ibanez - Latin America/Caribbean
Timur Pankov - Europe
Mohamed Dadabhay - Africa

Ordering and Sales Coordination
Dan Maki

Editor
Terry Johnsen

Associate Editor
Joel Youngman

Staff Writers
David Hilgendorf
Brad Nelson
Jamie Trembath
Joel Youngman

Graphic Design Manager
Jeff Spry

Senior Graphic Designer
Luke Boynton

Content Contribution
Len Groom
Keith Montgomery
Alex Thompson

Editorial Contribution
Mark Nyholm

On the Web
AMSOIL.com
AMSOIL.eu
AMSOIL.lat
AMSOIL.africa
AMSOIL.fr
AMSOIL.co.in
AMSOIL.com.au
AMSOIL.ca

Questions/Comments
international@AMSOIL.com

Chairman & CEO
Alan Amatuzio

President
Bhadresh Sutaria

THE COVER

AMSOIL products can help keep zero-turn mowers working smoothly and efficiently all summer.

From the Chairman

The news is out: AMSOIL has acquired Benz Oil, an industrial lubricant manufacturer and distributor based in Milwaukee. As noted in the announcement, Benz will become part of AMSOIL Industrial and give our industrial business unit an immediate boost in expertise and capability. The result will be a stronger, more diverse company generating significant growth and better positioned to withstand overall lubricant market volatility.

I have been transparent in my desire to grow AMSOIL, and diversification is an important part of our growth strategy. This is an exciting development for everyone associated with AMSOIL. We are adding capacity in almost every way – more production capabilities, more raw-materials storage, more technical expertise, more team members and more brand recognition. The team at Benz was one of the reasons this acquisition was so attractive. They bring strong industry experience in sales, marketing and technical development, and they are now part of Team AMSOIL. While we don't anticipate any immediate additions to the AMSOIL consumer line I do expect our added experience in industrial markets will play a role in product development. The Commercial-Grade Diesel Oil and Hydraulic Oil launched this spring are good examples of that in action. Our AMSOIL Industrial sales team brought back insights from the field that revealed many of the large operations they are targeting simply will not upgrade to synthetic technology in certain applications. Well, it turns out that is true in the commercial market as well, as over 80% of diesel oil sold there is synthetic blend or conventional. Rather than fight those customers, we gave them what they wanted with our new synthetic-blend and conventional Commercial-Grade products. Will those products outperform our top synthetic alternatives? Absolutely not. But they will deliver more opportunities for you to increase sales and earnings.

I am also excited about the increased brand recognition being generated by the industrial team. Anyone who has been around the AMSOIL business for more than 10-15 years knows the struggle we faced trying to sell our "unknown" brand through the years. We have come a long way thanks to our collective efforts, and our industrial expansion is only going to take us further.

Our diversification actions are taking AMSOIL to new heights, adding strength and financial resources we can use to add team members and increase brand promotion for our core consumer business. In fact, this spring we made another exciting addition to Team AMSOIL with the hiring of our new Chief Marketing Officer (CMO) and Sr. VP, Strategic Marketing Rob Shama. You might recognize the name; Rob is an industry expert who has spoken at multiple AMSOIL events dating back to 2002, including the 45th Anniversary Convention in 2018. Rob has been a valuable partner for AMSOIL through the years in his leadership roles with a major lubricant additive company. He has rich experience on the supply side of the industry and in brand management for some of our largest competitors. You can find more details on page 21. I am thrilled to have Rob join us, and I know he is going to provide a tremendous boost to our already strong team.

Alan Amatuzio
Chairman & CEO

OUTSTANDING PROTECTION IN EXTREME CONDITIONS

Motorcycles are often ridden aggressively and in stop-and-go conditions, which increases engine heat, especially during hot weather. Elevated heat breaks down conventional oils, reducing their ability to protect against wear. Conventional oils are also prone to evaporate when exposed to heat, which leads to increased oil consumption and transmission wear, and requires owners to frequently top-off their oil.

For maximum performance, motorcycle owners need an oil designed to resist extreme heat, guard against engine and transmission wear and provide smooth, confident shifts in all kinds of weather and operating conditions.

Premium synthetic oils naturally reduce friction better than conventional oils, helping keep engines running cool. To demonstrate the performance of AMSOIL Synthetic 4T Performance Motorcycle Oil, it was installed in a 321cc Yamaha* R3 and subjected to test conditions designed to generate extreme heat and engine stress.

The bike endured a torture cycle of simulated heavy-load, stop-and-go traffic for 9,656 km with peaks of 9,000 rpm and oil temperatures reaching 91.4°C. After the test, the oil was analyzed and the engine and transmission were disassembled.

Thanks to its 100% synthetic formulation and advanced additive package, AMSOIL Synthetic 4T Performance Motorcycle Oil protected the Yamaha engine from extreme heat, prevented wear and kept engine parts clean and free from deposits. It also resisted mechanical shear, providing excellent transmission protection.

AMSOIL 100% Synthetic 4T Performance Motorcycle Oil provides outstanding resistance to extreme temperatures. Its advanced oxidation inhibitors and anti-wear additives help maintain proper lubrication, reduce engine and transmission wear and prevent clutch glazing and slippage to promote smooth shifting, positive wet-clutch engagement and extended clutch life. Plus, its low volatility helps reduce oil consumption for extended oil life and optimum long-term lubrication performance.

AMSOIL 100% Synthetic 4T Performance Motorcycle Oil is formulated to keep your motorcycle running cool, even in the most severe conditions – no matter what bike you ride or how hard you ride it. Get your bike the protection it needs with AMSOIL Synthetic 4T Performance Motorcycle Oil, available in several viscosities.

LETTERS TO THE EDITOR

DISCONTINUED ITEMS

I've been disappointed recently on a couple of trends in the discontinued items area from AMSOIL. First, you discontinued AMSOIL plastic bags that were nice, sturdy and really brought attention to the products that I was selling at several trade shows for brand recognition and "free" product awareness and advertising!

Second, you discontinued AMSOIL motocross racing jerseys, and I was on the cusp of selling a variety of sizes to a local motorcycle shop with a display rack I purchased specifically for them.

Third, why don't we have a powersports air-filter spray in a can for foam filters used in dirt bikes, ATV's and four-wheelers? Our competitors do, and it would give me another arrow in my quiver of product to sell to retailers!

Best Regards,

Russell Watters

AMSOIL: *Thank you for your letter, Russell. Since eight states currently ban the use of plastic bags, with more expected to follow, we now offer a USA-made, high-quality, long-lasting non-woven bag (G3676) at a great price. The motorcross jerseys were discontinued in January 2020 due to low sales. We will consider introducing an alternative jersey option in the future. We offered powersports air-filter oil for several years, but it was discontinued due to low sales. Our Market Management team monitors market needs closely, and if demand were to rise sufficiently to consider reintroducing air-filter oil, we will certainly do so.*

RETAIL BUSINESS

In the last year, my retail accounts are tanking. No one is renewing or ordering new accounts, but canceling instead. Since the vibe on the street is another real-estate crash coming soon, no one wants extra weight.

I'm still trying for local accounts at every opportunity, but have received the corporate middle finger on most without explanation of why. Is it as simple as not adding inventory even though it sells? Or possibly they expect the market to collapse too? Or both.

I've been trying to drum up business and am scratching my head why businesses aren't looking into making money with AMSOIL. Most places have standard oils, yet have numerous possible niche markets waiting to be tapped. None want to spend 10 minutes to listen to any pitch. There's a lot of excuses to say no.

I was wondering how to handle those issues in trying times like this?

Jeff Bergquist

AMSOIL: *Thanks for reaching out, Jeff. The retail sector has been struggling as a whole; it's not just an AMSOIL issue. We've seen all our competitors ramp up promotional offerings to entice business, and we're doing the same. Many retail businesses are overstocked based on over-purchasing during recent logistical turbulence, and this has led to purchasing reductions and a return to "just-in-time" inventory management.*

Across the board, foot traffic has decreased in retail stores. Although we're starting to see an uptick in consumer behavior, it is taking time to rebound. If AMSOIL products do not already have a significant footprint in a store, they're often cut, along with many other products, to save money and tighten inventory.

Being patient and staying in front of your customers with promotions and information is a great way to stay top of mind when they're ready to buy. We also recommend taking the new AMSOIL sales training in the Dealer Zone to help you walk through the sales process and gain more business.

TOY TRUCKS

I've been an AMSOIL Dealer since 1980. I came across AMSOIL products at that time at a Woodsman's Festival up north in Pennsylvania and was sold on the demonstrations put on by AMSOIL. I signed up right away! Today I am using it in everything: 2-cycle equipment, motorcycles, tractors, cars, trucks, fork trucks, brush hogs, mowers, generators, etc.

My son, Cody, is a Preferred Customer, and this year for Christmas he found two AMSOIL toy trucks on Marketplace (pictured) and bought them, giving me one and keeping the other.

What we would like to know is when these trucks were manufactured and for who were they intended? A promotional product, a toy for children, etc? Please fill us in on the history of this amazing toy.

Thank you for all the great products AMSOIL produces. Keep up the great work.

I also included a picture of my graphic truck, 2021 Toyota* Tundra* Limited.

Thank you,

Larry Frey

AMSOIL: *Thank you for sharing these pictures and your long-time loyalty as an AMSOIL Dealer, Larry. Your Tundra looks great! The toy trucks are a great find and will make excellent display pieces. We're not sure exactly when they were made, but they look to be from the late '70s/early '80s and were most likely offered to AMSOIL Dealers as a promotional item in that time period.*

Email letters to:
letters@amsoil.com

Or, mail them to:
AMSOIL INC.
Communications Department
Attn: Letters
925 Tower Avenue
Superior, WI 54880

Letters are subject to editing for length and clarity; please include your name, address and phone number. Unsigned letters will not be published.

Making Sense of Filtration Media

We take a closer look at filtration efficiency.

Mark Nyholm | STAFF PRODUCT DEVELOPMENT ENGINEER AND MECHANICAL R&D MANAGER

Have you ever wondered how oil filters work or what the most important attributes of an oil filter are? Scan the internet for advice and you'll become thoroughly confused by differing marketing terms, including something called a "beta ratio." You could continue down this rabbit hole for hours, with few verifiable or tangible results. Since not everyone has a filter expert readily available to answer such important questions in understandable terms, I'll compress everything you need to know about filtration media into the next few paragraphs.

Filter efficiency

The three most important attributes of an oil filter are flow, capacity and efficiency. That's it. Each of those attributes is dependent on the others – increasing a filter's efficiency reduces its flow, etc. So, it is nearly impossible to make a filter that flows huge volume while remaining efficient at capturing ultra-fine particles for long periods of time. Flow and capacity are straightforward, so the efficiency attribute has rightly become the main point of confusion.

Efficiency describes how well a material filters out particles. For example, if a filter is 99% efficient at 30 microns, that means the filter captures 99% of contaminants 30 microns and larger. You can achieve 99% efficiency at 30 microns using a variety of media types, including cellulose, cellulose blend with a synthetic scrim and synthetic microglass. If each of those can provide the same efficiency, which is best? That depends on the application and how well the filter performs in the other two key areas, flow and capacity.

For example, a prominent motorcycle manufacturer promotes a 5-micron filter. That is ultra-fine particle filtering, but at what efficiency? If I said that filter would capture one 5-micron particle every 5 minutes, it wouldn't be very impressive. Advertising the ability to capture particles of a particular size without identifying the efficiency rating is meaningless (and borderline misleading).

Many filter makers claim 99% efficiency without disclosing a particle size. To throw more confusion into the mix, some marketers add claims of 3/12/17 beta ratios. Pretty straightforward and intuitive, right? I didn't think so. It means the filter is 50% efficient at capturing particles 3 microns and larger, 95% efficient at capturing particles 12 microns and larger and 98.7% efficient at capturing particles 17 microns and larger.

No filter removes absolutely every particle from oil, so we have to find one that provides an optimum mix of efficiency, flow and capacity for the application.

How efficient does a filter need to be?

Any filtration experts reading this already know that methods exist for extremely fine particle filtration, but most of those solutions are neither economical, nor able to be installed on every vehicle. Thankfully, every oil-filter media currently made can be up to 100% efficient, depending on particle size. So, the correct question becomes, "what size particles need to be removed at high efficiency?" That depends on the application.

Hydraulic systems require fine particle filtration to protect the pump, so it's common for hydraulic systems to have 5-micron filters at high efficiency. Modern diesel pickups typically require 4-micron fuel filters at high efficiency to protect the fuel pump and injectors.

On the other hand, both gasoline and diesel engines can get by with dirtier oil than fuel. A filter in the 20-30-micron range at 99% efficiency provides good protection against engine wear. Thankfully, a filter that is 99% efficient at 30 microns can also remove smaller particles, simply at a lower efficiency level. That means every time the oil goes through the filter some of those smaller particles are making their way through the media, but they can still be caught the next time around.

The beta ratio example above is a typical diesel-pickup oil filter that is 98.7% efficient at 17 microns and larger and 50% efficient at 3 microns. That means every time the oil passes through the filter, 98.7% of all particles 17 microns and larger are removed and 50% of all particles 3-17 microns are removed. The 3-micron particles that make it through the filter are reduced by half on every subsequent pass.

AMSOIL pays particular attention to how the flow, capacity and efficiency attributes work together, so customers can trust that AMSOIL Oil Filters will protect their equipment and provide exceptional filtration performance. Check out the AMSOIL Product Guides to find the right filter for each specific application.

Zero-Turn Mower Maintenance

Zero-turn mowers have been a staple for landscape professionals for several years and are popular among homeowners with large lawns. These machines are typically controlled by a series of belts, pulleys and hydraulic controls that the user operates with control levers.

Their advantage comes from the ability to make sharp turns with swiveling front wheels and independent rear wheels. They're especially convenient when mowing around trees and making 90-degree turns, since the user doesn't have to engage the clutch several times to change directions, saving time and making the job easier. They also cut closely along the edges of shrubs, flowerbeds and other obstacles, decreasing the need for extra trimming.

ZERO-TURN MOWER SAFETY

Zero-turn mowers have some downsides. Steep slopes are a hazard, and many manufacturers warn about potential rollover risk. As a best practice, consult the owner's manual when dealing with slopes more than 10 degrees, especially if the grass is wet. Many models have roll bars and seat belts to help prevent injury.

ZERO-TURN MOWER MAINTENANCE

A properly maintained zero-turn can deliver years of reliability, even after logging several hundred hours. Here are a few maintenance tips:

Mind the belts

Belts are one of the biggest maintenance concerns; be sure to periodically check the pulleys and belts for wear and replace them as needed. To keep the belts working well, keep the outside of the deck clean and periodically clean the underside of the deck of clippings and debris. Keeping the deck clear will help protect the belts from wear. Consider coating the deck and blades with AMSOIL Heavy-Duty Metal Protector (AMH) to keep water and dirt out.

Grease the spindles

Spindles are another component that needs attention. Commercial-grade zero-turn mowers often require proper greasing of the spindles to ensure the blades rotate properly. AMSOIL Synthetic Water-Resistant Grease (GWR) protects against metal-to-metal contact and resists washout in wet conditions, reducing the need for frequent greasing.

Tend the transmission

Many zero-turn mowers have a hydraulic transmission that uses oil pressure to drive the wheels in different directions and at variable speeds. Heat exposure leads to sludge and varnish formation that degrades performance, resulting in rough operation and poor control that frustrates operators and leads to hydrostatic transmission wear and expensive repairs.

To ensure smooth operation, change transmission oil according to manufacturer recommendations. AMSOIL 20W-50 Synthetic Hydrostatic Transmission Fluid (AHF) is excellent in these applications.

Change the oil

Landscaping professionals put a lot of hours on their equipment, which requires regular fluid checks to ensure it performs at its best and gets the job done when called upon. When it's time to change the oil, AMSOIL Synthetic Small-Engine Oil (AES, ASE, ASF, SEF) provides the protection equipment needs to keep it running at peak performance. It is recommended to change the oil at the end of the season, so contaminants are flushed from the engine before it is parked.

Storage

When the season ends, be sure to clean the mower and add AMSOIL Gasoline Stabilizer (AST) to ensure it fires up quickly when removed from storage next season.

SERVICE MARINE LOWER UNITS TO PREVENT WATER DAMAGE

Preventing rust and other water-related problems.

Water and gear lube don't mix. Unfortunately, you can't avoid submerging your marine motor's lower unit, and your boat isn't going anywhere without the lower unit's combination of gears, bearings and other components that turn horsepower into movement.

Lower units are resilient and can last for years, provided you service them annually. However, water can breach the seals and contaminate the gear lube in the lower unit, causing various problems.

Water contamination

Water contamination is bad for several reasons:

Viscosity loss – Viscosity measures a liquid's resistance to flow or thickness. Your marine motor's lower unit is designed to use a gear lube of a specific viscosity for optimal wear protection. Water can reduce the gear lube's viscosity below what the manufacturer recommends, reducing wear protection.

Foam – A film of gear lube forms on the gear teeth it protects. This fluid film absorbs pressure and prevents metal-to-metal contact. Water contamination, however, invites the formation of foam. As the foam bubbles travel between gear teeth, they rupture under the intense pressure, leaving nothing behind to prevent metal-to-metal contact, which leads to premature wear and potential gear damage.

Sludge – Water produces sludge, inhibiting heat transfer and increasing the lubricant temperature, which speeds chemical breakdown. The faster the lubricant breaks down, the sooner it fails to provide adequate protection, and the sooner it must be changed.

Rust – Water contamination invites rust formation on metal surfaces. Rust can flake off and circulate throughout the gear lube, where it acts like sandpaper and scours bearing and gear surfaces.

The solution

Avoiding contact with water is impossible when boating, so we've engineered AMSOIL Synthetic Marine Gear Lube (AGM) to deliver advanced protection against power loss and gear wear, even with up to 15% water contamination.[v]

AMSOIL Fights Water Contamination
AMSOIL Synethic Marine Gear Lube delivers **advanced outboard protection against power loss and gear wear**, even with up to 15% water contamination.[v]

[v]Based upon AMSOIL testing of AMSOIL Synthetic Marine Gear Lube 75W-90 in ASTM 3233 and ASTM D692.

AMSOIL Torque-Drive® Reformulated for Expanded Applications

AMSOIL Torque-Drive® 100% Synthetic Heavy-Duty Automatic Transmission Fluid (ATD) has been reformulated to meet the latest Allison TES-668* specification, while continuing to provide excellent protection and performance for all existing applications for which it's recommended. The new formulation will be available in 2.5-gal. (ATDTP) packaging in mid to late June; other package sizes will follow throughout the next six months. Pricing remains unchanged.

Engineered to eliminate deficiencies common to conventional petroleum ATFs, Torque-Drive is a multi-functional fluid ideal for mixed fleets, meeting the most stringent heavy-duty transmission specifications and helping eliminate compatibility concerns and misapplication.

- **Helps** prevent clutch glazing and elongated shift times.
- **Helps** reduce operating temperatures and prevent wear during severe-service operating conditions.
- **Provides** superior performance and protection against thermal and oxidative degradation, sludge and varnish formation, viscosity shear down, cold-temperature oil thickening, poor friction stability, high component wear and shortened oil life.
- **Extends** drain intervals when used according to the transmission manufacturer's recommendations for extended-drain intervals.

Applications

Use Torque-Drive in heavy-duty, on- and off-highway automatic transmissions requiring any of the following specifications: Allison TES-295, TES-389, TES-668, C-4; Ford MERCON V; GM DEXRON III-H; Isuzu SCS; JASO 1-A; MAN 339 Type V-1, 339 Type V-2, 339 Type Z-1, 339 Type Z-2, 339 Type Z-3, 339F; MB 236.91, 236.10; Voith 55.6335, 55.6336; Volvo 97340, 97341; ZF TE-ML 03D, TE-ML 04D, TE-ML 14A, TE-ML 14B, TE-ML 14C, TE-ML 17C, TE-ML 20B, TE-ML 20C.

FREQUENTLY ASKED QUESTIONS (FAQ)

1) If I'm currently using the old Torque-Drive formula, can I switch to the new formula?

Yes. Although the old and new formulas are compatible, we recommend draining as much of the old fluid as possible before filling with the new fluid.

2) I have a gallon of the old Torque-Drive formula. Can I mix it with a gallon of the new formula and use it in my transmission?

Yes, the old and new Torque-Drive formulas are compatible and may be mixed.

Don't Neglect Your Drivetrain this Summer

AMSOIL synthetic drivetrain fluids provide maximum protection for summer's extreme operating conditions.

Whether hauling heavy tools and equipment to a job site or towing a boat for a relaxing weekend on the lake, many vehicles are subjected to extreme operating conditions and hot temperatures in the summer, placing increased stress on drivetrain components.

People commonly overstress their vehicles in the summer by overloading them and pulling trailers, campers or even fifth-wheel and boat combinations. As vehicle stress increases, transmission and differential temperatures rise and cause conventional lubricants to thin, resulting in inadequate lubrication that can lead to component failure.

Differentials today are subjected to severe-duty service and encounter more stress and heat than was typical only a few years ago. Modern turbodiesel trucks and vehicles with V-10 engines boast more horsepower and torque, challenging gear oils to provide adequate wear protection, while also providing maximum fuel efficiency.

The extreme pressures and temperatures generated by modern vehicles increase stress on gear lubricants and can lead to a serious condition known as thermal runaway.

As temperatures in the differential climb upward, gear lubricants lose viscosity and load-carrying capacity. When extreme loads break the lubricant film, metal-to-metal contact occurs, increasing friction and heat. This increased friction and heat, in turn, results in further viscosity loss, which further increases friction and heat. As heat continues to spiral upward, viscosity continues to spiral downward. Thermal runaway is a vicious cycle that leads to irreparable equipment damage from extreme wear, and ultimately catastrophic gear and bearing failure.

The AMSOIL "Tow Package"

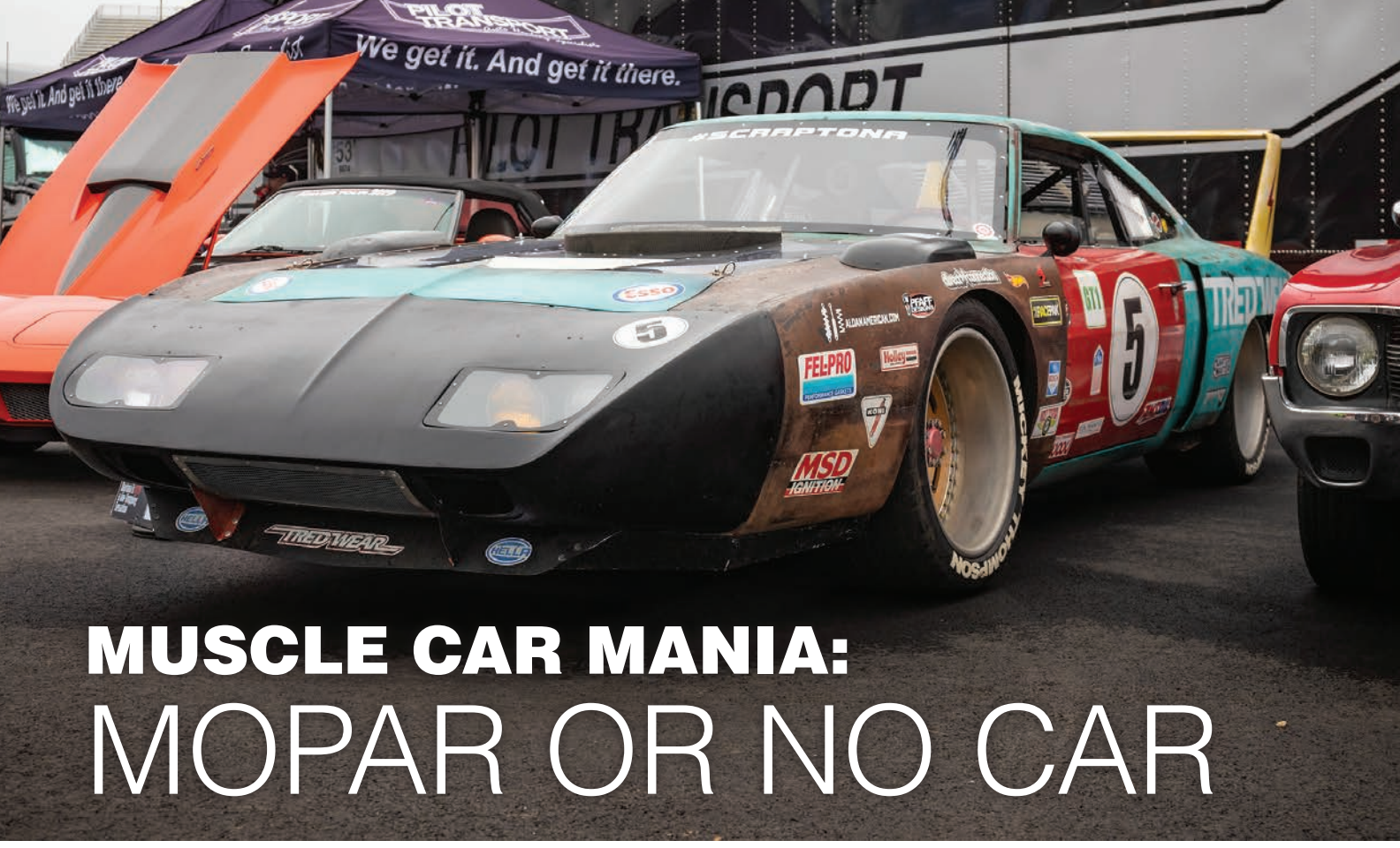
AMSOIL Signature Series Synthetic Automatic Transmission Fluid (ATF, ATL) and SEVERE GEAR® Synthetic Gear Lube (SVG, AGL, SVT, SVO) provide maximum protection in demanding environments such as towing, hauling and commercial use, providing increased lubricant film protection and reduced wear at elevated temperatures. They are formulated for extended drain intervals of up to 50,000 miles (80,467 km) in severe service and 100,000 miles (160,934 km) in normal service, or longer where specified by the vehicle manufacturer.

Signature Series Synthetic Automatic Transmission Fluid

- **Specifically** formulated for severe-service towing and heavy hauling.
- **Delivers** reserve protection against extreme heat.
- **Maintains** cold-temperature fluidity.
- **Superior** friction durability for smooth, reliable shifts.
- **Easy-pack** reduces mess and hassle when performing tricky lubricant changes.

SEVERE GEAR Synthetic Gear Lube

- **Controls** thermal runaway.
- **Superior** film strength.
- **Outstanding** rust and corrosion protection.
- **Helps** reduce operating temperatures.
- **Easy-pack** reduces mess and hassle when performing tricky gear-lube changes.



MUSCLE CAR MANIA:
MOPAR OR NO CAR

Driving a muscle car came with ground rules. Every traffic light is a drag-racing tree. You must accept your addiction to the rumble and power. And having all that horsepower underfoot puts you in a cult of speed fanatics.

Mopar* helped launch the muscle-car movement in 1955 with its bar-raising 300-horsepower Hemi* V-8 engine. By the 1960s, the muscle-car era was in full force with major automakers competing to make the sickest, fastest cars on the strip. But some would argue that the late-'60s/early-'70s were the standout Mopar years, when vehicles from Dodge,* Chrysler,* DeSoto,* Imperial* and Plymouth* were putting out eye-popping, rubber-shredding muscle cars and "Mopar or no car" was a rallying cry. Cars like the 1968 Charger* in "Bullitt" with Steve McQueen, the 1969 Charger in "Dirty Mary, Crazy Larry" and the white 1970 Dodge Challenger R/T* in "Vanishing Point" became stars of the big screen. And the engines that powered those seductive, two-door beasts live on as legends. We take a look under the hoods of some of them here.

276 FirePower Hemi V8

The Chrysler 1951 FirePower* Hemi V8 used a hemispherical combustion chamber engine design that produced 180 horsepower. Dodge, DeSoto and Imperial also had their own variants of the Hemi engine. The bore-spacing of Chrysler FirePower engines was 4.5625 inches and most used a two-barrel carburetor. However, the 1955 Chrysler C-300 was equipped with dual Carter* WCFB four-barrel carburetors and was rated at 300 hp, a head-turning number for the day. The FirePower Hemi also laid the foundation for the second-generation Hemi we'll discuss later.

383 B-Engine V-8

In 1958, Chrysler introduced the B-engine* big-block to replace the first generation of FirePower Hemi engines. The most powerful B-engine was the 383, with a bore of 4.25 inches and a stroke of 3.375 inches. The engine generated power through high rpm, which made it a more popular option than the larger, but lower-revving, 426 Hemi or 440. By 1970 the 383 Magnum* boasted a peak output of 335 hp and 425 lb-ft of torque. It was used in a variety of Mopar muscle cars ranging from the Dodge Charger to the Plymouth 'Cuda.*

413 Max Wedge V8

The Chrysler 413 raised block, or RB,* engine was briefly the most powerful Mopar engine in production. Introduced in 1959, the 413 had a 4.18-inch bore and 3.75-inch stroke. It was initially used in Chrysler luxury cars, but in 1962, the 413 was reworked into a limited-production, high-performance engine known as the 413 Max Wedge,* named for the shape of its combustion chambers. The 413 Max Wedge had

a displacement of 425 cubic inches and featured solid lifters, dual-valve springs, magnafluxed rods and short-ram induction manifolds. With an 11.0:1 compression ratio, this engine had an output of 415 hp and 470 lb-ft of torque.

426 Max Wedge

The 426 Max Wedge was a larger variant of the RB engine. It was introduced in 1963 with a 4.25-inch bore and three compression ratios of 11.0:1, 12.0:1 or 12.5:1 depending on the configuration. The "Stage III" 426 Max Wedge featured high-flow cylinder heads, severe-duty casting blocks with improved oil feed, a cross-ram intake manifold, two Carter 4-barrel carburetors and a high-flow, cast-iron exhaust manifold. It put out a factory-rated 425 hp and 480 lb-ft of torque to give it plenty of street cred and serve as the go-to high-performance engine until the birth of the 426 Hemi.

426 Hemi V-8

The 426 Hemi is arguably the most important V8 ever produced. It brought the muscle car to new levels of power and remains the standard to this day. The engine design was a "Frankenstein" of two engines, an enlarged 426 Max Wedge married to hemispherical-head technology from the 1950s Chrysler FirePower Hemi. The engine dominated the 1964 race season, including the top four spots at the Daytona 500, making cars like the Dodge Charger and Pontiac GTX* the stuff of legend. However, NASCAR* banned the competition-only engine until it was approved for production, causing Chrysler to sit out the 1965 NASCAR season while they designed a street version. The engine stayed in the NHRA,* where it birthed a generation of advanced, hemi-headed engines that are still in use today.

To make it work for the street, Mopar dropped the compression ratio from 12.5:1 to 10.25:1, used cast-iron heads instead of aluminum, backed off the timing, relaxed the camshaft and redesigned the intake and exhaust manifolds. The 426 Hemi was advertised at 425 hp and 490 lb-ft of torque, and 450 hp and 472 lb-ft of torque when equipped with twin Carter AFB carburetors. Legend holds that the 426 Hemi could actually generate upward of 500 hp, but Dodge officially claimed 425 to ease insurance premiums for prospective owners. Circumstantial evidence includes a 426 Hemi-powered Dodge Daytona* that became the first production car to reach 200 mph on a closed circuit. Iconic Mopars like the Plymouth Road Runner,* Plympouth Superbird* and Dodge Charger all housed a 426 Hemi V8. But opting for the monstrous engine nearly doubled the price of these cars on the lot, which explains why just under 11,000 production Hemis made it into muscle cars and why they can fetch seven figures at auction today.

Chrysler 440 V-8

The Chrysler 440 was the last iteration of the B-engine and one of the most iconic muscle-car engines of all time. Although not as exotic or rare as the 426 Hemi, the 440 delivered similar performance at a fraction of the cost. It was designed with a precision cast-iron block, light-wall construction, iron heads and a round bore of 4.32 inches with a 3.75-inch stroke. With the "Six-Pack*" configuration that consisted of a 10.3:1 compression ratio and aluminum Edelbrock* manifold topped by a trio of Holley* 2300 series carburetors, the 440 could churn out 390 hp and 490 lb-ft of torque during the 1969 to 1971 model years. The 440 came standard in the Dodge Charger R/T, Dodge Coronet R/T* and Plymouth Belvedere* GTX,* and was an option in the Dodge Super Bee* and Plymouth Road Runner.

Protect Your Mopar Muscle

If you're lucky enough to revel in the power of a legendary Mopar V8, protection is critical. Here's a list of AMSOIL products to help keep your classic muscle car tearing up the street for years to come.

AMSOIL Break-In Oil

Freshly rebuilt engines should start off with AMSOIL Break-In Oil. It's formulated with zinc and phosphorus anti-wear additives to protect critical components during the break-in period when engine wear rates are highest. It doesn't contain friction modifiers to allow for quick and efficient piston-ring seating, an important aspect of the break-in process to ensure maximum power and engine longevity.

AMSOIL Z-ROD® Synthetic Motor Oil

AMSOIL Z-ROD® is engineered specifically for classic and high-performance vehicles to perform on the street and protect during storage. It features a high-zinc formulation that protects flat-tappet camshafts and critical engine components, along with a proprietary blend of rust and corrosion inhibitors for added protection during long-term storage. It's available in 10W-30, 10W-40 and 20W-50 viscosities.

AMSOIL Assembly Lube

As they say, a great engine isn't built in a day. Partially assembled engines can sit idle for weeks or months at a time. During this process, an engine-assembly lube must be applied that will cling to parts and provide wear protection, inhibit rust and help prevent deposit formation. AMSOIL Engine Assembly Lube handles all of the above.

Miracle Wash® Waterless Wash and Wax Spray

AMSOIL Miracle Wash is a must-have for owners dedicated to keeping their vehicle's appearance on par with its performance. Simply spray and wipe off to lift dirt away from the surface instantly. It leaves vehicles with a super-shiny finish that protects against dust, light dirt and harmful ultraviolet rays.

AMSOIL Gasoline Stabilizer

When it's time to put her away at the end of the season, AMSOIL Gasoline Stabilizer is crucial to ensuring your ride is road-ready in spring. Gasoline can degrade in as few as 30 days. Treat your fuel tank prior to parking the vehicle for the winter to help prevent fuel degradation and poor engine performance when it's time to fire it back up.

DOMINATOR® Octane Boost

Early V8 models were designed to use leaded gasoline. As a result, classic and collector autos often require the use of a lead substitute to preserve the components that were designed for the fuel of days gone by. AMSOIL DOMINATOR Octane Boost is excellent as a lead substitute in older vehicles. It increases octane up to four points, helping reduce engine knock, improving ignition and helping fuel burn more cleanly.

Engine Fogging Oil

Any engine facing storage or lengthy inactivity should be treated with a good dose of Engine Fogging Oil first. Giving the cylinders a shot of oil protects them from rust, corrosion and harmful dry starts when it comes time to fire up your hot rod or classic car the following season.

June Closeout

The last day to process June orders is Friday, June 30. The ordering line (800-777-7094) is open until 7 p.m. Central Time. Online orders that don't require manual processing or validation can be submitted until 11:59 p.m. Central. All orders received after these times will be processed for the following month. Volume transfers for June business must be submitted by 11:59 p.m. Central on Thursday, July 6.

Volume transfers must now be submitted in the Dealer Zone (Business Tools>General Business Tools>Volume Transfer) or DBS. Transfers can no longer be submitted on the Dealer-to-Dealer Order Form (G01) or other forms through email or fax.

Holiday Closings

The AMSOIL corporate headquarters and U.S. distribution centers will be closed Tuesday, July 4 for Independence Day. The Edmonton and Toronto distribution centers will be closed Friday, June 30 for Canada Day.

AMSOIL Welcomes New Chief Marketing Officer (CMO) and Sr. VP, Strategic Marketing Rob Shama

Rob Shama has joined the AMSOIL Strategic Leadership Team (SLT) in the newly created position of Chief Marketing Officer (CMO) and Sr. VP, Strategic Marketing. He will unify and expand our marketing support for all AMSOIL business units to help us continue to grow as the industry evolves and presents new and unique challenges and opportunities.

Shama is known for his creativity and passion for innovation, and he is responsible for multiple unique concepts within the lubricants industry, including engine oils with liquid titanium and multi-vehicle ATF. In fact, he was an invaluable partner in the development of the AMSOIL Signature Series formulation. He is well-versed in the major market trends that affect our business and was a guest speaker at our 45th Anniversary Convention in 2018.

Shama has over 37 years of experience in the chemical industry, including 27 years with Afton Chemical,* a major supplier to lubricant manufacturers. He served as Afton President for more than six years. Prior to taking that role, he was CMO and Sr. Vice President, North America, where he led Afton's global marketing initiatives while running the North American region. Shama has extensive experience in sales and marketing strategy, and product innovation, including five years on the brand-management team for Quaker State* and Pennzoil.*

A native of Canada, Shama is now a U.S. citizen after moving to the U.S. in 1996. He holds a degree in Mining Engineering from Queens University in Kingston. Rob and his wife, Bonnie, have been married since 1987 and have a daughter and two sons.

AMSOIL has Acquired Benz Oil, Expanding AMSOIL Industrial Business Unit

AMSOIL has acquired Benz Oil, an industrial lubricant manufacturer based in Milwaukee. Benz makes industrial fluids that AMSOIL currently does not, including cutting fluids, metalworking fluids, process oils and more. Benz Oil will be rebranded as AMSOIL Industrial, and the Benz facilities and staff will all become part of AMSOIL INC.

This acquisition will power significantly accelerated growth for the Industrial business unit, expand our expertise into areas where we had little and provide greater product offerings for our industrial customers. It will not immediately result in new products because the products being added are industrial-focused and do not cross over to consumer applications. However, our new capabilities and expertise gained from this acquisition may lead to new fluids in the future. This expansion will boost our negotiating power on raw-material pricing, helping us remain competitive on raw materials purchased from suppliers who provide base oils and additives used in the production of both AMSOIL and AMSOIL Industrial product lines. The acquisition will strengthen AMSOIL by increasing our customer base, revenue and technical expertise, and it will generate more exposure for the AMSOIL brand.

AMSOIL INDUSTRIAL

+

Benz
ADVANCING LUBRICATION...

AMSOIL®

4T PERFORMANCE MOTORCYCLE OIL

MADE IN THE USA

- **Reduces** friction, heat and wear
- **Smooth** confident shifts
- **Helps** reduce oil consumption

Commercial-Grade Oils for the Commercial Market

New AMSOIL 15W-40 Commercial-Grade Diesel Oil and Commercial-Grade Hydraulic Oil are formulated specifically to provide protection and value for commercial customers, while helping to compete against lower-priced conventional products in the commercial market, win new commercial accounts and increase sales to existing commercial accounts.

AMSOIL 15W-40 COMMERCIAL-GRADE DIESEL OIL (SBDF)

- **Advanced** synthetic-blend oil with greater than 50% synthetic base oil content.
- **2X better** wear protection.[1]
- **Meets** the latest API CK-4 diesel-oil specification.
- **Improved** heat and oxidation resistance.
- **Helps** maintain power and fuel efficiency.
- **Flows** dependably in cold temperatures for reliable startup and engine protection.
- **Reduced** oil consumption.

[1]Based on third-party testing in the Detroit Diesel DD13 Scuffing Test for specification DFS 93K222.

AMSOIL COMMERCIAL-GRADE HYDRAULIC OIL (HCG32, HCG46, HCG68)

- **High-performance** conventional hydraulic oil.
- **Provides** strong wear protection to protect pumps and motors.
- **Resists** corrosion for long component life.
- **Fights** sludge to help maintain the cleanliness and operability of pumps, valves, solenoids and other components.
- **Provides** good filterability for maximum fluid performance and life.
- **Resists** foam to guard against cavitation and promote efficient operation.
- **Available** in three viscosities (ISO 32, ISO 46, ISO 68).

AMSOIL

The First in Synthetics ®

ISO 9001/ISO 14001 REGISTERED

Questions/Comments
international@AMSOIL.com

On the Web
AMSOIL.com
AMSOIL.eu
AMSOIL.lat
AMSOIL.africa
AMSOIL.fr
AMSOIL.co.in
AMSOIL.com.au
AMSOIL.ca

AMSOIL INC., 925 Tower Ave., Superior, WI 54880 • 715-392-7101 • Printed in the USA

June 2023



No More Confusion

ONE MIX RATIO POWERS THEM ALL

Landscape professionals know what a hassle it is to maintain different fuel containers at different mix ratios. SABER® Professional offers the convenience of one fuel container for all their two-stroke equipment needs.

SABER Professional can be mixed at conventional mix ratios or, for maximum results, AMSOIL recommends the SABER Ratio™ (80:1, 100:1).

• Saves Time & Money • Low Smoke • Stabilizes Fuel

TESTED & PROVEN AT **100:1**