APRIL 2023

THE SHOP

For performance, restyling & customization professionals

PRECISION ENGINE

CLUTCHES

CAPTURING the CULTURE

A Q&A with influencer Larry Chen



THESHOPMAG.COM

WINCHES




AMP RESEARCH®
INNOVATION
IN MOTION
PowerStep™
The PowerStep™ is the automatic, electric-powered running board that instantly extends when you open your door, and retracts out of sight when the doors close.
• Automatic, electric-powered
• Low-profile integrated LED Light system
• Durable black textured finish
TRUCK HERO
amp-research.com

meyer® DISTRIBUTING

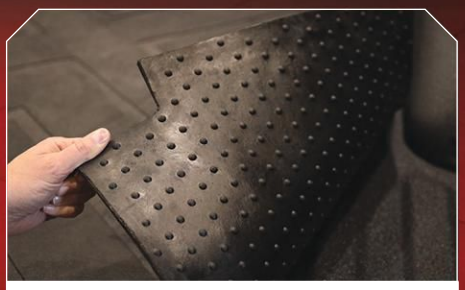
7 SERIES X BED MATS



ALL NEW SLEEK "X" PATTERN



EXTRA THICK CONSTRUCTION



RUBBER CLEATS KEEP MAT IN PLACE

DURABLE, LASTING PROTECTION

If you've ever scratched your truck bed then you know the feeling that follows when you hear the sound of your investment losing value. You toss a lot of things in the bed of your truck, why not let one of them be a little protection. Dee Zee Bed Mats are a cost-effective solution for keeping your truck bed surface free from scratches, dings, and dents caused by loading and unloading, or cargo shifting around during transport.



DEE ZEE® The Quality Truck Accessory People

Meyer Distributing is a complete wholesale distributor. With 91 locations nationwide and over 2,750,000 sq. ft. of warehouse space, Meyer Distributing has a huge inventory of parts to service their customers. With strategically positioned warehouse facilities, Meyer Distributing is able to provide next day delivery to most locations using Meyer Logistics direct ship.

MEYERDISTRIBUTING.COM | 800.639.3787

CONTENTS

THESHOP // April 2023 // Volume 25 Number 11

FEATURES



PAGE 22

BUSINESS

6
SEEING IS BELIEVING
A Q&A with automotive content creator Larry Chen.



PERFORMANCE

14
HOLD ME TIGHT
Clutch systems keep pace with today's power progressions.
By John Carollo

22
LIVING LEGENDS
Will your shop see more vintage, pre-war & antique projects as prices drop?
By John Gunnell

28
PERFORMANCE PRODUCTS
Stock your shelves with these go-fast components.

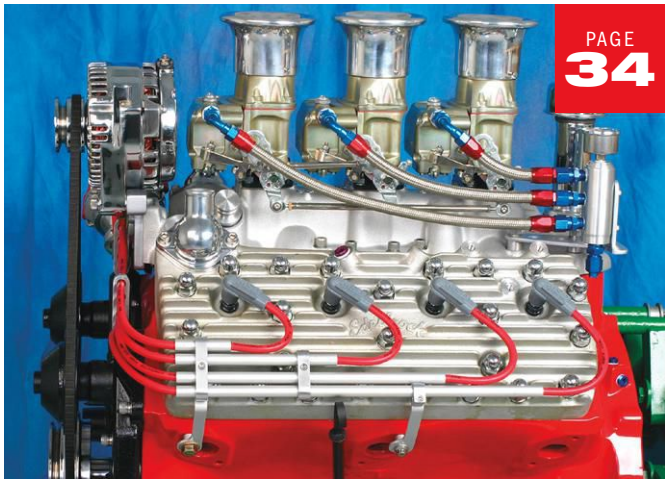
30
REIMAGINE THAT
New ways of looking at old cars.
By Tony Thacker



ON THE COVER
As SEMA's 2022 Influencer of the Year, photographer Larry Chen has made a career out of capturing car culture. *See article on page 6.* (Photo courtesy Pennzoil; inset photo courtesy Superwinch.)

PRECISION ENGINE

34
FLATHEAD 8BA REBUILD, PART V
Wrapping up the final details.
By Mike Mavrigian



PAGE 34

RESTYLING

42
ANCHOR POINTS
Keeping winch sales on the incline.
By Jef White

50
RETAIL TRENDS
Seven tips for maximizing sales.
By Jason R. Sakurai

56
FIXED WHEELS KEEP ON TURNING
Rim Repair Rx blends service & an artistic touch.
By Mark C. Bach

60
RESTYLING PRODUCTS
Parts to accessorize any ride.

DEPARTMENTS

DRIVER'S SEAT 4
AFTERMARKET ALLEY 62
AD INDEX 63
ONE MORE THING 64

CENTERFORCE®

THE PERFORMANCE CLUTCH



CLUTCH KIT

DUAL FRICTION

The Centerforce ® Dual Friction ® Clutch Series is a matched performance pressure plate & disc combination with exceptional street characteristics, offering outstanding holding capacity and durability. Part # CTFDF735552

Distributed by

Motor-State DISTRIBUTING

motorstate.com
800.772.2678





Jef White
Editor
www.theshopmag.com

Plant a Tree for Classics

With a little bit of creativity, it turns out that your classic car customers can enjoy driving their old vehicles without feeling guilty about polluting the planet.

Automotive lifestyle brand and insurance provider Hagerty has come up with one way of reconciling the two through "ECO," a voluntary Enthusiast Carbon Offset program that helps motorists reduce the carbon footprint of their collectible cars, trucks and motorcycles in an easy, convenient and transparent way.

"ECO is the first step in a holistic Hagerty Impact strategy that will educate and empower enthusiasts to drive positive change across a range of social and environmental activities," the company explains.

ECO is designed to allow collectible vehicle owners to monitor their carbon dioxide emissions by entering their vehicle's type and the mileage they want to offset into a web-based emissions calculator powered by Chrome Carbon, a reforestation program and carbon reduction initiative for automotive enthusiasts.

The calculator helps owners recognize their vehicle's impact and allows them to offset multiple times its CO2 emissions by paying to plant trees in the U.S., Canada or the U.K. Chrome Carbon partners with certified climate bodies and organizations to fund highly ranked reforestation and carbon reduction projects with real and measurable gains, according to the company.

Worldwide, approximately 72% of people believe that protecting and restoring natural habitats would be a helpful means of addressing climate change, according to an Edelman Trust Barometer 2022 special report on climate change.

"Planting trees is one of the most impactful and affordable ways of taking CO2 out of the atmosphere and restoring natural habitats," Hagerty states.

Hagerty plans to offset all emissions from its classic fleet and driving events, having started last year with the California Mille and Greenwich Concours Driving Tour.

"We believe the love of driving and the love of our planet can and must coexist," says Hagerty CEO McKeel Hagerty. "As part of our long-term environmental strategy, we are committed to helping automotive enthusiasts responsibly make a difference with simple and affordable steps such as this program."

Chrome Carbon partners with organizations working closely with national forest agencies, local forest experts and farmers, making sure that the proper trees are planted and looked after in the most relevant locations.

"We have made a commitment to educate ourselves and our members on the best ways to improve their vehicles and driving habits to lessen the overall impact on the environment," says Kory Felker, vice president of brand strategy at Hagerty.

Hagerty's ECO program is available to all collectible vehicle owners interested in offsetting the carbon emissions associated with driving their vehicles, and participation is not linked to the purchase of a Hagerty product. ***TS***

THE SHOP

EDITORIAL

EXECUTIVE EDITOR: Jennifer King
jdking@cahabamedia.com

EDITOR: Jef White
jwhite@cahabamedia.com

ASSOCIATE EDITOR: A.J. Hecht
ahecht@cahabamedia.com

CONTRIBUTING WRITERS: Mark C. Bach, John Carollo, John Gunnell, Jason R. Sakurai, Tony Thacker

CREATIVE SERVICES

ART DIRECTOR: Elizabeth Chick

DIGITAL PROJECT MANAGER: Greg Ragsdale

WEB DEVELOPER: Greg Caudle

CIRCULATION

SUBSCRIPTION CHANGES & INQUIRIES:
theshopmag@omeda.com

ADVERTISING

ASSOCIATE PUBLISHER: Stacy Marshall
smarshall@cahabamedia.com

SENIOR ACCOUNT EXECUTIVE: Wendy Miles
wmiles@cahabamedia.com

CLIENT SERVICES COORDINATOR:
Presley Dean
pdean@cahabamedia.com

CAHABA MEDIA GROUP

PUBLISHER: Matthew G. Conroy
VP OF SALES: Greg Meineke
DIRECTOR OF FINANCE: Brandon Whittemore
DIRECTOR OF OPERATIONS: Laurie Tisdale

P.O. Box 530067
Birmingham, AL 35253

EDITORIAL & PRODUCTION
1900 28th Avenue South, Suite 200
Birmingham, AL 35209
205-212-9402

PRINTED WITH SOY INK · BPA WORLDWIDE · CERTIFIED AUDIENCE · TORA TRUCK & OFF-ROAD ALLIANCE · SEMA · CAN MEMBER · PRO PROFESSIONAL RESTYLERS ORGANIZATION

THE SHOP (ISSN 2380-7415) is published monthly by Cahaba Media Group, 1900 28th Ave S, Ste 200, Birmingham, AL 35209-2642. Periodicals postage paid at Birmingham, AL and additional mailing offices. Free to qualified recipients within the United States and U.S. Possessions. Publisher reserves the right to determine qualifications. Annual Subscription Prices: U.S. – one year, $45; two years, $80; three years, $108. Canada – one year, $76; two years, $142, three years, $201 (U.S. Funds); All other countries – one year $98, two years $186, three years, $267 (U.S. funds). Customer Service, call 800-256-2785. POSTMASTER: Please send address changes to THE SHOP, PO Box 271, Lincolnshire, IL 60069-9835.
All items submitted to THE SHOP become the sole property of THE SHOP and Cahaba Media Group and cannot be reproduced without the written consent of the publisher. Advertisers and/or their agencies, jointly and severally, assume all liabilities for printed advertisements in THE SHOP. Opinions expressed in THE SHOP may not necessarily reflect the opinion of the magazine, its management or its advertisers. Letters, photographs and manuscripts welcome.
VOLUME 25 ISSUE 11

ROCK THESE AND ROLL.



BUILT FOR THE ADVENTURE AHEAD.

AEROSKIN® HOOD PROTECTOR

- Custom-molded for a skin-tight fit that complements the contours of the hood for a low-profile protection.
- Available in dark smoke finish (acrylic), matteblack finish (ABS), and chrome finish (ABS) all being car-wash safe.
- Installs in minutes with pre-applied 3M automotive grade adhesive.

LOW PROFILE VENTVISOR®

- Gives that sleek, stylish look with the flat, low-profile design.
- Blocks wind noise, circulates fresh air, and keeps cab cooler.
- Its high-grade, UV-resistant acrylic material is strong, car wash safe, and will never fade.
- Mounts in minutes with 3M automotive grade adhesive mounting tape (included).

TRUCK HERO

autoventshade.com



SEEING IS BELIEVING

A Q&A with automotive content creator Larry Chen.

Larry Chen grew up in Santa Monica, California, where car culture was practically inescapable.

Throughout his childhood he was surrounded by cars—sometimes fixing them with his father and sometimes taking photos—so it was only natural that his interest kick-started a successful career.

At the 2022 SEMA Show, an industry event he's been attending for 17 years, Chen was named the inaugural Influencer of the Year. Not only did this recognition redirect the spotlight on his work as an automotive photographer, but it gave him a platform to relate stories through images about cars and the people who drive them.



Chen says the key to great photos is learning how to "control and shape the light." (Photo courtesy Pennzoil)

Larry Chen shares a passion for vehicles and car culture with fans and followers around the world. (Photo courtesy Pennzoil)

Pennzoil sat down with Chen (larry-chenphoto.com) to discuss how he got his start as a photographer, what being named SEMA's Influencer of the Year means to him and the impact of his relationship with the brand on his career.

Q **PENNZOIL: Was there any part of your childhood that you believe shaped or inspired your career?**

CHEN: Growing up, my dad worked on all our cars. The funny thing is he didn't do it because he thought it was fun. He hated it, but it was cheap. It looked like it was fun when I was a kid, so I picked up on that.

Growing up in Santa Monica and living in an apartment without a garage, everyone could see me working on cars all the time. I'd constantly get asked, "What's broken?" while fixing a car, but what most people didn't understand was that I was tinkering with it to make it better; to make it faster.

BODY ARMOR 4X4







ALL NEW

TOYOTA TACOMA
HILINE WINGS

INCREASED CLEARANCE FOR BETTER APPROACH AND DEPARTURE ANGLES
ALLOWS MORE ROOM FOR BIGGER TIRES

PN:TC-19339W

@BodyArmor4x4

US TOLL FREE 866.894.3351 | CANADA TOLL FREE 877.326.0933

BODYARMOR4X4.COM

ARMOR GUARD 3 YEAR FINISH LIMITED LIFE TIME

PROFESSIONAL SUPPORT BODYARMOR4X4.COM

SEEING IS **BELIEVING**



As a photographer, if you don't love the subjects you're shooting, chances are your work will suffer, Chen believes. (Photos courtesy Pennzoil)



Q When did you first pick up a camera?

CHEN:
I started taking pictures in elementary school with a film camera but didn't consider photography seriously until high school. I didn't get much from my film camera because it was automatic, but I still have a lot of the images that I shot back then.

I quickly understood the camera's settings and what was needed to create a photo.

Q Were you self-taught or was there a class in high school or a teacher who showed you the ropes?

CHEN:
Initially, I was self-taught. I understood the basic mechanics of taking a picture. It's like when you drive a manual transmission car and if you don't know how it works, it's tougher to get into it and understand what you're doing. But, if you already have a basic understanding of how a transmission works, it seems a little easier to get into it.

For me, it was the same thing with photography. I understood that you were controlling the light going into the camera and that's where I was able to understand and learn how to control and shape the light. Otherwise, I did take one introductory class at a community college right out of high school but that was it, because it was just something I did with a couple of friends for fun.

Q Describe the beginning of your career. What were the roadblocks and learning curves?

CHEN:
There were plenty of roadblocks, but the main thing was trying to stand out.

When I first started, there was no social media. I was so desperate to get photos in front of people that I collected emails at events and sent images out that way. I even posted on forums because, back then, instead of Googling something you went to a forum and searched if anyone else had run into the same problem.

There were a bunch of car forums, but they were more high-end, so I started posting in the "off-topic" areas.

Q You capture Formula DRIFT, and it seems like you have a special relationship with the series. How did you initially get involved?

CHEN:
It came from the car community that was of my generation. They took me into their arms and gave me access and the platform to practice my craft.

I made a lot of friends there and still call it my home, because any time I'm there it's always people that I started with that are still doing what they're doing, just at

Chen looks for stories he believes his younger self would be interested in. (Photo courtesy Pennzoil)



RETRAX IX
DURABLE ALUMINUM SERIES

BUILT-IN QUALITY. STANDOUT PRICE.

The Retrax IX is a flush-mounted retractable truck bed cover that brings an incredible value in the category of retractable truck bed covers, thanks to all of its great features.



Quick-release handle for easy operation



Retracts into a custom, spiral canister to prevent wear and tear



Strong, aluminum slats and powder coated in a matte, textured black finish



Customizable locking positions

TRUCK HERO

RETRAX.COM

SEEING IS **BELIEVING**



Photographer and automotive content creator Larry Chen was named the inaugural Influencer of the Year at the 2022 SEMA Show. (Photos courtesy Pennzoil)

a higher level. It's great to be able to tell everyone's story, especially someone like Vaughn Gittin Jr., who I started shooting in 2004. And then you have someone like Chelsea DeNofa, who I started shooting during his rookie year and I've been able to watch him get to where he is now.

You were named Automotive Influencer of the Year at the 2022 SEMA Show. What does this accomplishment mean to you?

CHEN:
It's incredible because I didn't expect it at all, nor did I even intend for it to happen. Over the years, SEMA has been so good to me as a platform that's allowed me to perform and grow.

Naturally, the accomplishment helped my business. But I look more at the fact that SEMA lets us tell the stories of these people. This was my 17th year at SEMA, and I've had nothing but good experiences since 2006 when I first started attending the event.

For the first couple of years, it was a struggle. I slept on hotel room floors because I couldn't afford a flight or hotel, let alone be able to afford food. At the time, for me to go and not sell computers and not make house calls for a whole week was tough. But SEMA was the pinnacle of car culture and I had to be there.

I struggled for the first couple of years, but eventually I found my way, especially because I've now built three cars for the show. Regardless, it's unbelievable for them to recognize me after all these years.

What type of stories are you hoping to convey with your content, and who are you hoping to reach?

CHEN:
I want to create stories that I would be interested in, especially when I was younger. I remember when I was younger, I would scour the internet or look for magazines that weren't available in the United States and do whatever I could to find this car culture material and media.

But it's not like that anymore. There are so many content creators that fill the gap for people who want to get into cars. I always tell big content creators like Adam LZ, "Thankfully there are so many nerds out there that appreciate how deep you and I get into cars and focus on the tiniest details with us."

What is the most rewarding part of your job?

CHEN:
Being able to make friends, make connections and participate in car culture, whether that's driving, building the car, rallies, racing or drifting. It's such a great feeling to be a part of the community and not just photograph it.

What is your dream car to photograph?

CHEN:
I don't have a dream car, but I do have dream events that I still want to capture in my lifetime. In terms of cars, eventually I feel like I'll get most of the ones that I care about, but there are always going to be new ones and I'll never get to all of them.

In terms of historical events, there's a finite number of events that are bucket list ones, but there will always be events that pop up. If I could, I'd love to get to the Dakar Rally, the Monaco Grand Prix, the Bathurst 12-hour race in Australia and the Leadfoot Festival in New Zealand.

What keeps you motivated to stay on this career path?

CHEN:
Part of it is that



HUSKY LINERS

GUARANTEED...FOR LIFE.

X-ACT CONTOUR® LINERS

EXACT FIT WITH A NO-SLIP, DURAGRIP™ SURFACE AND A SOFTER FEEL.



TOUGHNESS NEVER FELT SO SOFT, OR FIT SO WELL.

- Our proprietary FormFit™ design process gives you a glove-like fit.
- Rubberized DuraGrip™ construction yields the perfect balance of strength & softness.
- Stays flat to the edge, never curls — absolutely no gaps, ever.
- Over carpet or vinyl, our StayPut Cleats™ lock firmly to factory anchors.

TRUCK HERO

huskyliners.com

SEEING IS **BELIEVING**



I'm not good at anything else. Nothing makes me feel alive more than what I'm doing with photography.

A lot of what I do is to be able to push harder to capture car culture and now it's almost like I can't stop.

How has your partnership with Pennzoil impacted your career?

CHEN:
It changed my life for the better and elevated what we've done, especially because Pennzoil has sponsored our Hagerty show. Moving to a platform like Hagerty changed my life and those of the guys that I work with because we're creating content on such a different level, and it's even elevated our brand.

Pennzoil being able to fund these projects that allow us to show off our culture and spread the word has been such a big part of what we have done this year. If we didn't have Pennzoil to support us in these niche projects, I don't know what we'd be doing.

Do you use any Pennzoil products in your builds? If so, which ones?

CHEN:
Most of the cars we do include Pennzoil products. For example, with the Baja 1000 we used two of our chase trucks, one called the "Raptor Tundra" that was built to compete against the Ford Raptor, which uses 0W-20 Ultra Platinum, and then a supercharged FJ Cruiser which uses 10W-30 Ultra Platinum.

We push these vehicles so hard to chase the race and we take them out when it's heavy-duty off-roading. You also must bring spares just in case, because we're pushing them so hard to keep up with the racers.

This year, we followed the Ford Performance team that used Shell biofuels for their Raptor Ranger that finished way ahead of time, and we were able to follow them from start to finish, taking about 27 hours.

Otherwise, most of my performance vehicles like my SEMA car and Supra both use Pennzoil products.

Do you have any advice for aspiring photographers/content creators?

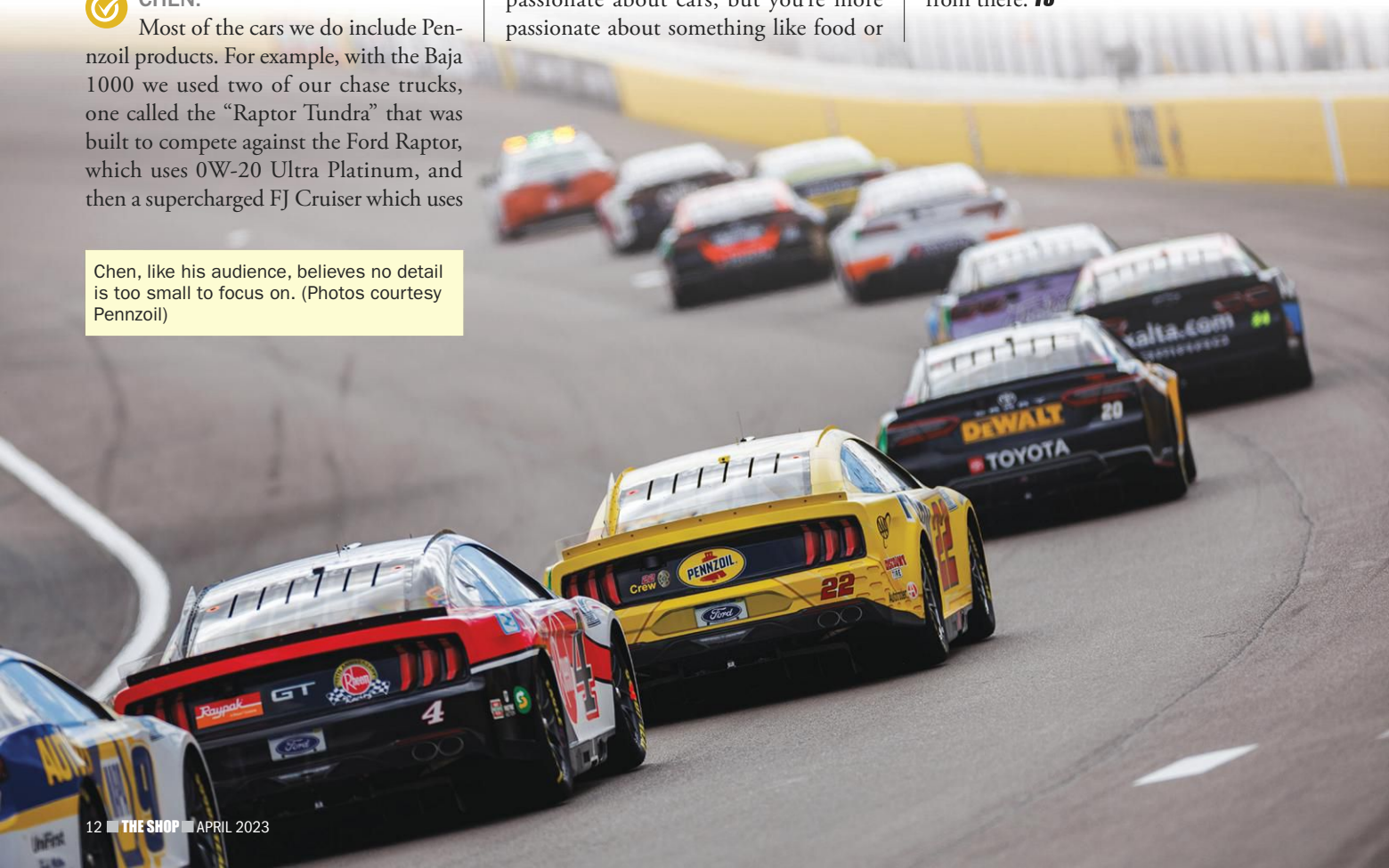
CHEN:
The main thing I tell people is to shoot what you love. If you're not truly passionate about cars, but you're more passionate about something like food or wedding photography, and it's something you don't mind being around the rest of your life, focus on that.

If it becomes a chore and something you don't enjoy, your photos will suffer.

Anything exciting in the works?

CHEN:
We're going to Tokyo for Tokyo Auto Salon in January (2023). This will be the first time since the shutdown that we'll be able to attend, because the last one was two weeks before the pandemic.

For us to go back and create content for this event is a big deal and we're excited to do so. So, stay tuned for photos and videos from there. ***TS***



Chen, like his audience, believes no detail is too small to focus on. (Photos courtesy Pennzoil)

SERIOUS PERFORMANCE.

SERIOUS WHOLESALE POWER BY ATECH MOTORSPORTS.

- Access to Over 1,500 Brands
- Unbeatable Service and Satisfaction
- Huge Inventory—We Stock it so You Don't Have to
- FAST, FREE Shipping—Reliable 1-2 Day Delivery
- Drop Ship Service at No Additional Fee
- We Export at Competitive Rates



CONTACT US FIRST!

Atech Motorsports is the fastest, easiest way to access the best high performance parts and brands in the industry at wholesale prices, with real-time inventory and pricing available to you 24/7. Our four national warehouses are packed to the rafters with millions of parts from 1,500+ brands—we continually add new brands all the time—ready to ship to your door at a moment's notice or dropship directly to your customers for no extra charge. Simply tell us your needs and give us the opportunity to become your go-to parts source for all things automotive.

HIGH PERFORMANCE & RACE

LATE MODEL

TRUCK & DIESEL

JEEP & OFF-ROAD

STREET ROD & RESTORATION

PREMIUM & STOCK REPLACEMENTS

APPLY TODAY!

ATECHMOTORSPORTS.COM

FOUR LOCATIONS—MILLIONS OF PARTS!

ATECH MOTORSPORTS

Global Wholesale DISTRIBUTOR

Powered by SUMMIT RACING EQUIPMENT

TALLMADGE, OH • MCDONOUGH, GA • SPARKS, NV • ARLINGTON, TX

800.517.1040 • 1.330.630.0888 • FAX: 1.330.630.5365

Some parts are not legal for sale or use in California or other states with similar laws/regulations. Please check your state and/or local laws/regulations. Typographical errors and errors in description or photography are subject to correction. ©2023 AUTOSALES, INC.

WHSE23TS

PERFORMANCE

Clutches p. 14 / Prewar Bargains p. 22 / Performance Products p. 28 / Reimagine p. 30

HOLD ME TIGHT

Clutch systems keep pace with today's power progressions.

By John Carollo



The continued excitement around manual shifting from a loyal group of racers and street enthusiasts means the clutch market remains strong. (Photo courtesy Centerforce)

The continued excitement around manual shifting from a loyal group of racers and street enthusiasts means the clutch market remains strong, even amid all the new developments happening with automatic transmissions.

In fact, the clutch market is seeing plenty of advancements of its own as it strives to keep pace with the ever-increasing power numbers being produced at the factory and by engine builders.

Shops offering clutch system upgrades are tasked with understanding the potential and planned usages of each project in order to find the proper setup that delivers a perfect blend of performance and drivability.

To help, clutch manufacturers offer their views on the market, what it takes to be successful and which products are currently in demand.

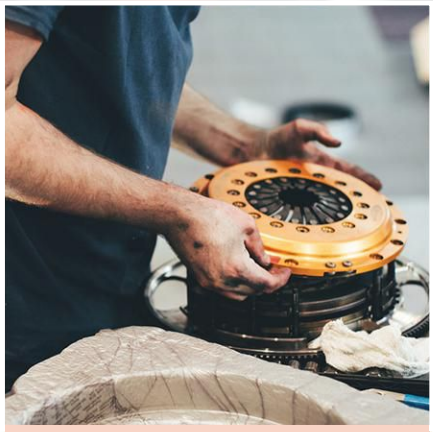
PARTNERS IN POWER

Modern clutch systems are all faced with the same task—handling the incredible horsepower numbers found in today's performance power plants.

"The challenge is producing effective clutch systems to address the higher power levels that builders are extracting from engine combinations and that are coming from the factory, while still maintaining good drivability for customers," says Mike Norcia, sales and marketing director at RAM Clutches. "Drivers expect to have 1,000 hp and have it drive like it did the day it came off the showroom floor, which is not always feasible."

Geoff Gerko, owner of Mantic Clutch USA, agrees.

"The biggest change we've seen is how much power you can make and keep very user-friendly," he says. "A 700-hp daily driver is pretty common, and 1,000 hp is not unheard of."



Performance engine torque ratings have increased dramatically over the past 10 years. (Photo courtesy Centerforce)

If you haven't noticed, "drivability" is the key word.

"Drivability has become just as important as how much power the clutch can handle," echoes Bill Garrett, account executive/tech support for Exedy Globalparts. "As auto



PREPARE FOR WHAT COMES NEXT

ALUMINUM STREET/STRIP BARE HEADS WITH BRONZE GUIDES

- Aluminum Hi-Performance Street/Strip Bare Heads
- Available for Small & Big Block Chevy & Ford.
- Advanced Port Design for Greater Flow.
- Fully Machined Guides & Seats.
- Bronze Guides.
- Multi-angle Seat Design for Performance Valve Springs.
- Valve Train Kits available for Small Block Chevy/Ford.
- Call your NPW salesperson for more info or to setup an account today!

EFORCE BY SPEEDMASTER EST. 1978

EASY ACCOUNT SETUP
(800) 330-3021

Give us a call or check us out online at **www.npwcompanies.com** or **www.epwi.net**

Miami, FL (HQ) 305-953-7300	**Oakland, CA**..... 510-569-9802	**Tampa, FL**.....727-531-9353	**Oklahoma City, OK** 405-942-8435	**Dallas, TX** 214-637-3301
Anchorage, AK.....907-563-7278	**Sacramento, CA**.... 916-920-2221	**Boise, ID**..... 208-342-6868	**Portland, OR** 503-417-5300	**Houston, TX**.....713-862-2929
Boaz, AL..... 256-593-2289	**Toronto, Canada** .. 905-619-6662	**Idaho Falls, ID**..... 208-523-5892	**Portland, OR**.....503-691-6251	**San Antonio, TX**... 210-224-8424
Phoenix, AZ..... 602-258-1161	**Denver, CO**..... 303-572-8844	**Chicago, IL**..... 773-889-4500	**Providence, RI** 401-384-6010	**Tacoma, WA**..... 253-597-6075
Los Angeles, CA.... 323-318-7070	**South Dade, FL**.... 305-263-8220	**Albuquerque, NM** .. 505-761-0100	**Memphis, TN**..... 901-480-4431	**Tacoma, WA**..... 800-876-5152

HOLD ME TIGHT



The leg-shaking days of old have been left far behind.
(Photo courtesy Advanced Clutch Technology)

CLUTCH PRODUCTS

HOT PRODUCTS:
Twin-Disc Clutch Kits
FEATURES & BENEFITS: Models range from the 225 Mod-Twin to the recently updated 10.5-inch Street Twin; high torque capacity in a lighter package, providing better feel and control; near-OE pedal effort; predictable engagement quality.

Advanced Clutch Technology
Chris Bernal
VP of Engineering

HOT PRODUCT: Jeep Wrangler JL Clutch & Flywheel Kit
FEATURES & BENEFITS: Addresses factory shortcomings; billet steel high-inertia flywheel helps maintain engine rpm in rough terrain; high-quality components; patented technologies include a centrifugal weight system that adds holding capacity without sacrificing pedal effort.

Centerforce
K.C. Polk
Lead Engineer

HOT PRODUCTS: FK8 Civic Type-R Stage 1 & Stage 2 Kits
FEATURES & BENEFITS: Direct replacements for the stock clutch; hold more than 400 pound-feet of torque; work like the OEM unit but offer increased holding capacity while maintaining stock-like driving and engagement.

Exedy Globalparts
Bill Garrett
Account Executive/Tech Support

HOT PRODUCTS:
Hays Hot Street Clutch Kits
FEATURES & BENEFITS: Include applications to fit GM LS engines with six-bolt crankshafts; designed for street/strip performance through matched components; 12-inch organic disc with a six-spring helix-sprung hub for superior grip; matched diaphragm-style pressure plate.

Holley
Bryan McTaggart
Technical Writer

HOT PRODUCTS: Hellcat Triple Disc, GT350 Twin Disc & QUAD Disc for C6, Hellcat & GT500
FEATURES & BENEFITS: Drive like an OE clutch; light pedal; smooth engagement; quiet operation; smaller diameter clutches save on moment of inertia (MOI) and put more power to the ground.

Mantic Clutch USA
Geoff Gerko
Owner

HOT PRODUCTS: PowerTrain Technology (PTT) Clutches
FEATURES & BENEFITS: Part of the Wharton Automotive Group of brands; PTT 7.250-inch clutch available from single- to four-disc configurations with up to 1,000 pound-feet of holding capacity; popular for drifting, drag, dirt track, autocross and NASCAR racing.

McLeod Clutches/PowerTrain Technology Clutches
Will Baty
Product Development Manager

HOT PRODUCTS: Dual Disc Clutch Systems & Internal Hydraulic Release Bearings
FEATURES & BENEFITS: Spring hub; top disc for shock absorption as the clutch initially engages; strapped floater plates for quieter operation without floater plate rattle; dual disc allows the use of softer-engaging friction materials.

RAM Clutches
Mike Norcia
Sales and Marketing Director

manufacturers and tuners continue to push the envelope on street-drivable power, customers want clutches that handle these power levels but are still easy to manage for daily driving."

Handling that power "requires more intentional design and manufacturing decisions," says Chris Bernal, VP of engineering for Advanced Clutch Technology.

"Drivers want to fully enjoy 600-, 800- or even 1,000-plus-hp vehicles on the street with minimal compromises in drivability," he notes. "The leg-shaking days of old have been left far behind."

As part of this trend, clutch systems are now being developed for very specific applications, explains Will "Mr. Clutch" Baty, product development manager for McLeod Clutches/PowerTrain Technology Clutches.

"Back in the day, a 10.5-inch clutch could be used for several applications. Not so much anymore," he says. "The clutch isn't just a device to hold power like it used to be."

For instance, with today's ECU-controlled vehicles, "we must engineer the entire rotating assembly to not only hold the power, but also work with the vehicle's computer system. The clutch and flywheel should be matched together for the intended purpose of the vehicle. It's just like picking a cam for the engine."

The key, then, is to take a more holistic approach.

"When designing a clutch package for today's market, you really have to look at the entire driveline—from the engine to the differential," Baty says. "Everything needs to work together."

Shops are seeing an increased demand for more clutch holding capacity from smaller/lighter components while maintaining smooth, controlled drivability, says K.C. Polk, lead engineer at Centerforce, leading to smaller margins for error.

"Performance engine torque ratings have increased dramatically from 10 years ago. Hence, the need for better components, improved friction compounds and multi-disc clutch platforms," Polk notes. "OE clutch combinations, for the most part, used to have a 1.5% safety factor built in. So, if your engine originally produced 100 pound-feet of torque, OE clutch engineers would specify a clutch package rated at 150 pound-feet. Today, that safety factor has diminished to almost 1:1. Therefore,

Capture new customers and revenue today by being a part of the Nationwide

PARTS VIA INSTALLER NETWORK

Parts Via is changing what it means to #shoplocal, connecting traditional brick-and-mortar with an innovative online shopping experience for a modern retail environment. Access the industry's top brands, connect with new local customers, increase incremental revenue, and boost your bottom line by positioning your business as a Parts Via profit center.

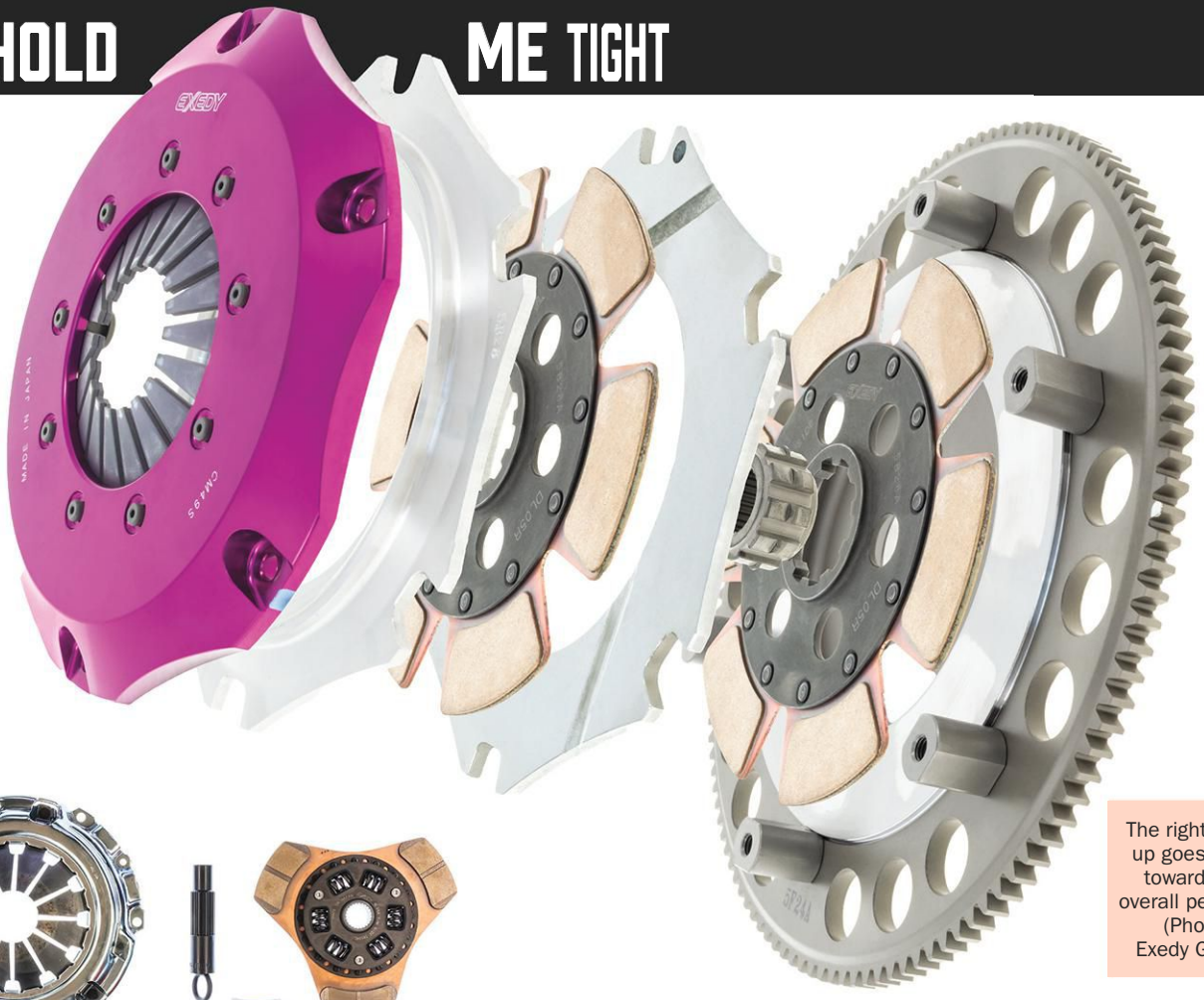


PARTS VIA by Keystone Automotive Operations, Inc.

- Capture Online Revenue
- Increase your Customer Base
- Exciting Loyalty and Rewards Program
- Join the Curated Parts Via Installation Network

ekeystone.com/parts-via

HOLD ME TIGHT



The right clutch set-up goes a long way toward a vehicle's overall performance. (Photo courtesy Exedy Globalparts)





Be sure all your parts work together as a cohesive unit. (Photos courtesy exedyusa.com)

it is fairly easy to exceed the modern factory clutch torque capacity with only mild bolt-on power-adders."

PROCEED WITH CAUTION

To be successful, installers must understand their clutch systems inside and out.

"It makes it much easier to sell and install when you know the product," Baty advises. "A clutch manufacturer may require a different flywheel or release bearing for a particular application. So, if you don't know, no problem—give us a call. We are happy to go over the product line with you."

Educated shops can then help customers choose the perfect system for their individual needs while avoiding common pitfalls.

"The No. 1 mistake is selling a poor match," says Bernal. "It is critically important to ask questions that reveal how the vehicle will be driven and what the performance intentions are. For example, installing a dedicated racing clutch for daily street use is a perfect recipe for customer dissatisfaction."

When installing a clutch, the flywheel should always be replaced or resurfaced, Garrett stresses.

"It's important to match the flywheel to the clutch," he says. "Depending on the customer's needs, a decision should be made on an OE or lightweight performance flywheel."

Matching the clutch and flywheel is also vital, Polk adds.

"For example, a lightweight aluminum flywheel for most street-driven applications is generally a mistake. Clutch/flywheel combinations, materials and related hardware should be matched to the vehicle application and its intended use," he says. "Just like cylinder heads, cam, intake and exhaust need to be matched to work together, so do your clutch and flywheel."

With so many vehicle variables, including overall weight, final drive ratio, transmission ratio, tire size, driving style, street/off-road/race use and others, there really is no one size or type of clutch/flywheel combination that fits all, Polk continues.

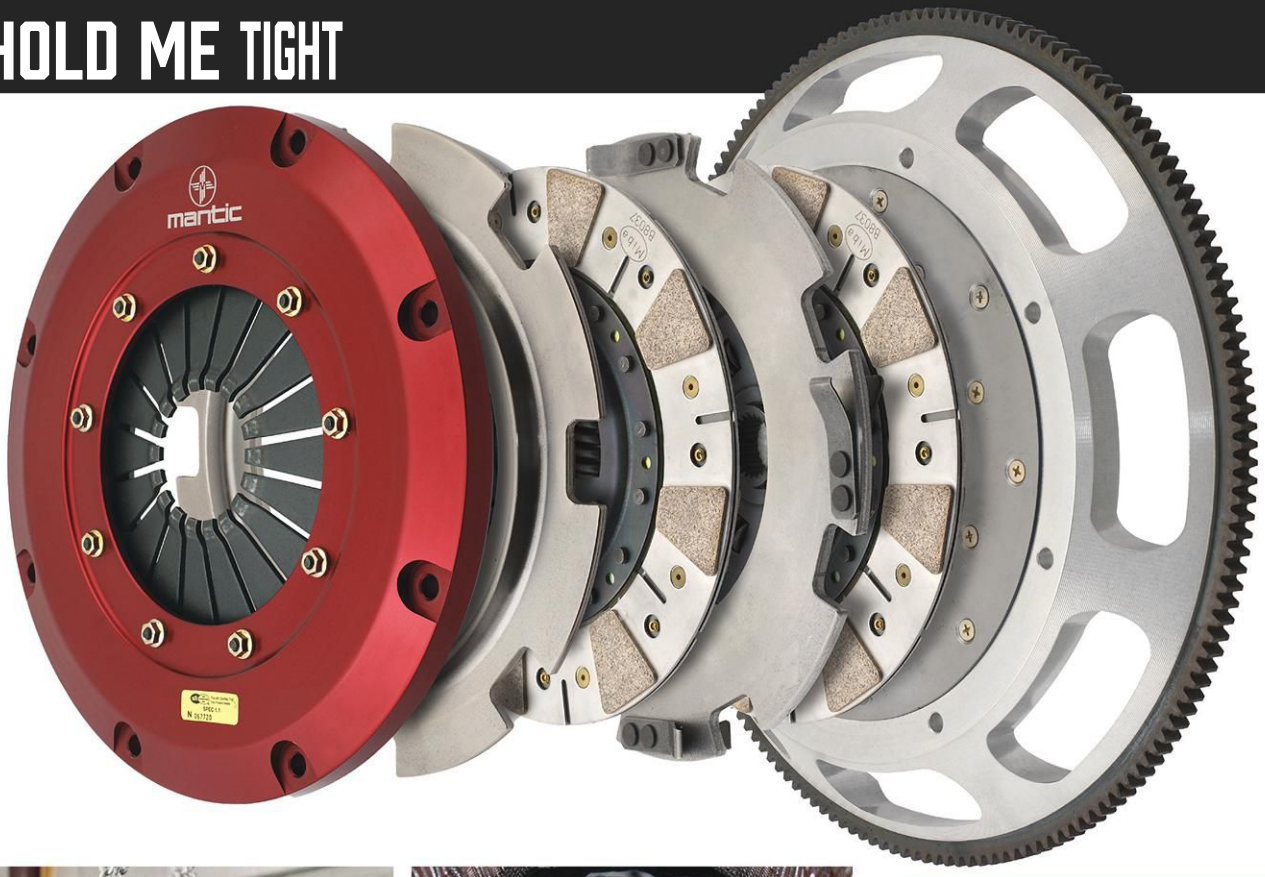
"As always, it is best to contact the manufacturer for more exact recommendations on a case-by-case basis."

Regarding the actual installation, Gerko has a simple starting point—the supplied instructions.

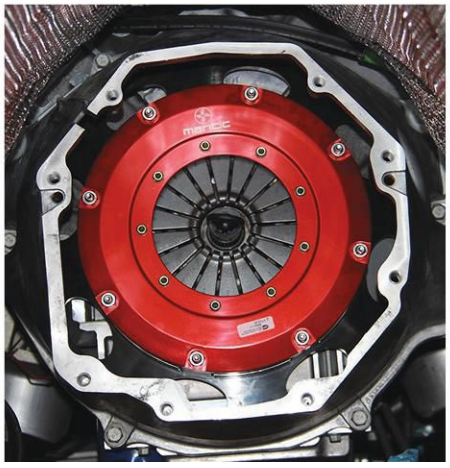
"Our product is fairly straightforward, but it does have some key differences from an OE or stamped cover clutch," he says.


ACT
ADVANCED CLUTCH TECHNOLOGY®
30
YEARS
SINCE 1994
206 EAST AVE K4, LANCASTER CA 93535
ADVANCEDCLUTCH.COM | 661-940-7555
sfi

HOLD ME TIGHT







It's all about putting more power to the ground. (Photos courtesy Mantic Clutch USA)



Take your time with customers and ask a lot of questions. (Photo courtesy RAM Clutches)

Once inside, Norcia warns of improper evaluation and setup of internal factory hydraulic systems.

"Installers need to be willing and able to competently measure fitment and bearing position to ensure a successful clutch installation, no matter whose clutch system they are using," he cautions.

SALES SUGGESTIONS

The flip side of dodging mistakes is taking that extra step to ensure the sale. Suppliers have suggestions.

"Take your time with the customer and ask lots of questions," advises RAM's Norcia. "You must determine not only what the proper clutch is for the application, but also what the customer's expectations are from the clutch system."

Exedy's Garrett agrees on the importance of understanding the vehicle's intended use.

"Nothing is worse than a clutch that does not suit the customer's power needs and driving style," he says. "The right clutch goes a long way toward the overall performance of the car and how fun it is drive."

Timing is also critical, adds ACT's Bernal,

"Work as early as possible with the customer on their build or upgrade path. Make sure they know at which points different decisions need to be made. Smarter early decisions can make future upgrades simpler and less costly, especially since most cars require four to eight hours of labor for an install."

Gerko from Mantic Clutch USA suggests focusing on the positives.

"Be sure the customer knows that our products drive like an OE clutch—pedal is light, engagement is smooth, and operation is quiet. Those are usually good selling points for us."

And again, knowing the product is always



Clutch systems are now being developed for very specific applications. (Photos courtesy mcleodracing.com)

essential, notes Trent McGee, marketing manager for Centerforce.

"Educate counter people on the various clutch types that are available, so they can make sound recommendations to customers based on their needs and uses. Most clutch manufacturers, including Centerforce, have several different clutch lines that are tailored to specific uses and performance needs. Knowing the features and benefits of those specific lines can go a long way toward gaining customer trust and ultimately making a sale."

Serving as the local expert helps direct customers to shop based on service and performance, not price, McGee continues.

"Even if your shop or your clutch recommendation isn't the cheapest option, providing the knowledge and expertise to a customer on the spot offers a tremendous amount of value, especially when the customer is unsure of exactly what he or she needs."

Part of that knowledge comes from establishing a strong relationship with your suppliers, says Baty from McLeod.

"Work with a company that offers more than just the same old pressure plate and disc. Using McLeod as an example, with four different driveline-based companies under our umbrella of brands we have a complete and full range of products to design clutches, flywheels, hydraulics, bellhousing, transmissions, crossmembers, hardware and more for just about every type of vehicle on the road today." ***TS***





LIVING LEGENDS

Will your shop see more vintage, pre-war & antique projects as prices drop? ///// **By John Gunnell**



Vintage racing car values remain strong.



This Model A Ford roadster at the Pre-War Swap Meet had a $6,500 asking price.



Touring Elkhart Lake, Wisconsin in a Model A Ford. Owners love to "tour" in cars like this one, which means that shops can also make profits providing tuning and lubrication.

We recently bought an original 1927 Oakland for $9,500—that was $6,500 more than we paid for a 1917 Oakland in the fall of 2016.

Our "new" car had its original paint and upholstery and 28,000 original miles. It also came to us with 14 trophies in the backseat that the previous owner had won for originality.

What else could a collector want—a rarely seen model at an affordable price with some interesting features and history?

In 2017, our first Oakland gave us a bucket list adventure that will last a lifetime. The car was a century old that year, as were Lions International and the Wisconsin State Capitol. So, a friend that taught automotive technology and belonged to the Lions Club suggested we tie in with the local Lions to do a fundraising tour for charity. At the time we also owned a 100-plus-year-old auto shop that had been a Yellowstone Trail garage.

The concept was that we would drive the Oakland touring car—that we bought for $3,000—over the 400-mile-long Wisconsin section of the Yellowstone Trail. Local Lions Clubs provided lunches and dinners and we paid other expenses.

The Lions Clubs made donations to a Lions Summer Camp for blind children in Rosholt, Wisconsin for each mile we traveled. The tour across the Badger State took a week and raised $8,500.

For us, the monetary aspects paled in comparison to the adventure of driving across the state at 45 mph in a 100-year-old automobile. To add icing to the cake, we discovered that the capitol building in Madison was also turning 100 and that



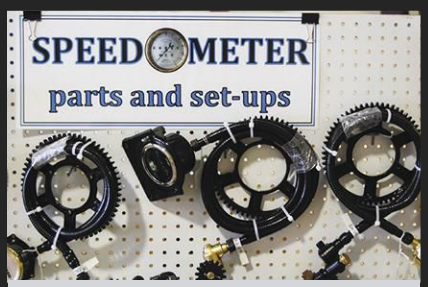
Once upon a time the Model A Ford was a hot collectible, but prices are dropping.



There are still a lot of Model A Ford clubs in the old-car hobby. Shops that treat a club member well might wind up with four or five additional customers.



To work on older cars your shop needs to know how to reach parts suppliers like Russ Furstnow of Flagstaff, Arizona, who rebuilds antique car speedometers.



Here are some of the reproduction speedometer parts Furstnow offered for sale at the Pre-War Swap Meet in Chickasha, Oklahoma.



Even drag racer Don Garlits has a place in his heart for antique cars. This diorama at his Ocala, Florida museum replicates his first speed shop.



We drove this 1917 Oakland touring car we bought for $3,000 over the 400-mile Wisconsin section of the Yellowstone Trail. Local Lions Clubs met us along the route.

a Centennial Gala was planned. After a call to our state representative, we wrangled an invitation to display the Oakland that toured the Yellowstone Trail outside the Capitol.

We discovered that old cars made from the early 1900s to 1940s can be as much fun as driving a gasser down a dragstrip or rallying in a vintage MG. We all have a little bit of Walter Mitty in us, and vintage and pre-war cars help let it out.

They can be a conduit to some once-in-a-lifetime experiences. For instance, although we've never had a real "show car," we have had antique autos used in a movie called "Next Stop Greenwich Village," featured in a full-page ad in the New York Times fashion magazine, copied for a precision scale model car made by Brooklin Models of England, placed as the centerpiece of a "WWII Homefront" exhibit at the Manitowoc Maritime Museum and commemorated on a car show dash plaque.

But this story isn't only a tale about our cars. It's a suggestion to specialty car shops that older collector cars are making a comeback.

A PLACE IN HISTORY

As prices of cars made through the World War II era continue to fall, more and more collectors are eyeing such models as a way to enjoy the hobby without breaking the bank.

The day before we wrote this, Vanderbrink Auctions held the Dick Pellows Collection auction in St. Paul, Minnesota. Affordable prices realized on fairly nice, complete cars included:

- $20,000 for a 1908 Buick Model 10



Bob Hansen (left) was offered a chance to buy the Model A behind him. It needs work, but it was once his father's car. Now, he dreams of taking it to a restoration shop.

- $15,500 for a 1911 Krit Model A roadster
- $7,500 for a 1922 Ford Model T roadster
- $10,500 for a 1925 Ford Model T
- $7,000 for a 1925 Studebaker
- $8,000 for a 1937 Studebaker Dictator
- $12,000 for a 1938 Packard 120 coupe
- $10,250 for a 1930 air-cooled Franklin
- $7,000 for a 1934 Ford pickup

Sold for even lower prices were some pre-WWII cars that needed a trip to a restoration shop.

The earliest antique auto events were called "derbies" and the first ones were held in the Philadelphia area in the mid-1930s. There was a bit more collecting activity in the 1940s, but it took until the 1950s for the hobby to really grow.

At that point, the majority of collector cars were Model T and Model A Fords. There was a basic rule that an "antique" car had to be at least 25 years old, which would have been a 1925 model in 1950 or a 1935 Model in 1960.

Back then, very few people thought of 1950s cars as collectibles.

Even in 1970, a 25-year-old car (1945) seemed "old" compared to new cars of that era. It was in the mid- to late-1970s that a big shift toward collecting post-WWII cars began. You could buy a car like a 1957 Chevrolet Bel Air convertible, in top condition, for about $20,000. Today, my "Collector Car Prices" book says that Bel Air is worth $96,500, and 75% more than that if it has fuel injection.

(A quick internet search shows American Collectors Community defines "vintage" cars as those manufactured between 1919-30; "antique" cars as vehicles 45 years old or older; and "classic" cars as those 20 years old or older. "Pre-war" vehicles are generally defined as having been built between 1930-46.)

As we know, an older car made anytime between 1900 to 1940 won't go as fast as a '57 Chevy, but it might cost 1/10th as much. In fact, the difference is about $89,000, and that's pretty significant.

Someone has to give Studebakers, Packards and Oaklands some attention, and more and more people are finding things to love about early automobiles when they cost much less than a mid-century Chevrolet (even if the fins on a '57 look great!)

We can't help thinking that such price differences are going to inspire people to buy more pre-war cars. Logic says that, if this happens, more older cars will be brought to professional shops like yours for repairs.

SHOPPING LIST

Most shops can easily work on cars of this vintage. Finding parts can sometimes be a problem, but the vehicles themselves have simple designs and very basic engineering.

Old parts were also quite robust and often can be repaired.

The International Pre-War Swap Meet held in Chickasha, Oklahoma is a great place to find parts for older cars. The annual event stems from the efforts of Joe,



The Great Race is a fun event for pre-war car owners. Fifth Ave. Auto Parts in Clay Center, Kansas has built many GR cars over the years.

Mike, Susie and Ryan Ersland. Joe collected antique cars for more than 60 years and started the Chickasha Antique Auto Club. In fact, the club's first meeting was held in his living room.

If your shop will be working on older cars, you will need more than parts to repair them. Getting information about the car's mechanical functions will be important, too. There's always that strange-looking shock absorber or odd carburetor setting that you'll never be able to make new again without having the proper old factory shop manual.

While you may think the chances of finding an 80- or 90-year-old manual are close to nil, organizations such as the Automotive Research Library of the Horseless Carriage Foundation can often provide copies of pages from manuals that they have digitized.

The core collection of the library consists of materials scanned from automotive publications, starting with 1895 editions. Scanned materials represent more than 2.4 million pages and the scans are available online for a fee.



Old cars are pretty reliable. This 1928 Studebaker Commander that's in the Studebaker National Museum once ran 25,000 miles in less than 23,000 minutes!

Other sources of similar information include the AACA (Antique Automobile Club of America) Library & Research Center and the Simeone Foundation Museum in Philadelphia. In addition, many car museums and car clubs that focus on a single brand or type of vehicle have their own libraries that can be found through an online search.

UNIQUE DESIGNS

A fascinating aspect of collecting cars made earlier than 1940 or so is the amazing diver-





With cars like this selling for less than $15,000, many owners are having shops restore them as police or fire chief vehicles to have a little more fun with them.

sity of designs and technologies. More than 5,500 different types of cars have been manufactured and were cataloged by automotive historian Beverly Rae Kimes in "The Standard Catalog of American Cars 1805-1942."

Contrast that to 2021 when, according to Google, "the bulk of the world's car manufacturing is handled by 60 different automakers that are owned by 14 massive global companies." Google says that if you consider local automakers within various countries around the world and other smaller companies, there could be as many as 2,000 carmakers globally—still a lot fewer than Kimes documented.

Within those original 5,500 carmakers, you'll find companies that built electric, steam, gas and air-powered vehicles. You'll find cars with one-, two-, three-, four-, five-, six-, eight-, 10-, 12- and 16-cylinder engines. There will be models with two- and four-wheel brakes, not to mention mechanical brakes and "juice" brakes. You'll find cars with drum brakes and disc brakes, manual brakes, power brakes and anti-lock brakes. There will be L-head, F-head and overhead-valve engines and all kinds of different transmissions, from rope drive to magnetic drive.

Automakers have been very creative.

Years ago, when you attended a car show there would be antique car owners showing off what made their cars special. On some early overhead-valve cars that had no valve covers, you could watch the mechanisms move and hear them click when people started their antique engines.

Meanwhile, steam cars would hiss as they moved swiftly across the show fields, electric cars would do so in silence, and Model T Fords would putt-putt-putt their way up to the reviewing stand to pick up a trophy for Best in Class.

There's nothing wrong with the '50s tailfins, '60s styling and '70s muscle car engines that you see at shows today, but it's sad how many events draw zero cars made prior to World War II. Automobiles have been around for at least 135 years (216 if you use Kimes' dating), but you wouldn't know it if you attended some modern shows.

We predict the forces of economics are going to change this, however. As older collector cars get more affordable and prices on newer ones soar out of sight, there's certain to be a revival of interest in the "flivvers" and Tin Lizzies that got the ball rolling.

Your shop can be ahead of the curve by promoting your ability to work on such vehicles. Start developing a network of



Look at swap meets for pre-war tools and garage equipment, especially for Model T and Model A Fords. They're cheap now but will likely go up in price as more cars are collected.



Andy Wise of Andy's Garage in Delaware restores car clutches and shock absorbers with Kevlar instead of the asbestos used by hobbyists years ago.



Metal Crafters Inc. of Stevens Point, Wisconsin is a conventional machine shop, but one employee is dedicated to rebuilding old car engines.

parts and information sources you can count on to help you as more pre-war cars show up at your door.

When you go to a swap meet or flea market, look for tools and equipment sold years ago to fix certain vehicles, especially Model T and Model A Fords. Right now, you can buy them cheap because there hasn't been high demand, but it looks like the pendulum is going to be swinging back soon.

Familiarize yourself with the car clubs organized to help owners of old cars collect and restore them. You can visit oldcarsweekly.com to access and download one of the largest directories of car clubs that's ever been compiled.

You may find the old-car revival to be fascinating and exciting. Working on a car (or truck) that's 80 to 125 years old makes you a historian, as well as a restorer.

Many craftsmen feel that strong link with the past as they bring a pile of metal back to life. Those horseless carriages can really stir your soul! ***TS***



JOHN GUNNELL *has been writing about classic cars since 1972. He is also the owner of Gunner's Great Garage in Manawa, Wisconsin. He owns 11 cars and seven motorcycles.*

SUPERWINCH®



SX10SR

10,000LB LINE PULL

The SX10SR winch provides users with the ideal combination of power, speed, innovation, and proven performance they demand from Superwinch.
Part # SUP1710201

Distributed by
Motor-State DISTRIBUTING
motorstate.com
800.772.2678



JK Clutch Kits

McLeod Racing, Anaheim, California, presents its Adventure Series by McLeod Racing line of Clutch Kits, now with expanded Jeep Wrangler JK applications. Four stages of clutch kits, flywheel and a hydraulic bearing option make 2012-18 JKs with 3.6L engines ready for the trail. The Adventure Series has four levels of power for the single-disc clutch kits—each level is curated for different off-road consumers. The kits include a pressure plate, disc, throwout bearing (where applicable), pilot bushing (where applicable) and alignment tool.



Kia Cat-Back Exhaust System

BORLA Performance Industries, Johnson City, Tennessee, presents a Cat-Back Exhaust System for 2021-23 Kia K5 GT 2.5L applications. Designed to improve horsepower and torque, system 140891BC delivers the classic BORLA S-Type sound without any drone or resonance inside the vehicle. The system is made from T-304 stainless steel and features all-welded construction for durability and long life. A bright chrome on T-304 stainless steel tip is also available.

Street Clutch Line



Holley, Bowling Green, Kentucky, presents Hays Hot Street Clutch Kits, including applications that fit GM LS engines with six-bolt crankshafts. Designed for street/strip performance through matched components, the systems include a 12-inch organic disc with a six-spring helix-sprung hub for superior grip, and a matched diaphragm-style pressure plate that provides a comfortable pedal feel. The kits are designed for power levels up to 550 hp NA or 500 hp forced induction/nitrous.



Mustang Billet Control Panels

Vintage Air, San Antonio, presents all-new, bolt-in replacement Billet Aluminum Control Panels for first-generation Ford Mustangs. Machined from 6061-T6 billet aluminum, the three-lever control panels are a direct replacement for the OE unit and retain the classic appearance of the original. Features include an LED A/C mode indicator and variable slide adjustments for fan speed, temperature and air delivery selections.



Tacoma Clutches

Centerforce, Prescott, Arizona, presents two new Clutch options for Toyota Tacoma trucks. Centerforce II and Dual Friction Clutch Kits are now available for 2005-15 Tacomas with 4.0L engines and 2016-current Tacomas with 3.5L engines. The Centerforce II kit is designed for daily drivers and off-road enthusiasts with mild vehicle modifications. The Dual Friction kit is engineered for off-road drivers with heavily modified vehicles. It allows up to 437 pound-feet of torque and uses ball-bearing technology for improved clamp load and engagement.

Coyote Piston Set



MAHLE Motorsport, Fletcher, North Carolina, presents a new Ford 5.0L Modular Coyote PowerPak Piston Set for 2018-newer engines. Designed to lower the compression ratio to 10.4:1 to allow for power-adders on high-horsepower builds, the pistons are dual-coated with phosphate and MAHLE's proprietary GRAFAL coating for reduced drag and wear. The set features hard-anodized top ring grooves for maximum durability and includes a 1.0, 1.0, 2.0mm file-fit performance ring set and 0.177-inch wall pins, each weighing 118 grams.



Civic Brake Kits

Wilwood Disc Brakes, Camarillo, California, presents two new Big Brake Kits for 2013-20 Honda Civic models. The kits feature 12.88-inch (327mm) rotors and Superlite calipers. Manufactured using proprietary Spec37 iron, the rotors deliver more brake torque and resist distortion from extreme heat. The motorsports proven Superlite calipers have less deflection so more pedal effort is directly converted to clamping force.

CJ Hydraulic Assist Systems



Classic Performance Products Inc., Placentia, California, offers three direct bolt-in Hydraulic Assist Kits for 1974-86 Jeep CJ models. Designed to replace manual or vacuum-assisted brakes with a powerful and compact modern hydraulic assist unit, the upgrades work in large cam and low-vacuum swap applications or wherever greater braking pressure is required. The direct-fit, high-performance hydraulic brake assist unit uses all new parts and puts out 1,800 psi at the wheels.



C10 & K10 Rear Disc Kits

LEED Brakes, Cheektowaga, New York, offers Rear Disc Brake Kits for C10 and K10 trucks. Available in five- and six-lug options, each kit is designed to directly bolt to the factory rear axle and provide the user flexibility to orientate brake calipers in three positions. Easy-to-follow instructions are included, and a MaxGrip XDS Upgrade Kit will launch later this year. ***TS***



By Tony Thacker

Reimagine That

New ways of looking at old cars.



The Cyan is powered by a turbocharged 2.0L four-cylinder.

"Reimagining" is a fancy way of describing forming a new concept of something already established.

I don't think the word was really in common use in automotive circles until Rob Dickinson, founder of Singer Vehicle Design in Torrance, California, used it to describe his signature builds, but now it often appears to define old cars fixed up like new using a plethora of aftermarket products.

Some of the earliest examples of the "reimagining" concept—though they might prefer to call it "reforming," as you'll soon discover—were Jonathan and Jamie Ward of Icon in Chatsworth, California. Founded in 1996, the company began by servicing Toyota Land Cruisers, providing sales, service, parts and restoration services.

Servicing soon led to improving and prompted the question, "If I was to revisit the FJ40 design my way," asks Jonathan, "how would I do it?"

His answer led to a string of successes.

"Starting with the FJ series, then the BR and TR, Jamie and I have continued expanding and exploring innovative designs on a wide variety of vehicles, and we have been blessed to find an audience that has not only appreciated our work, but demanded more," Ward reveals. "Today, the majority of our custom builds are two-wheel drive vehicles, again with classic styling, modern performance and timeless utility."

The expanded list of vehicles offered by Icon includes not only Toyotas but also 1950s Chevy-style trucks with LS engines,



Combining classic styling with modern amenities can be an attractive pairing.



World Touring Car champion Cyan Racing of Mölndal, Sweden, decided to revisit the svelte Volvo P1800 and create a reimagined, more exotic offering.



Icon offerings are good examples of how reimagined vehicles can capture the imagination of enthusiasts.

"Derelicts" that are primarily patinated '40s and '50s cars, and "Reformers" that are reimagined for modern use with original styling paired with modern powertrains.

Icon has certainly carved a niche for itself and shows how talented builders can reimagine projects into something more.

A LITTLE SOMETHING EXTRA

On the European front, one of my favorite cars of all time is the Volvo P1800 made famous in the TV show "The Saint." The P1800 was originally designed by 25-year-old Pelle Petterson, a junior designer at Frua, a subsidiary of Ghia in Italy.



Interestingly, the bodies were built in the U.K. by Pressed Steel and the cars were initially assembled by Jensen Motors, also in the U.K., before production was shifted home to Sweden.

Fewer than 50,000 were produced in a 12-year run from 1961 to 1973, and the car remains a cult classic. It's no wonder, then, that five-time and reigning World Touring Car champion Cyan Racing of Mölndal, Sweden, decided to revisit the svelte little coupe and give us a reimagined, more exotic dish.

As does Singer, Cyan takes an original car and strips it down to the shell before reengineering and strengthening the structure using high-strength steel and carbon fiber. In fact, the carbon body is integrated with the steel cabin structure in a way that allows the carbon fiber to reinforce the structural rigidity.



Rodger Lee of Ironworks Speed & Kustom built a classic 1970 Chevelle that sparked such interest that he eventually decided to replicate it.



Under the carbon hood is a turbocharged 2.0L four-banger based on the engine from Cyan's title-winning Volvo S60 TC1 race car. It produces 420 hp at 7,000 rpm and 356 pound-feet of torque at 6,000 rpm—plenty for a car that weighs only 2,180 pounds.

The car is rear-wheel drive and employs a 5-speed Holinger manual trans. Prices for the wider, leaner, faster Cyan start at around $700,000 and that seems to be in the wheelhouse of going rates for reimagined vehicles.

A TALE OF TWO COUNTRIES

Based in the USA but with a truly British heart and soul, Radford draws upon its heritage and the craftsmanship of Harold Radford, the creator of countless bespoke vehicles, to present the resurrected Radford (nee Lotus) Type 62-2.

Its first new model of the modern era is built in a partnership with Lotus and is a stunning tribute to the original Lotus Type 62. Three versions of this hand-built car will be available: the Type 62-2 Classic, the Gold Leaf and the John Player Special version.

While this mid-engine two-seater takes inspiration from the revered Type 62, it utilizes the latest technologies to deliver a pure driving experience. Each variation is powered by a 3.5L, 24-valve V-6 rated at 430 hp in the Classic up to a mind-blowing 600 hp in the John Player Special—imagine that in a car that weighs under 2,200 pounds!

A combo of carbon fiber and an aluminum chassis makes the Type 62-2 one of the most powerful-yet-lightweight supercars available today. And it's exclusive, too, as each of the 62 models will be hand-built using Lotus technology and every car can be customized to the owner's specs.

In fact, the build process is overseen by TV personality and Radford co-owner Ant Anstead, and, as if that's not enough, Formula 1 world champion Jenson Button, also a co-owner, is the chief test driver responsible for meticulously tuning each vehicle.

The Radford Type 62-2 is a truly lightweight, retro-futuristic supercar that is inspired by a vintage racer—but it is also one that is designed and built to function as a practical, usable daily road car, too.



Radford draws upon its heritage and the craftsmanship of Harold Radford, the creator of countless bespoke vehicles, to present the resurrected Radford (nee Lotus) Type 62-2.

HIGH DEMAND

Not all reimagined vehicles start in Europe. Take, for example, Rodger Lee of Ironworks Speed & Kustom in Bakersfield, California. Ten years ago, Lee built a classic 1970 Chevelle that appeared on the cover of HOT ROD magazine, among others, and sparked such interest that he eventually decided to replicate it.

Lee describes the five cars currently in progress as "timelessly styled with modern amenities." The vehicles enjoy the benefits of a Speedtech chassis featuring independent front and rear suspension, custom-tuned JRi shocks and Wilwood brakes on all four corners. They roll on Keystone-style wheels by Forgeline shod with 285/35/19 Michelin front tires and 335/30/20 Michelin rears.

Under the hood, customers have a choice of powertrains—either a Chevy LT1 or a supercharged LT4. The LT1 produces approximately 380 hp while the blown LT4 produces 650 hp.

Six-speed manuals or 10-speed autos are available. All combinations employ GM control systems.

Inside, the Ironworks Chevelles are equally reimagined and utilize late-model Camaro power seats with temp control. Also, the seats have been lowered 2 inches.

If you like the styling of a classic Chevelle but want the drivability of a modern car, then the Ironworks Chevelle could fit the bill.

So, obviously this trend of reimagining vehicles is just hot rodding under a different guise and one can glean from the short list preceding that an awful lot of aftermarket parts—everything from brakes to upholstery—are used in these builds.

"They really wouldn't be possible," says Greg Emmerson, director of public relations at The ID Agency in Los Angeles, "if it weren't for the aftermarket producing the necessary parts."

Now imagine that. ***TS***



Born in England, ***TONY THACKER*** *is an accredited automotive journalist, author and book publisher, and served as marketing director at the famed SO-CAL Speed Shop.*







Flathead Build p. 34

Flathead 8BA Rebuild, Part V

Wrapping up the final details.

Build, text and photos by Mike Mavrigian

EDITOR'S NOTE: *This is the final installment in a five-part series documenting a Ford flathead 8BA engine build. Part I appeared in the April 2022 issue of THE SHOP, Part II in the July 2022 issue, Part III in the October 2022 issue and Part IV in the January 2023 issue.*

SPARK PLUG WIRE ROUTING

For this setup I chose universal length MSD Super Conductor 8.5mm red wires with 90-degree spark plug boots and 90-degree HEI-style distributor cap boots.

Spark plug wire routing is a detail that I'm always concerned with, since I believe that the plug wires on any engine are very noticeable. After staring at the engine for more time than I care to admit, I came up with a plan.

Rather than simply flopping the wires from the distributor over the heads and to the plugs, I decided to fabricate an aluminum wire organizer "loom" system consisting of four horizontally mounted aluminum tubes at each bank.



Since the MSD 8.5mm wires measure about 0.332-inch, I needed aluminum tubes with a large enough inside diameter to allow a comfortable passthrough.

The aluminum tubing I chose features a 0.370-inch ID, with a 0.500-inch outside diameter (0.065-inch wall). I purchased an 8-foot length from McMaster-Carr and proceeded to cut to fit.

Each bank features four tubes (one for each wire). The tube lengths (starting with the top tube) include lengths of 2.5 inches, 7 inches, 11.75 inches and 16.25 inches, respectively. I arranged the tubes flush at the front of the heads, allowing them to stagger rearward for each wire's easy sweep path to its respective spark plug.

Securing each group of four tubes are three aluminum wire separators from Performance Distributors (four-, three- and two-hole). Because I intended to clamp these onto the 0.500-inch OD tubes, I drilled all separator holes out to 0.500-inch.

The front four-hole separator is mounted to a 0.125-inch-thick fabricated aluminum bracket that secures to the front upper exhaust port bolt hole using a 0.375-inch-long aluminum spacer and a 7/16x14x1-inch bolt. The three-hole separator simply groups three tubes together and is not mounted to a support bracket.

I modified the rearmost two-hole separator by shaving the top of the clamp and removing the lower hole area completely. The top roof of this clamp fits between the third and fourth tubes. I shaved material from the top of the clamp (to a finished thickness of 0.085-inch) to achieve a decent parallelism between the third and fourth tubes.

This modified separator is supported by a 0.125-inch-thick aluminum bracket that is secured to the center exhaust port's upper bolt location (3/8x16 thread). Each mounting bracket is spaced out from the block's exhaust flange surface with a

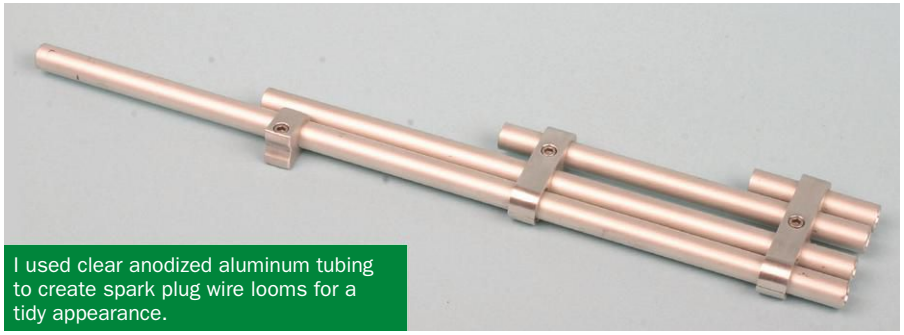
0.375-inch-long aluminum tube spacer as a stand-off (estimating the future exhaust header flange thickness).

When an exhaust manifold or tubular header is selected and installed, the spacers may or may not be retained (depending upon the thickness of the header flange).

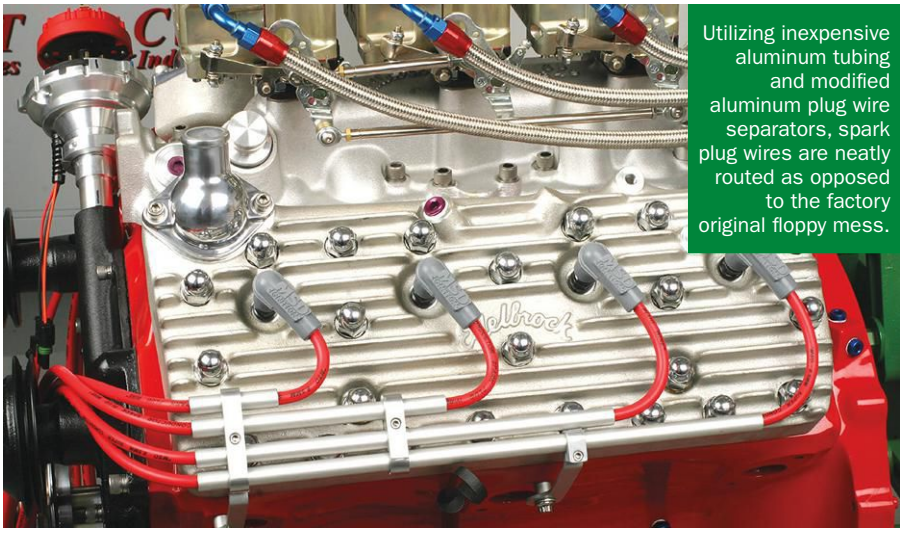
To mount the four-hole and the final modified one-hole separators to their brackets, I drilled out the 8x32 threads in the rear half of the separators and ran an 8x32x1-inch stainless steel socket head cap screw (the head countersinks into the top half of the separator).

The 8x32 screw passes through both separator halves and the bracket and is secured with a stainless steel 8x32 nyloc nut.

Once the four-tube arrangement was finalized (fit and appearance) and was fully installed to the block, I then installed the plug wires at the spark plugs and routed each wire through its assigned tube. Once lengths were determined at the distributor cap, the wires were trimmed, and terminals and boots were installed with the wires secured in their looms.



I used clear anodized aluminum tubing to create spark plug wire looms for a tidy appearance.

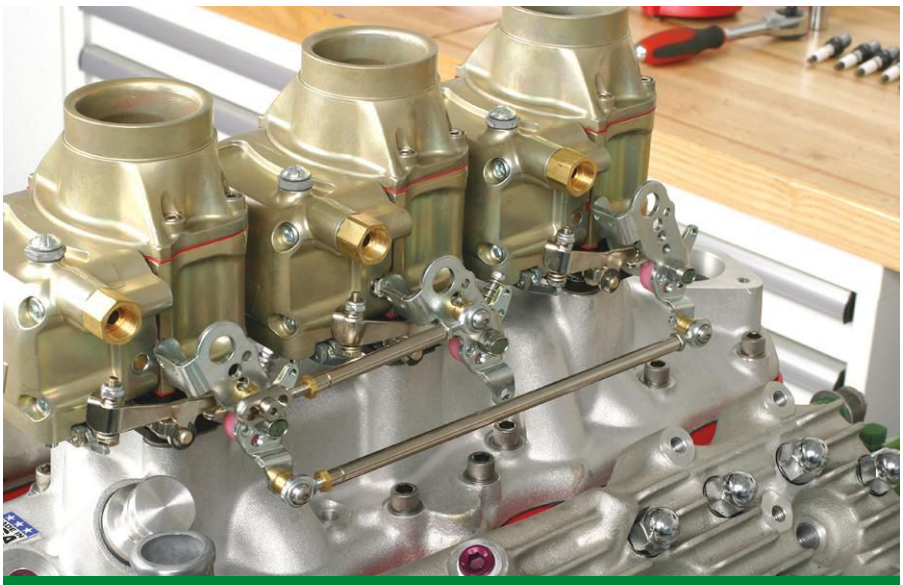


Utilizing inexpensive aluminum tubing and modified aluminum plug wire separators, spark plug wires are neatly routed as opposed to the factory original floppy mess.





Our Demon 98 carbs feature a gold Iridite finish.



The linkage connects all three Demon 98 carbs and is adjustable to synch all carbs.

Appearance-wise, I opted to use anodized aluminum tubing and satin aluminum wire separators. This monochrome treatment, placed against the cast aluminum cylinder heads, allows the eye to be drawn to the MSD red plug wires.

Options would have included painting or plating the tubes, and/or using red or black wire separators. I thought about chrome plating the tubes, but since the chrome acorn head bolt covers were already in place, I decided not to add any more bright chrome. It's all personal preference.

To maintain a flowing and organized appearance as the spark plug wires span the front of the block to the MSD distributor, I installed a pair of four-hole aluminum wire separators. I simply made brackets that allow attachment of the separators to the inboard upper lefthand water pump bolt and to the top center timing cover bolt.

I drilled the threaded hole in the rear section of each separator to allow passthrough of a 8x32x1-inch stainless steel socket head cap screw, securing the separator to its bracket with a stainless steel nyloc nut.

FIRING ORDER

Numbering the cylinders starting with the right bank, front to rear as 1-2-3-4, and the left bank, front to rear as 5-6-7-8, with a clockwise distributor rotation, here's the firing order:

- 1-5-4-8-6-3-7-2

FUEL SYSTEM

It's time to talk about the fuel system on our little 8BA. I chose a triple-deuce setup, using three Barry Grant Demon 98 two-barrel carbs. The center-mounted carb serves as the primary carburetor and the front and rear carbs serve as secondaries.

The Demon 98s feature a three-bolt mounting design (same as what's used on Stromberg 97s and the old Holley 94s), so they drop right onto the Edelbrock (or original) intake manifolds.

The Demon 98 carbs are rated at 205cfm (each) and designed to operate at 6-7 psi fuel pressure. The finish features a retro-gold Iridite appearance.

The Demon 98 offers modern technology with a vintage appearance. One nice design aspect involves servicing, since the 98 shares common parts with Demon four-barrel carbs (bowl gaskets, jets, needle and seat, etc.), so there's no need to hunt for oddball specialty service parts down the road.

The Demon 98 can function as a single unit or in multiples. When running two 98s, BG recommends using two primary-style carburetors. When running three 98s you need one primary and two secondary carbs.

The primary carburetor is responsible for starting, idling, light off-idle acceleration and cruising. The secondary style carb(s) provides additional power when the primary carb throttle opens wide (this secondary actuation is handled with the adjustable linkage).

The secondaries usually begin to open when the primary throttle plate reaches approximately 35 degrees. Because of a special high-ratio linkage, both the primary and secondary carbs reach wide-open throttle at the same time.

The primary carburetor features four adjustable metering circuits, including idle, main, accelerator pump and power valve. Float levels are also adjustable.

The secondary carburetors feature both idle and main circuits but offer no provi-



I fabricated a simple aluminum fuel log that feeds the three carb hoses via 1/4" NPTs to -6 AN fittings. A fuel pressure gauge is fitted at the top.

sion for adjusting either idle speed or idle mixture (these are preset at the factory). However, adjustments can be made to the float levels and to accelerator pump operation.

Barry Grant offers standard linkage for twin- and triple-carb installations. For installations with four or more Demon 98s, BG's technical department can advise/supply the appropriate linkage kits.

Carb-to-manifold base gaskets are the standard gaskets for any two-barrel Demon 98, Stromberg 97 or Holley 94. I grabbed three Fel-Pro gaskets.

When mounting the Demon 98 carbs to the manifold, you must use studs, since there is no access for the use of bolts at the front two mounting holes. The studs must feature a 5/16x18 thread to engage the manifold, and overall length needs to be about 1.25 inches.

Apart from making the studs, this length was difficult to find. The shortest studs that I could locate were Edelbrock's No. 8008, which are 1.375 inches long overall. The Edelbrock website lists No. 8006 at 1.25 inches long, but they were not yet available.

The reason for the short studs—the front two bolt locations at the carb baseplates feature a roof, so the fastener is captive. The studs must be short enough to clear the baseplate roof.

In order to synch the three carbs, I purchased a BG rod linkage kit. The only problem I ran into involved front-to-rear carb rod length. While the kit includes a selection of rod lengths (one end features a 10x32 righthand thread hole and the opposite end features a 10x32 lefthand thread), the provided rods were either too short or too long to make the front-to-rear carb throttle lever connection.

To solve the problem, I shorted the righthand thread end of a long rod by about 0.500-inch and tapped the hole a bit deeper. Also, the 1x32 socket-head cap screws provided for the radius rod end (heim joint) connection to the carb throttle levers were only 0.750-inch long, which did not provide enough thread for nut engagement. I replaced these with 1-inch-long 10x32 stainless button heads.

The reason I needed to shorten my rods was simply due to the combination of the Demon 98 dimensions and the carb-to-carb spacing on the Edelbrock intake manifold.

Note: Plan ahead before shortening any of these rods. If you need to shorten any of the linkage rods, and if you don't have any lefthand-thread 10x32 taps, be sure to shorten only the righthand-thread ends (and tapping threads with a righthand-thread 10x32 tap). If you cut the lefthand-thread ends and you discover that you don't have a lefthand tap, you'll waste time by looking for and ordering one.

Don't be tempted to cheat by rethreading the lefthand ends with righthand threads.

DEMON 98 SPECIFICATIONS

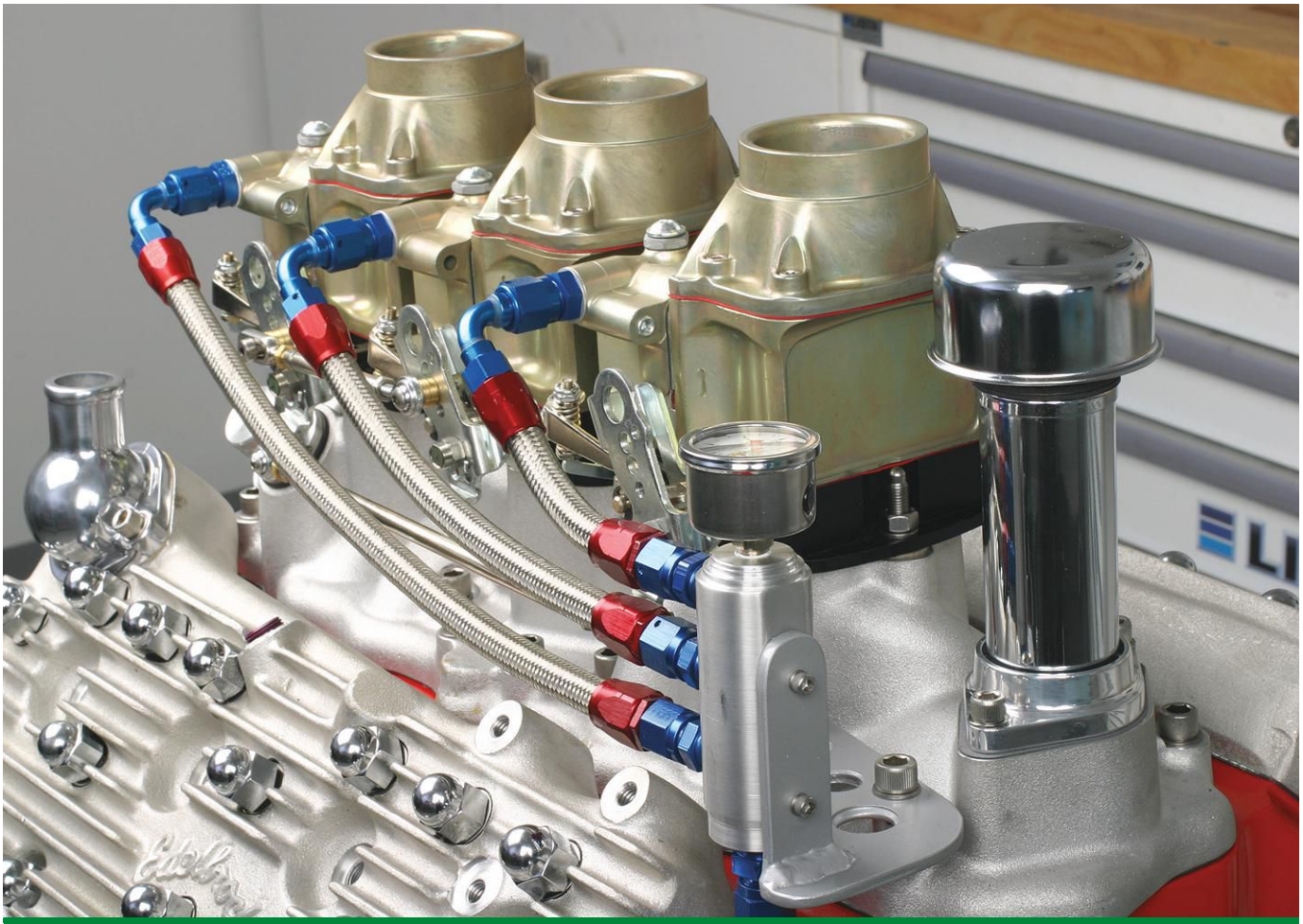
IDLE AIR BLEEDS	0.063"
IDLE FUEL RESTRICTORS	0.035"
IDLE WELL DIAMETER	0.070"
IDLE DISCHARGE ORIFICE	0.033"
IDLE TRANSFER SLOT THICKNESS	0.006"
HIGH-SPEED AIR BLEEDS	0.033"
MAIN JETS	0.049"
EMULSION HOLES (3)	0.028"
MAIN WELL DIAMETER	0.136"
MAIN WELL EXIT DIAMETER	0.098"
SIPHON BREAK	0.022"
BOOST VENTURI (STRAIGHT LEG) ORIFICE	0.107"
POWER VALVE (6.5) FUEL PORTS	0.040"
ACCELERATOR PUMP	30cc
ACCELERATOR PUMP NOZZLES	0.031"
THROTTLE PLATE THICKNESS	0.062"
THROTTLE BORE DIAMETER	1-3/16"
MAIN VENTURI DIAMETER	0.980"
AIRFLOW VOLUME	205 cfm

IDIDIT®
AMERICAN MADE STEERING COLUMNS
Your go-to source for over 35 years for American Made, Top Quality Steering Columns and Accessories
ALL-NEW
PUSH TO CONNECT QUICK RELEASE STEERING HUB
- Available in 3, 5, and 6 Bolt Styles with and without Horn
- GM/OE Style Hub or Smooth/Race Style Hub
- SFI Certified
5-BOLT SMOOTH/RACE STYLE

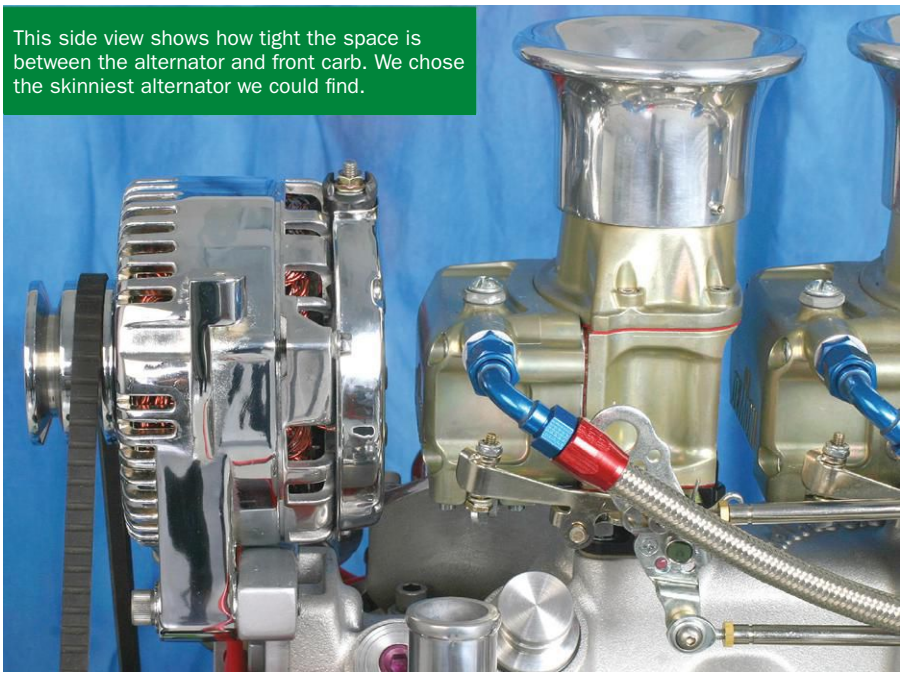
5-BOLT GM/OE STYLE WITHOUT HORN

5-BOLT GM/OE STYLE WITH HORN

610 S. Maumee St, Tecumseh MI
517-424-0577 | ididit.com



A rear view of fuel plumbing. A fabricated bracket secures the fuel log to the intake manifold while 90-degree -6 AN hose ends attach to the carb inlets.



This side view shows how tight the space is between the alternator and front carb. We chose the skinniest alternator we could find.

By having both righthand and lefthand threads on each rod, you're able to rotate each rod for fine adjustment while utilizing the same number of threads at each end. If both ends feature the same threads, adjustment will require disconnecting one end, performing thread adjustment and reconnecting.

Take advantage of the RH/LH combination. This also applies if you opt to fabricate your own linkage rods. If you make your own rods from scratch, you'll need both RH and LH 10x32 taps (as well as RH and LH radius rod ends).

LINKAGE INSTALLATION

Linkage installation was fairly straightforward. A short rod with a slotted tip connects the front carb to the second carb (slotted tip at the front carb). A longer rod that features radius rod ends (heim joints) at each end connects the front to the rear carb.

The longest rod in the kit then attaches from the center carb to the lever arm that connects to the throttle pedal. Since each rod features both righthand and lefthand threads, fine-tuning adjustment is easy.

Barry Grant made it easy to identify the lefthand thread ends of the rods.

Each lefthand end is marked with a machined groove around the circumference of the rod.

During linkage adjustment, while holding the center carb (the primary carb) at wide open throttle, adjust the front carb so that it reaches WOT. Then adjust the lower rod (connecting the front and rear secondary carbs). Hold the front carb at WOT and adjust the rod to achieve WOT at the rear carb.

Considering the 205-cfm-per-carb rating, at WOT with all three carbs kicked in we should theoretically have a combined 615 cfm available to feed this puppy.

Several options are available for plumbing the carbs. BG offers a fuel log system that uses a hardline to tie all three carbs together, along with a fuel inlet port that utilizes banjo bolt fittings at each carb.

Or, you can plumb each carb individually to a distribution block (a number of aftermarket blocks are available). For hose adaption, you have a choice of using either slip-on hose (barb fittings) or going with –AN plumbing. I chose the latter, in size –6.

After deciding to go with –6AN plumbing, I first removed the brass fittings from each carb and replaced them with 9/16x24 straight-thread to –6 (male/male) fittings. I then fabricated my own distribution block, starting with a chunk of 1.5-inch-diameter round stock aluminum.

On the lathe, I turned this down to an outer diameter of 1.450 inches (dressing the surface in the process), cut it to an overall length of 3.700 inches and squared-off the ends. I also slightly chamfered the inlet end and step-cut the pressure gauge end, just for fun.

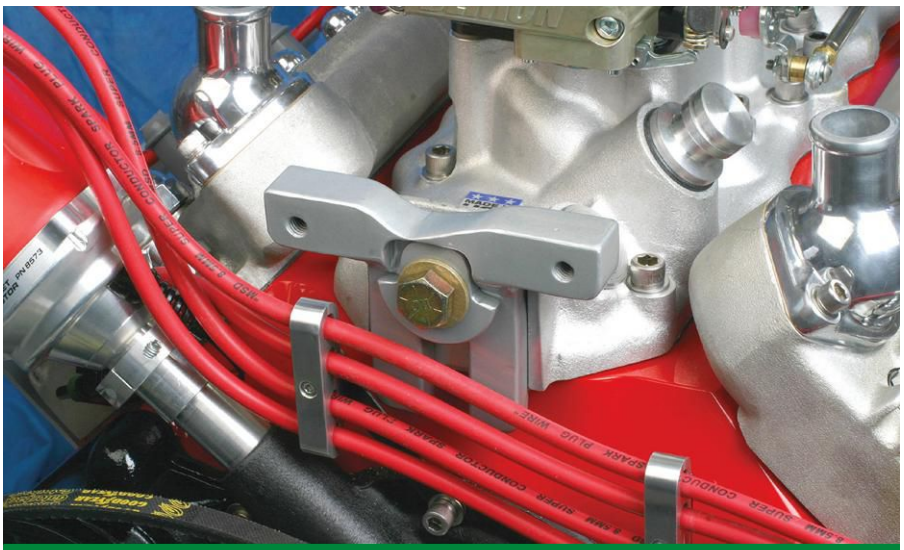
I then drilled a 0.3325-inch bore through the entire length of the bar stock. Next, I drilled one end with a 9/16-inch drill, stopping 0.500-inch from the opposite end. This allowed me to tap a 1/8-inch NPT thread in the small-bore end and a 3/8-inch NPT in the 9/16-inch bore end.

The 3/8-inch NPT end will accept a 3/8-inch NPT to –6 male/male fitting and will serve as the inlet. The opposite end (1/8-inch NPT) will accept a fuel pressure gauge.

I then milled two opposing 3/4-inch-wide flats along the length of the fuel log, spaced 180 degrees apart. One flat allows me to drill and tap a series of three 1/4-inch NPT holes (1/4-inch NPT to –6 male/male fittings will be installed here, to feed each carb).



A Tuff Stuff alternator (intended for 1995-2004 Ford 4G applications) is skinny enough front-to-rear to clear our carbs.



To mount a new alternator, I made an adjustable mounting bracket that takes advantage of the original generator bracket location on the intake manifold. Height adjustment allows drive belt tension adjustment.

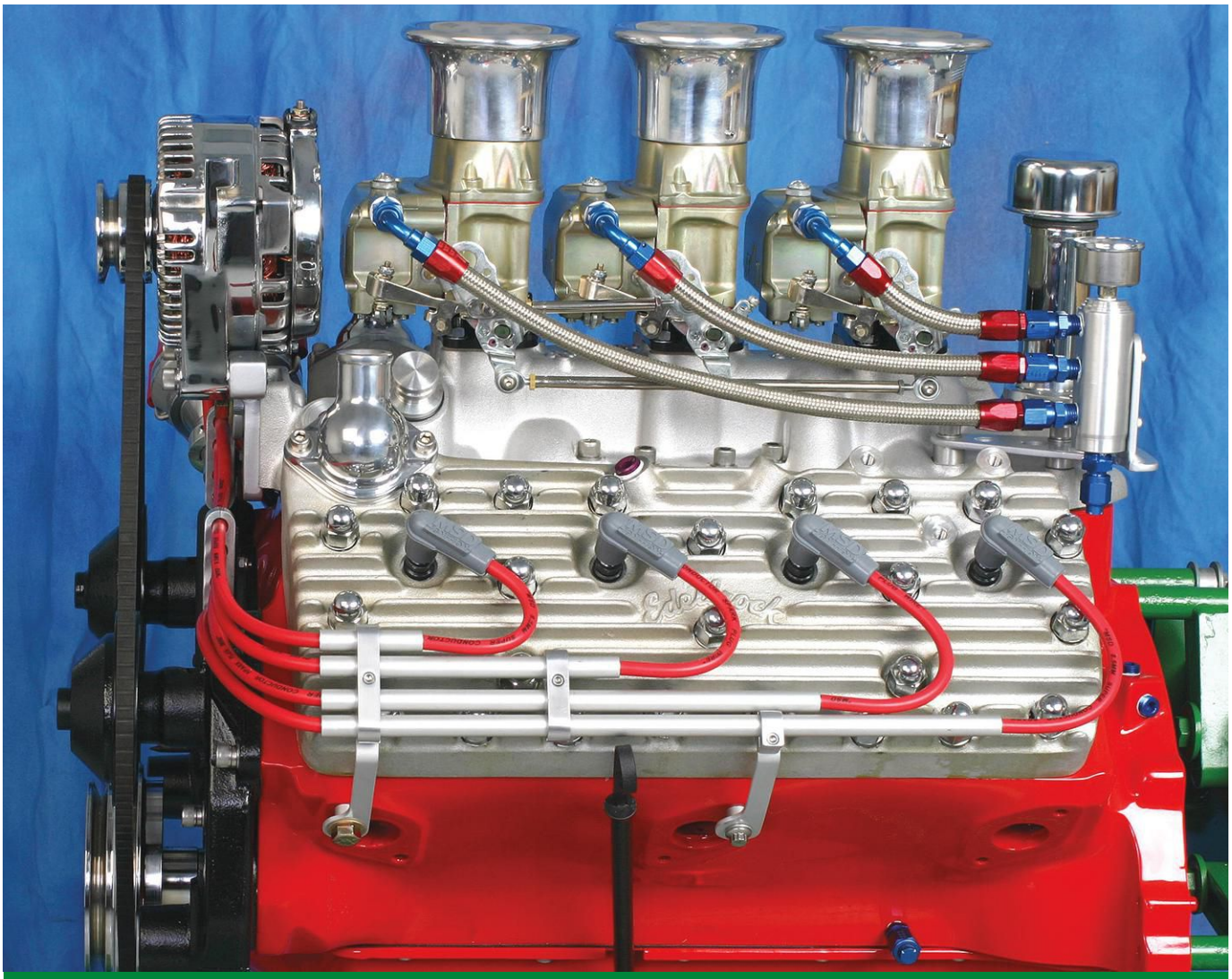
This series of three holes intersect the 9/16-inch bore drilled previously. The opposite flat surface provides a convenient location for mounting bracket attachment.

Yes, I could have simply purchased a distribution block, but I had some bar stock in my metal inventory and, besides, it's fun to make things from scratch. In the process, I also saved about $45 or so (typical cost of a cast alloy distribution block). Hey, it gave me something to do on a rainy Sunday, and I love playing on the lathe anyway, so why not?

FUEL DISTRIBUTION

For purposes of this build example, I mounted the fuel distribution block to the left side of the engine using the two lefthand rear intake manifold bolt locations. Using a piece of 0.190-inch-thick aluminum flat stock, I cut a horizontal bracket that bolts to the intake manifold and sweeps out toward the engine's left side, just behind the LH cylinder head.

Simply for added pizzazz, I drilled three progressively sized "lightening" holes in this bracket, which simply provides a bit of added interest to an otherwise plain-Jane bracket.



Left side view. The spark plug wire routing adds a nice touch.



The locations for the original draft tube and breather tube were not used in this build, as I installed a breather at the rear of the intake. I plugged the two front left holes in the manifold using aluminum plugs that I fabricated on a lathe. Both plugs feature O-rings for sealing.

Using a piece of flat stock 0.190-inch-thick aluminum, I then cut a 1x3.25-inch piece (I radiused the top), which was TIG welded to the top surface of the horizontal bracket. The flat-milled rear surface of the fuel log mates to this vertical bracket.

I drilled two holes in the rear surface of the fuel log at 0.1360-inch diameter and 0.220-inch deep. I then tapped these two holes at 8x32 thread using a bottoming tap. The fuel log was then mounted to the vertical portion of the bracket and secured with a pair of 8x32 stainless steel socket head cap screws and lock washers.

For an in-vehicle installation, the fuel block could be relocated to the firewall. A fuel pressure regulator would then be plumbed to the inlet side of the fuel block (since this engine is set up for an electric fuel pump, a regulator and pressure gauge setup would be needed). The fuel pressure delivered to the carbs should be in the 6 psi range.

Plumbing was completed by cutting three sections of stainless braided –6 hose. First, 0-degree –6 hose ends were installed to the carb end and then –6 straight hose ends were installed at the fuel distribution ends.

Note: When making stainless –AN hose assemblies, be sure to blow rubber debris out of the hose after cutting, and once the hose ends are installed, thoroughly wash and flush the hoses with hot water and soap (I use Dawn dishwashing liquid). Rinse thoroughly and blow-dry. Careful washing and rinsing eliminates the chance of particles (leftover from hose cutting) from running through the fuel system.

When installing hose ends to fittings, use only aluminum wrenches to avoid marring

the anodized aluminum components. I keep a complete set of Fragola aluminum –AN wrenches for just this purpose.

This particular build was set up to utilize an electric fuel pump. Once installed into a vehicle, an in-line fuel filter would be plumbed between the pump and fuel distribution block (an additional filter between the fuel tank and pump wouldn't be a bad idea as well).

AIR INTAKE

In terms of air intake, the Demon 98 carbs accept the standard 2-5/8-inch neck stacks or air cleaner necks used on Stromberg 97s and Holley 94s. For this build, I ordered three cast aluminum velocity stacks (2-5/8-inch base and 3.5 inches tall).

These Eelcos cost $45 each and listed offerings include 3-, 3.5- and 4-inch models. Unfortunately, when the order arrived, I found the 3-inch-tall versions instead of the 3.5-inch. When I called the seller, Reid's Rod Parts in Orange, California, they told me that apparently Eelco discontinued the 3.5-inch stacks that I wanted. So, they're a bit shorter than I'd hoped, but they still look good. Had I known that the 3.5-inch versions were no longer available, I would have ordered the 4-inch models.

The one thing I really didn't like involved the supplied screens. The stacks were listed as including stainless steel screens, so I naturally assumed that these would be round screen discs. Instead, they were simply generic 3-inch square pieces of stainless screen that you need to trim to a round shape using snips and then "snug" into the throats of the stacks.

I used a stack as a template and marked a circular pattern, then trimmed each screen to a round shape and inserted one into the bottom of each stack (the screen stops at the machined lip inside the stack throat).

The stacks are cast aluminum, featuring a semi-polished finish. Each stack secures to the carb with a pair of set screws. It's all very easy to install.

I've always liked the look of trumpet-style velocity stacks. Since the supplied screens weren't my favorite, I'll probably replace them with either brass screens or I'll find some nice gasketed screen discs.

Of course, a more practical, road-worthy setup would include filtered air cleaner units, but I simply prefer the appearance of bell-mouthed stacks, and there's no denying that the stacks look way cool on this nostalgic triple-deuce setup.

MY PARTS & PART NUMBERS

BLOCK	Original 1949-53 8BA
CRANKSHAFT	SCAT 286-9-239-4125-2000 (4.125" stroke)
CONNECTING RODS	SCAT 2-239-7000-2000 (7.000")
PISTON/PIN SET	Egge EP994-8.125
RING SET (TOTAL SEAL)	Egge SRTCR6276-8
VALVES (16)	Egge S1821 (note: intake and exhaust valves are identical)
VALVE SPRINGS (16)	Egge VS651
VALVE GUIDES (16)	Egge G614
ADJUSTABLE LIFTERS (16)	Egge VL36
CONNECTING ROD BEARINGS	Egge CB610.000 (STD)
MAIN BEARINGS (KING)	Egge MBS3351SI.000 (STD)
CAM BEARINGS	Egge F-1
CAM GEAR (REPUBLIC GEAR CO.)	Egge TG2700
CRANK GEAR (S.A. GEAR)	Egge TG2701
OIL PUMP (MELLING)	Egge P-307 NEW
GASKET SET (BEST GASKETS)	Egge RS521C
RIGHTHAND WATER PUMP	Egge WP-1231 NEW
LEFTHAND WATER PUMP	Egge WP-1232 NEW
CAMSHAFT	ISKY 818800
CYLINDER HEADS	Edelbrock 1115
INTAKE MANIFOLD	Edelbrock 1109
PRIMARY CARBURETOR	BG Demon 98 9801
SECONDARY CARBURETORS	BG Demon 98 9802
THREE-CARB STAINLESS LINKAGE	BG 9903
DISTRIBUTOR	MSD 8573 (billet, ready-to-run)
CRANK PULLEY	Fluidampr 600203
ALTERNATOR	Tuff Stuff 7781A
SPARK PLUG WIRES	MSD 31229 (8.5mm, universal w/90-degree plug boots)
SPARK PLUG WIRE TUBES	Fabricated using 0.500" ID aluminum tubing
VELOCITY STACKS	Eelco 6430

FINAL THANKS

I'd like to once again thank the shop equipment suppliers whose products make all of our engine build projects more efficient and more enjoyable whenever I work in my engine assembly clean room: LISTA cabinets/drawer system and workbenches; Goodson engine carts and micrometers; Mac Tools hand tools; Summit Racing piston ring filer and ring squaring tools; Gearhead Tools connecting rod vise, bore gauge and rod cap separator; CWT Industries cylinder head center cabinet; Fragola aluminum –AN wrenches; PRW balancer puller/installer tool; ARP piston ring compressors; and the Lenovo flatscreen wall-mounted computer monitor. **TS**



MIKE MAVRIGIAN *owns and operates Birchwood Automotive in Creston, Ohio, where he builds custom engines and street rods, and performs vehicle restorations. He has written thousands of technical articles, as well as nine books on automotive technology during the past 30 years. Mike can be reached at (330) 435-6347 or birchwdag@frontier.com. Visit Birchwood's website at birchwoodautomotive.com.*

Restyling
AFTERMARKET ACCESSORIES

Winches p. 42 / Retail Trends p. 50 / Rim Repair p. 56 / Restyling Products p. 60

ANCHOR POINTS

Keeping winch sales on the incline.

By Jef White



The off-road market needs quality recovery gear. (Photos courtesy Superwinch)

Increased interest in off-roading and overlanding means increased interest in the accessories that make trips on the trail safer and more enjoyable. Recovery winches fit that description.

Available for a wide range of vehicles and with various features and accessories, winches are a professional-level product that can be the anchor point of an off-road package or an exciting standalone purchase.

Here, winch suppliers offer insight on the market and ways to increase sales of these in-demand units.

READY TO WINCH

Even if your main clientele isn't made up of what could be considered hardcore off-roaders, know that most Jeep and 4x4 drivers are prime candidates for winches.

"I would say we have been in a growth mode for the entire winch market since the introduction of the Jeep Wrangler JK in 2007," says Corby S. Phillips, director of sales, truck aftermarket/OEM for Warn Industries. "The release of the four-door SUV, as capable as it is from the factory, opened the world of off-roading to a much larger group of consumers. Many other vehicle manufacturers took note and followed suit. It's no longer just the guy in the Jeep—now it is the family in the SUV hitting the trail for a fun day, including the dog!"

And it's not just men behind the wheel.

"If you attend any of the large off-road events, you will find an ever-increasing number of female owners who love to accessorize," he adds.

Jane Donnelly, marketing director for TrailFX, explains that groups and clubs are helping bring proper 4x4 upfitting to their members.

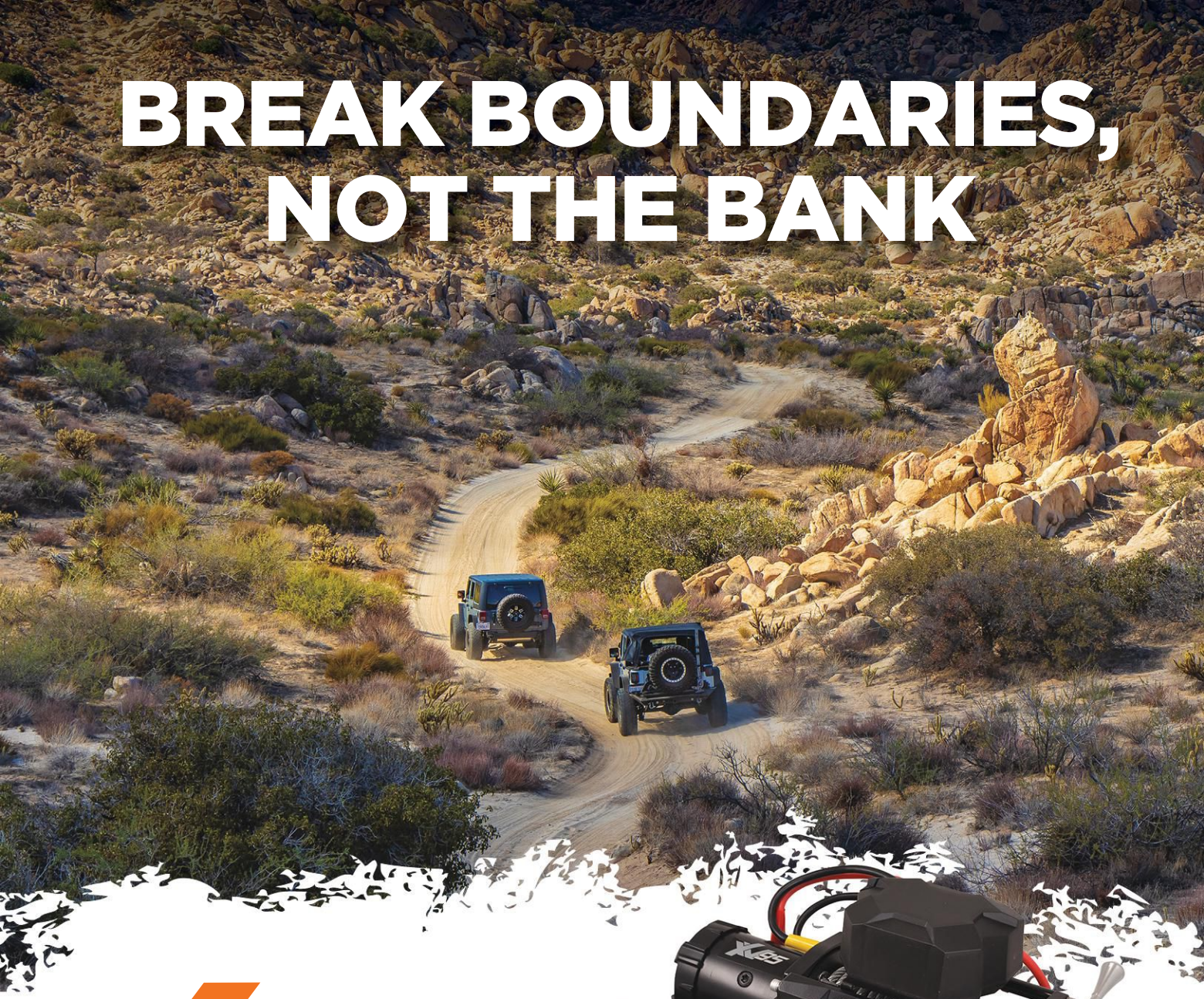
"Shops that enter the winch market can expect to develop relationships with the off-road and overlanding communities in their areas, which will inevitably lead to off-road accessory sales and the potential to expand into adjacent categories such as racking systems, rooftop tents and electric bicycles, which are rapidly gaining popularity," she says.

Businesses can even consider expanding offerings to powersports owners, suggests Cameron Quiroz, regional sales manager for Superwinch.

"The opportunities are endless, with new customers getting into overlanding and the SxS (side-by-side) market," he says. "These markets are in need of quality recovery gear."

Regardless of the client, be prepared to

BREAK BOUNDARIES, NOT THE BANK



XL95



9500 LB WINCHES

The TrailFX XV95 winch allows you to confidently overcome challenges on the trail or in a work environment. With a 5.7HP motor, 3 stage planetary gearing, 94 ft steel rope, wired remote control and 9500 lb pulling capacity, the XV95 winch gets the job done at an affordable price. Break boundaries without breaking the bank.

TRAILFX®

Exclusively distributed by

Keystone Automotive Operations, Inc.

WINCH PRODUCTS

HOT PRODUCT:
The Q-Performance Stealth Winch
FEATURES & BENEFITS:
Lightweight synthetic rope; wireless controller; amber LED drum light; IP67 waterproof rating; removable clutch handle; heat-dissipating aluminum solenoid housing.

Quadratec
Fred Konkle
Category Manager

HOT PRODUCT:
Superwinch SX10/12k Winch
FEATURES & BENEFITS:
Steel cable or 3/8-inch-diameter synthetic rope offerings; patented drum light; relocatable die-cast aluminum control box; 12-foot lighted wired remote; wireless remote on synthetic models; 5.5-hp sealed motor; three-stage planetary gearing with 218:1 ratio.

Superwinch
Cameron Quiroz
Regional Sales Manager

HOT PRODUCT:
TrailFX Reflex 2.0 Winch
FEATURES & BENEFITS:
Available in 9,500 or 12,000-pound capacities with either steel or synthetic rope; 7-hp motor; wireless remote; automatic full-load braking system; load indicator warning light; three-stage planetary gear system; IP68 rating for moisture and dust resistance.

TrailFX
Jane Donnelly
Marketing Director

HOT PRODUCTS:
WARN 10,000-Pound Winch Line
FEATURES & BENEFITS:
Pulling capacity suited to four-door Jeeps, new Ford Broncos and 1/2-ton pickups; can be paired with a wireless HUB receiver to control the winch from a phone; backed by a 75-year-old company with 31 service centers in North America.

Warn Industries
Corby S. Phillips
Director of Sales,
Truck Aftermarket/OEM



Education is driving winch sales. (Photo courtesy Quadratec)

answer questions and offer individual solutions for unique needs.

"Education is driving sales in this category," says Fred Konkle, category manager for Quadratec. "Whether from specific content articles or local four-wheel clubs hosting seminars, we are seeing more and more first-time Jeep owners who understand what they need and why it is important."

TARGET MARKETS

The reliability and accessibility of today's winch systems and accessories help them fit into a variety of market niches.

"We have seen emerging markets over the last five years, and they continue to develop," says Phillips. "'Overlanding' is a buzzword that has stuck and continues to rise in popularity. This is not only a growth segment for winches, but all the ancillary items you can add to a vehicle to make outdoor living more palatable."

There's also a diverse vehicle mix out on the trail.

"I have seen more lifted Subarus and even a lifted Prius on the roads in recent months. I have to believe there is some action in the compact SUV market, due to the lower cost of entry for those vehicles, as well as rising fuel costs," Phillips suggests. "Then there's the EV discussion—Rivian, Ford Lighting, Tesla, Hummer, Jeep 4xe. We'll see who lands on top."

As vehicle inventories continue to rise back toward pre-pandemic levels, more trail-ready vehicles will need off-road accessorization.

"Right now, the increasing availability of pickup trucks, SUVs and Jeeps—after several years of very low inventory—is driving increased demand in the winch market," Donnelly says. "In addition, other factors such as stabilizing gasoline prices and the still-growing overlanding trend have inspired casual campers to venture farther with better-equipped rigs. Raw materials are also more available than in recent years, so manufacturers are better positioned to fulfill that increase in demand."

Suppliers are doing what's needed to keep shelves stocked.

"Availability seems to be the greatest factor affecting the market right now," observes Quiroz. "From supply chain issues to shipping delays,

Provide consumers a wide range of winch options featuring the latest technology and safety advancements. (Photo courtesy Quadratec)



Worksport™ SC4

SUPERIOR TRUCK BED COVER DESIGNED FOR FULL BED USE

Weather-resistant vinyl cover folds to allow full bed access.

Worksport's CAM Latch system installs easily in just minutes.

PRO Series - open and close your truck bed cover with one hand.



Cover folds flat against cab

Discover more at worksport.com | sales@worksport.com | (888) 554-9798

X OVERLAND DEBUTS NEW FILMS



"The Nordic Series" is the fifth season of overlanding films from X Overland. (Photos courtesy X Overland)

International adventures and vehicle-borne exploration continue with the fifth season of films from X Overland.

In "The Nordic Series," the X Overland team explores the rugged beauty of the Scandinavian Peninsula and nearby locales. The 10-part series debuted on Overlander Network in February and is coming to YouTube on March 9.

The latest season takes place in the far-flung corners of the mountainous and glacial terrain of Norway, Sweden, Finland, the Faroe Islands and Iceland. Enabling the team to access lesser-seen and remote areas of the fabled region are its highly capable 2015 Toyota 4Runner, 2021 Toyota Tacoma and 2022 Toyota Tundra off-roaders.



All were built in-house by the X Overland team with partners General Tire, Patriot Campers, Vertx, Alu-Cab, onX Offroad, CBI Offroad Fabrication, Warn Industries, REDARC Electronics, Pennzoil, Rigid Industries, Goose Gear, MAXTRAX and SureFire.

"Our family has generational roots in Norway, and we have long wanted to visit where our ancestors sailed from so many decades ago," said X Overland CEO Clay Croft. "Many of our longtime viewers have also wanted to explore the region, and we are excited that they can come along with us through 'The Nordic Series.' We know they won't be disappointed as we showcase this spectacular corner of our planet."

The popular X Overland collection of adventure series films was started in 2010 by Clay and Rachelle Croft with an exploration of North America and the mindset of "ordinary people doing extraordinary things."

Since then, the X Overland team has journeyed through the jungles of Central America, traveled to Patagonia via South America, explored the Australian Outback, traversed the Baja Peninsula and scouted the last frontier of Alaska.

This article originally appeared on theshopmag.com. Visit today and sign up for the free daily eNewsletter.

we are working to maintain the availability and stock of winches and all the products we offer through these tough times."

TIPS FOR THE TRAIL

Shops can serve as local experts by taking the time to listen to customers, asking important questions and fully demonstrating the products, Konkle explains.

"Is the customer a serious off-roader, or do they simply go a few times a year with friends? Do they just want a winch on the vehicle for emergencies? Do they know how to pre-tension the line before using and how to operate the winch during a recovery?"

Knowing what to expect on the trail keeps customers safe and helps them enjoy each adventure a little bit more. And there are always more tips to share.

"Tensioning the cable, steel or synthetic, will help keep the cable from knifing down between other cable layers," notes Phillips. "When the cable knifes down on lower layers, it can kink or damage the cable below. Tensioning the cable is an excellent opportunity to show the customer how to operate the winch. Take them outside and let them use it before final delivery. It's a chance to educate and further the bond with customers."

Helping users become familiar with the latest winch technology is also important, Donnelly says.

"Bluetooth-enabled communication devices are now available to connect premium winches to smartphones," she explains. "Winch operation is controlled through an app that can also monitor load and motor temperature to ensure optimum performance. It also allows the operator to choose the safest position from which to operate the winch."

ENGINEERED FOR ENTHUSIASTS SINCE 1970!



NEW *P/N 59-761255*

XTS BRUSH GUARD *FOR WESTIN XTS FRONT BUMPER*

FEATURES AND BENEFITS:

- **DESIGNED TO MOUNT ONTO**
  Westin XTS Front Bumper (Sold separately)
- **10-GAUGE STEEL UPRIGHTS**
  for strength and style
- **BOLT-ON DESIGN**
  using factory holes
- **COMPATIBLE WITH**
  all factory sensors
- **CLEARS MOST WINCHES**
  up to 12,000 lbs. capacity

P/N 171020I

SX 10SR WINCH

FEATURES AND BENEFITS:

- **ERGONOMIC PULL-AND-TURN CLUTCH HANDLE**
  Allows hassle-free operation free spool
- **PATENTED DRUM LIGHT**
  Provides superior visibility in low light conditions
- **RELOCATABLE DIE-CAST CONTROL BOX**
  Heavy-duty aluminum contruction with 18" leads
- **AVAILABLE IN 10,000 AND 12,000 LBS. VERSIONS**
  Synthetic / wire models

FOR COMPLETE PRODUCT DETAILS PLEASE CALL OR VISIT US AT 800.345.8476

WESTINAUTO.COM - SUPERWINCH.COM

WESTIN® ENGINEERED FOR ENTHUSIASTS | SUPERWINCH



Help users become familiar with the latest winch technology. (Photo courtesy TrailFX)





Increased availability of pickups, SUVs and Jeeps is driving increased demand in the winch market. (Photos courtesy TrailFX)

SECURE THE SALE

When it comes to winch sales, it's best to remember that not every customer is an experienced off-road traveler, advises Warn's Phillips.

"It is common to hear that many consumers—especially new vehicle owners interested in off-roading—are a bit intimidated using a winch," he says. "If a jobber takes the time to demonstrate common winch scenarios and rigging, it will create an educated user and result in an increase in customer trust and overall customer satisfaction."

Jeeps and other off-road models have jumpstarted the winch market. (Photos courtesy warn.com)

Donnelly from Trail FX agrees that shops should make sure customers aren't exaggerating their off-road skills.

"Some customers may be seasoned off-roaders, but many may not be. Shops should certainly spend some extra time with first-time winch buyers to ensure that they understand how to safely operate their winch in a variety of recovery situations," she says.

Proper safety accessories should also be introduced during the sale—items that could include snatch blocks, shackles, cable dampers and gloves.

"Beyond that, properly sizing the winch for the expected payload is critical," Donnelly adds. "Remember to consider weight-adding accessories like aftermarket bumpers and steel racking when calculating the weight requirements."

Starting with the right-sized system for each application ensures a quality experience.

"Always be sure of the proper weight sizing of the winch," says Quiroz from Superwinch. "Take into account all the accessories on a fully weighted rig to pick out the proper-sized winch."

From there, you can accommodate each customer's individual needs.

"With the overlanding category showing no signs of fading, the best opportunity for growth in the winch market involves providing consumers a wide range of options that feature technology and safety advancements," says Quadratec's Konkle. "Things like wireless controllers and/or the ability to utilize a smartphone application to control line speed from a safe distance help enhance user experience and can potentially increase sales. Additionally, lightweight synthetic rope, heat-reduction components and powerful series-wound motors all serve to increase efficiency and make great selling points." ***TS***



Spend extra time with drivers new to off-roading so they are safe and confident when they hit the trail. (Photo courtesy Warn Industries)





Quadratec® WHOLESALE

TACTIK® TONNEAU COVERS FOR GLADIATOR JT

- PROTECT VALUABLES
- DRILL-FREE INSTALLATION
- QUICK BED ACCESS

PROTECT AND SECURE YOUR CARGO - 4 OPTIONS TO FIT YOUR NEEDS



LOCK & ROLL UP
#12074-1300



SOFT TRI-FOLD
#12074-1200



EZ-HARD TRI-FOLD
#12074-1100



LOW PRO HARD TRI-FOLD
#12074-1000

Quadratec QRC REAR BUMPER FOR GLADIATOR JT

For '20+ Gladiator JT #12057-0242

BRAND NEW!

QRC Rear Bumper Offers Trail-Ready Strength. The One-Piece Construction is Fully Welded Using 6 Gauge Steel. E-Coated for Corrosion Resistance and Finished with a Durable Light Textured Black Powder Coat.

RETAINS FACTORY TOW HOOK, LICENSE PLATE LIGHTS, REFLECTORS & TRAILER HARNESS SOCKET







Looking for a New Wholesale Supplier?

We are your Exclusive Source for These Top Jeep Accessory Brands, Plus Over 500 other Top Brands!

CARNIVORE · Lost Canyon Premium Overland Gear · Tru-Fit Floor Liners · QuadraTop · Diver Down Neoprene Seat Covers · Tactik® · Lynx Wheels & Suspension · Ultimate Floor Liners · RES-Q · AccuPart

Our website url has changed! www.Quadratecwholesale.com | 1-800-979-5857 | wholesale@Quadratec.com

RETAIL TRENDS

Seven tips for maximizing sales.

Story and Photos by Jason R. Sakurai



Your shop is an advertising conduit—one that interests and informs consumers.

Emerging from a three-year pandemic, will the boom continue into 2023? Is the market for casual consumers growing, and what can shops do to meet the needs of enthusiasts through education, events and interaction?

Supply chain challenges, inflationary pricing, economic uncertainty and other factors have taxed retailers and squeezed financials. In response, consider starting the new year with a positive outlook and focus on the customer shopping journey.

As you adjust to a new normal, a seamless experience and hybrid shopping appear to be the future of retail. Here are seven easy steps for maximizing aftermarket sales.

1 RETAILERS AS ADVERTISING SOURCES

Retail brick and mortar stores, along with shop websites, are becoming increasingly important as advertising sources for vendors. Space allocation on your actual and virtual shelves is a bargaining chip that allows you to deepen relationships with your suppliers.

Ad space or advertorials on your website, as part of in-store displays, through mobile applications and on social media will continue to grow as more shops recognize the value this represents to their business partners.

What have been the biggest changes in retailing in the past few years? Due to the pandemic, some retailers may have been dragged kicking and screaming into the digital world. With lockdowns and the resultant material and product shortages, almost every aspect of the aftermarket's retail supply chain—from manufacturing and inventory to delivery and sales—was affected.

One reminder is to keep your doors open to all customers, even if they've purchased elsewhere. Suppose they bought a rooftop tent that's insufficient for the type of weather in your area, or a rack that wouldn't hold the weight?

Never tell them that they bought the wrong product; just show them the differences in available alternatives and allow them to figure out things on their own. They may come back and give you their business later or refer a neighbor or friend.

The internet has changed our industry by default. What started as a reaction to cir-



STEP 1:
OUTFIT VEHICLES WITH ROAD ARMOR

STEP 2:
MAIL IN COMPLETED REBATE FORM

STEP 3:
GET CASH BACK!

ROAD ARMOR
RULE THE ROAD

roadarmor.com
877-294-2726
RoadArmorBumpers
road_armor



INSTALLER
REBATE FORM



CONSUMER
REBATE FORM



Personalization is part of providing a seamless shopping experience.

cumstances became an opportunity to transform in a way that's better for shops and consumers.

Online ordering not only made it more convenient, but it has also become a part of our culture.

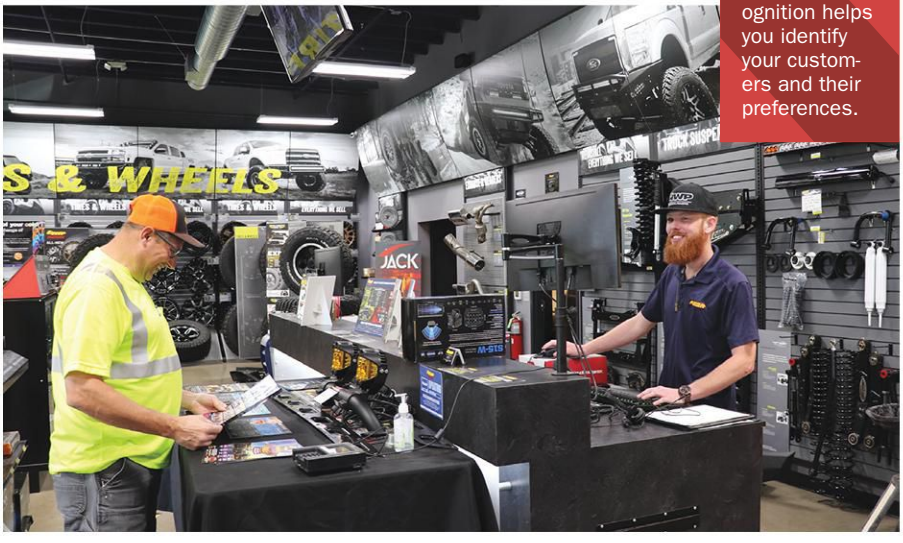
2 PERSONALIZATION AT EVERY STEP

First and foremost, customers want to be seen. The basis for personalization is what Meghan Haslemann, AutoNation's VP of marketing, calls "persistent recognition. You must have a methodology to identify who the person is."

Other retailers, from grocery stores to hair salons, recognize customers and their individual preferences. Consumers expect this everywhere, and data drives personalization.

The more these processes become digitized, the more strategists and brands are able to alter consumer behaviors.

One big gap in personalization is when a customer starts shopping online and then comes to your shop to complete the transaction.



Persistent recognition helps you identify your customers and their preferences.

If the work they did online is wasted and they must start from scratch, needing to explain their earlier steps to a salesperson can become an exercise in frustration.

Haslemann says there are at least 20 ways to trigger communications based on this data. For example, provide offers for weather-related maintenance or tied to life events such as having a child or buying a different vehicle.

"Shops should deploy customer data that enables them to deliver communications that are personalized and timely," she recommends.

Personalization across the entire experience is now a must-have, adds Andrew Shaffer, automotive industry principal at Treasure Data.

"Customers want you to know and remember who they are, what they've done and what they want. The best shops will leverage data to provide the best experiences."

3 SOCIAL MEDIA MONITORING

Social media monitoring is about collecting and analyzing information on how people talk about your shop or brand online.

Retailers that are actively engaged on social media better understand data about



STEELCRAFT

ELEVATION

REPLACEMENT BUMPERS

HD REPLACEMENT BUMPERS

25 YR ANNIVERSARY

STEELCRAFTAUTOMOTIVE.COM

CA (888)261-4537 TX (888)480-7167 GA (888)261-4537



Consumer shopping data should be accessible to everyone in your shop.



Allocate space according to profit margin and popularity—truck caps before expedition boxes and camp ovens.



Camp chairs, tables and storage boxes will sell, if you have room for them.

their customers' sentiments, preferences and attitudes toward their shop and its competitors. Retailers with a large base of followers can use this data to understand the consumer mindset and more accurately forecast trends in behaviors or product preferences.

Monitoring social media and expanding social commerce opportunities can create greater loyalty within your fan base.

What age-old wisdom no longer holds in today's retail environment? That personal advice and service alone will win.

It's more complex than that these days, and you need to have an online presence, embrace social media and be price-competitive because of online transparency.

Think of your shop as the first or last mile when it comes to the customer experience. The two most important elements are training and culture.

4 TARGETED CUSTOMER BASE

Want to deliver a seamless experience across all shopping methods, including online, in-store, or through mobile devices, social media and livestreaming? Providing this type of shopping journey requires merging consumer shopping data across every business function into a format that anyone within your shop can view and understand—from sales and marketing to store operations, service, human resources and finance.

Data must be consistent and accurate if your strategy is to be relevant to your core market. This data allows for precise personalization for individuals and segmented groups of customers.

5 STORE DESIGN SHIFTS

Store designs have become vitally important over the past two years as retailers adjust showroom sizes and dabble in experiential retailing, including more square feet and new features. These features include shopping initiatives such as curbside pickup, fulfillment from stores and pickup in-store, all of which have become the norm.

Keep things in perspective. You can accessorize and add to your sales based on your floor space. If you have a huge sales floor, for instance, you could stock camping tools and equipment, and even outdoor apparel.

However, if these displays impede your ability to showcase top-selling truck caps,



Be the place where enthusiasts gather.

for instance, you'll have to question how much the sale of more camping blankets or axes will contribute to your bottom line.

6 RETAIL REDUCTION

Some predict we'll see consumerism slow down this year, reducing retail reliance. The notions of repairing, recycling, reusing and thrifting are growing.

Some consumers are starting to buy less while becoming more cognizant of product lifecycles. As Gen Z earns more money and becomes more influential in voicing its preferences with dollars, companies focusing on sustainability will win.

Pre-owned products, recycling and reusing are becoming more mainstream and increasingly expected by consumers. How this impacts the automotive industry has yet to be seen, as some parts can be recycled and reused and others simply can't due to wear and safety concerns.

The challenge in selling products to a younger generation is that it may not want to own as many material items and prefer to rent rather than buy. In this case, rental programs such as Go Camp might be an alternative to convert casual consumers into enthusiasts.

7 WORKFORCE RESHAPING

One of the industry's biggest ongoing challenges is hiring and retaining good employees. Most shops may have already offered everything they can in the way of compensation and incentives to attract top talent.

Margins have been killed by freight costs and shops can't afford to pay higher wages. Hiring good people with experience is hard. Hiring people with experience, common sense and sales ability is even more difficult.

What you lack in dollars may be balanced by passion for automotive pursuits. For example, if you can teach someone how to overland and give them confidence and a sense of security and adventure, then they may become overlanders for life. A shop without a way to teach is not able to provide a full experience and spark passion within its staff and for its customers.

You can also leverage your knowledge. Just as aftermarket parts and accessories offer an edge to shops who can articulate the need for these items, you can teach your staff to become experts. If you cater to racers and performance enthusiasts, it's important for your employees to have this expertise.

Imparting your knowledge and proficiency is another way to retain employees. The old adage about choosing a job that you love and never having to work a day in your life is true when you make it an unforgettable experience.

When it comes to retail sales, the customer journey remains center stage as the year revs up and shops look to the future.



Leverage your shop as an advertising conduit.

An end-to-end positive experience is what will keep customers coming back. ***TS***



JASON SAKURAI *heads up Roadhouse Marketing, a marketing, advertising and sales solutions firm dedicated to the automotive aftermarket. A frequent contributor to THE SHOP, Jason's byline appears in many enthusiast and trade publications, in print and online.*

Fixed Wheels Keep on

Rim Repair Rx blends service & an artistic touch. ///// By Mark C. Bach



Before Repair

As a car wash owner, Ryan Stewart was frustrated with having to pay for damaged car rims at his sites. That led him to learn the art of wheel repair, and it blossomed after a long journey into the mobile business Rim Repair Rx in Phoenix.

Stewart has always been infused with an entrepreneurial spirit. Mix that with a love for automobiles and an artistic streak, and you have someone with the passion, patience and ability to help return wheels to like-new condition.

He began honing his skills at age 15 as a car detailer. Business grew, and he eventually ended up owning a series of car washes in Arizona.

His car washes were older units, and the wheel tracks occasionally damaged a customer's rim. He would pay to have the wheels repaired and, after a few invoices, decided to learn the procedures himself to save money.

Stewart attended a weekend workshop on the repair process 17 years ago and was then set to go with a new business, Rim Repair King, specializing in fixing scrapes and scratches on alloy wheels.

REPAIRS ON THE GO

Stewart will be the first to admit his early repair efforts were less than perfect. He discovered that there was an art to the repair process and schooled himself over time.

(Ironically, after gaining proficiency, his car washes never damaged another customer's rim, he notes with a laugh.)

Eventually, Stewart sold his chain of car washes, along with the rim repair business. Later, when the new owner of the car washes stopped offering the rim repair service, Stewart started back up with a new name, Rim Repair Rx, as a mobile service.

His vans are self-contained, with all the tools and supplies needed to repair wheels on-site. Technicians typically work at a client's home or jobsite to do the repairs. Once finished, customers are reminded not to drive the vehicle for an hour and not to wash it for 24 hours.

Stewart's standardized customer contact

Turning



After Repair

protocol is 100% text based. His website (rimrepairrx.com) features a phone number for customers to text pictures of damaged rims. He then texts back a quote for the repair.

If the potential customer agrees, a location for the repair is set. Stewart's team groups repairs into geographical regions and then confirms appointment dates and times.

Communicating mainly by text "doesn't gum up my time," Stewart explains. "People are pleased by the texting process. It doesn't waste my time or the consumer's time."

As a bonus, Stewart doesn't have to hear a long story about how the damage occurred or pay for staff to sit and wait for phone calls. Sending photos makes the process faster, easier and more accurate.



Many customers are unaware that scratched and damaged wheels can be repaired to like-new condition.

Turning Fixed Wheels Keep on

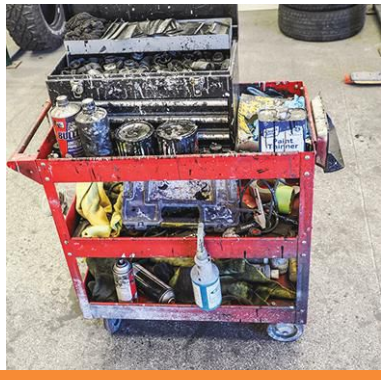
Ryan Stewart founded Rim Repair Rx in Phoenix after owning a string of car washes that would occasionally damage a vehicle wheel.











The business also features a drive-up location where customers can wait for repairs. The location includes machinery to fix bent rims.

The Rim Repair Rx fleet consists of four vans that canvas the Valley of the Sun doing repairs as needed. And, fortunately, Stewart doesn't have to worry too much about employee retention—he has a true family business, as most of his staff are his relatives.

The vans are equipped with compressors to run grinders, sanders and other pneumatic tools used in the repair process, including airbrushes for painting, and do not require electrical or water hook-ups.

Stewart has also perfected a way to repair chrome wheels without sending them out for expensive replating.

A DRIVE-UP SITE, TOO

In 2020, Stewart added a 2,200-square-foot shop for drive-up business that sits behind a car wash that he used to own. Customers can drive to the location and have their wheels repaired while they wait inside.

The drive-up site also has special machinery to fix bent rims, and Stewart is looking to expand and move the storefront to an area with better visibility.

Many consumers are unaware that a dam-





The vans are equipped with compressors to run grinders, sanders and other pneumatic tools used in the repair process, including airbrushes for painting. The Rim Repair Rx mobile fleet consists of four vans that cover the Phoenix area.



Rim repair requires a lot of practicing the process blended with an artistic touch.

aged rim can be effectively repaired and assume they need to buy a new one. While working on a customer's rim, Stewart and his team are often approached by potential customers who had no idea the service was an option.

When COVID struck, business increased. Stewart reasons that people had time to obsess over their cars and finally get those long put-off repairs completed. The Rim Repair Rx team could easily adhere to the 6-foot rule of social distancing and still get the jobs done.

Overall, the business has its up and down periods, Stewart notes, but it is hard to predict when slow times will occur.



When winter visitors flock to Arizona, the business experiences a slight uptick in service calls.

Stewart, showing his entrepreneurial side, has considered franchising the business. He is often contacted by others considering starting a similar venture.

He also realizes that wheel repair skills are an art and "took time to perfect. There are so many variations in rims and colors. It takes an eye and experience to master."

Over time, he learned the processes and techniques by trial and error. He advises others to "stick with it and perfect the craft."

The wheels of business keep turning. ***TS***

MARK C. BACH *is a well-preserved automotive junkie with 30W oil in his veins who remembers feeler gauges and brake springs. He has a love for all things that move, especially old-school muscle cars. Bach covers car auctions and the automotive scene and writes for a variety of outlets, including Chevy Classics, Round-Up Publications and eBay Motors, and maintains Route66pubco.com.*



Gen 3 Raptor Leveling Kit

ICON Vehicle Dynamics, Riverside, California, presents the ICON Attitude Adjustment Collar for 2021-23 Ford Raptor applications. AAC is a patent pending, multi-height coil spring collar system that works in conjunction with a top load shim that can be configured in five ways to yield 0.5 to 2.5 inches of front lift height over stock. The system's Raptor lift height keeps the OE shocks in the ride zone, maintaining factory ride quality. Components feature CNC-machined 6061 billet aluminum construction and a black anodized finish.



Lighting Master Kit

KC HiLiTES, Williams, Arizona, introduces the FLEX ERA 1 Lighting Master Kit that bundles two lights, three beam pattern lenses, spare O-rings, black and yellow KC logo covers and a complete wiring kit. Offering 2,430 lumens of power in a compact package, the FE1 is designed for cruising trails or setting up camp and can be used for all short-range lighting applications, from bumper and ditch lights to dust lights and scene/work lights. The system can be combined with amber backlight LEDs.

Speaker Mounts

Retro Manufacturing, Henderson, Nevada, offers four new Speaker Mounts for classic vehicles that fit the company's Dash Speakers. Designed to make replacing factory speakers hassle-free, the mounts are constructed of a thick metal alloy and install under the dash for a factory-like fit.





Tundra Lift & Leveling Kits

Tuff Country, West Jordan, Utah, one of the **DPI Off-Road Brands**, presents Lift and Leveling Kits for 2022 Toyota Tundra models. Designed to offer 3 inches of lift in the front and 1.5 inches in the rear to accommodate larger tires while eliminating excessive dive and roll, the simple bolt-on kits maintain the factory ride and retain the front and rear factory struts. Made in the USA of 1/4-inch steel, the kits feature a durable black powder-coat finish.



Ford Super Duty Steering Kit

Synergy MFG, San Luis Obispo, California, presents a Heavy-Duty Steering Kit for 2005-up Ford Super Duty F-250/F-350 models. The tie rods and drag links bolt directly into the stock location for an immediate upgrade in steering feel and strength. The tie rods are made from heat-treated 1.75-inch 4130 chromoly for maximum strength, while the drag links are made from 1.5-inch high-quality 1026 DOM steel tubing and machined to retain the stock steering stabilizer. Factory wheels and tires are 100% compatible.

Toyota Step

Magnum, Hayward, California, offers Magnum RT Steps, now including an application for 2022-23 Toyota Tundra CrewMax models. Featuring a unique angled drop-step design, slotted step areas for grip and drainage, and armor plates to prevent rock chips, the steel step systems have a 500-pound weight rating and include a three-stage black powder-coat finish. Magnum RT steps are compatible with the company's 10-inch universal LED light strips, which are sold separately.





Jeep Headlights

Quadratec Inc., West Chester, Pennsylvania, introduces new LED Tactik 9-inch Headlights with Daytime Running Light Halo Rings for Jeep Wrangler and Gladiator models. Designed for brightness and durability, the easy-to-install headlights deliver 3,000 lumens of light on low beam setting and 6,500 lumens on high beam setting and only draw 100W of energy. The white halo rings serve as daytime running lights and the amber rings as parking and turn signal indicators. The lights quickly plug into existing factory wiring harnesses with no modifications.

Bronco Bumpers



Throttle Down Kustoms (TDK), Moore, Montana, presents three precision-fit Bumper styles for 2020-23 Ford Bronco applications—standard bumper, bumper with push bar and pre-runner. The steel bumpers are CNC laser-cut and hand-welded for an exact fit, and options are available including LED lighting, a heavy-duty winch and a powder-coated finish. All offer no-weld mounting for ease of installation and can be crafted to accommodate factory parking sensors and/or relocate the adaptive cruise control.



Adventure Coolers

Project X, Costa Mesa, California, presents its line of Blizzard Box Portable Electric Coolers. The adventure coolers are designed to keep food and beverages chilled and fresh without ice. Featuring a high-performance compressor, electronic thermostat and foam-injected walls for added insulation, they can reach temperatures as low as 0 degrees. Features and accessories include built-in USB charging, low-voltage battery detection, digital climate control, multiple power options, interior lighting, versatile door entry and more.



Sport Tire

Yokohama Tire, Santa Ana, California, presents the new ADVAN Sport V107 tire, the latest in its ultra-high-performance ADVAN line. The new tire is initially available in 54 sizes ranging from 18 to 22 inches, with more sizes up to 23 inches coming soon. Highlights include a new, ultra-micro-silica compound that improves grip for cornering and braking on both wet and dry surfaces, responsive handling from the Rayon matrix body ply that improves steering performance on dry roads, and high-speed stability produced by a contoured profile.

Off-Road Recovery Sets



Bubba Rope, Casselberry, Florida, presents three new Recovery Gear Sets developed for different types and sizes of off-road vehicles. Designed for UTVs, Jeeps or similar sized vehicles, and 1/2- to 3/4-ton trucks and SUVs, each set includes one Power Stretch recovery rope with vinyl armor Gator-ized coating in 20- or 30-foot lengths, two matching NexGen Gator-Jaw synthetic soft shackles and one strong, lightweight nylon mesh gear bag for carrying and storing wet or damp gear. Bubba's Off-Road Recovery Gear is 100% made in the USA.



Wrangler JK Soundbar

SSV Works, Oxnard, California, presents an Overhead Soundbar with 8-inch SSV Works Speakers for 2007-17 Jeep Wrangler JK models. Available in standard gray, or red, white or blue for an additional cost, the soundbar system features pre-installed, ultra-efficient 8-inch, 150W speakers. It uses the factory mounting locations and includes plug-and-play wiring for easy installation. The soundbar retains the factory overhead light and incorporates a bypass harness to add an external amp, if desired. ***TS***

SERIOUS PERFORMANCE.
SERIOUS WHOLESALE POWER.

ATECH MOTORSPORTS
Your Source for High Performance & Race,
Truck & Diesel, Jeep & off-Road,
Street Rod & Restoration,
Premium & Stock Replacements,
Late Model, and more.

AVAILABILITY
Four Locations—Millions of Parts!

SELECTION
Access to Over 1,500 Top-Brands

CONVENIENCE
• FAST, FREE Shipping!
• Drop Ship Service at No Additional Fee
• We Export at Competitive Rates

SERVICE
Unbeatable Customer Service, 24/7!

APPLY TODAY!
AtechMotorsports.com



ATECH MOTORSPORTS
Global Wholesale DISTRIBUTOR
Powered by SUMMIT

Carli



EXCEEDS EXPECTATION

HOOVER Products
PRES-N-SNAP
INSTALLS SNAPS & GROMMETS



Installs snaps and grommets easily into canvas and vinyl

Versatile and easy to use Pres-N-Snap

Capable of setting numerous brands of fasteners simply by changing dies

Heat-treated cast aluminum makes it both lightweight and durable

Pres-N-Snap and all components are proudly made in the USA

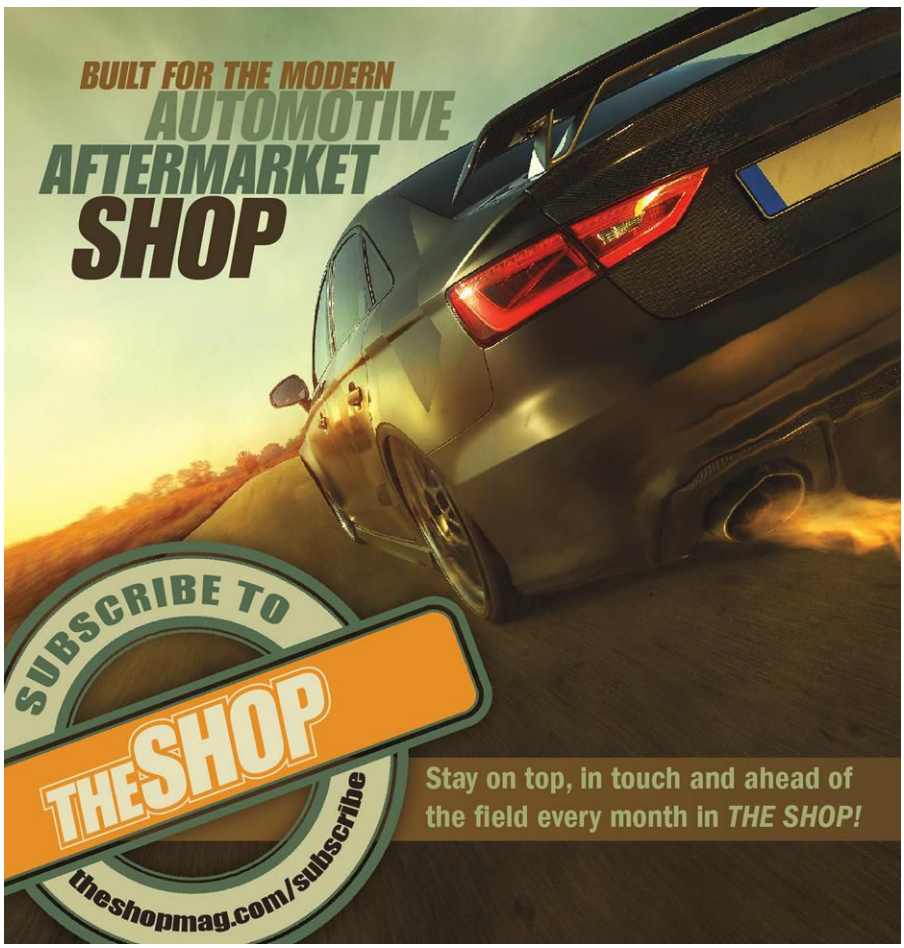
951-654-4627 • hooverproducts.com

LEADING THE HEARD SINCE 1978



Borla EXHAUST
1.877.GOBORLA | borla.com/installer

BUILT FOR THE MODERN AUTOMOTIVE AFTERMARKET SHOP



SUBSCRIBE TO THE SHOP
theshopmag.com/subscribe

Stay on top, in touch and ahead of the field every month in THE SHOP!

ADVERTISER INDEX

ADVERTISER	PAGE #
Advanced Clutch Technology Inc	19
Advanced Fuel Dynamics	25
AMP Research	IFC
ATECH Motorsports	13, 62
AVS/AutoVentShade	5
Borla Performance Industries	62
Design Engineering Inc	33
Exedy	29
HooVer Products	62
Husky Liners Inc	11
Hypertech Inc	35
IDIDIT LLC	37
Keystone Automotive Operations Inc	17
McLeod	20
Meyer Distributing	1
Motor State Distributing	3, 27
National Performance Warehouse	15

ADVERTISER	PAGE #
Quadratec	49
RANDYS Worldwide	62
RETRAX Truck Bed Covers	9
Road Armor	51
Steelcraft Group	53
The Wheel Group	7
TrailFX	43
Trim-Lok Inc	33
TruXedo Inc	IBC
Turn 14 Distribution	BC
Westin Automotive Products Inc	47
Worksport	45

PRODUCTS	PAGE #
BORLA Performance Industries	28
Bubba Rope	61
Centerforce	28
Classic Performance Products Inc.	29
Holley	28
ICON Vehicle Dynamics	60
KC HiLiTES	60
LEED Brakes	29
Magnum	60
MAHLE Motorsport	28
McLeod Racing	28
Project X	61
Quadratec Inc.	61
Retro Manufacturing	60
SSV Works	61
Synergy MFG	60
Throttle Down Kustoms (TDK)	61
Tuff Country	60
Vintage Air	28
Wilwood Disc Brakes	29
Yokohama Tire	61

The Advertiser Index is intended solely as a convenience for our readers and is not a written or implied part of any advertising commitment. As such, THE SHOP assumes no liabilities for unintentional errors or omissions.

SUBSCRIBE TODAY TO OUR NEWSLETTERS & MAGAZINE

THE SHOP

THE SHOP covers the full spectrum of the automotive aftermarket, from performance and racing, to restyling and vehicle customization, to off-road and diesel. If you're in the business of making vehicles run better, look better or work better, then you'll find everything you need to stay in top gear within the pages of THE SHOP.

Join to receive the THE SHOP magazine, The Daily eNewsletter, In Gear with THE SHOP podcast, video content, and more, all for free!

theshopmag.com/subscribe

FOX Special Edition Bronco Inspired by KOH

With the eyes of the off-road racing world trained more and more on the King of the Hammers each February, it's no wonder the event is fast becoming a showcase for industry introductions.

One of the latest is an exclusive trim level package for the new Ford Bronco from FOX Factory Performance Vehicle Development. The special edition is designed to mimic the 4600 class Broncos raced at KOH while maintaining on-road comfort.

"The King of the Hammers edition Bronco is truly one of a kind, offering exclusive design, unmatched quality and performance to explore any terrain," says Drew Kerley, vice president of business and strategy, FOX Factory Inc. "At FOX, we are proud to be partnered with King of the Hammers and Jason Scherer to continue building a legacy rooted in best-in-class off-road racing."

Available for purchase at select Ford dealerships across the U.S. in limited numbers, the Broncos are built upon FOX 2.5 Performance Elite Shocks exclusively tuned by Scherer, and numerous top-of-the-line premium features attractive to hardcore off-road enthusiasts, the company notes.

The King of the Hammers off-road race takes place in Johnson Valley, California, in early February, pushing Ultra4 vehicles through miles of extreme desert terrain and rock crawling competitions.

"The King of the Hammers edition Bronco isn't just a graphics package—it's a performance-based vehicle that has been tested and perfected for over a year," notes Scherer, a three-time KOH winner. "Throughout the testing phase, we spent days in the desert driving on the toughest trails as well as on the pavement to a coffee shop so we could properly tune the FOX 2.5 Performance Elite Shocks to ensure it's capable on- and off-road."



Comparing it to other vehicles he's built and tested, "the KOH Bronco is a dream come true. All the unique details make it perfect," he continues. "This vehicle reflects my style; it's not for the show, it's for the adventure and for those who enjoy the quality and details that make it shine."

Additional exclusive features of the FMVSS-compliant system include: available locker and gear upgrade for Broncos without the Sasquatch package; available hardtop; BDS 4-inch PE coil-over system; 18-inch Satin Gray Black Ring Vision Ojos beadlock wheels with tire lock technology; 37/12.50R18 BFGoodrich KM3 tires; full underbody skid plate armor; powder-coated front bumper with LED fog lights; NACHO TM5 combo white lights; powder-coated rear bumper and tire carrier; KOH branded rock sliders; carbon fiber fender flares; white rock lights; fully equipped ARB air compressor system; KOH branded SpiderWebShade bikini top and Trailsac; tool roll kit; and KOH Edition dash badge, fender badging, seat covers and graphics package.

Dave Cole, president and CEO of Hammerkings Productions, says the special Bronco is a culmination of a partnership between KOH, Ford, FOX Factory and top drivers.

FOX Factory PVD provides turnkey custom vehicles to drivers seeking style and performance, in partnership with OEMs and aftermarket companies. **TS**



FOX Factory PVD has released a KOH Special Edition Ford Bronco package. (Photos courtesy PRNewsfoto/FOX FACTORY Performance Vehicle Development)


TRUXEDO
TRUCK BED COVERS
THE SEARCH FOR THE PERFECT COVER ENDS HERE
PRO X15
STYLISH, DURABLE, AND BUILT TO LAST
Made from a durable, superior-grade woven fabric that is matte-black in appearance and stays cleaner for longer. The patented Automatic Tension Control system maintains a precise fit – regardless of the weather conditions or terrain. Not only do the X15 rails provide a distinctive flush mount look, the self-leveling feature allows for a quick and easy installation.
TRUCK HERO
TRUXEDO.COM



YOUR COMPETITIVE ADVANTAGE

TURN14 DISTRIBUTION x CLUTCH MASTERS

TD850-DLX TWIN DISC CLUTCH KIT

Turn 14 Distribution is the premier B2B source for Clutch Masters performance clutch and flywheel systems. As a valued dealer, we provide you with access to industry-leading customer support, real-time inventory, flat rate shipping from our strategically located distribution centers, and 100% hassle-free returns.

100% WHOLESALE | TURN14.COM